



**City Council
Regular Meeting
AGENDA**

(to be held both at the physical and virtual locations below)

Civic Center Council Chamber ♦ 300 Seminary Avenue ♦ Ukiah, CA 95482

To participate or view the virtual meeting, go to the following link: <https://us06web.zoom.us/j/83652451562>

Or you can call in using your telephone only:

- Call (toll free) 1-888-788-0099
- Enter the Access Code: 836 5245 1562
- To Raise Hand enter *9
- To Speak after being recognized: enter *6 to unmute yourself

Alternatively, you may view the meeting (without participating) by clicking on the name of the meeting at www.cityofukiah.com/meetings.

January 15, 2025 - 5:00 PM

5:00 P.M. - COUNCIL PHOTO FOR 2025

1. **ROLL CALL**
2. **PLEDGE OF ALLEGIANCE**
3. **AB 2449 NOTIFICATIONS AND CONSIDERATIONS**
4. **PROCLAMATIONS/INTRODUCTIONS/PRESENTATIONS**
5. **PETITIONS AND COMMUNICATIONS**
6. **APPROVAL OF MINUTES**

6.a. Approval of the Minutes for the December 18, 2024, Regular Meeting.

Recommended Action: Approve the minutes for the December 18, 2024, Regular Meeting.

Attachments:

1. 2024-12-18 Draft Minutes

7. **RIGHT TO APPEAL DECISION**

Persons who are dissatisfied with a decision of the City Council may have the right to a review of that decision by a court. The City has adopted Section 1094.6 of the California Code of Civil Procedure, which generally limits to ninety days (90) the time within which the decision of the City Boards and Agencies may be judicially challenged.

8. **CONSENT CALENDAR**

The following items listed are considered routine and will be enacted by a single motion and roll call vote by the City Council. Items may be removed from the Consent Calendar upon request of a Councilmember or a citizen in which event the item will be considered at the completion of all other items on the agenda. The motion by the City Council on the Consent Calendar will approve and make findings in accordance with Administrative Staff and/or Planning Commission recommendations.

- 8.a. Adoption of Resolution Approving the City of Ukiah's Qualified Contractors List for 2025.
Recommended Action: Adopt the resolution approving the Qualified Contractors List for 2025.
Attachments:
1. City Code Section 1541-1543
2. Cost Accounting Manual - Partial
3. Annual Public Notice - November 2024
4. Proposed Resolution with Exhibit A
- 8.b. Consideration of Approval to Utilize Solid Waste Abatement Funds for a New Part-Time, Temporary Volunteer Coordinator Position, and Approve Corresponding Budget Amendment.
Recommended Action: Approve the use of solid waste abatement funds for a new part-time, temporary Volunteer Coordinator position, and approve corresponding budget amendment.
Attachments:
1. Part-Time, Temporary Volunteer Coordinator Job Description
- 8.c. Consideration of Approval of Reclassification of Administrative Assistant Position to Department Analyst Position for the Police Department.
Recommended Action: Approve reclassification of the Administrative Assistant position to a Department Analyst position.
Attachments:
1. Department Analyst Job Description
2. Administrative & Maintenance Unit Salary Schedule Eff 9.29.24
- 8.d. Request for Approval to Utilize Umpqua Bank for Comprehensive Banking Services.
Recommended Action: Approve the City to utilize Umpqua Bank for comprehensive banking services.
Attachments:
1. RFP E38943 - Banking Services
2. Umpqua Proposal for Banking Services
- 8.e. Report of a Retainer Agreement with Colantuono, Highsmith & Whatley, PC for Representation of the City of Ukiah in *Vichy Springs Resort, Inc. v. City of Ukiah*, Northern District of California, Case No. 1:24-cv-7106, Approval of Continued Use as Needed, and Approval of Corresponding Budget Amendment.
Recommended Action: Receive the report regarding the retainer agreement with Colantuono, Highsmith & Whatley, PC for representation of the City of Ukiah in Vichy Springs Resort, Inc. v. City of Ukiah, Northern District of California, Case No. 1:24-cv-7106, and approve the removal of the \$10,000 cap and its continued use as needed along with the corresponding budget amendment.
Attachments:
1. Ukiah adv. VSR Retainer Letter_signed
- 8.f. Review and Accept the 2024 Development Impact Fees Report Along with Corresponding Actions.
Recommended Action:
1. Review and accept the Annual Development Impact Fee Report for Fiscal Year 2023-24.
2. Direct Staff to post the report for public access, as required by Government Code Section 66006(b).

3. Approve Staff's plan to incorporate findings from this report into future budget and capital improvement planning efforts.

Attachments:

1. Annual Development Impact Fee Report 2024

- 8.g. Approve Change Order #7 to Contract 2324-169 with Kirby Construction Company to Complete Additional Repairs Discovered During Construction at the Electric Facility on Hastings Road, and Authorize a Budget Amendment in the Amount of \$25,000.

Recommended Action: Approve Change Order #7 to Contract 2324-169 with Kirby Construction Company to complete additional repairs discovered during construction, and authorize a corresponding budget amendment in the amount of \$25,000.

Attachments:

1. 2202_231117_CD100_BuildingPermit_Compiled_R2
2. Change Orders 1-6
3. COR #015 r.1 - Design Changes

- 8.h. Adoption of an Ordinance Modifying Ukiah City Code to Add a New Chapter 13, Entitled "Vacant and Abandoned Property Registration and Maintenance," to More Effectively Regulate Vacant and Abandoned Properties.

Recommended Action: Adopt ordinance modifying Ukiah City Code to add a new Chapter 13, entitled "Vacant and Abandoned Property Registration and Maintenance."

Attachments:

1. Vacant and Abandoned Property Ordinance DRAFT

- 8.i. Authorize the City Manager to Execute a Municipal Lease Agreement with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance, to Finance the Acquisition of RIMS Computer-Aided Dispatch and Records Management Software and Approve Corresponding Resolution.

Recommended Action: Authorize the City Manager to execute a Municipal Lease Agreement with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance, to finance the acquisition of RIMS Computer-Aided Dispatch and Records Management Software and approve corresponding resolution.

Attachments:

1. Draft Resolution and Terms and Conditions

- 8.j. Consideration of Approval of the Freezing of the Grants Coordinator/Manager Position and the Unfreezing of the GIS Analyst/Cartographer Position in the Community Development Department; and Approval of Corresponding Budget Amendment.

Recommended Action: Approve the freezing of the Grants Coordinator/Manager position and the unfreezing of the GIS Analyst/Cartographer position in the Community Development Department; and approve a corresponding budget amendment.

Attachments:

1. CDD GIS Analyst-Cartographer Job Description 2025
2. Management-Unit-Salary-Schedule-Eff.-9.29.24-rev.-11.6.24

9. AUDIENCE COMMENTS ON NON-AGENDA ITEMS

The City Council welcomes input from the audience. If there is a matter of business on the agenda that you are interested in, you may address the Council when this matter is considered. If you wish to speak on a matter that is not on this agenda that is within the subject matter jurisdiction of the City Council, you may do so at this time. In order for everyone to be heard, please limit your comments to three (3) minutes per person and not more than ten (10) minutes per subject. The Brown Act regulations do not allow action to be taken on audience comments in which the subject is not listed on the agenda.

10. COUNCIL REPORTS

11. CITY MANAGER/CITY CLERK REPORTS

12. PUBLIC HEARINGS (5:30 PM)

- 12.a. Introduction by Title Only of an Ordinance Modifying Ukiah City Code to Preserve and Strengthen Agricultural Uses In and Around Ukiah Consistent with the Ukiah 2040 General Plan.

Recommended Action: Introduce by title only an Ordinance modifying Ukiah City Code to preserve and strengthen agricultural uses in and around Ukiah consistent with the Ukiah 2040 General Plan.

Attachments:

1. City of Ukiah Agriculture Element
2. Mendocino County Zoning Regulations
3. Planning Commission - Draft Resolution
4. Proposed Ordinance Amendment - Clean
5. Ukiah Valley - Agriculture Maps
6. CEQA Guidelines Section 15183 Findings of Consistency

13. UNFINISHED BUSINESS

- 13.a. Approval of Plans and Specifications for Remodel at 501 South State Street, Specification 25-01, and Direct Staff to Advertise for Bids.

Recommended Action: Approve plans and specifications for remodel at 501 South State Street, Specification 25-01, and direct Staff to advertise for bids.

Attachments:

1. Ukiah_BofA Issue for Bids_DWGS
2. Ukiah_BofA Issue for Bid_SPECS
3. Ukiah B of A Cost Estimate

14. NEW BUSINESS

- 14.a. Review and Consider the Fiscal Year 2025-26 Budget Development Schedule.

Recommended Action: Receive and consider the City's operating and capital budget development and adoption schedule for the 2025-26 fiscal year.

Attachments:

1. Budget Development Schedule 2025-26
2. Budget Schedule Diagram 2025-26 - Council Ready

- 14.b. Possible Introduction of Ordinance by Title Only Amending the City Code Provisions Regarding Enforcement of Business License Regulations.

Recommended Action: Introduce by title only the Ordinance amending the City Code provisions regarding enforcement of business license regulations.

Attachments:

1. Business License Enforcement Authority Ordinance Redline
2. Business License Enforcement Authority Ordinance Clean

- 14.c. New Year Review, Discussion, and Appointments Regarding 2025 Council Assignments; and Consideration of Disbandment and Modification to City Council Committees and Ad Hoc/Standing Committees.

Recommended Action: 1) Receive report(s); 2) Discuss the Mayor's recommended assignments, making any possible appointments or re-assignments; 3) Consider the possible continuation, disbandment, and addition of City Council Ad Hoc and/or committees; and 4) Direct the City Clerk to finalize and attach the 2025 Council Assignments and Ad Hoc/Standing Committees List to the January 15, 2025, Minutes.

Attachments:

1. Draft 2025 City Council Special Assignments

15. CLOSED SESSION - CLOSED SESSION MAY BE HELD AT ANY TIME DURING THE MEETING

15.a. Conference with Legal Counsel – Anticipated Litigation

(Government Code Section 54956.9(d)(4))

Initiation of litigation (4 cases)

15.b. Conference with Legal Council - Anticipated Litigation

Government Code Section 54956.9(d)(2)

Significant exposure to litigation (1 case)

15.c. Conference with Legal Counsel – Existing Litigation

(Government Code Section 54956.9(d)(1))

Name of case: Vichy Springs Resort v. City of Ukiah, Et Al; Case No. SCU-K-CVPT-2018-70200

15.d. Conference with Legal Counsel – Existing Litigation

(Government Code Section 54956.9(d)(1))

Name of case: Vichy Springs Resort, Inc v. City of Ukiah, et al.; Case No. 24-cv-07106-JSC

15.e. Conference with Legal Counsel – Existing Litigation

(Government Code Section 54956.9(d)(1))

Name of case: Russian River Keepers et al. v. City of Ukiah, Case No. SCU-K-CVPT-20-74612

15.f. Conference with Labor Negotiator (54957.6)

Agency Representative: Sage Sangiacomo, City Manager

Employee Organizations: All Bargaining Units

16. ADJOURNMENT

Please be advised that the City needs to be notified 72 hours in advance of a meeting if any specific accommodations or interpreter services are needed in order for you to attend. The City complies with ADA requirements and will attempt to reasonably accommodate individuals with disabilities upon request. Materials related to an item on this Agenda submitted to the City Council after distribution of the agenda packet are available for public inspection at the front counter at the Ukiah Civic Center, 300 Seminary Avenue, Ukiah, CA 95482, during normal business hours, Monday through Friday, 8:00 am to 5:00 pm. Any handouts or presentation materials from the public must be submitted to the clerk 48 hours in advance of the meeting; for handouts, please include 10 copies.

I hereby certify under penalty of perjury under the laws of the State of California that the foregoing agenda was posted on the bulletin board at the main entrance of the City of Ukiah City Hall, located at 300 Seminary Avenue, Ukiah, California, not less than 72 hours prior to the meeting set forth on this agenda.

Kristine Lawler, CMC/CPMC

Dated: 1/10/25

**CITY OF UKIAH
CITY COUNCIL MINUTES
Regular Meeting
CIVIC CENTER COUNCIL CHAMBERS
300 Seminary Avenue, Ukiah, CA 95482
Virtual Meeting Link: <https://us06web.zoom.us/j/81822520785>
Ukiah, CA 95482
December 18, 2024
4:30 p.m.**

4:30 – Mayor’s Reception – *The City Council and Staff held a reception in the lobby to honor the outgoing Mayor Josefina Dueñas.*

1. ROLL CALL

Ukiah City Council met at a Regular Meeting on December 18, 2024, having been legally noticed on December 13, 2024. The meeting was held in person and virtually at the following link: <https://us06web.zoom.us/j/81822520785>. Mayor Dueñas called the meeting to order at 5:15 p.m. Roll was taken with the following **Councilmembers Present:** Mari Rodin, Juan V. Orozco, Susan Sher, Douglas F. Crane, and Josefina Dueñas. **Councilmember Elect Present:** Heather Criss. **Staff Present:** Sage Sangiacomo, City Manager; David Rapport, City Attorney; and Kristine Lawler, City Clerk.

MAYOR DUEÑAS PRESIDING.

2. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was led by Vice Mayor Crane.

3. AB 2449 NOTIFICATIONS AND CONSIDERATIONS

4. PROCLAMATIONS/INTRODUCTIONS/PRESENTATIONS

a. Adoption of Resolution Declaring Results of Statewide General Municipal Election of November 5, 2024, and Swearing in Ceremony for Newly Elected Councilmembers.

Presenter: Kristine Lawler, City Clerk.

The Clerk read the statement of the election results into the record. (Statement of the County results are attached)

No public comment was received.

Motion/Second: Rodin/Sher to adopt Resolution (2024-50) reciting the fact of the General Municipal Election held on November 5, 2024, Declaring the results and such other matters as provided by law; direct the City Clerk to enter into the minutes a statement of results; and direct the City Clerk to present the Certificates of Election and administer the Oaths of Office to the newly elected officials. Motion **carried** by the following roll call votes: AYES: Rodin, Orozco, Sher, Crane, and Dueñas. NOES: None. ABSENT: None. ABSTAIN: None

Outgoing Mayor Dueñas made some final remarks, passed the gavel, and stepped off the Dais.

CITY CLERK, KRISTINE LAWLER PRESIDING

City Clerk, Kristine Lawler, administered the Oaths of Office, and incoming Councilmember Heather Criss took a seat on the Dais.

b. Annual Appointment of Mayor and Vice Mayor, and Council Reorganization.

Presenter: Kristine Lawler, City Clerk.

No public comment received.

Motion/Second: Rodin/Sher to nominate and appoint Councilmember Crane as Mayor. Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

Motion/Second: Orozco/Criss to nominate and appoint Councilmember Sher as Vice Mayor. Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

Motion/Second: Crane/Orozco to approve remaining Council seats (*Seat #1 – Councilmember Rodin; Seat #2 – Councilmember Criss; Seat #3 – Councilmember Orozco*). Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

RECESS: 5:25 – 5:30 P.M.

MAYOR CRANE PRESIDING.

c. Receive Presentation of Exceptional Employee Recognition Awards.

Presenters: Sage Sangiacomo, City Manager; Neil Davis, Community Services Director; and Mayor Crane.

No public comment was received.

The Employee Recognition Award was received by:

Marianne Aranda, Senior Recreation Coordinator, Community Services Department: Marianne does an exceptional job of creating creative, fun, educational, and community-enhancing events. In the last two years, she has taken the aging Movies in the Park program and turned it into a packed house for Movies in the Pool. Additionally, she created the Community Yard Sale as a new event which, due to its popularity, was expanded to take place every other month during the good weather times of year. She also created an evolving and improving Dias de los Muertos event. More importantly, Marianne has taken on community engagement and shown leadership in her field by volunteering to serve on the California Parks and Recreation Society's Diversity, Equity, and Inclusion Committee. Locally she volunteered to serve on the steering committee for the Greater Ukiah Business and Tourism Alliance. Marianne's energy, commitment, and leadership are truly exceptional.

d. Presentation of Donation Check to the Mendocino Fire Safe Council.

Presenter: Jake Burgess, Community Services Supervisor.

No public comment was received.

Mayor Crane presented a donation check, which was received by Bobbie Delgado, Mendocino Fire Safe Council.

e. Receive Presentation on the Strategic Plan Alignment: Tracking Council Priorities.

Presenter: Traci Boyl, Senior Management Analyst.

No public comment was received.

Presentation was received.

5. PETITIONS AND COMMUNICATIONS

City Clerk, Kristine Lawler, stated that no communications had been received.

6. APPROVAL OF MINUTES

a. Approval of the Minutes for the November 20, 2024, Regular Meeting.

Motion/Second: Orozco/Rodin to approve Minutes of November 20, 2024, a regular meeting as submitted. Motion **carried** by the following roll call votes: AYES: Rodin, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: Criss.

7. RIGHT TO APPEAL DECISION

Mayor Crane read the right to appeal a decision.

8. CONSENT CALENDAR

a. Report of Disbursements for the Month of October 2024 – *Finance*.

b. Report of Disbursements for the Month of November 2024 – *Finance*.

c. ~~Authorize the City Manager to Negotiate and Execute a Contract Amendment with E Source for Billing Transition Project Management Services for Ukiah Valley Water Authority Members – Finance~~ – *Pulled by Councilmember Orozco and placed as Agenda Item 14d.*

d. Consider Adoption of a Resolution (2024-51) Authorizing the Exception to the 180-Day Waiting Period, and Authorizing the City's Retired Assistant Finance Director to Work as Interim Assistant Finance Director in Accordance with Government Code Sections 7522.56 & 21221(h) and Budget Adjustment – *Finance*.

e. Approval of Contract (2425-157) with Center for Public Safety Management for Strategic Planning Services for a Total of \$62,150 – *Fire*.

f. Consideration of Adoption of Resolution (2024-52) Authorizing the Submittal of an Application to the California Department of Housing and Community Development for Funding under Round 3 of the Prohousing Incentive Pilot Program; and if Selected, Authorize the City Manager to Execute a Standard Agreement (2425-158), Any Amendments Thereto, and of Any Related Documents Necessary to Participate in the Prohousing Incentive Pilot Program, as well as Authorization of the Corresponding Budget Amendments – *Community Development*.

Motion/Second: Sher/Orozco to approve Consent Calendar Items 8a, 8b, and 8d-8f, as submitted. Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

9. AUDIENCE COMMENTS ON NON-AGENDA ITEMS

No public comments were received.

10. COUNCIL REPORTS

Presenter: Vice Mayor Sher.

11. CITY MANAGER/CITY CLERK REPORTS

Presenters: Sage Sangiacomo, City Manager; and

- **Construction Update** – Tim Eriksen, Public Works Director / City Engineer
- **FEMA Floodplain Update** – Tim Eriksen, Public Works Director / City Engineer and Craig Schlatter, Community Development Director.
- **Fire Hazard Severity Zones** – Craig Schlatter, Community Development Director.
- **Palace Hotel Update** – Shannon Riley, Deputy City Manager.

12. PUBLIC HEARINGS (5:30 PM)

a. Approval of an Application for a 'Demolition Permit' to Remove an Existing Residential Structure Subject to Historical Review, Located at 420 Cooper Lane; APN 003-582-24.

Presenters: Katherine Schaefer, Planning Manager and Jesse Davis, Chief Planning Manager.

PUBLIC HEARING OPENED AT 6:31 P.M.

Public Comment: Moriah McGill, Northern Circle Indian Housing Authority.

PUBLIC HEARING CLOSED AT 6:34 P.M.

Motion/Second: Orozco/Sher to approve the 'Demolition Permit' to remove an existing residential structure subject to historical review, located at 420 Cooper Lane; APN 003-582-24. Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

b. Possible Introduction by Title Only of an Ordinance Modifying Ukiah City Code to Add a New Chapter 13, Entitled "Vacant and Abandoned Property Registration and Maintenance," to More Effectively Regulate Vacant and Abandoned Properties.

Presenters: Craig Schlatter, Community Development Director and Darcy Vaughn, Assistant City Attorney.

PUBLIC HEARING OPENED AT 6:50 P.M.

No public comment was received.

PUBLIC HEARING CLOSED AT 6:51 P.M.

Motion/Second: Rodin/Criss to introduce the Ordinance, by title only. Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

City Clerk, Kristine Lawler, read the following ordinance title into the record:

ORDINANCE OF THE CITY COUNCIL OF THE CITY OF UKIAH ADDING CHAPTER 13 TO DIVISION 3 OF THE CITY CODE, ENTITLED "VACANT AND ABANDONED PROPERTY REGISTRATION AND MAINTENANCE".

Motion/Second: Sher/Orozco to introduce the Ordinance to approve modifying the Ukiah City Code to add a new Chapter 13, entitled "Vacant and Abandoned Property Registration and Maintenance."

Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

c. Adoption of Resolution Adopting Fire Impact Fees on behalf of the Ukiah Valley Fire District. (Note: Subsequent to Noticing this public hearing, the item has been canceled and will be re-noticed and heard at a future date; however, due to the notice that went out, the item is being placed on the agenda, but no presentation or action will be considered.)

This proposed Public Hearing and Agenda Item was canceled and will be re-noticed and heard at a future date.

d. Conduct a Public Hearing to Consider Adoption of a Resolution Approving the Submittal of a Community Development Block Grant (CDBG) Application in Response to the 2024 State Community Development Block Grant Program Notice of Funding Availability. (Note: Subsequent to Noticing this public hearing, the item has been canceled; however, due to the notice that went out, the item is being placed on the agenda.)

This proposed Public Hearing and Agenda Item was canceled. A Community Development Block Grant (CDBG) Public Hearing was previously conducted at the October 2, 2024, City Council Meeting. Therefore, receiving public comment was no longer necessary.

13. UNFINISHED BUSINESS

14. NEW BUSINESS

a. Authorize the City Manager to Negotiate and Execute a Five-Year Agreement for the Acquisition of RIMS Computer-Aided Dispatch and Records Management Software from Sun Ridge Systems for an Initial Amount of \$556,704; Authorize the Continuation of the Agreement Subject to Staff Evaluation and Approval; and Approve Corresponding Budget Amendment.

Presenters: Cedric Cook, Police Chief and Marla Swan, Communications/Records Manager.

No public comment was received.

Motion/Second: Rodin/Sher to authorize the City Manager to negotiate and execute an agreement (COU 2425-159) with Sun Ridge Systems for the acquisition of RIMS Computer-Aided Dispatch and Records Management Software at an initial cost of \$556,704, covering the first five years of annual support and updates. Additionally, authorize the continuation of the agreement beyond the initial five years, subject to Staff evaluation and approval, and approve the corresponding budget amendment for the first year's expense. Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

b. Consideration of Adoption of Resolution Making Appointments to Boards and Commissions.

Presenter: Kristine Lawler, City Clerk.

No public comment was received.

Motion/Second: Rodin/Criss to adopt Resolution (2024-53) making appointments to the following Boards and Commissions:

BOARD/COMMISSION	NAME	POSITION	TERM EXPIRATION
Diversity and Equity Standing Committee	Denise Gorny	Persons with lived experience of poverty	12/18/26
Diversity and Equity Standing Committee	Xochilt J. Morales de Martinez	Persons with physical or mental disabilities	12/18/26
Diversity and Equity Standing Committee	Brian Williams	Native American tribes and communities in Mendocino County	12/18/26
Public Spaces Commission	Chrystal Thurman	At Large City Resident	12/18/27

Motion **carried** by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

c. Receive Updates on City Council Committee and Ad Hoc Assignments, and Initiate Review of the 2025 Council Assignments List.

Presenter: Sage Sangiacomo, City Manager.

No public comment was received.

Council to submit requests for the 2025 Special Assignment List to the City Clerk's office by January 6, 2025.

d. Authorize the City Manager to Negotiate and Execute a Contract Amendment with E Source for Billing Transition Project Management Services for Ukiah Valley Water Authority Members – From Consent Calendar Item 8c.

Presenters: Dan Buffalo, Finance Director and Shannon Riley, Deputy City Manager.

No public comment was received.

Motion/Second: Orozco/Criss to authorize the City Manager to negotiate and execute a contract amendment (2324-215-A1) with E Source for a not-to-exceed amount of \$151,725 for project management services for transition the billing services for Ukiah Valley Water Authority members, and approve corresponding budget amendment. Motion carried by the following roll call votes: AYES: Rodin, Criss, Orozco, Sher, and Crane. NOES: None. ABSENT: None. ABSTAIN: None.

COUNCIL ADJOURNED TO CLOSED SESSION AT 7:38 P.M.

15. CLOSED SESSION

a. Conference with Legal Counsel—Anticipated Litigation

(Government Code Section 54956.9(d)(2 & 3))

Significant exposure to litigation pursuant to Government Code Section 54956.9(d)(2)(Number of potential cases: 1)

b. Conference with Legal Counsel – Existing Litigation

(Government Code Section 54956.9(d)(1))

Name of case: Roofing & Solar Construction, Inc. v. City of Ukiah et al., Mendocino County Superior Court Case No. 22CV00048

c. Conference with Legal Counsel – Existing Litigation

(Cal. Gov't Code Section 54956.9(d)(1))

Name of case: Siderakis v. Ukiah, et al, Mendocino County Superior Court, Case No. 21CV00603

d. Conference with Legal Counsel – Existing Litigation

(Cal. Gov't Code Section 54956.9(d)(1))

Name of case: Arturo Flores Valdes et al., (Fed. Dist. Ct., N.D. Cal.) 22-CV-03125 RMI

e. Conference with Real Property Negotiators

(Cal. Gov't Code Section 54956.8)

Property: APN Nos: 157-070-04, 001-040-84, 001-040-82, 001-040-65

Negotiator: Sage Sangiacomo, City Manager;

Negotiating Parties: Dave Hull and Grady Huff

Under Negotiation: Price & Terms of Payment

f. Conference with Labor Negotiator (54957.6)

Agency Representative: Sage Sangiacomo, City Manager

Employee Organizations: All Bargaining Units

COUNCIL RETURNED TO OPEN SESSION AT 9:15 P.M.

City Attorney Rapport reported out of Closed Session that the Council approved a settlement (2425-162) of the case *Siderakis v. City of Ukiah (Agenda Item 15c)* – Motion by Councilmember Rodin, Seconded by Councilmember Orozco, and voted upon unanimously.

16. ADJOURNMENT

There being no further business, the meeting adjourned at 9:16 p.m.

Kristine Lawler, City Clerk/CMC

**CERTIFICATE OF COUNTY CLERK TO RESULT OF THE CANVASS
OF THE PRESIDENTIAL GENERAL ELECTION
HELD ON TUESDAY, NOVEMBER 5, 2024**

STATE OF CALIFORNIA)
)SS
COUNTY OF MENDOCINO)

I, KATRINA BARTOLOMIE, County Clerk of said County, do hereby certify that I did canvass the returns of the votes cast for CITY COUNCIL, CITY TREASURER, and MEASURE W in the PRESIDENTIAL GENERAL Election held TUESDAY, NOVEMBER 5, 2024, in the CITY OF UKIAH, COUNTY OF MENDOCINO, and that the Statement of the Votes Cast, to which this certificate is attached, shows the whole number of votes cast in each of the respective consolidated precincts therein, and that the totals of the respective columns and the totals as shown for and against each measure are full, true and correct.

WITNESS MY HAND AND OFFICIAL SEAL this 3RD day of December 2024.

(SEAL)



KATRINA BARTOLOMIE
Assessor-County Clerk-Recorder

OFFICIAL

2024 PRESIDENTIAL GENERAL ELECTION

Registered Voters

6276 of 54640 = 11.49%

Precincts Reporting

245 of 245 = 100.00%

Run Time 12:15 PM
Run Date 12/04/2024

11/5/2024

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CITY OF UKIAH
Two

Member, City Council - Vote for no more than

Choice	Party	Absentee Voting		Election Day Voting		Total	
JOSEFINA DUENAS		1,320	15.68%	51	19.54%	1,371	15.79%
KRISTINA MIZE		707	8.40%	42	16.09%	749	8.63%
HEATHER CRISS		2,059	24.45%	42	16.09%	2,101	24.20%
DOUGLAS F. CRANE		1,918	22.78%	47	18.01%	1,965	22.64%
JACOB S. BROWN		1,131	13.43%	39	14.94%	1,170	13.48%
JOHN STRANGIO		1,285	15.26%	40	15.33%	1,325	15.26%
Cast Votes:		8,420	100.00%	261	100.00%	8,681	100.00%
Undervotes:		3,504		341		3,845	
Overvotes:		13		0		13	

CITY OF UKIAH

Treasurer - Vote for One

Choice	Party	Absentee Voting		Election Day Voting		Total	
R. ALLEN CARTER		4,026	100.00%	149	100.00%	4,175	100.00%
Cast Votes:		4,026	100.00%	149	100.00%	4,175	100.00%
Undervotes:		1,948		152		2,100	
Overvotes:		1		0		1	

MEASURE W

Choice	Party	Absentee Voting		Election Day Voting		Total	
YES		2,322	42.35%	61	31.44%	2,383	41.98%
NO		3,161	57.65%	133	68.56%	3,294	58.02%
Cast Votes:		5,483	100.00%	194	100.00%	5,677	100.00%
Undervotes:		490		107		597	
Overvotes:		2		0		2	

*** End of report ***

CITY OF UKIAH

Member, City Council

Cumulative Totals									
Precinct	Registration	Ballots Cast	Turnout (%)	JOSEFINA DUENAS	KRISTINA MIZE	HEATHER CRISS	DOUGLAS F. CRANE	JACOB S. BROWN	JOHN STRANGIO
OAK MANOR - 200001	681	474	69.6	93	65	109	124	154	106
MENDOCINO GARDENS - 200002	967	792	81.9	143	58	349	292	142	188
SOUTH MAIN - 200003	660	406	61.5	104	73	126	83	73	64
NORTH SCHOOL - 200004	615	454	73.8	95	41	168	162	72	111
ALEXANDER - 999122	5	2	40.0	0	0	1	0	0	1
AIRPORT - 999201	664	392	59.0	88	65	124	101	53	85
FOOTHILL - 999202	10	6	60.0	1	1	3	1	1	1
ROSE - 999203	155	104	67.1	27	9	34	35	20	21
SEMINARY - 999204	749	562	75.0	152	51	173	183	91	101
CRESTA - 999205	489	316	64.6	65	24	99	140	55	76
WASHINGTON - 999206	155	86	55.5	15	11	19	22	18	6
DONNER - 999207	304	207	68.1	36	18	70	57	47	52
CHERRY - 999208	770	424	55.1	112	81	99	94	66	63
BEACON SOUTH - 999209	0	0	0.0	0	0	0	0	0	0
SAN JACINTA - 999211	281	237	84.3	52	36	85	79	33	53
VINEWOOD - 999212	849	526	62.0	130	77	149	161	93	109
GROVE - 999213	418	339	81.1	62	28	140	130	74	76
WALNUT - 999214	504	419	83.1	74	35	200	148	68	98
EL RIO - 999215	232	158	68.1	31	28	48	43	33	31
HIGH SCHOOL - 999216	275	204	74.2	51	18	59	46	47	54
AIRPORT EAST - 999217	0	0	0.0	0	0	0	0	0	0
SIDNIE - 999218	87	60	69.0	10	10	17	24	11	15
MENDOCINO WEST - 999219	2	2	100.0	0	0	0	2	2	0
LESLIE - 999220	166	104	62.7	29	20	29	36	17	14
BELTRAMI - 999231	2	2	100.0	1	0	0	2	0	0
Absentee Voting Totals	9,040	5,975	66.1	1,320	707	2,059	1,918	1,131	1,285
Election Day Voting Totals	9,040	301	3.3	51	42	42	47	39	40
Grand Totals	9,040	6,276	69.4	1,371	749	2,101	1,965	1,170	1,325

CITY OF UKIAH

Treasurer

Cumulative Totals				
	Registration	Ballots Cast	Turnout (%)	R. ALLEN CARTER
Precinct				
OAK MANOR - 200001	681	474	69.6	322
MENDOCINO GARDENS - 200002	967	792	81.9	526
SOUTH MAIN - 200003	660	406	61.5	272
NORTH SCHOOL - 200004	615	454	73.8	286
ALEXANDER - 999122	5	2	40.0	1
AIRPORT - 999201	664	392	59.0	262
FOOTHILL - 999202	10	6	60.0	4
ROSE - 999203	155	104	67.1	71
SEMINARY - 999204	749	562	75.0	353
CRESTA - 999205	489	316	64.6	230
WASHINGTON - 999206	155	86	55.5	49
DONNER - 999207	304	207	68.1	140
CHERRY - 999208	770	424	55.1	268
BEACON SOUTH - 999209	0	0	0.0	0
SAN JACINTA - 999211	281	237	84.3	175
VINEWOOD - 999212	849	526	62.0	363
GROVE - 999213	418	339	81.1	220
WALNUT - 999214	504	419	83.1	267
EL RIO - 999215	232	158	68.1	106
HIGH SCHOOL - 999216	275	204	74.2	137
AIRPORT EAST - 999217	0	0	0.0	0
SIDNIE - 999218	87	60	69.0	47
MENDOCINO WEST - 999219	2	2	100.0	0
LESLIE - 999220	166	104	62.7	75
BELTRAMI - 999231	2	2	100.0	1
Absentee Voting Totals	9,040	5,975	66.1	4,026
Election Day Voting Totals	9,040	301	3.3	149
Grand Totals	9,040	6,276	69.4	4,175

MEASURE W

Cumulative Totals					
	Registration	Ballots Cast	Turnout (%)	YES	NO
Precinct					
OAK MANOR - 200001	681	474	69.6	148	284
MENDOCINO GARDENS - 200002	967	792	81.9	363	370
SOUTH MAIN - 200003	660	406	61.5	131	228
NORTH SCHOOL - 200004	615	454	73.8	206	201
ALEXANDER - 999122	5	2	40.0	0	2
AIRPORT - 999201	664	392	59.0	116	229
FOOTHILL - 999202	10	6	60.0	3	3
ROSE - 999203	155	104	67.1	37	57
SEMINARY - 999204	749	562	75.0	229	261
CRESTA - 999205	489	316	64.6	145	146
WASHINGTON - 999206	155	86	55.5	19	46
DONNER - 999207	304	207	68.1	70	117
CHERRY - 999208	770	424	55.1	121	250
BEACON SOUTH - 999209	0	0	0.0	0	0
SAN JACINTA - 999211	281	237	84.3	96	129
VINEWOOD - 999212	849	526	62.0	166	316
GROVE - 999213	418	339	81.1	151	165
WALNUT - 999214	504	419	83.1	212	178
EL RIO - 999215	232	158	68.1	47	90
HIGH SCHOOL - 999216	275	204	74.2	72	114
AIRPORT EAST - 999217	0	0	0.0	0	0
SIDNIE - 999218	87	60	69.0	20	38
MENDOCINO WEST - 999219	2	2	100.0	0	2
LESLIE - 999220	166	104	62.7	30	67
BELTRAMI - 999231	2	2	100.0	1	1
Absentee Voting Totals	9,040	5,975	66.1	2,322	3,161
Election Day Voting Totals	9,040	301	3.3	61	133
Grand Totals	9,040	6,276	69.4	2,383	3,294



AGENDA SUMMARY REPORT

SUBJECT: Adoption of Resolution Approving the City of Ukiah's Qualified Contractors List for 2025.

DEPARTMENT: City Clerk

PREPARED BY: Araceli Sandoval, Deputy City Clerk

PRESENTER: Consent Calendar

ATTACHMENTS:

1. City Code Section 1541-1543
2. Cost Accounting Manual - Partial
3. Annual Public Notice - November 2024
4. Proposed Resolution with Exhibit A

Summary: Each year, the City of Ukiah's Qualified Contractors List is updated to reflect current applications of contractors with approved State Licenses for various categories from the California State Department of Consumer Affairs Contractors State License Board. Council will review the updated list and Staff recommendation to approve the list, which is used for sending out bid proposals for City projects throughout the year.

Background:

As required by the informal bidding procedure of the City of Ukiah, City Code §1541-1543 (Attachment 1) and Public Contracts Code §22036 (Attachment 2 - partial), the City Clerk's office prepared and mailed a written notice on November 1, 2024 (Attachment 3), to construction trade organizations and journals inviting all licensed contractors to submit information regarding their firm to the City for inclusion on the City's list of qualified contractors for the 2025 calendar year. This information and application were also posted on the City's website (<https://cityofukiah.com/city-clerk/#contractors>). A contractor may be included throughout the year by submitting an application to the City Clerk. All contracting firms are verified through the California State Licensing Board for license validity. Additionally, when bids are submitted to the City, the public works registration number and insurance is also verified before moving forward with a company.

All contractors who submitted their company information and construction classification designation, received by the Clerk's office as of January 9, 2025, have been included on the current updated list. The list is attached to the proposed resolution (Attachment 4) as "Exhibit A". The proposed resolution ensures that Staff has a competitive list of qualified contractors when soliciting bids for the City of Ukiah. Additionally, when requests and applications are received throughout the year, they are added to the list after being verified with the State.

Discussion: Staff is recommending adoption of the proposed resolution approving the Qualified Contractors List for 2025. This list will be posted on the City's website and will be modified throughout the year as additional applications are received.

Recommended Action: Adopt the resolution approving the Qualified Contractors List for 2025.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Mary Horger, Financial Services Manager

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager

§1541 MAINTENANCE OF CONTRACTORS' LIST

In November of each year, the City Clerk shall cause a written notice to be mailed to all construction trade journals designated in Public Contracts Code Section 22036, inviting all licensed contractors to submit the name of their firm to the City for inclusion on the City's list of qualified bidders for the following calendar year. The notice shall require that the contractor provide the name and address to which a Notice to Contractors or Proposal should be mailed a phone number at which the contractor may be reached, the type of work in which the contractor is interested and for which the contractor is currently licensed (i.e., electrical, painting, general building, etc.) together with the class of contractor's license or licenses held and the contractor's license number(s). (Ord. 892, §2, adopted 1989)

§1542 REVISION OF CONTRACTORS' LIST

On January 1 of each year the City Council may create a new Contractors' List by adding any contractor's name they so desire to the existing Contractors' List. At a minimum, the Contractors' List must include all contractors who have properly provided the City with the information required under Section 1541, during the calendar year in which the list is valid. The City Clerk shall also include on the Contractors' List the names of all contractors who have submitted a valid bid to the City during the preceding calendar year. A contractor may have his/her firm added to the City's Contractors' List at any time by providing the information required under Section 1541, to the City Clerk and by making a request in writing to the Clerk that the contractor's firm be added to the list. (Ord. 892, §2, adopted 1989)

§1543 INFORMAL BIDDING PROCEDURES

Public projects of fifty thousand dollars (\$50,000.00), or such greater sum as is authorized by Public Contracts Code section 22032 (b) or any laws that amend said section, or less may be let by the City to contract by the informal bidding procedures provided in this Section. The City clerk shall mail a notice to all contractors on the City's Contractors' List for the category of work being bid. All notices shall be mailed by the Clerk not less than ten (10) calendar days before bids are due. The notice inviting informal bids shall describe the project in general terms, how to obtain more detailed information about the project, and state the time and place for the submission of bids. All bids received shall be filed with the City Clerk and opened by the Clerk at the time and place specified in the notice inviting bids. Any bidder may be present during said bid opening and may inspect any such bid. (Ord. 892, §2, adopted 1989)

California Uniform Construction Cost
Accounting Commission

Cost Accounting Policies and Procedures Manual

2021 Edition

CHAPTER 1 Information for Adoption and Implementation of the California Uniform Public Construction Cost Accounting Act

Instructions for Adoption and Implementation of the Uniform Construction Cost Accounting Procedures

1.01 Instructions for Adoption and Implementation of the Uniform Public Construction Cost Accounting Act (ACT) by Local Agencies

- 1) The Governing Board must elect by resolution to become subject to the uniform construction cost accounting procedures promulgated by the State Controller pursuant to the Public Contract Code section 22019. The resolution shall specify that the local agency will meet the requirements prescribed in the California Uniform Construction Cost Accounting Commission’s *Cost Accounting Policies and Procedures Manual* and state the effective date the agency will implement the accounting and bidding procedures.
- 2) The local agency must notify the State Controller in writing of the election to become subject to the uniform construction cost accounting procedures along with a copy of the resolution sent to one of the following locations:

Electronic Copy (PDF)	Physical Copy
Sent via email to: LocalGovPolicy@sco.ca.gov	Sent via mail to: Office of the State Controller Local Government Programs and Services Division Local Government Policy Section P.O. Box 942850 Sacramento CA 94250

- 3) When a local agency elects to become subject to the uniform construction cost accounting procedures, the entire entity is considered subject to the Act and no departments will be exempt. However, Special Districts which are governed by a board of supervisors or city council are subject only if a separate election is made.
- 4) An informal bidding ordinance, or a board adopted policy equivalent to such as required by the participating agency, shall be enacted pursuant to Public Contract Code section 22034.
- 5) Once opting into the Act, participating agencies must always adhere to the terms of the Act until such time the agency formally opts out by resolution of its governing board. Having opted in, selective adherence to the terms of the Act is a violation.
- 6) The governing board may discontinue the agency’s participation under the uniform public construction cost accounting procedures by adopting a resolution stating this fact. A copy of the resolution shall be filed with the State Controller.
- 7) The State Controller shall notify the California Uniform Construction Cost Accounting Commission (Commission) of all local agencies electing to become subject to the uniform public construction cost accounting procedures. In addition, the Commission shall also be notified of local agencies electing to discontinue participation under these procedures.

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

1.02 Sample Election Resolution – Model

This sample **Election Resolution** may be used by any public agency's governing body.

RESOLUTION OF THE _____, STATE OF CALIFORNIA IN THE MATTER OF
UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING PROCEDURES

Resolution No. _____

WHEREAS, prior to the passage of Assembly Bill No. 1666, Chapter 1054, Statutes of 1983, which added Chapter 2, commencing with Section 22000, to Part 3 of Division 2 of the Public Contract Code, existing law did not provide a uniform cost accounting standard for construction work performed or contracted by local public agencies; and

WHEREAS, Public Contract Code section 22000 et seq., the Uniform Public Construction Cost Accounting Act, establishes such a uniform cost accounting standard;

WHEREAS, the Commission established under the Act has developed uniform public construction cost accounting procedures for implementation by local public agencies in the performance of or in the contracting for construction of public projects; and

NOW, THEREFORE, BE IT RESOLVED that the _____ of _____, California, hereby elects under Public Contract Code section 22030 to become subject to the uniform public construction cost accounting procedures set forth in the Act and to the Commission's policies and procedures manual and cost accounting review procedures, as they may each from time to time be amended, and directs that the _____ - notify the State Controller forthwith of this election.

This Resolution shall take effect upon its adoption.

PASSED AND ADOPTED this ____ day of _____, _____ by the following vote;

AYES:

NOES:

ABSENT:

Insert Seal if Applicable

Signature Title

City of _____ County of _____

Procedure for Establishment and Maintenance of List of Registered Contractors

1.04 Procedure for Establishment and Maintenance of List of Registered Contractors Per Section 22034 of the Public Contract Code

Section 22034 of the Public Contract Code specifies the requirements for mailing, faxing, or emailing notices to contractors for work to be bid under the Act. As specified therein, an agency shall provide notices by electing a), b) or both methods listed as follows:

- a) In lieu of a contractors list, mailing, faxing, or emailing notices to all construction trade journals specified in section 22036
- b) Mailing, faxing, or emailing notices to all contractors on the list established by the agency for the work being paid
- c) Both (a) and (b) pursuant to section 22034(a)(1)

In the event an agency elects to provide notice by mailing, faxing, or emailing notices to all contractors on the list established by the agency for the work being bid, the agency shall utilize the following procedure to establish and maintain the list of registered contractors outlined in section 22034 (a)(1):

- a) Notice to contractors shall be provided in accordance with either paragraph (1) or (2), or both.
 - 1) The public agency shall maintain a list of qualified contractors, identified according to categories of work. Minimum criteria for development and maintenance of the contractors list shall be determined by the commission. All contractors on the list for the category of work being bid shall be mailed, faxed, or emailed a notice inviting informal bids unless the product or service is proprietary. All mailing of notices to contractors pursuant to this subdivision shall be completed not less than 10 calendar days before bids are due.
 - 2) The public agency may elect to mail, fax, or email a notice inviting informal bids to all construction trade journals specified in section 22036.
- b) The notice inviting informal bids shall describe the project in general terms and how to obtain more detailed information about the project, and state the time and place for the submission of bids.
- c) The governing body of the public agency may delegate the authority to award informal contracts to the public works director, general manager, purchasing agent, or other appropriate person.
- d) If all bids received are in excess of two hundred thousand dollars (\$200,000), the governing body of the public agency may, by adoption of a resolution by a four-fifths vote, award the contract, at two hundred twelve thousand, five hundred dollars (\$212,500) or less, to the lowest responsible bidder, if it determines the cost estimate of the public agency was reasonable.

(Amended by Stats. 2015, Ch. 269, Sec. 29. Effective January 1, 2016.)

1.04.01 Minimum Criteria for Development and Maintenance of the Contractors List Determined by the Commission, pursuant to Public Contract Code section 22034(a)(1)

1. At least once per calendar year, each public agency that has elected to become subject to the Uniform Public Construction Cost Accounting Act and intends to utilize the notice provisions outlined in section 22034(a) shall establish a new list or update its existing list of qualified contractors by mailing, faxing, or emailing written notice to all construction trade journals designated for that Agency under Section 22036. The notice shall invite all

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

licensed contractors to submit the name of their firm to the Agency for inclusion on the Agency's list of qualified bidders.

2. The notice shall require that the contractor provide:

- The name and address to which a Notice to Contractors or Proposal should be mailed, faxed, or emailed;
- A phone number at which the contractor may be reached;
- The type of work in which the contractor is interested and currently licensed to do (earthwork, pipelines, electrical, painting, general building, etc.);
- The class of contractor's license(s) held; and
- The contractor license number(s).

3. Agencies may include any contractor names they so desire on the lists, but lists must include, at minimum, all contractors who have properly provided the Agencies with the information required under #2 above in response to the written notice.

The Commission recommends that Agencies automatically include in their contractors' lists the names of all contractors who submitted one or more valid bids to the Agencies.

4. A contractor may have his or her firm added to an Agency's contractors list at any time by providing the required information.

1.05 County-by-County List of Construction Trade Journals

The Commission shall determine, on a county-by-county basis, the appropriate construction trade journals which shall receive mailed, faxed, or emailed notice of all informal and formal construction contracts being bid for work within the specified county per section 22036 of the Public Contract Code.

Per Public Contract Code section 22037, notices inviting formal bids must be published at least 14 calendar days before the date of opening the bids in a newspaper of general circulation, printed and published in the jurisdiction of the public agency. In addition, the Commission has determined that all public agencies that adopt and contract under the Act shall be required to mail, email, or fax a notice to the following specified construction trade publications of all formal construction contracts being bid and all invitations to join an agency's qualified bidders list (i.e. the informal bidding list) within the specified county (as provided in sections 22034 and 22037 of the Public Contract Code). The numbers following the name of each county refer to the corresponding numbered trade journals listed starting on page 12.

Users will note that the notification of the trade journals listed in Column B for their county is required. Additionally, the user will have to notify at least two of the trade journals listed in Column C, unless there is only one listed, in which case notification of that trade journal is sufficient. The Commission urges each public agency to select additional publications from its geographical area and include them on its list of publications to be notified. Sample information to be included in the mailed notice to trade journals is listed on page 11.

Note: Users are not required to mail a notice to a trade journal if the trade journal listed under their county is now charging for its services, or is out of business. Instead, the Commission requests that users find some other method of notifying potential contractors of published jobs and how to be added to their informal bidding lists (e.g. internet – county's web page).

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COUNTY NAME (A)	TRADE JOURNALS REQUIRED TO BE NOTIFIED (B)	NOTIFY TWO OF THE TRADE JOURNALS LISTED BELOW (C)
ALAMEDA	2, 3	8, 10, 12, 13, 14, 15, 16
ALPINE	2, 3	10
AMADOR	2, 3	10, 17
BUTTE	2, 3	5, 6, 10, 11
CALAVERAS	2, 3	10, 16, 17
COLUSA	2, 3	5, 6, 10
CONTRA COSTA	2, 3	8, 10, 13, 14, 16
DEL NORTE	2, 3	4, 5, 10
EL DORADO	2, 3	9, 10, 11
FRESNO	2, 3	10, 16, 19, 20, 21
GLENN	2, 3	5, 6, 10, 11
HUMBOLDT	2, 3	4, 5, 10
IMPERIAL	2, 3	25
INYO	2, 3	21
KERN	2, 3	19, 20, 21, 22, 25
KINGS	2, 3	19, 20, 21
LAKE	2, 3	4, 5, 7, 8, 10
LASSEN	2, 3	5, 10, 11
LOS ANGELES	2, 3	21, 25
MADERA	2, 3	10, 16, 19
MARIN	2, 3	7, 8
MARIPOSA	2, 3	10, 19
MENDOCINO	2, 3	4, 7, 8, 10
MERCED	2, 3	10, 16, 17, 19
MODOC	2, 3	5, 10
MONO	2, 3	10
MONTEREY	2, 3	10, 15, 18, 22
NAPA	2, 3	7, 8, 10
NEVADA	2, 3	9, 10, 11
ORANGE	2, 3	25, 29
PLACER	2, 3	9, 10, 11
PLUMAS	2, 3	5, 6, 10, 11
RIVERSIDE	2, 3	25, 29
SACRAMENTO	2, 3	5, 8, 9, 10, 11, 16
SAN BENITO	2, 3	10, 18
SAN BERNARDINO	2, 3	21, 25, 29
SAN DIEGO	2, 3	25, 29
SAN FRANCISCO	2, 3	8, 10, 12, 13, 14, 15
SAN JOAQUIN	2, 3	8, 10, 16, 17, 19
SAN LUIS OBISPO	2, 3	18, 21, 22, 25, 30
SAN MATEO	2, 3	8, 12, 13, 14, 15
SANTA BARBARA	2, 3	21, 22, 23, 25, 30
SANTA CLARA	2, 3	8, 10, 12, 13, 14, 15
SANTA CRUZ	2, 3	15, 18
SHASTA	2, 3	4, 5, 6

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

COUNTY NAME (A)	TRADE JOURNALS REQUIRED TO BE NOTIFIED (B)	NOTIFY TWO OF THE TRADE JOURNALS LISTED BELOW (C)
SIERRA	2, 3	10, 11
SISKIYOU	2, 3	5, 10
SOLANO	2, 3	8, 9, 10, 16
SONOMA	2, 3	7, 8, 10
STANISLAUS	2, 3	10, 16, 17, 19
SUTTER	2, 3	6, 9, 10, 11
TEHAMA	2, 3	5, 10, 11
TRINITY	2, 3	4, 5, 10
TULARE	2, 3	19, 20, 21
TUOLUMNE	2, 3	10, 17, 19
VENTURA	2, 3	21, 25, 30
YOLO	2, 3	8, 9, 10
YUBA	2, 3	6, 9, 10, 11

1.06 Sample Information for Mailed Notice

Following provides the type of information that could be included in the mailed notice to the construction trade journals. This list should be used only as a guide.

- Project title and contract number, if any
- Cost range
- Site location
- Who is taking bids/date and time due
- Owner's address and phone number
- Architect's address and phone number
- Brief description of work to be done
- Where plans may be obtained/deposit required/whether or not refundable
- Percentage of bid bond/percentage of performance bond/percentage of payment bond

1.07 List of Construction Trade Journals

The following organizations have indicated to the Commission that they:

- Publish a newsletter or trade journal, on a weekly or more frequent basis, that contains a section listing projects being bid; or provide a telephone notice service to their members.
- Do not charge for publishing or otherwise disseminating a Notice to Contractors.

These organizations have indicated to the Commission that they serve subscribers or members in the counties listed to the right of each organization.

Organizations that meet criteria (a) and (b) above may be added to the list, or changes or corrections can be made to the list by contacting one of the following:

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Email	Physical Copy
Sent via email to: LocalGovPolicy@sco.ca.gov	Sent via mail to: Office of the State Controller Local Government Programs and Services Division Local Government Policy Section P.O. Box 942850 Sacramento CA 94250

NUMBER	ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
1	CMD (Construction Market Data) Document Processing Center 30 Technology Parkway South, Suite 100 Norcross, GA 30092-2912 Phone: 800-424-3996 Email: customercare@cmdgroup.com Website www.cmdgroup.com	California
2	Construction Bidboard (Ebidboard) 11622 El Camino Real, #100 San Diego, CA 92130 Phone: 800-479-5314 Email: support@ebidboard.com Website: www.ebidboard.com	California
3	Dodge Data & Analytics 830 Third Avenue, 6 th Floor New York, NY 10022 Phone: 877-784-9556 Email: support@construction.com Website: www.construction.com	California
4	Humboldt Builders' Exchange, Inc. 1213 5th Street Eureka, California 95501 Phone: 707-442-3708 Website: www.humbx.com	Del Norte, Humboldt, Lake, Mendocino, Shasta, and Trinity
5	Shasta Builders' Exchange 1355 Hartnell Ave Redding, CA 96002 Phone: 530-221-5556 Email: planroom@shastabe.com Website: www.shastabe.com	Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Modoc, Plumas, Sacramento, Shasta, Siskiyou, Tehama, and Trinity

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NUMBER	ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
6	Valley Contractors Exchange, Inc. 951 East Eighth Street Chico, CA 95928 Phone: 530-343-1981 Email: info@vceonline.com Website: www.vceonline.com	Butte, Colusa, Glenn, Plumas, Shasta, Sutter, and Yuba
7	North Coast Builders Exchange 1030 Apollo Way Santa Rosa, CA 95407 Phone: 707-542-9502 Fax: 707-542-2027 Website: www.ncbeonline.com	Lake, Marin, Mendocino, Napa, and Sonoma
8	Marin Builders Association 660 Las Gallinas Avenue San Rafael, CA 94903 Phone: 415-462-1220 Fax: 415-462-1225 Email: mba@marinbuilders.com Website: www.marinbuilders.com	Alameda, Contra Costa, Lake, Marin, Mendocino, Napa, Sacramento, San Francisco, San Joaquín, San Mateo, Santa Clara, Solano, Sonoma, and Yolo
9	Sacramento Regional Builders' Exchange 5370 Elvas Avenue Sacramento, CA 95819 Phone: 916-442-8991 Fax: 916-446-3117 Email: planroom@srbx.org Website: www.srbx.org	El Dorado, Nevada, Placer, Sacramento, Solano, Sutter, Yolo, and Yuba
10	Placer County Contractors Association & Builders Exchange 10656 Industrial Avenue, Suite 160 Roseville, CA 95678 Phone: 916-771-7229 Fax: 916-771-0556 Email: planroom@srbx.org Website: www.pccamembers.com	Alameda, Alpine, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado, Fresno, Glenn, Humboldt, Lake, Lassen, Madera, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, Sacramento, San Benito, San Francisco, San Joaquín, Santa Clara, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

NUMBER	ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
11	Nevada County Contractors' Association 149 Crown Point Court Grass Valley, CA 95945 Phone: 530-274-1919 Email: info@nccabuildingpros.com Website: www.nccabuildingpros.com	Butte, El Dorado, Glenn, Lassen, Nevada, Placer, Plumas, Sacramento, Sierra, Sutter, Tehama, and Yuba
12	The San Francisco Builders Exchange 850 South Van Ness Avenue San Francisco, CA 94110-1911 Phone: 415-282-8220 Email: deanna@bxofsf.com Website: www.bxofsf.com	Alameda, San Francisco, San Mateo, and Santa Clara
13	Bay Area Builders Exchange 3055 Alvarado Street San Leandro, CA 94577 Phone: 510-483-8880 Email: info@bayareabx.com Website: www.bayareabx.com	Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara
14	Peninsula Builders Exchange 282 Harbor Blvd, Bldg D Belmont, CA 94002 Phone: 650-591-4486 Website: www.safetystar.org/safetystar	Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara
15	Builders' Exchange of Santa Clara County 400 Reed Street Santa Clara, CA 95050 Phone: 408-727-4000 Fax: 408-727-2779 Email: info@bxscoco.com Website: www.bxscoco.com	Alameda, Monterey, San Francisco, San Mateo, Santa Clara, and Santa Cruz
16	Builders' Exchange of San Joaquin 4561 Quail Lake Drive, Suite B2 Stockton, CA 95207 Phone: 209-478-1000 Email: crobinson@besonline.com Website: http://www.bxsj.org	Alameda, Calaveras, Contra Costa, Fresno, Madera, Merced, Sacramento, San Joaquin, Solano, and Stanislaus

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

NUMBER	ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
17	Valley Builders Exchange, Inc. 1118 Kansas Avenue Modesto, CA 95351 Phone: 209-522-9031 Email: planroom@valleybx.com Website: www.valleybx.com	Amador, Calaveras, Merced, San Joaquin, Stanislaus, and Tuolumne
18	Central Coast Builders Association 242 East Romie Lane Salinas, CA 93907 Phone: 831-758-1624 Email: staff@ccbabuilds.com Website: www.ccbabuilds.com	Monterey, San Benito, San Luis Obispo, and Santa Cruz
19	Central California Builders Exchange 1244 N. Mariposa Street Fresno, CA 93703 Phone: 559-237-1831 Email: info@cencalbx.com Website: http://cencalbx.com/	Calaveras, Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tulare, and Tuolumne
20	Tulare & Kings Counties Builders Exchange 827 W Center Ave Visalia, CA 93291 Phone: 559-732-4568 Email: info@tkcbe.com Website: www.tkcbe.com	Fresno, Kern, Kings, and Tulare
21	Kern County Builders' Exchange, Inc. 4310 Ardmore Avenue, Ste. 100 Bakersfield, CA 93309 Phone: 661-324-4921 Email: kcbex@kcbex.com Website: www.kcbex.com	Fresno, Inyo, Kings, Kern, Los Angeles, San Bernardino, San Luis Obispo, Santa Barbara, Tulare Ventura
22	San Luis Obispo County Builders Exchange 153 Cross Street, #130 San Luis Obispo, CA 93401 Phone: 805-543-7330 Email: info@slocbe.com Website: www.slocbe.com	Kern, Monterey, San Luis Obispo, and Santa Barbara

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

NUMBER	ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
23	Ventura County Contractors Association 1830 Lockwood Street, No. 110 Oxnard, CA 93036 Phone: 805-981-8088 Email: vcca@vccainc.com Website: www.vccainc.com	Santa Barbara and Ventura
24	Construction Data Company 2001 9 th Avenue, 2 nd Floor Vero Beach, FL 32960 Phone: 800-652-0008 Email: service@cdcnews.com Website: www.cdcnews.com	California
25	BidAmerica 41085 Elm Street Murrieta, CA 92562 Phone: 951-677-4819 Email: planroom@bidamerica.com Website: www.BidAmerica.com	California
26	Construction Bid Source Interactive 6265 HWY 9 Felton, CA 95018 Phone: 888-786-9450 Website: www.constructionbidsource.com	California
27	Demandstar – Onvia Supplier Services 509 Olive Way, Suite 400 Seattle, WA 98101 Phone: 800-575-1736 Website: www.demandstar.com or Website: www.onvia.com	California
28	Challenge News 1276 Lincoln Avenue, Suite 203 San Jose, CA 95125 Phone: 408-998-0241 Email: info@challengenews.net Website: www.challengenews.net	California

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

NUMBER	ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
29	Associated General Contractors of America San Diego Chapter, Inc. 6212 Ferris Square San Diego, CA 92121 Phone: 858-558-7444 Email: planroom@agcsd.org Website: www.agcsd.org	Orange, Riverside, San Bernardino, and San Diego
30	Tri-Co Reprographics 720 E. Haley Street Santa Barbara, CA 93101 Phone: 805-966-1701 Email: sbplots@tricoblue.com Website: www.tricoblue.com	Santa Barbara, Ventura, and San Luis Obispo

1.08 List of Closed Construction Trade Journals

The following construction trade journals have closed or are no longer functioning as of the publication date of this manual. Organizations that wish to advertise their projects should **not** contact any of the below trade journals. The below section is meant for reference only.

ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
Solano-Napa Builders Exchange 135 Camino Dorado Napa, CA 94558 Phone: 707-255-2515 Fax: 707-255-2749 Email: membership@snbe.com Website: http://snbe.org	Napa and Solano CLOSED
El Dorado Builders' Exchange 3430 Robin Lane, Suite 7 Shingle Springs, CA 95682 Phone: 530-672-2955	Amador, El Dorado, Nevada, Placer, Sacramento, and Yolo CLOSED
Bay Area Builders Exchange 2440 Stanwell Drive, Suite B Concord, CA 94520 Phone: 925-685-8630 Website: www.bayareabx.com	Alameda, Contra Costa, El Dorado, Lake, Mendocino, Napa, Placer, Sacramento, San Francisco, Santa Clara, Solano, and Sonoma LOCATION CLOSED

CHAPTER 1 INFORMATION FOR ADOPTION AND IMPLEMENTATION OF THE CALIFORNIA UNIFORM PUBLIC CONSTRUCTION COST ACCOUNTING ACT

ORGANIZATION	AREAS OF MEMBERS OR SUBSCRIBERS BY COUNTY
Builders Exchange of Merced & Mariposa 646 CA-HWY 59 Merced, CA 95341 Phone: 209-722-3612 Website: www.bxmm.org	Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, and Stanislaus CLOSED
Southern California Builders Association 732 N. Diamond Bar Blvd. #224 Diamond Bar, CA 91765 Phone: 909-396-1451 Email: scba@socalbuilders.org Website: www.socalbuilders.org	Imperial, Los Angeles, Orange, Riverside, San Bernardino, and San Diego CLOSED
Builders Notebook P.O. Box 4883 Santa Barbara, CA 93140 Phone: 877-776-5436 Email: planroom@buildersnotebook.com Website: www.buildersnotebook.com	Los Angeles, San Luis Obispo, Santa Barbara, and Ventura Non-Functioning Website

PUBLIC NOTICE

DATE: November 1, 2024
FOR RELEASE: Immediately
SUBJECT: Application for Qualified Contractors List
CONTACT: Kristine Lawler, City Clerk
(707) 463-6217

All Licensed Contractors who wish to be included on the City of Ukiah's list of qualified bidders for the year 2025, should submit the name and address to which Notice of Bids or Proposals should be mailed, a phone number at which the contractor may be reached, the type of work in which the contractor is interested and for which the contractor is currently licensed (e.g. earthwork, pipelines, electrical, painting, general building, etc.) together with the class of contractor's license or licenses held, and the contractor's license number(s) (*NOTE – Insurance forms are not necessary at this time.*)

A Qualified Contractors List application form and insurance requirements may be obtained from the City Clerk or downloaded from the City of Ukiah's website: <https://cityofukiah.com/city-clerk/#contractors>.

Completed forms should be submitted to:

Email: cityclerk@cityofukiah.com (*Preferred method*)

OR:

City of Ukiah
ATTN: CITY CLERK
300 Seminary Avenue
Ukiah, CA 95482

OR:
Fax to: (707) 463-6204

RESOLUTION NO. 2025-

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF UKIAH APPROVING THE QUALIFIED CONTRACTORS LIST FOR THE 2025 CALENDAR YEAR

WHEREAS, under Ukiah City Code (UCC) sections §1541 - 1543, the City Clerk must request licensed contractors who are qualified to perform public work under contract with the City of Ukiah to submit their names, addresses, phone numbers, type of work in which they are interested, and license number; and

WHEREAS, the City Council is required to adopt a list of qualified contractors, identified according to categories of work; and

WHEREAS, the City Clerk has published the notice as required in UCC Section §1541 and compiled a list of qualified contractors based on information submitted in response to said notice; and

WHEREAS, the City Council finds and determines that the list as compiled complies with the requirements of the City Code and Public Contracts Code Section §22034(a) and shall constitute the City of Ukiah Contractors List for use in providing notice under the informal bidding procedure authorized in UCC Section §1543.

NOW, THEREFORE, BE IT RESOLVED, that the list attached to this resolution as "Exhibit A" is the Qualified Contractors List which is sorted by class for the City of Ukiah for the calendar year 2025, and City Staff is authorized and required to continuously update the list throughout the year.

PASSED AND ADOPTED this 15th day of January, 2025, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Douglas F. Crane, Mayor

ATTEST:

Araceli Sandoval, Deputy City Clerk

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
Class A - General Engineering						
American Asphalt Repair & Resurfacing Co., Inc.	24200 Clawiter Road	Hayward	CA	A - General Engineering	5/31/2025	439591
APS Environmental Inc	6643 32nd Street Suite 101	North Highlands	CA	A - General Engineering	7/31/2025	985553
Argonaut Constructors	360 Sutton Place	Santa Rosa	CA	A - General Engineering	12/31/2025	171432
Pumpman Nor Cal	4000 South Moorland Avenue	Santa Rosa	CA	A - General Engineering	12/31/2025	1033562
BEST Contracting Services, Inc.	19027 S. Hamilton Ave.	Gardena	CA	A - General Engineering	5/31/2026	456263
Cats 4 U Inc	13503 Healdsburg Ave	Healdsburg	CA	A - General Engineering	3/31/2025	465781
C.V. Larsen Co.	1846 Ludwig Avenue	Santa Rosa	CA	A - General Engineering	5/31/2026	646209
Commercial Pump & Mechanical	11254 Midway	Chico	CA	A - General Engineering	3/31/2025	921066
CWS Construction Group, Inc.	1301 Grant Ave., Ste B	Novato	CA	A - General Engineering	4/30/2025	811153
DMR Builders	2725 Guerneville Rd	Santa Rosa	CA	A - General Engineering	5/31/2026	1033280
EBA Engineering	825 Sonoma Ave., Ste. C	Santa Rosa	CA	A - General Engineering	1/31/2025	662725
Ferranti Construction, Inc.	P O BOX 259	Redwood Valley	CA	A - General Engineering	3/31/2025	385543
Fort Bragg Electric, Inc.	489 S. Harrison St	Fort Bragg	CA	A - General Engineering	7/31/2026	391464
Ghilotti Construction	246 Ghilotti Avenue	Santa Rosa	CA	A - General Engineering	5/31/2026	644515
Granite Construction Company	1324 S. State Street	Ukiah	CA	A - General Engineering	5/31/2025	89
Gregg Simpson Trucking	11 Highland Ct	Ukiah	CA	A - General Engineering	9/30/2025	650339
GS Construction	P.O. Box 796	Burney	CA	A - General Engineering	3/31/2025	401498
M3 Integrated Services Inc	3355 Regional Parkway	Santa Rosa	CA	A - General Engineering	10/31/2025	966541
Marz General Engineering	9741 Laughlin Way	Redwood Valley	CA	A - General Engineering	12/31/2025	1084927
MBC Construction Co, Inc.	3342 N. State Street	Ukiah	CA	A - General Engineering	4/30/2026	945554
McCullough Construction Inc	57 Aldergrove Rd.	Arcata	CA	A - General Engineering	11/30/2025	715577
Meyer General Engineering Construction	701 Spanish Canyon Road	Ukiah	CA	A - General Engineering	4/30/2025	712845
Mike Brown Electric Company	561-A Mercantile Drive	Cotati	CA	A - General Engineering	4/30/2026	306767
Northwest Construction, Inc.	9011 Colony Drive	Redwood Valley	CA	A - General Engineering	10/31/2025	865329
Pacific Earthscape (aka Ford Logging, Inc.)	1225 Central Ave. #11	McKinleyville	CA	A - General Engineering	4/30/2025	793279
Pacific Infrastructure	435 Boulder Ct., Ste. 200	Pleasanton	CA	A - General Engineering	10/31/2025	799927
Paulson Excavating, Inc.	P.O. Box 339	Albion	CA	A - General Engineering	7/31/2026	425362
Pavement Coatings Co.	10240 San Sevaie Way	Jurupa Valley	CA	A - General Engineering	9/30/2026	303609
Pierson Company	3116 Harrison Ave.	Eureka	CA	A - General Engineering	3/31/2026	265024
Pomilia Civil	PO Box 719	Redwood Valley	CA	A - General Engineering	3/31/2025	1048758
Rege Construction, Inc.	600 Santana Dr.	Cloverdale	CA	A - General Engineering	10/31/2026	786253
Roberts Mechanical & Electrical, Inc.	355 Kunzler Ranch Road, Ste. E	Ukiah	CA	A - General Engineering	2/28/2025	556014
SCC Electric, Inc.	1301 Grant Ave., Ste B	Novato	CA	A - General Engineering	8/31/2025	1109026
Sierra Nevada Construction Inc.	P O BOX 50760	Sparks	NV	A - General Engineering	5/31/2026	593393
Summit Signal, Inc.	260 Margie Drive	Willits	CA	A - General Engineering	7/31/2026	842536
Team Ghilotti, Inc.	2531 Petaluma Blvd., So.	Petaluma	CA	A - General Engineering	4/30/2025	895384
Telstar Instruments	4017 Vista Park Court	Sacramento	CA	A - General Engineering	5/31/2026	422364
TerraCon Constructors, Inc.	P O BOX 276	Healdsburg	CA	A - General Engineering	11/30/2025	562511
Valley Paving	P O BOX 559; 2601 Road E	Redwood Valley	CA	A - General Engineering	7/31/2025	674411
Wahlund Construction, Inc.	P.O. Box 6486	Eureka	CA	A - General Engineering	9/30/2026	678993
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	A - General Engineering	2/28/2026	718733
WestPac Construction	1349 Lily Street	Healdsburg	CA	A - General Engineering	9/30/2025	1058561
Wipf Construction	P O BOX 234	Ukiah	CA	A - General Engineering	11/30/2025	629598
Wylatti Resource Management, Inc.	P O BOX 575 Cemetary Lane	Covelo	CA	A - General Engineering	6/30/2025	934597
Class ASB - Asbestos Removal Certification						
Pierson Company	3116 Harrison Ave.	Eureka	CA	ASB - Asbestos Removal Certification	3/31/2026	265024
Wahlund Construction, Inc.	P.O. Box 6486	Eureka	CA	ASB - Asbestos Removal Certification	9/30/2026	678993
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	ASB - Asbestos Removal Certification	2/28/2026	718733
Class B - General Building						

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
Apperson Energy Management	6620 Central Ave	Ukiah	CA	B - General Building	4/30/2025	1075371
Argonaut Constructors	360 Sutton Place	Santa Rosa	CA	B - General Building	12/31/2025	171432
Barth Roofing Company Inc	4384 W. Pine Haven Dr	Tracy	CA	B - General Building	6/30/2025	760030
BEST Contracting Services, Inc.	19027 S. Hamilton Ave.	Gardena	CA	B - General Building	5/31/2026	456263
Bridges Construction	5846 Live Oak Dr., Ste 2	Kelseyville	CA	B - General Building	9/30/2026	607223
Busch Construction & Electric	266 Terra Verde Court	Redwood Valley	CA	B - General Building	5/31/2025	404336
Carr's Construction Service, Inc.	3165 Calistoga Rd.	Santa Rosa	CA	B - General Building	3/31/2026	556444
Coastal Mountain Electric	14832 Lakeshore Dr.	Clearlake	CA	B - General Building	3/31/2025	507105
Color New Corp	22855 Califa St	Woodland Hills	CA	B - General Building	11/30/2025	1113019
Cupples & Sons Construction, Inc.	501 Saint Marys Drive	Hopland	CA	B - General Building	6/30/2026	806992
CWS Construction Group, Inc.	1301 Grant Ave., Ste B	Novato	CA	B - General Building	4/30/2025	811153
DMR Builders	2725 Guerneville Rd	Santa Rosa	CA	B - General Building	5/31/2026	1033280
ECN Contracting	P.O. Box 2144	Ukiah	CA	B - General Building	1/31/2025	928012
Ferranti Construction, Inc.	P O BOX 259	Redwood Valley	CA	B - General Building	3/31/2025	385543
Fort Bragg Electric, Inc.	489 S. Harrison St	Fort Bragg	CA	B - General Building	7/31/2026	391464
FRC, Inc.	9680 Old Redwood Hwy	Windsor	CA	B - General Building	4/30/2026	715667
GCCI, Inc.	4701 Old Redwood Hwy, #1	Santa Rosa	CA	B - General Building	11/30/2026	729437
GMH Builders, Inc.	P O Box 1773	Sonoma	CA	B - General Building	7/31/2026	1016384
Granite Construction Company	1324 S. State Street	Ukiah	CA	B - General Building	5/31/2025	89
GS Construction	P.O. Box 796	Burney	CA	B - General Building	3/31/2025	401498
Harbert Roofing, Inc.	19799 Hirsch Ct.	Anderson	CA	B - General Building	10/31/2026	696974
KD Homes	424 Moore Ln	Healdsburg	CA	B - General Building	9/30/2026	1068891
Kirby Construction Company	625 Ware Ave.	Santa Rosa	CA	B - General Building	4/30/2026	812509
M3 Integrated Services Inc	3355 Regional Parkway	Santa Rosa	CA	B - General Building	10/31/2025	966541
Menton Builders, Inc.	P O BOX 871	Ukiah	CA	B - General Building	8/31/2025	381334
Midstate Construction Corporation	1180 Holm Road	Petaluma	CA	B - General Building	7/31/2025	89455
Nor-Cal Pump & Well Drilling, Inc.	1325 Barry Road	Yuba City	CA	B - General Building	1/31/2026	908591
North Coast Floor & Tile	2510 Broadway	Eureka	CA	B - General Building	5/31/2026	808031
Pacific Infrastructure	435 Boulder Ct., Ste. 200	Pleasanton	CA	B - General Building	10/31/2025	799927
Pierson Company	3116 Harrison Ave.	Eureka	CA	B - General Building	3/31/2026	265024
Sack Concrete Construction	1150 Hasting Road	Ukiah	CA	B - General Building	8/31/2025	625555
Telstar Instruments	4017 Vista Park Court	Sacramento	CA	B - General Building	5/31/2026	422364
TerraCon Constructors, Inc.	P O BOX 276	Healdsburg	CA	B - General Building	11/30/2025	562511
Valley Paving	P O BOX 559; 2601 Road E	Redwood Valley	CA	B - General Building	7/31/2025	674411
Wahlund Construction, Inc.	P.O. Box 6486	Eureka	CA	B - General Building	9/30/2026	678993
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	B - General Building	2/28/2026	718733
Wright Contracting LLC	3020 Dutton Ave.	Santa Rosa	CA	B - General Building	4/30/2025	1025609
Building Exchanges						
Construction BidBoard, Inc.	11622 El Camino Real, Ste 100	San Diego	CA	Building Exchanges		
Dodge Data & Analytics	2860 S. State Hwy 161, Ste. 160 #501	Grand Prairie	TX	Building Exchanges		
Humboldt Builders Exchange	1213 5th Street	Eureka	CA	Building Exchanges		
North Coast Builders Exchange	1030 Apollo Way	Santa Rosa	CA	Building Exchanges		
Marin Builders Association	660 Las Gallinas Avenue	San Rafael	CA	Building Exchanges		
Placer County Contractors Association, Inc.	10656 Industrial Ave., Suite 160	Roseville	CA	Building Exchanges		
Bay Area Builders Exchange	3055 Alvarado Street	San Leandro	CA	Building Exchanges		
Builders Exchange of Stockton	4561 Quail Lake Dr., Ste B2	Stockton	CA	Building Exchanges		
Sacramento Regional Builders Exchange	5370 Elvas Ave.	Sacramento	CA	Building Exchanges		
The San Francisco Builders Exchange	850 South Van Ness Avenue	San Francisco	CA	Building Exchanges		
Shasta Builders Exchange	1355 Hartnell Ave	Redding	CA	Building Exchanges		
Valley Contractors Exchange	951 E. Eighth Street	Chico	CA	Building Exchanges		

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
Class C-2 Insulation & Acoustical						
Apperson Energy Management	6620 Central Ave	Ukiah	CA	C-02 Insulation & Acoustical	4/30/2025	1075371
Barth Roofing Company Inc	4384 W. Pine Haven Dr	Tracy	CA	C-02 Insulation & Acoustical	6/30/2025	760030
Granite Construction Company	1324 S. State Street	Ukiah	CA	C-02 Insulation & Acoustical	5/31/2025	89
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	C-02 Insulation & Acoustical	2/28/2026	718733
Class C-4 Boiler, Hot Water Heating & Steam Fitting						
CBS Plumbing & Heating, Inc.	300 W Robles Ave, Unit E	Santa Rosa	CA	C-04 Boiler, Hot Water Heating & Steam Fitting	3/31/2026	294171
Intercounty Mechanical & Electrical, Inc.	189 Wabash Avenue	Ukiah	CA	C-04 Boiler, Hot Water Heating & Steam Fitting	12/31/2026	926337
Roberts Mechanical & Electrical, Inc.	355 Kunzler Ranch Road, Ste. E	Ukiah	CA	C-04 Boiler, Hot Water Heating & Steam Fitting	2/28/2025	556014
Class C-5 Carpentry						
Pierson Company	3116 Harrison Ave.	Eureka	CA	C-05 Carpentry	3/31/2026	265024
Class C-6 Cabinet & Mill Work						
Bridges Construction	5846 Live Oak Dr., Ste 2	Kelseyville	CA	C-06 Cabinet & Mill Work	9/30/2026	607223
Orland Cabinet Shop, Inc.	35 A Street	Orland	CA	C-06 Cabinet & Mill Work	6/30/2025	189381
Class C-7 Low Voltage Communication & Wiring Systems						
Deep Valley Security	2010 Industry Rd.	Ukiah	CA	C-07 Low Voltage Communication & Wiring Systems	2/28/2026	638502
Gaynor Telesystems, Inc.	9650 Tanqueray Ct.	Redding	CA	C-07 Low Voltage Communication & Wiring Systems	8/31/2025	339907
KS Telecom, Inc.	P.O. Box 330	Penryn	CA	C-07 Low Voltage Communication & Wiring Systems	2/28/2025	790922
PCD	1032 Maxwell Drive	Santa Rosa	CA	C-07 Low Voltage Communication & Wiring Systems	4/30/2026	527657
TEC-COM Low Voltage Solutions, Inc.	2045 Live Oak Blvd	Yuba City	CA	C-07 Low Voltage Communication & Wiring Systems	6/30/2025	769824
Telstar Instruments	4017 Vista Park Court	Sacramento	CA	C-07 Low Voltage Communication & Wiring Systems	5/31/2026	422364
Class C-8 Concrete						
Ferranti Construction, Inc.	P O BOX 259	Redwood Valley	CA	C-08 Concrete	3/31/2025	385543
Ghilotti Construction	246 Ghilotti Avenue	Santa Rosa	CA	C-08 Concrete	5/31/2026	644515
Granite Construction Company	1324 S. State Street	Ukiah	CA	C-08 Concrete	5/31/2025	89
Pierson Company	3116 Harrison Ave.	Eureka	CA	C-08 Concrete	3/31/2026	265024
Sack Concrete Construction	1150 Hasting Road	Ukiah	CA	C-08 Concrete	8/31/2025	625555
Class C-9 Drywall						
Pacific Drywall	P O BOX 503	Redwood Valley	CA	C-09 Drywall	2/28/2026	911180
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	C-09 Drywall	2/28/2026	718733
Class C-10 General Electrical						
Busch Construction & Electric	266 Terra Verde Court	Redwood Valley	CA	C10 General Electrical	5/31/2025	404336
Coastal Mountain Electric	14832 Lakeshore Dr.	Clearlake	CA	C10 General Electrical	3/31/2025	507105
Deep Valley Security	2010 Industry Rd.	Ukiah	CA	C10 General Electrical	2/28/2026	638502
Fort Bragg Electric, Inc.	489 S. Harrison St	Fort Bragg	CA	C10 General Electrical	7/31/2026	391464
Granite Construction Company	1324 S. State Street	Ukiah	CA	C10 General Electrical	5/31/2025	89
Intercounty Mechanical & Electrical, Inc.	189 Wabash Avenue	Ukiah	CA	C10 General Electrical	12/31/2026	926337
KS Telecom, Inc.	P.O. Box 330	Penryn	CA	C10 General Electrical	2/28/2025	790922
McDonell Electric, Inc.	382 Tesconi Court	Santa Rosa	CA	C10 General Electrical	6/30/2026	787794
Mike Brown Electric Company	561-A Mercantile Drive	Cotati	CA	C10 General Electrical	4/30/2026	306767
Northern Electric, Inc.	3190 Regional Parkway	Santa Rosa	CA	C10 General Electrical	3/31/2025	437655
PCD	1032 Maxwell Drive	Santa Rosa	CA	C10 General Electrical	4/30/2026	527657
Pumpman Nor Cal	4000 South Moorland Avenue	Santa Rosa	CA	C10 General Electrical	12/31/2025	1033562
Robert Colburn Electric, Inc.	P.O. Box 3667	Eureka	CA	C10 General Electrical	6/30/2026	750471
Roberts Mechanical & Electrical, Inc.	355 Kunzler Ranch Road, Ste. E	Ukiah	CA	C10 General Electrical	2/28/2025	556014
SCC Electric, Inc.	1301 Grant Ave., Ste B	Novato	CA	C10 General Electrical	8/31/2025	1109026
Summit Signal, Inc.	260 Margie Drive	Willits	CA	C10 General Electrical	7/31/2026	842536
Telstar Instruments	4017 Vista Park Court	Sacramento	CA	C10 General Electrical	5/31/2026	422364
Wahlund Construction, Inc.	P.O. Box 6486	Eureka	CA	C10 General Electrical	9/30/2026	678993

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
Class C-11 Elevator Installation						
Arrow Lift of California	101 Sunnyside Ave., Ste. 101	Clovis	CA	C11 Elevator Installation	8/31/2026	995486
Class C-12 Earthwork & Paving						
A-T Wanzer Grading and Excavation, Inc.	690 Todd Road	Lakeport	CA	C12 Earthwork & Paving	7/31/2025	1056341
Cats 4 U Inc	13503 Healdsburg Ave	Healdsburg	CA	C12 Earthwork & Paving	3/31/2025	465781
Pacific Earthscape (aka Ford Logging, Inc.)	1225 Central Ave. #11	McKinleyville	CA	C12 Earthwork & Paving	4/30/2025	793279
Ghilotti Construction	246 Ghilotti Avenue	Santa Rosa	CA	C12 Earthwork & Paving	5/31/2026	644515
Granite Construction Company	1324 S. State Street	Ukiah	CA	C12 Earthwork & Paving	5/31/2025	89
Class C-13 Fencing						
Class C-15 Flooring & Floor Covering						
North Coast Floor & Tile	2510 Broadway	Eureka	CA	C15 Flooring & Floor Covering	5/31/2026	808031
Class C-16 Fire Protecting Contractor						
Pumpman Nor Cal	4000 South Moorland Avenue	Santa Rosa	CA	C16 Fire Protecting Contractor	12/31/2025	1033562
CBS Plumbing & Heating, Inc.	300 W Robles Ave, Unit E	Santa Rosa	CA	C16 Fire Protecting Contractor	3/31/2026	294171
Wipf Construction	P O BOX 234	Ukiah	CA	C16 Fire Protecting Contractor	11/30/2025	629598
Class C-17 Glazing						
Apperson Energy Management	6620 Central Ave	Ukiah	CA	C17 Glazing	4/30/2025	1075371
BEST Contracting Services, Inc.	19027 S. Hamilton Ave.	Gardena	CA	C17 Glazing	5/31/2026	456263
Class C-20 Warm-Air Heating, Ventilating & Air-Conditioning						
CBS Plumbing & Heating, Inc.	300 W Robles Ave, Unit E	Santa Rosa	CA	C20 Warm-Air Heating, Ventilating & Air-Conditioning	3/31/2026	294171
Intercounty Mechanical & Electrical, Inc.	189 Wabash Avenue	Ukiah	CA	C20 Warm-Air Heating, Ventilating & Air-Conditioning	12/31/2026	926337
JMS Mechanical, Inc.	538 Martin Avenue, Suite D	Rohnert Park	CA	C20 Warm-Air Heating, Ventilating & Air-Conditioning	8/31/2026	811562
Roberts Mechanical & Electrical, Inc.	355 Kunzler Ranch Road, Ste. E	Ukiah	CA	C20 Warm-Air Heating, Ventilating & Air-Conditioning	2/28/2025	556014
Class C-21 Building Moving & Wrecking						
Ghilotti Construction	246 Ghilotti Avenue	Santa Rosa	CA	C21 Building Moving & Wrecking	5/31/2026	644515
Granite Construction Company	1324 S. State Street	Ukiah	CA	C21 Building Moving & Wrecking	5/31/2025	89
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	C21 Building Moving & Wrecking	2/28/2026	718733
Class C-22 Asbestos Abatement						
Wahlund Construction, Inc.	P.O. Box 6486	Eureka	CA	C22 - ASBESTOS ABATEMENT	9/30/2026	678993
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	C22 - ASBESTOS ABATEMENT	2/28/2026	718733
Class C-23 Ornamental Metals						
N/A						
Class C-27 Landscaping						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C27 Landscaping	5/31/2025	89
Johnson's Custom Landscaping, Inc.	591 Riverside Drive	Ukiah	CA	C27 Landscaping	3/31/2025	748725
Land Revision	3702 Petaluma Blvd N	Petaluma	CA	C27 Landscaping	5/31/2025	1075942
McCullough Construction Inc	57 Aldergrove Rd.	Arcata	CA	C27 Landscaping	11/30/2025	715577
Quality Landscape Company	1338 Peninsular Dr	Lake Almanor	CA	C27 Landscaping	11/30/2026	548558
Sangiaco Landscape	3150 Guidiville Road	Ukiah	CA	C27 Landscaping	1/31/2025	367676
Class C-28 Lock & Security Equipment						
N/A						
Class C-29 Masonry						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C29 Masonry	5/31/2025	89
Class C-31 Construction Zone Traffic Control						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C31 Construction Zone Traffic Control	5/31/2025	89
Paulson Excavating, Inc.	P.O. Box 339	Albion	CA	C31 Construction Zone Traffic Control	7/31/2026	425362
Wipf Construction	P O BOX 234	Ukiah	CA	C31 Construction Zone Traffic Control	11/30/2025	629598
Class C-32 Parking & Highway Improvement						

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
American Asphalt Repair & Resurfacing Co., Inc.	24200 Clawiter Road	Hayward	CA	C32 Parking & Highway Improvement	5/31/2025	439591
Argonaut Constructors	360 Sutton Place	Santa Rosa	CA	C32 Parking & Highway Improvement	12/31/2025	171432
Pavement Coatings Co.	10240 San Seavine Way	Jurupa Valley	CA	C32 Parking & Highway Improvement	9/30/2026	303609
Sierra Nevada Construction Inc.	P O BOX 50760	Sparks	NV	C32 Parking & Highway Improvement	5/31/2026	593393
Specialized Paevement Marking	19652 N. Hirsch Ct.	Anderson	CA	C32 Parking & Highway Improvement	4/30/2026	854894
Class C-33 Painting & Decorating						
Color New Corp	22855 Califa St	Woodland Hills	CA	C33 Painting & Decorating	11/30/2025	1113019
Diamond Painting, Co KK	3309 Oselot Way	Rancho Cordova	CA	C33 Painting & Decorating	12/31/2026	788505
Dunn Right Painting, Inc.	75 D Kunzler Ranch Road	Ukiah	CA	C33 Painting & Decorating	9/30/2025	691040
Fresh Style Painting	1775 Cork Oak Lane	Manteca	CA	C33 Painting & Decorating	8/31/2025	1109436
Class C-34 Pipline						
Class C-35 Lathing and Plastering						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C35 Lathing and Plastering	5/31/2025	89
Class C-36 Plumbing						
Azevedo Plumbing	3651 Mark Station Rd	Windsor	CA	C36 Plumbing	1/31/2025	610882
CBS Plumbing & Heating, Inc.	300 W Robles Ave, Unit E	Santa Rosa	CA	C36 Plumbing	3/31/2026	294171
Coleman Plumbing	P.O. Box 754	Redwood Valley	CA	C36 Plumbing	12/31/2025	989129
Fort Bragg Electric, Inc.	489 S. Harrison St	Fort Bragg	CA	C36 Plumbing	7/31/2026	391464
Granite Construction Company	1324 S. State Street	Ukiah	CA	C36 Plumbing	5/31/2025	89
Intercounty Mechanical & Electrical, Inc.	189 Wabash Avenue	Ukiah	CA	C36 Plumbing	12/31/2026	926337
Roberts Mechanical & Electrical, Inc.	355 Kunzler Ranch Road, Ste. E	Ukiah	CA	C36 Plumbing	2/28/2025	556014
Class C-38 Refrigeration						
Intercounty Mechanical & Electrical, Inc.	189 Wabash Avenue	Ukiah	CA	C38 Refrigeration	12/31/2026	926337
Class C-39 Roofing						
Barth Roofing Company Inc	4384 W. Pine Haven Dr	Tracy	CA	C39 Roofing	6/30/2025	760030
B. A. S. Roofing	425 Pomo Drive	Ukiah	CA	C39 Roofing	1/31/2025	927007
BEST Contracting Services, Inc.	19027 S. Hamilton Ave.	Gardena	CA	C39 Roofing	5/31/2026	456263
ECN Contracting	P.O. Box 2144	Ukiah	CA	C39 Roofing	1/31/2025	928012
Foam Experts Roofing, Inc.	1107 S. Wilbur St.	Mesa	AZ	C39 Roofing	11/30/2026	501167
Granite Construction Company	1324 S. State Street	Ukiah	CA	C39 Roofing	5/31/2025	89
Harbert Roofing, Inc.	19799 Hirsch Ct.	Anderson	CA	C39 Roofing	10/31/2026	696974
Lucerne Roofing	74 Soda Bay Rd	Lakeport	CA	C39 Roofing	4/30/2026	388686
Class C-42 Sanitation Systems						
APS Environmental Inc	6643 32nd Street Suite 101	North Highlands	CA	C42 Sanitation Systems	7/31/2025	985553
Ghilotti Construction	246 Ghilotti Avenue	Santa Rosa	CA	C42 Sanitation Systems	5/31/2026	644515
Granite Construction Company	1324 S. State Street	Ukiah	CA	C42 Sanitation Systems	5/31/2025	89
Class C-43 Sheet Metal						
BEST Contracting Services, Inc.	19027 S. Hamilton Ave.	Gardena	CA	C43 Sheet Metal	5/31/2026	456263
CBS Plumbing & Heating, Inc.	300 W Robles Ave, Unit E	Santa Rosa	CA	C43 Sheet Metal	3/31/2026	294171
JMS Mechanical, Inc.	539 Martin Avenue, Suite D	Rohnert Park	CA	C43 Sheet Metal	8/31/2026	811562
Class C-45 Electrical Signs						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C45 Electrical Signs	5/31/2025	89
Class C-46 Solar						
Class C-50 Steel Reinforcing						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C50 Steel Reinforcing	5/31/2025	89
Class C-51 Structural Steel Contractor						
Granite Construction Company	1324 S. State Street	Ukiah	CA	C51 Structural Steel Contractor	5/31/2025	89
Class C-53 Swimming Pool						

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
N/A						
Class C-54 Ceramic & Mosaic Tile						
North Coast Floor & Tile	2510 Broadway	Eureka	CA	C54 Ceramic & Mosaic Tile	5/31/2026	808031
Class C-55 Water Conditioning						
N/A						
Class C-57 Water Well Drilling						
Pumpman Nor Cal	4000 South Moorland Avenue	Santa Rosa	CA	C57 Water Well Drilling	12/31/2025	1033562
Commercial Pump & Mechanical	11254 Midway	Chico	CA	C57 Water Well Drilling	3/31/2025	921066
Granite Construction Company	1324 S. State Street	Ukiah	CA	C57 Water Well Drilling	5/31/2025	89
Nor-Cal Pump & Well Drilling, Inc.	1325 Barry Road	Yuba City	CA	C57 Water Well Drilling	1/31/2026	908591
Class D-06 Concrete Related Services						
Class D-09 Drilling, Blasting and Oil Field Work						
Nor-Cal Pump & Well Drilling, Inc.	1325 Barry Road	Yuba City	CA	D09 Drilling, Blasting and Oil Field Work	1/31/2026	908591
Class D-10 Elevated Floors						
N/A						
Class D-12 Synthetic Products						
Flexground LLC	2017 Opportunity Drive Ste 10	Roseville	CA	C61 / D12 Synthetic Products	3/31/2025	1102706
Class D-21 Machinery & Pumps						
APS Environmental Inc	6643 32nd Street Suite 101	North Highlands	CA	C61 / D21 Machinery & Pumps	7/31/2025	985553
Commercial Pump & Mechanical	11254 Midway	Chico	CA	C61 / D21 Machinery & Pumps	3/31/2025	921066
Nor-Cal Pump & Well Drilling, Inc.	1325 Barry Road	Yuba City	CA	C61 / D21 Machinery & Pumps	1/31/2026	908591
Class D-23 Medical Gas Systems						
N/A						
Class D-24 Metal Products						
N/A						
Class D-28 Doors, Gates & Activating Devices						
N/A						
Class D-31 Pole Installation & Maintenance						
N/A						
Class D-34 Prefabricated Equipment						
Flexground LLC	2017 Opportunity Drive Ste 10	Roseville	CA	C61 / D-34 Prefabricated Equipment	3/31/2025	1102706
Class D-35 Pool and Spa Maintenance						
N/A						
Class D-38 Sand & Water Blasting						
Class D-39 Scaffolding						
N/A						
Class D-40 Srvc Stn Equip & Maint						
N/A						
Class D-41 Siding and Decking						
N/A						
Class D-42 Sign Installation						
Class D-49 Tree Service						
A-1 Tree Service & Stump Removal	P.O. Box 493512 Hartnell Ave.	Redding	CA	D49 Tree Service	1/31/2026	1020617
Bay Area Tree Specialists	541 W Capitol Expy PMB 287	San Jose	CA	C61/D49 Tree Service	4/30/2026	836837
Family Tree Service, Inc.	P.O. Box 1325	Laytonville	CA	C61/D49 Tree Service	2/28/2026	640013
Family Tree Service, Inc.	P O BOX 1325	Laytonville	CA	C61/D49 Tree Service	2/28/2026	640013
Image Tree Service, Inc.	564 Caletti Ave.	Windsor	CA	D49 Tree Service	7/31/2025	719689
Johnson's Quality Tree Care & Logging	2700 Boonville Rd.	Ukiah	CA	C61/D49 Tree Service	7/31/2026	698591

CITY OF UKIAH'S 2025 QUALIFIED CONTRACTORS LIST

Company	Address 1	City	State	Class	State License Expiration	State License No.
McCullough Construction Inc	57 Aldergrove Rd.	Arcata	CA	C61/D49 Tree Service	11/30/2025	715577
Wylatti Resource Management, Inc.	P O BOX 575 Cemetary Lane	Covelo	CA	C61/D49 Tree Service	6/30/2025	934597
Class D-52 Window Covering						
Class D-64 Non Specialized						
N/A						
HAZ Hazardous Substance Removal Certification						
Cats 4 U Inc	13503 Healdsburg Ave	Healdsburg	CA	HAZ Hazardous Substance Removal Certification	3/31/2025	465781
EBA Engineering	825 Sonoma Ave., Ste. C	Santa Rosa	CA	HAZ Hazardous Substance Removal Certification	1/31/2025	662725
Fort Bragg Electric, Inc.	489 S. Harrison St	Fort Bragg	CA	HAZ Hazardous Substance Removal Certification	7/31/2026	391464
Ghilotti Construction	246 Ghilotti Avenue	Santa Rosa	CA	HAZ Hazardous Substance Removal Certification	5/31/2026	644515
Granite Construction Company	1324 S. State Street	Ukiah	CA	HAZ Hazardous Substance Removal Certification	5/31/2025	89
McCullough Construction Inc	57 Aldergrove Rd.	Arcata	CA	HAZ Hazardous Substance Removal Certification	11/30/2025	715577
Pacific Infrastructure	435 Boulder Ct., Ste. 200	Pleasanton	CA	HAZ Hazardous Substance Removal Certification	10/31/2025	799927
Paulson Excavating, Inc.	P.O. Box 339	Albion	CA	HAZ Hazardous Substance Removal Certification	7/31/2026	425362
Team Ghilotti, Inc.	2531 Petaluma Blvd., So.	Petaluma	CA	HAZ Hazardous Substance Removal Certification	4/30/2025	895384
TerraCon Constructors, Inc.	P O BOX 276	Healdsburg	CA	HAZ Hazardous Substance Removal Certification	11/30/2025	562511
Wahlund Construction, Inc.	P.O. Box 6486	Eureka	CA	HAZ Hazardous Substance Removal Certification	9/30/2026	678993
West Coast Environmental	3181 Fitzgerald Road	Rancho Cordova	CA	HAZ Hazardous Substance Removal Certification	2/28/2026	718733
HIC Home Improvement Certification						
N/A						



AGENDA SUMMARY REPORT

SUBJECT: Consideration of Approval to Utilize Solid Waste Abatement Funds for a New Part-Time, Temporary Volunteer Coordinator Position, and Approve Corresponding Budget Amendment.

DEPARTMENT: Community Services

PREPARED BY: Neil Davis, Community Services Director

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Part-Time, Temporary Volunteer Coordinator Job Description

Summary: Council will consider approving a proposal to create a new Volunteer Coordinator position with Solid Waste Abatement funds.

Background: Litter, graffiti, and other forms of vandalism are negatively affecting our creeks, waterways, parks and public facilities. These issues harm the environment, diminish public spaces, and call for a coordinated effort to keep our communities clean and safe. City Parks and Streets crews spend a considerable amount of time cleaning encampments, refuge, and graffiti from our parks, creeks, and public spaces. Unorganized groups of volunteers will on occasion assist with cleanup efforts.

A Solid Waste Abatement Fund was created two years ago through a small charge added to each garbage bill for the purpose of funding public abatement activities to assist in keeping our community clean. The Public Works team has used the fund to hire contractors to perform occasional cleanup activities, though no formal plan or proposal for using these funds has been established. The fund has grown to a little over \$100,000 with \$65,000 currently allocated towards a one-time development of downtown garbage enclosures.

Discussion: The Public Spaces Commission, at its November 12th meeting, agreed to act as an advisory board to a new Friends of Ukiah Parks group that will be managed by the Community Services team. The Community Services team hopes to find a way to tap into the unorganized and relatively dormant volunteerism in our community. Volunteers can provide a wide variety of benefits to both municipalities and communities. In addition to the work product (picking up litter, removing graffiti, etc.) volunteers build social capital and encourage pride of ownership in the community while setting an example for others to contribute. However, volunteers do require guidance, planning assistance, and supervision. The Community Services team proposes to tap into this resource by using Solid Waste Abatement funds to hire a part-time, temporary Volunteer Coordinator to organize volunteers to improve the quality and cleanliness of our parks and public spaces.

The Volunteer Coordinator will report to the Community Services Supervisor and work with the recreation, parks, and streets teams to identify high-priority clean-up projects that are suitable for volunteer efforts. The goal would be to have a minimum of two cleanup days per month. In coordination with the Recreation team, the Volunteer Coordinator will create social media content to promote the accomplishments of the group while recruiting new volunteers.

This position will be listed as a one-year temporary position. The goal is for the position to work between 24-30 hours per week. The salary range will be equivalent to other coordinator positions within the Community Services Department, which is currently \$23.93-\$29.80 per hour. The job description is included as

Attachment 1. Data on the productivity of the effort will be collected, and the program will be reassessed at the one-year anniversary.

Staff requests Council approve the use of solid waste mitigation abatement funds for a new part-time, temporary volunteer coordinator position, and approve the corresponding budget amendment.

Recommended Action: Approve the use of solid waste abatement funds for a new part-time, temporary Volunteer Coordinator position, and approve corresponding budget amendment.

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT: 69624550.51120: \$11,428; 69624621.54100: \$1,000

PROPOSED BUDGET AMOUNT: 69624550.51120: \$56,793; 69624621.54100: \$10,000

FINANCING SOURCE: Solid Waste Mitigation Fund 696

REVENUE: No **GRANT:** No

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Sheri Mannion, Human Resources/Risk Management Director

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager



JOB DESCRIPTION

VOLUNTEER COORDINATOR

(Non-Exempt, Part Time)

DEFINITION

Under supervision of the Senior Recreation Coordinator, plan, schedule, organize, lead, and track volunteer projects in the City of Ukiah.

EXAMPLES OF DUTIES

These examples are intended only as illustrations of the various types of work performed. The examples of work performed are neither restricted to nor all-encompassing of the duties to be performed under this job title. (E=Essential Duty; M=Major Portion of Time)

- In coordination with Recreation and Parks staff identify potential projects to improve the cleanliness and aesthetics of City owned and operated facilities. (E-M)
- In coordination with Recreation and Parks staff maintain a prioritized list of potential projects to improve the cleanliness and aesthetics of City owned and operated facilities. (E-M)
- Communicate with Recreation staff a schedule of volunteer projects and assist with publicizing volunteer workdays. (E-M)
- Prepare all necessary tools and supplies needed for volunteer workdays and transport or arrange for transportation to the worksite. (E-M)
- On volunteer workday, greet and orient volunteers to the project. Assure all volunteers have signed a waiver. (E-M)
- Supervise volunteer workers in the performance of typical workday duties such as removing or painting over graffiti, garbage pickup, weeding, etc. (E-M)
- Document photos of projects and participant logs including hours or work performed.
- Operate vehicles, power equipment, hedge clippers, and related grounds and park maintenance equipment. (E)
- Keep tools and equipment in clean and safe working condition. (E)
- Respond to emergency calls after normal duty hours. (E)
- Work flexible hours, including weekends and holidays. (E)
- Perform other related duties as assigned.

QUALIFICATIONS

Knowledge of:

- Principals of clear communication

- Methods, tools, techniques and supplies used in the graffiti removal, painting, and garbage pickup.
- Safe work practices.

Ability to:

- Perform heavy manual labor and lift up to 50 pounds.
- Understand and carry out oral and written directions.
- Establish and maintain cooperative relationships with the public and those contacted in the course of work.
- Work flexible hours, including weekends and holidays.
- Accommodate outside work in extreme weather conditions.

Education and Experience:

Any combination of experience that could likely provide the required knowledge and abilities would be qualifying.

Necessary Special Requirements:

- Possession of a valid Class C California Driver's License;
- Ability to work weekends, holidays, and respond to emergency call-outs;
- Possession of CPR for infant, child and adult, and Standard First Aid Certificates within twelve months of appointment.



AGENDA SUMMARY REPORT

SUBJECT: Consideration of Approval of Reclassification of Administrative Assistant Position to Department Analyst Position for the Police Department.

DEPARTMENT: Police

PREPARED BY: Marla Swan, Communications/Records Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Department Analyst Job Description
2. Administrative & Maintenance Unit Salary Schedule Eff 9.29.24

Summary: Council will consider approving a reclassification of the Administrative Assistant position to a Department Analyst position within the Police Department. The reclassification aims to better align the position with current job duties and responsibilities, improve operational efficiency, and provide a career growth opportunity.

Background: As part of the overall routine maintenance of the classification and compensation schedules for the City of Ukiah, the Human Resources Department is responsible for evaluating classifications, developing new classifications (including appropriate salary levels), examining salary grade adjustments, and making recommendations for additions, modifications, and/or corrections to classifications.

In December 2024, the Police Department requested Human Resources to review the current Administrative Assistant classification for the possibility of reclassifying the position to an analyst position.

Discussion: The position of Administrative Assistant in the Police Department was established several years ago to provide clerical and administrative support. Over time, the role has evolved significantly, with the position now handling complex analytical tasks, data management, and project coordination that extend beyond the original scope of the Administrative Assistant classification.

The current duties of the Administrative Assistant include data analysis, budget preparation, report generation, and project management. These tasks require advanced analytical skills and a higher level of expertise than the original administrative support functions. The reclassification to Department Analyst and job description (Attachment 1) reflects the actual duties being performed and aligns with the job descriptions of similar Analyst positions in other departments.

The Department Analyst position is an existing classification within the Administrative and Maintenance Unit and is the entry-level position into the Analyst series. The current salary range for the position is listed on the Administrative and Maintenance Unit Salary Schedule (Attachment 2) at Grade level 6037 and is currently \$4,810-5,846 per month. A budget amendment is not necessary in this fiscal year due to a number of ongoing police officer vacancies.

Based on the above, it is recommended that the City Council approve the reclassification of the Administrative Assistant position to Department Analyst. This reclassification will better align the position with its current responsibilities, improve departmental efficiency, and support professional growth. Approval of this request will

benefit both the department and the position, contributing to the overall effectiveness and success of the city's operations.

Recommended Action: Approve reclassification of the Administrative Assistant position to a Department Analyst position.

BUDGET AMENDMENT REQUIRED: No; the Department has budget savings due ongoing vacancies.

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: 10020210

REVENUE: No **GRANT:** No

PREVIOUS CONTRACT/PURCHASE ORDER NO.:

COORDINATED WITH: Sheri Mannion, Human Resources/Risk Management Director

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager



JOB DESCRIPTION

DEPARTMENT ANALYST – Police Department Command Staff

(Non-Exempt, Part Time)

DESCRIPTION

Under general supervision of the Administrative Lieutenant and/or his designee, performs a variety of responsible, confidential, and technical work in support of the Command Staff; assists the Command Staff on special projects and research; performs work as assigned by the Command Staff. Work involves responsibility for the application of professional knowledge and skills to effect research, analysis, planning and the implementation of various policies and programs. The successful candidate will have an eye for detail but understand the big-picture perspective; excels in a fast-paced environment; works both independently and in a team environment; and is comfortable managing assignments for multiple supervisors.

EXAMPLES OF DUTIES

These examples are intended only as illustrations of the various types of work performed. The examples of work performed are neither restricted to nor all-encompassing of the duties to be performed under this job title.

- Provides administrative and analytical support to the Police Department's Command Staff, including participating in the development, planning and implementation of department goals, core values, objectives, policies, and priorities.
- Assists in the oversight and/or coordinates miscellaneous employee and community-related programs and projects.
- Conducts studies and surveys; collects, compiles, and analyzes information; develops and evaluates options; prepares and presents recommendations for review by Command Staff.
- Coordinates activities of the Police Department with other departments, divisions, and outside agencies.
- Coordinates with POST and department scheduling training, monitoring reimbursement, and maintaining staff status in the POST EDI.
- Assists Command Staff with budget submission and composes internal spreadsheets for budget tracking purposes.
- Receives, researches, and responds to questions from outside agencies, other departments, the City Council, and the public.
- Composes various reports, correspondence, emails, flyers, and other communication-related materials. For example, Annual Reports and training recruitment materials.

- Assists in maintaining departmental information services systems, the Police Department website, including coordination of the police social media press releases and current information.
- Coordinates all police payrolls.
- Prepare staff reports as assigned by Command Staff.

MINIMUM QUALIFICATIONS

Knowledge of:

- Budgeting, with ability to read and analyze a variety of budgets and financial reports
- Problem solving methods and techniques.
- Organization and management practices as applied to the analysis and evaluation of programs, policies, and operational needs.
- Research techniques and methods of report presentation.
- Microsoft Word, Excel, PowerPoint, Publisher and other programs as needed.
- Exceptional customer service standards.

Ability to:

- Effectively represent the Police Department with individual citizens, community groups, and other governmental agencies.
- Establish and maintain effective and cooperative working relationships with those contacted in the course of work.
- Communicate and present ideas clearly and concisely with excellent grammar, both orally and in writing.
- Interpret and apply laws, regulations, and policies.
- Analyze complex technical information effectively and objectively, and make sound recommendations within established guidelines.
- Perform a wide variety of duties and responsibilities with accuracy and speed under the pressure of time-sensitive deadlines.
- Exercise integrity, ingenuity, confidentiality, and creativity in the performance of assigned tasks
- Organize work, set priorities, meet critical deadlines, and follow up on assignments with a minimum of direction.
- Respond to abrupt changes in priorities.
- Work flexible hours when necessary.

Education and Experience:

Any combination equivalent to experience and education that could likely provide the required knowledge and abilities would be qualifying. A typical way to obtain these qualifications would be through courses leading to a bachelor's degree from an accredited college or university in business administration, public administration, or a related field; and two years of increasingly responsible administrative work and/or program management experience, preferably in public sector.

Necessary Special Requirement:

Possession of a valid Class C California Driver's License.

Administrative Maintenance Unit - Operating Engineers, Local 3
Salary Schedule

Effective September 29, 2024 - New Contract 2025

Grade	Classification		Step 0	Step 1	Step 2	Step 3	Step 4
6024	Airport Attendant	Annual	\$ 40,847.63	\$ 42,890.04	\$ 45,034.56	\$ 47,286.24	\$ 49,650.60
6025	Maintenance Custodian	Monthly	\$ 3,403.97	\$ 3,574.17	\$ 3,752.88	\$ 3,940.52	\$ 4,137.55
		Hourly	\$ 19.64	\$ 20.62	\$ 21.65	\$ 22.73	\$ 23.87
6328	Financial Services Specialist I	Annual	\$ 46,215.59	\$ 48,526.32	\$ 50,952.60	\$ 53,500.20	\$ 56,175.24
		Monthly	\$ 3,851.30	\$ 4,043.86	\$ 4,246.05	\$ 4,458.35	\$ 4,681.27
		Hourly	\$ 22.22	\$ 23.33	\$ 24.50	\$ 25.72	\$ 27.01
6130	Administrative Assistant	Annual	\$ 48,555.11	\$ 50,982.84	\$ 53,532.00	\$ 56,208.60	\$ 59,019.00
6030	Buyer I	Monthly	\$ 4,046.26	\$ 4,248.57	\$ 4,461.00	\$ 4,684.05	\$ 4,918.25
6630	Community Development Tech I	Hourly	\$ 23.34	\$ 24.51	\$ 25.74	\$ 27.02	\$ 28.37
6330	Customer Services Representative						
6126	Event Coordinator						
6530	Financial Services Specialist II						
6430	Police Records Clerk						
6631	Horticulturist	Annual	\$ 49,769.05	\$ 52,257.48	\$ 54,870.36	\$ 57,613.92	\$ 60,494.64
6228	Buildings Maintenance I	Monthly	\$ 4,147.42	\$ 4,354.79	\$ 4,572.53	\$ 4,801.16	\$ 5,041.22
6031	Parks/Golf Service Worker I	Hourly	\$ 23.93	\$ 25.12	\$ 26.38	\$ 27.70	\$ 29.08
6331	Public Works Maintenance I						
6231	Recreation Coordinator						
6531	Seasonal Program Coordinator						
6032	Meter Reader	Annual	\$ 51,013.34	\$ 53,564.04	\$ 56,242.20	\$ 59,054.28	\$ 62,007.00
		Monthly	\$ 4,251.11	\$ 4,463.67	\$ 4,686.85	\$ 4,921.19	\$ 5,167.25
		Hourly	\$ 24.53	\$ 25.75	\$ 27.04	\$ 28.39	\$ 29.81
6133	Parks Service Worker II	Annual	\$ 52,288.66	\$ 54,903.12	\$ 57,648.24	\$ 60,530.64	\$ 63,557.16
6233	Buildings Maintenance II	Monthly	\$ 4,357.39	\$ 4,575.26	\$ 4,804.02	\$ 5,044.22	\$ 5,296.43
		Hourly	\$ 25.14	\$ 26.40	\$ 27.72	\$ 29.10	\$ 30.56
6534	Building Inspector I	Annual	\$ 53,595.94	\$ 56,275.80	\$ 59,089.56	\$ 62,044.08	\$ 65,146.32
6334	Code Enforcement Inspector I	Monthly	\$ 4,466.33	\$ 4,689.65	\$ 4,924.13	\$ 5,170.34	\$ 5,428.86
6434	Engineering Technician I	Hourly	\$ 25.77	\$ 27.06	\$ 28.41	\$ 29.83	\$ 31.32
6734	Fire Inspector I						
6634	Human Resources Technician						
6134	Museum Curator						
6335	Public Works Maintenance II	Annual	\$ 54,935.74	\$ 57,682.56	\$ 60,566.64	\$ 63,594.96	\$ 66,774.72
6635	Senior Financial Services Specialist	Monthly	\$ 4,577.98	\$ 4,806.88	\$ 5,047.22	\$ 5,299.58	\$ 5,564.56
		Hourly	\$ 26.41	\$ 27.73	\$ 29.12	\$ 30.57	\$ 32.10
6237	Assistant Accountant	Annual	\$ 57,716.91	\$ 60,602.76	\$ 63,632.88	\$ 66,814.56	\$ 70,155.24
6337	Conference Center Coordinator	Monthly	\$ 4,809.74	\$ 5,050.23	\$ 5,302.74	\$ 5,567.88	\$ 5,846.27
6537	Buyer II	Hourly	\$ 27.75	\$ 29.14	\$ 30.59	\$ 32.12	\$ 33.73
6937	Community Development Tech II						
6437	Customer Services Team Leader						
6037	Department Analyst						
6435	Parks/Golf Lead Worker						
6837	Senior Recreation Coordinator						
6737	Senior Seasonal Program Coordinator						
6137	Utility Services Team Leader						
6431	Information Technology Specialist I	Annual	\$ 58,668.88	\$ 61,602.36	\$ 64,682.52	\$ 67,916.64	\$ 71,312.52
		Monthly	\$ 4,889.07	\$ 5,133.53	\$ 5,390.21	\$ 5,659.72	\$ 5,942.71
		Hourly	\$ 28.21	\$ 29.62	\$ 31.10	\$ 32.65	\$ 34.28
6138	Senior Airport Attendant	Annual	\$ 59,159.77	\$ 62,117.76	\$ 65,223.60	\$ 68,484.84	\$ 71,909.04
6438	Electric Utility Program Coordinator	Monthly	\$ 4,929.98	\$ 5,176.48	\$ 5,435.30	\$ 5,707.07	\$ 5,992.42
		Hourly	\$ 28.44	\$ 29.86	\$ 31.36	\$ 32.93	\$ 34.57

Administrative Maintenance Unit - Operating Engineers, Local 3
Salary Schedule

Effective September 29, 2024 - New Contract 2025

Grade	Classification		Step 0	Step 1	Step 2	Step 3	Step 4
6637	Information Technology Specialist II	Annual	\$ 64,767.71	\$ 68,006.04	\$ 71,406.36	\$ 74,976.72	\$ 78,725.52
		Monthly	\$ 5,397.31	\$ 5,667.17	\$ 5,950.53	\$ 6,248.06	\$ 6,560.46
		Hourly	\$ 31.14	\$ 32.70	\$ 34.33	\$ 36.05	\$ 37.85
6143	Building Inspector II	Annual	\$ 66,933.89	\$ 70,280.64	\$ 73,794.72	\$ 77,484.48	\$ 81,358.68
6243	Code Enforcement Inspector II	Monthly	\$ 5,577.82	\$ 5,856.72	\$ 6,149.56	\$ 6,457.04	\$ 6,779.89
6343	Engineering Technician II	Hourly	\$ 32.18	\$ 33.79	\$ 35.48	\$ 37.25	\$ 39.11
6443	Fire Inspector II						
6241	Lead Information Technology Specialist	Annual	\$ 79,021.44	\$ 82,972.56	\$ 87,121.20	\$ 91,477.32	\$ 96,051.24
		Monthly	\$ 6,585.12	\$ 6,914.38	\$ 7,260.10	\$ 7,623.11	\$ 8,004.27
		Hourly	\$ 37.99	\$ 39.89	\$ 41.89	\$ 43.98	\$ 46.18
6242	Information Technology Network Specialist	Annual	\$ 85,881.26	\$ 90,175.32	\$ 94,684.08	\$ 99,418.32	\$ 104,389.20
		Monthly	\$ 7,156.77	\$ 7,514.61	\$ 7,890.34	\$ 8,284.86	\$ 8,699.10
		Hourly	\$ 41.29	\$ 43.35	\$ 45.52	\$ 47.80	\$ 50.19



AGENDA SUMMARY REPORT

SUBJECT: Request for Approval to Utilize Umpqua Bank for Comprehensive Banking Services.

DEPARTMENT: Finance

PREPARED BY: Myles Fisette, Purchasing Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. RFP E38943 - Banking Services
2. Umpqua Proposal for Banking Services

Summary: Council will consider approving City Staff to utilize Umpqua Bank for comprehensive banking services.

Background: The City of Ukiah is seeking new banking services to ensure the continued efficient management of its financial operations. The current banking relationship has been in place for several years, but as the City's financial needs have evolved, it is essential to evaluate whether the existing arrangements continue to meet the City's goals for cost-effectiveness, security, and overall service quality.

As the City grows and its financial operations become more complex, it is essential to partner with a financial institution that offers innovative solutions, streamlines processes, and provides modern tools to enhance operational efficiency. Additionally, evaluating new banking services will help identify potential cost savings, ensuring the City is receiving the most competitive rates. Security is also a critical factor, as the City requires a partner that prioritizes the protection of its funds with state-of-the-art security measures. Furthermore, the City needs a banking partner that can offer customized services tailored to its specific needs, including flexibility in managing accounts and payments. Lastly, staying ahead of legal and regulatory changes is essential, and a new banking relationship will ensure the City remains compliant with evolving public fund management requirements.

Discussion: The City sought proposals from qualified financial institutions interested in providing comprehensive banking services to the City of Ukiah. The City aimed to obtain the most efficient and effective banking services while maintaining sufficient liquidity and protection of all the funds entrusted to the City.

A Request for Proposal (RFP) (Attachment 1) for banking services was released on September 11, 2024, with a due date of October 10, 2024. The City received five proposals in response. After a thorough evaluation process, including a review of the bank's capabilities, reputation, and competitive offerings, Staff recommends moving forward with Umpqua Bank based upon an independent scoring performed by the City's evaluation team. See Attachment 2 for proposal submitted by Umpqua Bank.

Recommended Action: Approve the City to utilize Umpqua Bank for comprehensive banking services.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

REVENUE: No GRANT: No

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Mary Horger, Financial Services Manager; Dan Buffalo, Finance Director

DIVERSITY-EQUITY INITIATIVES (DEI):

CLIMATE INITIATIVES (CI):

GENERAL PLAN ELEMENTS (GP):

Approved: 
Sage Sangiacomo, City Manager



REQUEST FOR PROPOSAL

Banking Services

Request Date:

September 11, 2024

Deadline for Responses:

October 10, 2024 5:00 P.M. (PST)

CITY OF UKIAH
Request for Proposal (RFP) – Banking Services

1.0 INTRODUCTION & BACKGROUND

The City of Ukiah (City) is seeking proposals from qualified financial institutions interested in providing comprehensive banking services to the City of Ukiah. The City seeks to obtain the most efficient and effective banking services while maintaining sufficient liquidity and protection of all the funds entrusted to the City. The City is accepting proposals from institutions that can provide quality service at a reasonable cost while utilizing up-to-date security methods and technology.

2.0 SCHEDULE OF EVENTS

The schedule for this procurement is as follows:

Distribute Request for Proposals:	September 11, 2024
Deadline for Responses:	October 10, 2024 5:00 P.M. (PST)
City Evaluation of Proposals:	By October 17, 2024
Interviews (if necessary)	By October 24, 2024
City Council approval requested for recommended firm:	November 6, 2024

The City must receive proposals no later than the time and date specified above. Those proposals received after this date and time will not be considered. Proposals will only be accepted electronically. Send your proposals to the following:

Myles Fisette
Purchasing Manager
City of Ukiah
Email: mfisette@cityofukiah.com

Acceptable forms of electronic delivery are emailing the proposal directly, or providing a link to the documents for download, as long as the email is received by the established deadline. It is highly recommended to request a delivery receipt with the email to confirm that it has been received.

3.0 SCOPE OF WORK

The City is seeking solutions for the service areas below.

- Depository Services
- Remote Deposit Services
- Sweep Account
- ACH, Wire, and Other Transfer Services
- Payroll direct deposit
- ACH vendor payments
- Incoming and outgoing domestic wire transfers
- Online Banking
- Account Reconciliation
- Fraud Protection
- Positive pay transactions
- Lock box(optional)

4.0 REQUIRED PROPOSAL CONTENT

Proposals must be structured, presented, and labeled in the following order:

A. Cover Letter

The proposal must include a cover letter that provides at least the following:

- Proposer's legal name and corporate structure
- Primary business address where the banking relationship will be managed
- Proposer's primary contact information, including name, address, phone, and email
- Statement indicating that the proposal is valid for at least 120 days
- Disclosure of potential conflicts of interest. A conflict of interest can exist when an employee of the Proposer has a family or financial relationship with an employee of the City.
- Signature of a company officer empowered to bind the Proposer to the provisions of this RFP and any contract awarded pursuant to it

B. Table of Contents

All pages are to be numbered and figures, tables, charts, etc. must be assigned index numbers and identified in the Table of Contents.

C. Executive Summary

This section should provide a concise synopsis of the proposal and a description of the Proposer's credentials to deliver the products and services described in this RFP.

D. Bank Background

This section of the proposal should include the following:

- A brief description of the company background and organizational history
- A list of all parent or subsidiary companies
- Overview of the bank's operations, management, customer service philosophies, and financial strength
- Overview of the bank's collateralization policies, including information on held-to-maturity and available-for-sale securities.
- Additional literature and product brochures (optional)

E. Bank Qualifications

This section should address the following:

- Experience: Describe the bank's experience servicing California public sector clients
- Relationship Management: Identify the size and scope of your California-based public banking unit including an outline of the roles and responsibilities of each member of the relationship management team
- Client Support: An overview of the bank's client support organization including hours of operation
- Any financial institution submitting a proposal must be a qualified public depository, as defined by California General Statutes, and must perform its obligation under this proposal in compliance with all applicable federal and state laws and regulations, statutes and policies.



F. References

The proposer must provide at least five references, which should include other public agencies of a similar size and complexity to the City. Please include a mix of long-standing and newer clients. For each reference, the Proposer must provide the following information:

- Agency name and contact information (name, title, address, and email)
- Length of time they have been a customer
- List of banking services used

G. Proposed Services

In this section, provide a summary of your bank's offerings for each of the service areas listed in Section 3 – Scope of Work. For each service area, please describe what differentiates your organization's services from others. Additionally, please address the specific questions and topics below.

General Questions

1. How is the bank's earnings credit rate (ECR) determined, adjusted, and applied? Please include in the explanation the impact of the bank's reserve requirement and the formula for converting service charges to balance requirements. List the bank's ECR for the past twelve months.
2. How is the charge for FDIC insurance calculated?
3. Describe the bank's disaster recovery plan. How quickly will back-up facilities be activated? Describe the bank's operating capabilities to assist the City in the event of a disaster or declared emergency.
4. Are there bank branches local to the Ukiah area? If not, do you offer deposit pick up services?

Depository Services

1. What is the deadline for same-day credit of deposits?
2. How do you determine and calculate availability of deposited funds? Do you calculate availability by item or formula? If there are corrections or adjustments, how would the City be notified?
3. Please describe the bank's returned item handling and notification procedures. Can returned items for insufficient or uncollectable funds be re-deposited? How would the City be notified of returned items?
4. Please describe your online services. Are copies of returned checks available on your online banking site?

Remote Deposit Services

1. Can the bank accept and process a check file generated by RemitPlus, or would the City be required to utilize the bank's scanning software and scanner?

Sweep Account

1. Describe the interest-bearing account used for the sweep account, including collateralization and/or insurance.
2. What interest rate has been paid on the sweep account for the last 12 months?
3. Describe the daily process to transfer between the sweep account and the transaction account.

ACH, Wire, and Other Transfer Services

1. Is the bank both a sending and receiving bank of the National Automated Clearing House



(NACHA)?

2. Can the bank accept and process ACH (i.e., payroll and AP payments) files generated by Tyler ERP Version: 2024.1.0.842?
3. Can the bank accept and process a utility billing customer draft file generated by Milsoft iXp Version 9.13 for CIS and FMS/WMS?
4. List your cutoff times for same- and next-day EFTs (e.g., wire transfers, ACH payments)? How soon after the bank receives incoming funds or notification of incoming funds would the funds be available to the City?
5. How and when would the City receive confirmation that the bank received an electronic payment file?
6. How and when is the City notified of problems with payment files? Would we have the ability to delete or re-send problem files?
7. How are returned or rejected ACH transactions handled? What information does the bank provide to assist in the identification of such items?
8. What is the process for initiating wire transfers. What are the cutoff times? Is dual authorization available?
9. Describe the ability to store recurring and future-dated wire instructions/templates including maximum retention period for future-dated transactions and related approval processes.
10. Describe the bank's procedure for providing payment confirmation upon acceptance and execution of wire transfer requests. If a wire transfer fails, how and when would the City be notified?
11. Please describe the LAIF transfer process.

Online Banking

1. Are transactions available to view online in real-time?
2. Are account analysis reports available online? If so, when do they become available?
3. How many days after month-end would the City be able to view its bank statements online?
4. Are images of cleared checks (front and back) and returned checks available? For how long?
5. Are reports customizable?
6. What is the bank's contingency plan for providing this information in the event of an unexpected bank system problem or natural disaster?

Account Reconciliation

The City currently issues approximately 4,800 Accounts Payable and 2,040 Payroll checks per year. The City utilizes full Account Reconciliation reporting from the bank for items paid information.

1. Does the bank offer full Account Reconciliation and Positive Pay with data transmission capabilities? If so, please describe the services and what is recommended for the City's consideration including, but not limited to data transmissions methods, file transmission time windows, notification of report delivery methods, control options, fees.
2. Describe the bank's-web-based services as-they pertain to stop payments, copies of paid checks, ACH exceptions, and voided checks.
3. Describe the account reconciliation services offered by the financial institution.
4. Describe the financial institution's ability to make corrections or updates to the reconciliation process.

Fraud Protection

1. Describe the bank's positive pay capabilities.
2. Describe the bank's online stop payment, void, and cancellation services and features.
3. How is liability for fraudulent deposit items determined?
4. If the bank provides ACH debit blocking, what level of filtering can be applied?



5. Does the bank offer ACH positive pay (decisioning on unidentified ACH transactions)?

Conversion Plan

1. Describe the overall plan your financial institution would coordinate to ensure a smooth transition from current financial institution.
2. Describe the training to the City's staff for the operation and use of the financial institution's services and automated systems for areas of service. How are the training sessions structured?
3. Provide a timeline schedule and applicable charges for the conversion plan.
4. Describe the conversion allowance the bank will provide to the City. Please state a specific dollar amount and identify those supplies, products, and/or services included.

H. Pricing

Utilizing the Word document in Attachment A, please provide all costs associated with the transition and ongoing fixed and per-transaction costs associated with the proposed services. Fees related to all services described in the proposal must be listed on this worksheet.

Please also list and provide pricing for optional available services that fall outside of the stated Scope of Work in Section 3.

I. Transition Approach and Plan

This section should clearly identify each phase, the timeline proposed, and the roles and responsibilities to be performed by the Proposer and those to be performed by the City. This section should include:

- A description of the transition and project management methodology and approach
- A project organization chart highlighting the key staff who will be assigned to the project and background information on the project manager and other key assigned resources
- Recommended project phasing and a transition schedule
- A list and description all transition deliverables and documentation that will be provided
- An outline of the roles and responsibilities of City staff during the transition
- Training, testing, and deployment plans

J. Exhibits

- Agreement or contract documents
- Samples of standard online reports and statements
- Disclosures of litigation or investigations currently being conducted on your bank by state or federal bank regulators, the Attorney General's Office, consumer protection agencies, etc.
- Most recently audited financial statements as well as current rating from a nationally recognized statistical rating organization and Bauer Financial ratings

5.0 PROPOSAL EVALUATION

An Evaluation Committee will review all proposals to determine which Proposers have qualified for consideration. Proposals will be initially reviewed to verify that the submission conforms to stated specifications. The committee will not evaluate any responses that significantly deviate from the basic intent and/or fail to satisfy the mandatory requirements.

Submitted proposals will be evaluated based on the following criteria and weights:

A. Ability to meet the needs of the City – 18%



- B. Quality and clarity of the proposal – 8%
- C. Online banking functionality – 8%
- D. Adequacy of financial controls and protections against loss – 12%
- E. Company strength and financial stability – 8%
- F. Well thought-out timeline and roadmap for transition – 8%
- G. Experience with the unique needs of California public agencies – 4%
- H. Opportunities for added operational efficiencies and automation – 4%
- I. Anticipated value and price – 25%
- J. References – 5%

The City reserves the right to reject any and all proposals. The City reserves the right to award a contract to the firm that presents the proposal, which in the sole judgment of the City best serves the City's interest. The City reserves the right to reject any or all proposals, to waive minor irregularities in said proposals, and/or negotiate minor deviations with the successful firm. The City reserves the right to award only a portion of the proposed services while retaining the current services.

6.0 CONTACT PERSON

Please contact Myles Fisette, Purchasing Manager, if you have questions or require additional information. Questions must be submitted in writing via email. Contact information can be found below.

Myles Fisette
Purchasing Manager
City of Ukiah
Email: mfisette@cityofukiah.com

Communication between a proposing company and a member of the City staff, other than the designated contact person, or between a proposing company and a non-designated City representative regarding the selection of a proposing company or award of this contract is explicitly prohibited from the time the RFP is advertised until the selection of a proposing company or award of the contract. Questions pertaining to this RFP shall be addressed to the party specified above. Failure of a proposing company, or any of its representatives, to comply with this paragraph will result in their proposal being rejected.

7.0 ADDENDA

If it becomes necessary to revise any part of this Request for Proposal after it has been released, the City will issue an addendum containing the revision. All addenda will be posted on the City's website at www.cityofukiah.com/purchasing with the rest of the documents. Anyone who intends to submit a proposal in response to this solicitation must check the website frequently for any posted addenda. Anyone submitting a proposal will be deemed to have seen and agreed to be bound by the posted addenda.

8.0 INSURANCE REQUIREMENTS

~~Provided are the City's complete insurance requirements. Awarded firm, prior to performing any work, shall procure and maintain for the duration of the contract insurance per the attached requirements.~~

9.0 PUBLIC RECORDS

All materials submitted in response to this RFP are property of the City and will not be returned. The materials will be a public record subject to the disclosure provisions of the California Public Records Act and any other related public law or provision of such laws.



10.0 FINANCIAL RESPONSIBILITY

The City accepts no financial responsibility for any costs incurred by a firm in responding to this RFP. Submissions will become the property of the City and may be used by the City in any way deemed appropriate.



Banking Services Proposal for City of Ukiah:



Submitted by Umpqua Bank
607 South State Street
Ukiah, CA 95482

William Thompson
Branch Manager

Anastasia Efstathiou
Public Finance, VP/Relationship Manager

Randy Teddy
Treasury Management Consultant

Sara Haugen
Michaela Findley
Alyssa Nelson
Kimberly Howard
Cathy Witten
Public Deposit Operations Team

October 10th, 2024

A. Transmittal/Cover Letter

Umpqua Bank
Anastasia Efstathiou
607 South State Street
Ukiah, CA 95482

City of Ukiah

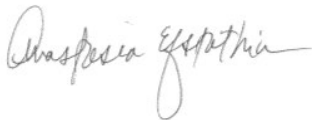
On behalf of Umpqua Bank, I want to thank you for banking with us for the past 22 years. We consider the City of Ukiah a valued client and welcome the opportunity to review and grow our relationship with the City. We strive to provide the best customer service possible and continue to evaluate products and pricing the City requires.

We have read your Request for Proposal (RFP) for Banking Services and fully understand its intent. Below are some highlights you will discover as you read our proposal:

- Pricing to be enhanced per our detailed response reflecting our strong desire to maintain and grow this important relationship.
- Improve your Earnings Credit Rate to 1.1% on the current the Umpqua Bank account as well as the accounts referenced in this RFP.

Thanks so much for including Umpqua Bank in the City's RFP and for entrusting us with the City's complete banking relationship. We would be thrilled to be selected and consolidate all of your banking needs.

Sincerely,



Anastasia Efstathiou
Public Finance, Relationship Manager

***Please note that the pricing presented in this proposal is valid for 120 days and there are no potential conflicts of interest.*



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C. Executive Summary

This section should provide a concise synopsis of the proposal and a description of the Proposer's credentials to deliver the products and services described in this RFP.

As the largest community bank in the Pacific Northwest, we are recognized as one of the nation's strongest financial institutions. We are deeply committed to the communities, businesses, and organizations we serve – providing both the financial and community support our neighborhoods need to grow.

We deliver a team of professionals that are ready to assist you in transitioning your banking services over to Umpqua Bank. This team is comprised of the Public Deposit Team, Treasury Management Consultant, and Relationship Manager. Collectively we are committed to making the transition as seamless and painless as possible. Don't just take our word for it, we have given you several references to validate how we handle transitions and customer service.

Umpqua Bank has been involved with the public sector for over 60 years and our customized proposal provides detailed information that will help manage the financial needs for the City. We welcome the opportunity to be your next banking partner.

Umpqua Bank meets all required service levels described in this RFP.

D. Bank Background

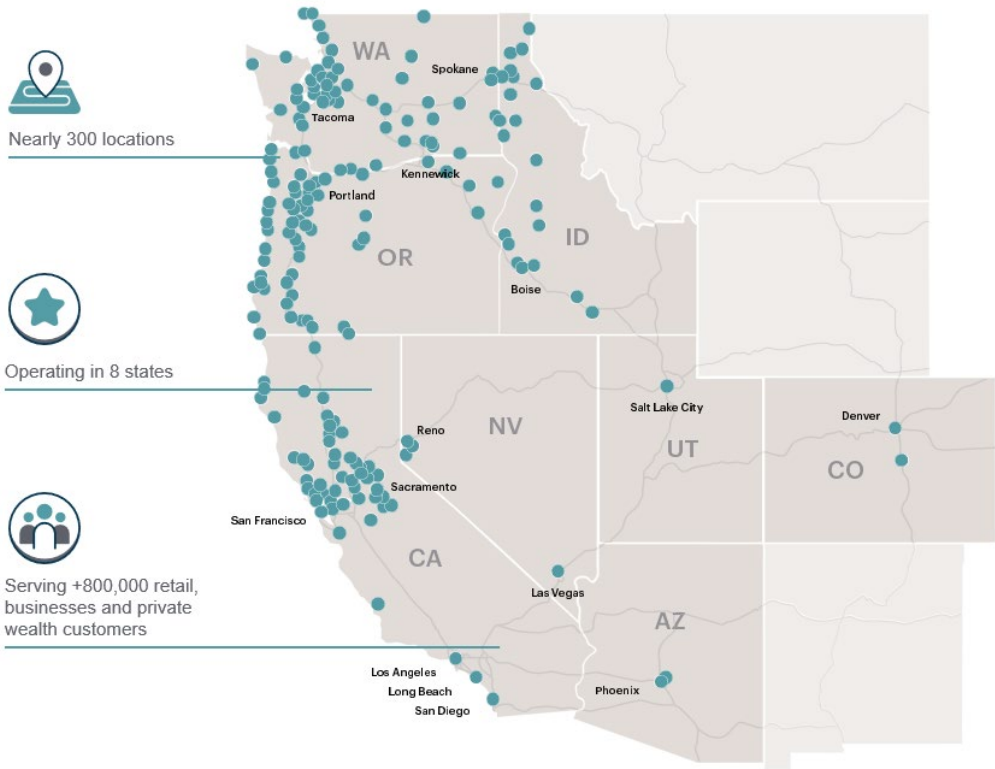
This section of the proposal should include the following:

- A brief description of the company background and organizational history
- A list of all parent or subsidiary companies
- Overview of the bank's operations, management, customer service philosophies, and financial strength
- Overview of the bank's collateralization policies, including information on held-to-maturity and available-for-sale securities.
- Additional literature and product brochures (optional)

Columbia Banking System, Inc. (Nasdaq: COLB) is headquartered in Tacoma, Washington and is the parent company of Umpqua Bank, an award-winning western U.S. regional bank based in Lake Oswego, Oregon. In March of 2023, Columbia and Umpqua combined two of the Pacific Northwest's premier financial institutions under the Umpqua Bank brand to create one of the largest banks headquartered in the West. With over \$50 billion of assets, Umpqua Bank combines the resources, sophistication and expertise of a national bank with a commitment to deliver superior, personalized service. The bank operates in Arizona, California, Colorado, Idaho, Nevada, Oregon, Utah, and Washington with nearly 300 locations.

Bank Holding Company: Columbia Banking System, Inc

Subsidiary Companies: Financial Pacific Leasing, Columbia Trust Company



Credit Ratings

UMPQUA BANK	FITCH ⁴	KBRA ⁵	S&P ⁶
Long-term Issuer / Senior Unsecured Debt	BBB+	A	BBB
Subordinated Debt	-	A-	-
Short-term Issuer / Short-term Debt	F2	K1	A-2
Long-term Deposits	A-	A	-
Short-term Deposits	F2	K1	-

COLUMBIA BANKING SYSTEM	FITCH ⁴	KBRA ⁵	S&P ⁶
Long-term Issuer / Senior Unsecured Debt	BBB+	A-	BBB-
Subordinated Debt	-	BBB+	-
Short-term Issuer / Short-term Debt	F2	K2	A-3

¹All financial metrics contained in this document are as of June 30, 2024. Totals may not sum to 100% due to rounding.

²Information above as of June 30, 2024. Regulatory capital ratios are estimates pending completion and filing of Columbia’s regulatory reports.

³Allowance for credit losses inclusive of credit discount includes the credit discount remaining at June 30, 2024 related to M&A.

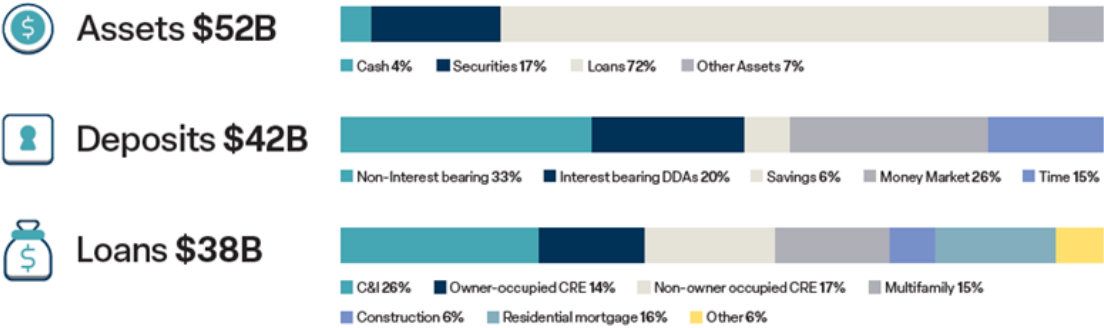
⁴Fitch Ratings as of April 2, 2024; the rating outlook was stable on the date of publication. Visit www.fitchratings.com for additional background.

⁵KBRA as of March 1, 2024; the outlook for all long-term ratings was stable on the date of publication. Visit www.kbra.com for additional background.

⁶S&P Global Ratings as of October 27, 2023; the outlook was negative on the date of publication. Visit www.spglobal.com/ratings for additional background.



Strength in Numbers¹



Deposits \$42B

Non-Interest bearing 33%

Interest bearing DDAs 20%

Savings 6%

Money Market 26%

Time 15%

Loans \$38B

C&I 26%

Owner-occupied CRE 14%

Non-owner occupied CRE 17%

Multifamily 15%

Construction 6%

Residential mortgage 16%

Other 6%

Our balance sheet includes deposit and loan portfolios that are diversified by product, customer, industry, and geography, creating a granular balance sheet that includes substantial liquidity to support flexibility. Columbia's total available liquidity was \$19.1 billion as of June 30, 2024, inclusive of secured off-balance sheet lines of credit. Total available liquidity was 37% of assets and 46% of total deposits as of June 30, 2024.

Umpqua Bank and Columbia maintain capital ratios above well-capitalized thresholds. Columbia's common equity tier 1 capital ratio was 9.9% and its total risk-based capital ratio was 12.1% as of June 30, 2024. ² Columbia's allowance for credit losses as a percentage of loans was 1.16% as of June 30, 2024, and the ratio increases to 1.35%, inclusive of credit discounts. ³	Common equity tier 1 capital ratio	9.9%
	Total risk-based capital ratio	12.1%
	Allowance for credit losses as a percentage of loans ³	1.16%
	Allowance for credit losses, inclusive of credit discounts ³	1.35%

E. Bank Qualifications

- This section should address the following:
- Experience: Describe the bank’s experience servicing California public sector clients
- Umpqua Bank has been involved in the public sector for over 60 years. We take care of both the banking services needs of the public entity, as well as offer interest bearing accounts when diversifying funds from LAIF or your brokerage partners makes sense. We have a public lending team with expertise in providing public entities with both operating and term loans. Umpqua Bank actively participates in governmental conferences, staying up to date on the knowledge of and adherence to the California Government Code and other applicable laws.
- Umpqua Bank has 210 public agency clients in CA alone, with a total of \$280,000,000.00 in public funds on deposit as of 10/01/2024.

- **Relationship Management:** Identify the size and scope of your California-based public banking unit including an outline of the roles and responsibilities of each member of the relationship management team

Your Umpqua Bank Relationship team is here to ensure that the City of Ukiah continues to experience top notch customer service. We understand that you need assistance, and you need it to be accurate and timely.

Our Public Deposits Operations Team is available via both email and telephone to assist you during normal banking hours. We strive to be top in class in answering questions directly or escalating issues to the appropriate team and level if required.

We also make sure that both your Relationship Manager and Treasury Management Consultant are brought into the conversation to follow through and ensure that the questions, concerns, or issues are addressed.

Anastasia Efstathiou

VP, Relationship Manager, Government Banking
916.774.3923
Located in Roseville, CA

Anastasia has over 30 years of experience with public sector agencies and the financial services industry with various positions in Corporate Lending and Financial Consulting. In 2018, Anastasia was recruited to Umpqua Bank to support the business expansion efforts in the Municipal Finance, Public Deposit Corporate Banking market within California. Over the years, Anastasia has built many partnerships and provided many smart business solutions for her clients. Anastasia is available as needed.

Anastasia chooses to use all her Umpqua Bank provided volunteer time every year serving on multiple boards. Current commitments include St. Vincents De Paul, Advisory Council and Sutter Roseville Medical Center Foundation Trustee. Working with outside organizations allows Anastasia to see the other side of relationships which helps her deepen the client experience.

Randy Teddy, CTP.

VP, Senior Treasury Management Consultant
206.330.6051

Randy Teddy has over thirty years of experience helping customers reach their financial goals through a consultative approach. In the past he has been able to partner with individual clients, small businesses, commercial and corporate clients to ensure that their immediate needs were met, and their financial futures were secured. For the past ten years, Randy has focused on the specific needs of

government entities. As part of a total relationship team, he has been able to join Relationship Managers and other internal partners to provide a full solution package to Municipal clients. Services include merchant card acceptance, corporate purchase cards, and pre-paid programs. He also has experience with identifying the need for as well as the establishment of lockbox, image cash letter, transmissions, and other critical treasury services.

- **Client Support:** An overview of the bank's client support organization including hours of operation

Sara Haugen, Michaela Findley, Alyssa Nelson, Kimberly Howard, Cathy Whitten

Public Deposit Operations Team

PublicDeposits@UmpquaBank.com

855.867.7826

Umpqua Bank has a Public Deposit Operations Team dedicated to the public segment which consists of five associates, Sara Haugen, Michaela Findley, Alyssa Nelson, Kimberly Howard and Cathy Whitten. They are available via the Chimeline (855-867-7826) Monday - Friday 8:00 am – 5:00 pm or by email @ publicdeposits@umpquabank.com. The team will escalate the issue if necessary but will always be the point of contact during the resolution process.

- Any financial institution submitting a proposal must be a qualified public depository, as defined by California General Statutes, and must perform its obligation under this proposal in compliance with all applicable federal and state laws and regulations, statutes and policies.
Agreed. Umpqua Bank meets this requirement.

F. References

The proposer must provide at least five references, which should include other public agencies of a similar size and complexity to the City. Please include a mix of long-standing and newer clients. For each reference, the Proposer must provide the following information:

- Agency name and contact information (name, title, address, and email)
- Length of time they have been a customer
- List of banking services used

City of Orland

Leticia Espinosa – City Treasurer

(530) 865-1600

LESPINOSA@CITYOFORLAND.COM

815 4TH ST

ORLAND, CA 95963-1714

Customer Since: 2001

Services: ACH Origination, Commercial Online Banking, Credit Card, ZBA Sweep

City of Novato

Amy Cunningham – City Manager

415-889-8918

acunningham@novato.org

922 MACHIN AVE

NOVATO, CA 94945-3233

Customer Since: 2015

Services: Commercial Online Banking, CD Rom, EDI Reporting, Merchant Services, Positive Pay, RDC, Wire Origination, ZBA Sweep

City of Willows

Marty Brown – City Manager

530-934-7041

mbrown@cityofwillows.org

201 North Lassen Street

Willows, CA 95988

Customer Since: 2001

Services: Commercial Online Banking, ACH Origination, Merchant Services, Tax Payment Services, Wire Origination



G. Proposed Services

In this section, provide a summary of your bank’s offerings for each of the service areas listed in Section 3 – Scope of Work. For each service area, please describe what differentiates your organization’s services from others. Additionally, please address the specific questions and topics below.

General Questions

1. How is the bank’s earnings credit rate (ECR) determined, adjusted, and applied? Please include in the explanation the impact of the bank’s reserve requirement and the formula for converting service charges to balance requirements. List the bank’s ECR for the past twelve months.

ECR

Umpqua Bank’s Earnings Credit is an annualized earning credit rate multiplied by available balance. The equation that is used is as follows:

$$ECR \times \text{Available Balance} \times \text{positive collected days} / \# \text{ number of days in year.}$$

There are two calculations that can assist The City of Ukiah in determining the impact of the reserve requirement on the collected balances to offset fees.

COLLECTED BALANCES REQUIRED FOR SERVICES

This formula will take in the Positive collected balances to support the soft charges (analyzed services) from service detail. The equation used is as follows:

$$\text{Service Charge} / \text{Earnings Credit Rate} \times \text{number of days in year} / \text{number of days in period} / 1 - \text{reserve requirement rate (0.09)}$$

AVAILABLE BALANCES REQUIRED FOR SERVICES

Available Balance required to offset total soft charges (analyzed services) from service detail.

The calculation is as follows:

$$\text{Service charge} / \text{earnings credit rate} \times \text{number of days in year} / \text{number of days in period.}$$

HISTORICAL RATE (12 Months)

Umpqua Bank’s base standard ECR was at 0.15 BPS. For the last twelve months. We are offering the City of Ukiah an ECR of 1.25%

2. How is the charge for FDIC insurance calculated?

Umpqua bases our Deposit Coverage fee on the City’s average positive collected balance.
$$\text{Collected balance} / 1,000 \times 0.13$$



3. Describe the bank’s disaster recovery plan. How quickly will back-up facilities be activated? Describe the bank’s operating capabilities to assist the City in the event of a disaster or declared emergency.

Disaster Recovery

We backup all production systems nightly (more frequently for critical systems). Backups are retained locally for 30 days and offsite for a minimum of one year. In the rare event we need to recover a system from backup, restore time is generally minutes to an hour. Multiple systems can restore simultaneously ensuring we can achieve our defined Service Level Agreements (SLAs). Umpqua uses a Hybrid Cloud infrastructure to host our production systems. All systems are hosted in a minimum of two active data centers that are located at least 500 miles apart. Typically fail over to a contingency data center takes seconds (in the case of critical applications) to several hours. Umpqua uses a 4-tier criticality rating to ensure customer facing systems are recovered within SLA.

Our system back up plans are continually being tested and evaluated to ensure informational integrity and availability.

If there is a regional natural disaster, Umpqua Bank is ready to assist The City through our Public Deposits Team. Because we establish security questions specific to the users at the start of implementation, we could assist with account information and transactional requests.

4. Are there bank branches local to the Ukiah area? If not, do you offer deposit pick up services?

Umpqua Bank is proud to serve the City of Ukiah with our local branch. It follows the hours of 9am-5pm – Monday through Friday. It also has a drive-up window as well.

Depository Services

1. What is the deadline for same-day credit of deposits?

Our deadlines for same-day credit will vary depending on how the City chooses to make the deposit or the funds are received.

Type of Deposit	Cut off for same-day credit
Branch Deposit: Over the Counter	Before 5 pm
Branch Deposit: Night Drop	Next business day if dropped after morning pull.
Remote Deposit: scanner no image file	7:00 pm
Remote Deposit: with Image file	7:00 pm
ACH Incoming	Updated in real time on current day reporting.
Incoming Wires	Updated in real time on current day reporting.

2. How do you determine and calculate availability of deposited funds? Do you calculate availability by item or formula? If there are corrections or adjustments, how would the City be notified?

AVAILABILITY

Availability is determined by each item at the time of presentation.

ADJUSTMENTS

If the deposit is made at a branch, then the teller will catch it and it will be up to instructions on file from the City on how the finance team would like it to be handled. Either make the correction or return the deposit. This would also apply to night drop procedures as well.

If a cash vault or other forms of adjustments occur for a City deposit, we would follow the instructions provided by the City.

Adjustments will also appear as part of the City's online banking platform.

3. Please describe the bank's returned item handling and notification procedures. Can returned items for insufficient or uncollectable funds be re-deposited? How would the City be notified of returned items?

We can establish the rule that all returned items are re-deposited prior to an actual return item. Once an item is determined to be an actual return, the City would be able to view the return via the online banking portal.

4. Please describe your online services. Are copies of returned checks available on your online banking site?

The City would be able to view both the front and back of returned items on our online banking platform.

Remote Deposit Services

1. Can the bank accept and process a check file generated by RemitPlus, or would the City be required to utilize the bank's scanning software and scanner?

Umpqua Bank can accept files generated from RemitPlus. Below are several of the key requirements for such a service connection.

IMAGE FILE REQUIREMENTS

- Format supported -x937 with UCD. All files must adhere to file, record and field level requirements of xp37 with UCD.
- A unique file should be sent for each customer. Multiple deposit accounts may be sent in a single file.

- Please include a virtual deposit slip with routing and transit of 5552-0166 and account number with trancode 166 to be credit for each account.
- DPI requirements 200-400.
- Bundles within files should not exceed 250 items.
- File name -customername YYMMDDHHMMSSx937. Customer Name will be provided by Umpqua Bank at time of set up.
- Destination and origin routing number.
- Record 01 File Header
 - Field 09- Umpqua Bank
 - Field 10 customer name

Record 99 – File Control Record

- Field 06- Customer contact
- Field 7-Customer contact phone #.

Sweep Account

1. Describe the interest-bearing account used for the sweep account, including collateralization and/or insurance.

Though there are various of sweeps offered, currently, we would recommend investing in LAIF. The returns are much higher than those offered by financial institutions. A general rule of thumb the City can consider is the safer the investment or sweep instrument, the lower the rate.

2. What interest rate has been paid on the sweep account for the last 12 months?

When Public Clients are concerned, there is not a one size fits all rate to provide since many of our sweep and or saving rates are negotiated with the Relationship Manager. Rates of return are based on dollar amount, length of time the Bank will be managing them, and overall relationship. We invite you to discuss specific rate requests with Anastasia. She will be your relationship manager.

3. Describe the daily process to transfer between the sweep account and the transaction account.

We can work with the City to determine several of the key factors discussed in question. Once we can determine the above information, as well as any extra considerations such as how much collected funds must be in the account to avoid fees, we can set a peg balance on the transaction account so that any amount over that threshold is swept into the appropriate account.



ACH, Wire, and Other Transfer Services

- 1. Is the bank both a sending and receiving bank of the National Automated Clearing House (NACHA)?

Yes, Umpqua Bank is a sending and receiving bank of the National Automated Clearing House.

- 2. Can the bank accept and process ACH (i.e., payroll and AP payments) files generated by Tyler ERP Version: 2024.1.0.842?

Umpqua bank accepts NACHA Files from a variety ERPs in NACHA Format. Umpqua can provide the proper forming to validate and produce if directly from the third party on behalf of Ukiah. Or extracted FSTP directly. Please review Attachments in J. for formatting requirements.

- 3. Can the bank accept and process a utility billing customer draft file generated by Milsoft iXp Version 9.13 for CIS and FMS/WMS? Varitey debit requests of systems underlying facility format of file.

Yes. Umpqua Bank can process debit files from a variety of billing software. From the City, we could establish a Direct Send where the City can push the file to us. You can also create templates within our online platform for those items that are not tied to the software and represent either a non-standard run or one designed for other purposes.

- 4. List your cutoff times for same- and next-day EFTs (e.g., wire transfers, ACH payments)? How soon after the bank receives incoming funds or notification of incoming funds would the funds be available to the City?

Transaction Type	Same business day	Next business day
ACH	12:30 pm	5pm
Wire Transfers	2:45 pm	Customer to set

The City will be able to receive real time notification of incoming ACH and wire transactions by viewing current day reporting. We can also establish e-mail notifications so that the appropriate City of Ukiah team receives proper notification. The funds would be available as soon as they are posted into the account.

- 5. How and when would the City receive confirmation that the bank received an electronic payment file?

The City would be able to see any incoming or outgoing files on the current day reporting. We can also establish confirmations for those items being sent. We can provide e-mail notifications for incoming items.

6. How and when is the City notified of problems with payment files? Would we have the ability to delete or re-send problem files?

Our ACH team would notify you as soon as it is determined that there is an error in the file. We would work with the City team to correct the issue. Yes. The city can delete the file and then re-send. It can also delete one transaction as well.

7. How are returned or rejected ACH transactions handled? What information does the bank provide to assist in the identification of such items?

If an ACH item is returned either as a return or Notice Of Change, we will provide the information on our online platform. Codes will be assigned to the transaction to make the reasons clearer for the City's finance team.

8. What is the process for initiating wire transfers. What are the cutoff times? Is dual authorization available?

The City can send wires, either one off or from a created template, via our online banking platform. Dual authorization is our default setting. All wires need to be approved and sent by 2:45 pm.

9. Describe the ability to store recurring and future-dated wire instructions/templates including maximum retention period for future-dated transactions and related approval processes.

The City of Ukiah can create templates that can be stored within our system. This allows for frequent wire information to be easily stored. Wires can be future dated up to 30 days.

10. Describe the bank's procedure for providing payment confirmation upon acceptance and execution of wire transfer requests. If a wire transfer fails, how and when would the City be notified?

As outgoing wires are generated within our Commercial Online Banking, a confirmation number is issued for tracking and verification purposes. Wire transfer notifications are available and established under each user profile. Notifications can be established when wire templates are approved, wires have been initiated and are awaiting approval, and when a wire transfer is successfully issued. A notification is available when a wire template is awaiting approval. Incoming wires can be viewed when posting to an account in Business Online Banking and displayed within the daily account activity. A daily incoming wire report is available within the online system.

If a wire fails, notification would be sent via electronic method via Commercial Online Banking. If the City realizes a wire needs to be corrected, please contact our Public Deposits team as soon as possible.

11. Please describe the LAIF transfer process.

These are handled as an internal wire

Online Banking

1. Are transactions available to view online in real-time?

Yes, The City can view ACH, Wires, and over the counter deposit show in real time.

2. Are account analysis reports available online? If so, when do they become available?

Yes. The City's account analysis cuts on the tenth of each month. The City can view it online approximately 2 business days after the cut date.

3. How many days after month-end would the City be able to view its bank statements online?

Statements can be viewed the following business day after month-end.

4. Are images of cleared checks (front and back) and returned checks available? For how long?

Yes. Our standard is 18 months online. They can also be ordered via our online platform or through our Public Deposits team for dates that are after the 18 month time frame.

5. Are reports customizable?

Reports are easily customizable within the Business Online Banking system. Account data can be downloaded with saved formatting for easy future access. Report formats include .csv, PDF, BAI2, Each of these formats can be further customized to include account data with up to three months of history at one time. Individual data points can include all transactions for the date range, or data can be filtered by transaction type, (all credits, all debits, deposits, ACH Credits, Wire credits, Other credits, Checks cleared, ACH debits, Wire debits or Other debits.) Account data can be filtered by individual bank transaction codes. Daily transaction details can be included in reports, or simply subtotals by transaction group. Totals can be displayed by date or by simply for the date range selected. Reports can be generated by each individual account or can be pulled for multiple accounts at one time. Advanced search options include searching for transactions by specific amount or within a range. Similarly, cleared checks can be searched and displayed by individual serial number or for a serial number range. Summarized reporting is also available to include ledger balance, accessible balance, total credits, total debits, one-day float, two-day float, current balance and available balance.

6. What is the bank's contingency plan for providing this information in the event of an unexpected bank system problem or natural disaster.

We backup all production systems nightly (more frequently for critical systems). Backups are retained locally for 30 days and offsite for a minimum of one year. In the rare event we need to recover a system from backup, restore time is generally minutes to an hour. Multiple systems can restore simultaneously ensuring we can achieve our defined Service Level Agreements (SLAs).

Umpqua uses a Hybrid Cloud infrastructure to host our production systems. All systems are hosted in a minimum of two active data centers that are geographically located at least 500 miles apart. Typically fail over to a contingency data center takes seconds (in the case of critical applications) to several hours. Umpqua uses a 4-tier criticality rating to ensure customer facing systems are recovered within SLA.

Our system back up plans are continually being tested and evaluated to ensure informational integrity and availability.

If there was a disaster in the area, our Public Deposit team would work with the City Finance team to ensure that critical information was provided in a manner that the City could receive.

Account Reconciliation

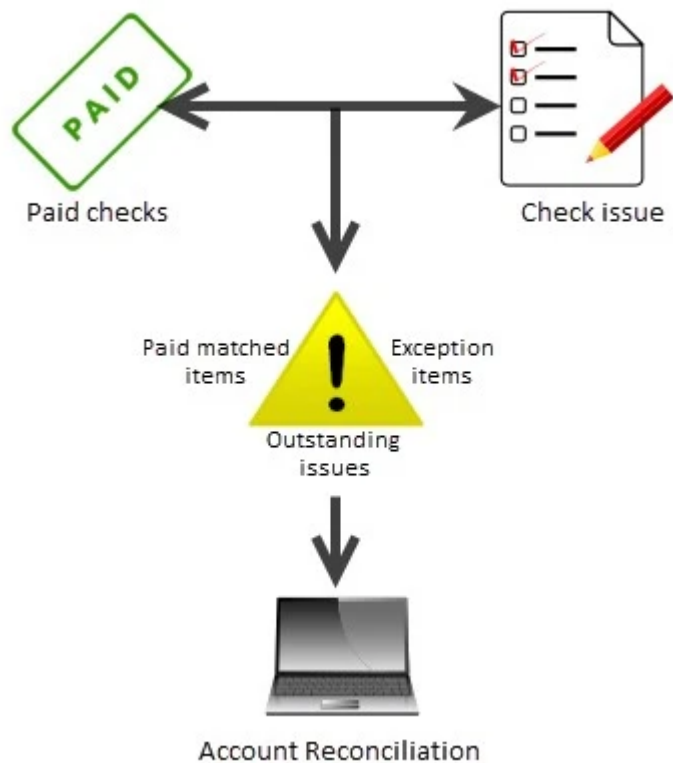
The City currently issues approximately 4,800 Accounts Payable and 2,040 Payroll checks per year. The City utilizes full Account Reconciliation reporting from the bank for items paid information.

1. Does the bank offer full Account Reconciliation and Positive Pay with data transmission capabilities? If so, please describe the services and what is recommended for the City's consideration including, but not limited to data transmissions methods, file transmission time windows, notification of report delivery methods, control options, fees.

Full Account Reconciliation

Full Account Reconciliation allows The City's users to balance account activities. Full Account Reconciliation uses the serial number and dollar amount to compare paid checks to issues and provides the results of the comparison to company users for balancing purposes. Company users can enter, import, and update check issues which are compared to the checks posted to an account. If a posted check is corrected (adjusted, or reversed/re-posted), the original posted check and the corrected check are included in the Full Account Reconciliation Statements and Activity.

Outstanding issues are checks that have not been paid. Exceptions are paid checks that differ from their related issues. Paid matched items are checks that cleared successfully without any exceptions.



Positive Pay

Positive Pay items can also be sent via direct transmission.

File Transmission time Windows:

Our file transmission windows are flexible and can be scheduled to align with the City’s operational hours. We typically recommend overnight processing to ensure that the data is ready for review at the start of the next business day. The earliest is 7:30 am.

Notification of Report Delivery Methods.

We provide automated notifications via email or SMS to confirm the delivery of reconciliation reports. Additionally, our online portal offers real-time status updates and the ability to download reports directly.

Control Options.

Our platform offers a range of control options, including user access levels, approval workflows, and audit trails to ensure the integrity of the reconciliation process.



Fees.

Service	Volume	fee
Full Account Recon Monthly Maintenance.	1	\$20.00
ACCT RECON Daily Delivery	1	\$50.00
ACCT Recon Monthly	1	\$5.00

2. Describe the bank's-web-based services as-they pertain to stop payments, copies of paid checks, ACH exceptions, and voided checks.

STOP PAYMENTS

The City can initiate stop payments through our Commercial online banking service. Authorized users selected by the finance team, will be able to stop one check at a time or a range of check numbers.

Upon the successful completion of the input, a notification will appear confirming the stop payment has been placed. The confirmation will include the following information.

- Account number the check was drawn on
- Check Number
- Date on Check
- Payee
- Amount
- Expiration
- Reason

To look up if either a single check or range of checks had a stop payment applied, The City can use the same online module and review Existing Stops. You can search by the following options.

- Account title created by The Admin.
- Reason for stop payment
- Specific Date
- Date Range
- Check number

COPIES OF PAID CHECKS

Through Commercial Online Banking, the City can view and print both front and back sides of cleared checks, deposit slips and deposited items. This task can be to individual users based on their role within the City’s finance team. You can order up to 50 copies at a

time using the service. If more copies of items are needed, then you would need to create another image request. Storage of items is 18 months.

ACH EXCEPTIONS

Tied to our ACH Positive Pay services, you would receive notification that there was an exception that needed your attention. The City's Finance Team would be able to review the items and determine if they should be paid or returned. Our default setting for the service is to return all unreviewed exceptions unless notified by 1:15 pm.

VOIDED CHECKS

To look up if either a single check or range of checks had a stop payment applied, The City can our Commercial Online Reporting via the Stop Payment Module. This would allow The City to view Existing Stops. You can search by the following options.

- Account title created by The Admin.
- Reason for stop payment
- Specific Date
- Date Range
- Check number

3. Describe the account reconciliation services offered by the financial institution.

Full Account Reconciliation

Full Account Reconciliation allows authorized users to balance account activities. Full Account Reconciliation uses the serial number and dollar amount to compare paid checks to issues and provides the results of the comparison to company users for balancing purposes. Company users can enter, import, and update check issues which are compared to the checks posted to an account. If a posted check is corrected (adjusted, or reversed/re-posted), the original posted check and the corrected check are included in the Full Account Reconciliation Statements and Activity.

Outstanding issues are checks that have not been paid. Exceptions are paid checks that differ from their related issues. Paid matched items are checks that cleared successfully without any exceptions.

Partial Account Reconciliation

Partial Account Reconciliation allows The City's users to view lists of all checks that have cleared an account, and all other debits and credits posted to an account for a specific period. Company users are provided with a statement each reconciliation cycle indicating the total activity for the period.

If a posted check is corrected (adjusted, or reversed/re-posted), the Partial Account Reconciliation Statements and Activity include the original posted check and the corrected check.

Deposit Reconciliation

Deposit Reconciliation enables companies with multiple locations to deposit into one central account. Deposits are tracked by a unique serial number on the deposit slip. Only deposits are reconciled; all posted deposits are grouped and totaled by the serial number.

4. Describe the financial institution's ability to make corrections or updates to the reconciliation process.

Any corrections can be sent to Publicdeposits@umpquabank.com and we can make any required adjustments on deposits/checks.

Fraud Protection

1. Describe the bank's positive pay capabilities.

Umpqua Bank provides the City with an opportunity to capture the date, amount, and payee information through our Payee Positive Pay. If one of these items do not match up, the City would be provided an exception for review. All items must be decisioned by 1:00 pm.

2. Describe the bank's online stop payment, void, and cancellation services and features.

The City can initiate stop payments through our Commercial online banking service. Authorized users selected by the finance team, will be able to stop one check at a time or a range of check numbers.

Upon the successful completion of the input, a notification will appear confirming the stop payment has been placed. The confirmation will include the following information.

- Account number the check was drawn on
- Check Number
- Date on Check
- Payee
- Amount
- Expiration
- Reason

To look up if either a single check or range of checks had a stop payment applied, The City can use the same online module and review Existing Stops. You can search by the following options.

- Account title created by The Admin.
- Reason for stop payment
- Specific Date
- Date Range
- Check number

3. How is liability for fraudulent deposit items determined?

Each fraud investigation is handled on a case-by-case basis. Our Fraud team will work with the City in the investigation process.

4. If the bank provides ACH debit blocking, what level of filtering can be applied?

Please see below answer for number 5.

5. Does the bank offer ACH positive pay (decisioning on unidentified ACH transactions)?

Yes. Our ACH Positive Pay allows The City to be in control of what items are presented against the account. You can establish COIDS with approval or set guidelines to that approval – example dollar amount maximum. This blends the ACH Block and Filter into one service that allows the City to make changes in real time. Thus, critical payments are not returned.

Conversion Plan

1. Describe the overall plan your financial institution would coordinate to ensure a smooth transition from current financial institution.

Umpqua Bank would assign a Treasury Implementation Coordinator to the transition. This person would be responsible for keeping track and scheduling weekly calls to assist in the transition. This would be a hands-on event for Your Relationship Team.

Below is a sample report that shows the full details that would occur during the set up period. Please note – not all services would be set up. Only those that The City requires. Please note – this is for an example only.

 UMPQUA BANK					
Customer Name Bank Migration			Project Start: Mon, 7/1/2024		
Project Lead- RM/ CCS-			Today: Sun, 7/28/2024		
TMC/CCS/TMA			Display Week: 1		
Implementation/ TM Support-					
TASK	ASSIGNED TO	COMMENTS	PROGRESS	START	END
Project Completion Time Span					
Project Kick-Off Call	Umpqua Team + Client		0%		
Provide list of information needed for account opening	Public Deposits		0%		
Obtain Business Formation Docs, KYC, and Account Signers	Client /CCS/ TMC		0%		
Meet with client to determine specific account needs	TMC/Client		0%		
Account Analysis			0%		
Determine Account Analysis Structure	TMC		0%		
Create Account Schematic / Structure	TMC/TMA		0%		
Confirm Account Analysis setup is complete	TMC/TMA		0%		
Treasury Management Service Agreement (TMSA) / Wire Forms			0%		
Provide Treasury Management Service Agreement (TMSA) and Disclosures	TMA		0%		
Provide Remote Wire Agreement (If needed)	TMC/RM		0%		
Confirm Completed and Signed TMSA Upon Return	TMA		0%		
New Accounts			0%		
Prepare and provide signature card(s) and account opening forms	Public Deposits		0%		
Return completed account documentation to Umpqua Bank	Client		0%		
Return Item Instructions: Redeposit, Email Addresses for Notices, BOB Report	TMC/CCS		0%		
Accounts are opened	Public Deposits		0%		
Determine if account supplies are to be ordered/MICR info	CCS		0%		
Order applicable account supplies (checks, dep slips, end stamps)	CCS		0%		
Complete MICR Testing	CCS		0%		
Store Deposit Processing, if applicable			0%		
Outline Potential Store Use via Proximity Study			0%		
Cash concentration (ACH Service) if Needed Based on Proximity			0%		
Coordinate w/ Stores of Deposit			0%		
Treasury Management Services					
Special Depository Services (SDS)					
Prepare and Deliver 3rd Party Depository Documentation	TMC/TMA		0%		
Return 3rd Party Depository Documentation	TMC/TMA		0%		
Complete 3rd Party Signature Card	Implementation		0%		
Complete Setup with WFB and Provide Deposit Slip Order Form	TMA/TIC		0%		
Account Reconciliation					
Account Reconciliation					
Deposit Recon			0%		
Identify Accounts	TMC		0%		
Obtain Setup Form	TMC/TMA		0%		
Complete Transmission Setup	TIC		0%		
Confirm Implementation Setup Complete	TIC		0%		
Automated Clearing House (ACH)					
Calculate ACH Exposure Limit and Obtain Approval (if not Prefunded)	TMA		0%		
Identify Setup Needs: Credits/Debits, SEC Codes, Frequency, Dollar Amount	TMC		0%		
Determine Method: [] Template, [] File Upload, [] Direct Send	TMC		0%		
Test File: NACHA File Upload for BOB	Client		0%		
Complete File Testing & Provide Feedback	TIC		0%		
Confirm Implementation Setup Complete	TIC		0%		
ACH Direct Send					
Provide File Specs or Sample Files, as necessary	TIC		0%		
Complete Data Transmission Questionnaire	TMC/TSC		0%		
Complete Direct Send Setup	TIC		0%		
Complete Direct Send Connection & File Testing	TIC / Client		0%		
Confirm Implementation Setup Complete	TIC		0%		
Confirm Transmission Go-Live	TIC/ Client		0%		

ACH Positive Pay					
Identify Accounts	TMC		0%		
Conduct ACH Positive Pay Training	TM Support		0%		
ACH EDI Remittance					
Complete Data Transmission Questionnaire	TMC/TSC		0%		
Complete Direct Send Setup	TIC		0%		
Complete Direct Send Testing	TIC / Client		0%		
Confirm Implementation Setup Complete	TIC / Implementation		0%		
Confirm Transmission Go-Live	TIC / Client		0%		
Business Online Banking (BOB)					
Identify Accounts	TMC		0%		
Determine Primary and Secondary Admins	TMC		0%		
Identify Reporting Options (EDI/ACH returns/NOC)	TMC		0%		
Identify Transaction Services [] Wires, [] ACH, [] Bill Pay	TMC		0%		
Confirm list of account numbers & requested services (account schematic)	TMC/TMA		0%		
Confirm Implementation Setup Complete	TIC / Implementation		0%		
Conduct BOB Training	TM Support		0%		
Cash Vault					

2. Describe the training to the City's staff for the operation and use of the financial institution's services and automated systems for areas of service. How are the training sessions structured?

Training will be handled via a series of team calls. We can train the Primary Administrator first and then roll trainings out to the entire finance team. There also will be user guides supplied as well as online tutorials. If for any reason a City finance member needs help with a service provided, our Public Deposit team is just a phone call away or you can also use the direct chat feature within the system. This option is managed by employees that monitor incoming inquiries. There is no AI involved with the process.

3. Provide a timeline schedule and applicable charges for the conversion plan.

Please review response for number four below for details of waived fees for establishing services with Umpqua Bank. Thank you.

4. Describe the conversion allowance the bank will provide to the City. Please state a specific dollar amount and identify those supplies, products, and/or services included.

Umpqua is proud to offer the following to the City of Ukiah.

- 1.10% ECR
- 90-day fee waiver to assist with the transition.
- \$1,500.00 towards supplies such as checks, endorsement stamps, etc.
- Approximately \$1,000.00 in waived set up fees for services.

H. Pricing

Utilizing the Word document in Attachment A, please provide all costs associated with the transition and ongoing fixed and per-transaction costs associated with the proposed services. Fees related to all services described in the proposal must be listed on this worksheet.

Please also list and provide pricing for optional available services that fall outside of the stated Scope of Work in Section 3.

Please review pricing, including lockbox on Attachment A. As well as a Pro Forma of fees reflecting 1.10 ECR. We show that the City will incur no hard charges for services based on the information provided and the calculations.

I. Transition Approach and Plan

This section should clearly identify each phase, the timeline proposed, and the roles and responsibilities to be performed by the Proposer and those to be performed by the City. This section should include:

- A description of the transition and project management methodology and approach

The City of Ukiah will have a very hands-on approach with their onboarding experience with Umpqua Bank. Weekly calls will be established ensure critical deadlines are met and accounts are opened.

- A project organization chart highlighting the key staff who will be assigned to the project and background information on the project manager and other key assigned resources

Treasury Implementation Coordinator as Assigned: This individual is well experienced in Treasury Management Background as well as versed in Direct Transmissions, Remote Deposit via Direct Send, and other specialized technical services.

Please see the Relationship Management (starting on page 6) to see Bio's of other key members of the Implementation Team.

- Recommended project phasing and a transition schedule

See conversion plan above that is subject to client preference and appropriate timing. This process should be streamlined as you currently have an operating account set-up with Umpqua.

- A list and description all transition deliverables and documentation that will be provided

The following Documents will be provided for signature for conversion.

Treasury Management Agreement
Signature Cards for Accounts
Wire Agreements
Data Questionnaire.
Commercial Online Banking Primary Administrator.
Special Instructions for Returned Items.
Documents pertaining to technical aspects of transmissions and set up.

- An outline of the roles and responsibilities of City staff during the transition, training, testing, and deployment plans

As the above transition schedule shows, Umpqua Bank really does try to do most of the work for The City. However, with that said, we will need to have appropriate signers review and sign documents as soon as possible. Many of them can be sent via DocuSign to cut down on mail time. As we move into weekly meetings, ensure that the appropriate members of The City of Ukiah's finance team are on the calls – this might also include your I.T. teams.

J. Exhibits

- Agreement or contract documents:
Below is a sample of our Banking Services Agreement.

BANKING SERVICES AGREEMENT

I. PARTIES

This Agreement for Banking Services (the "Agreement") is made and executed this ____ day of _____, 2024, by and between the _____ (hereinafter, the "Agency"), and Umpqua Bank an Oregon state chartered bank with its principal place of business located at 1 SW Columbia, Suite 1200, Portland OR 97258 (the "Bank").

II. RECITALS

1. WHEREAS, the Agency issued a Request for Proposals ("RFP") for certain products and services to be offered by Bank (the "Banking Services"); and
2. WHEREAS, the Bank was the successful bidder in response (the "Bid Response") to the CITY's RFP for Banking Services; and
3. WHEREAS, the Agency desires to enter into an Agreement with the Bank for the performance of the Banking Services identified in the Agency's RFP; and
4. WHEREAS, the Bank is agreeable to performing such Banking Services for the Agency in accordance with the terms and conditions set forth below; and

NOW, THEREFORE, in consideration of the mutual benefits to the Agency and the Bank and in consideration of the terms and conditions specified below, the parties agree as follows:

III. SCOPE OF BANKING SERVICES

The Bank shall furnish all labor, materials, and supplies necessary to perform the required Banking Services as stated in the Bid Response attached as Exhibit A and incorporated by this reference. Notwithstanding anything to the contrary in the RFP or Bid Response, the Bank shall not provide any merchant processing services. All performance of Banking Services under this Agreement shall meet all applicable requirements of the state and federal law.

IV. TIME OF PERFORMANCE

The Bank shall commence performance of the Banking Services for the Agency on _____, 2022 and this Agreement shall be in effect for a term of Three (3) years. Within sixty days of the expiration of this Agreement, and upon mutual consent between the Agency and the Bank, the Agreement may be extended for an additional two (2) two (2) year periods (each an "Extension Period"), provided that during the Agreement and each Extension Period:

1. the Bank is in compliance with the terms and conditions of the Agreement, and
2. sufficient funds have been appropriated by the Agency in the Annual Budget for payment of the Banking Services to be performed by the Bank under the terms of this Agreement.

The total term of this Agreement shall not exceed Seven (7) years.

V. COMPENSATION

- A. the Bank shall be paid at the specified rate for each of the Banking Services required by the Agency as set forth in Exhibit A.
- B. The Bank shall debit the Agency deposit account on a quarterly basis for Banking Services rendered under this Agreement and in accordance with the compensation methods defined in Exhibit A, the Bank shall be compensated in accordance with the Agency's usual procedures.

VI. INDEPENDENT CONTRACTOR

The parties acknowledge that the Bank's relationship with the Agency under this Agreement is that of debtor and creditor; no fiduciary, quasi-fiduciary, or special relationship exists between the Agency and the Bank. Further, the Bank is an independent contractor with respect to the Banking Services provided under this Agreement. Nothing in this Agreement shall create the relationship of employer and employee between the parties. Neither the Bank nor any employee of the Bank shall be entitled to any benefits accorded Agency employees by virtue of the performance of Banking Services provided under this Agreement. The Agency shall not, for any reason, be responsible for withholding or otherwise deducting federal income tax or social security or contributing to the State industrial insurance program, or otherwise assuming the duties of an employer with respect to the Bank, or any employee of the Bank.

VII. INSURANCE

The Bank shall maintain insurance appropriate to its industry and financial condition. All such insurance shall be primary over any coverage held by the Agency. The Bank shall provide to the Agency written verification of compliance acceptable to the Agency prior to commencing performance of Banking Services under this Agreement, which verification shall be attached to the Agreement as Exhibit B. The Bank may self insure.

VIII. TERMINATION

- A. Termination for Convenience: Either party may terminate this Agreement, with or without cause, upon ninety (90) days written notice to the other party at the notice address set forth in Section I. The Agency shall pay the Bank only for the Banking Services completed by the Bank in accordance with this Agreement.
- B. Termination for Cause: If (1) either party materially breaches this Agreement, which breach is not cured within thirty (30) days by the breaching party, after written notice is given to the breaching party specifying the breach in reasonable detail, or (2) either party repeatedly breaches this Agreement within thirty (30) days after being given written notice specifying the breaches in reasonable detail, then the party not in breach may, by giving written notice

IX. GENERAL PROVISIONS

A. Integrated Agreement The Agency acknowledges that it may be required to enter into separate standard account and service agreements regarding the Banking Services. The separate standard account and service agreements will contain terms and conditions specific to each Banking Service. The entire and integrated agreement between the Agency and the Bank related to the Banking Services shall consist of this Agreement, the Bank's standard account and service agreements and any applicable service-level agreements in connection with the Banking Services (including their respective user documentation and set-up forms), the Bank's Bid Response and the Agency's RFP as modified by the Bid Response. In the event of conflict among any of the preceding documents, such documents shall govern in the following order of precedence: (1) the applicable account or services agreement and/or terms and conditions, (2) this Agreement, (3) the Bid Response and (4) the RFP. The integrated agreement supersedes all prior negotiations, representations, statements and agreements, whether written or oral, regarding the Services.

B. Assignment Except for assignment by Bank to a parent, subsidiary or affiliate of Bank ("Permitted Assignment"), neither party will assign any of its rights or obligations under this Agreement without the prior written consent of the other party.

C. Limitation of Liability EXCEPT FOR ANY DAMAGES ARISING WITH RESPECT TO DEATH OR PERSONAL INJURY, PROPERTY DAMAGE, NEITHER PARTY WILL BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES (e.g., LOST PROFITS), WITH RESPECT TO THIS AGREEMENT, EVEN IF THE PARTIES HAVE KNOWLEDGE OF THE POSSIBILITY OF SUCH DAMAGES AND WHETHER OR NOT SUCH DAMAGES ARE FORESEEABLE.

D. Waiver A waiver of any breach by either party shall not constitute a waiver of any subsequent breach.

E. Choice of Law All questions concerning the validity, interpretation, performance, and enforcement of this Agreement shall be governed by the laws of the State of Oregon, and venue for any action in court for the interpretation of the terms of this Agreement shall lie in Multnomah County, Oregon.

F. Compliance with Laws Both parties shall comply with all applicable federal, state, local laws, regulations, and Agency ordinances in the performance of the Banking Services for the Agency under the terms of this Agreement.

G. Authorized Signatures By their signatures below, each party represents that they are fully authorized to sign for and on behalf of the named principal above.

H. Notice. Any notice required to be served under this Agreement shall be in writing, in English, and shall be transmitted by overnight courier to the parties at the addresses in this Agreement (Section 1) or such other addresses as may be specified by such written notice.

I. Change. No amendment, modification, or supplement to this Agreement, nor any waiver of any term or breach of this Agreement, shall be valid unless in writing signed by an authorized representative of the party against whom it is to be enforced. No delay or failure in enforcing, or any partial enforcement of any right or remedy regarding this Agreement (whether through a course of dealing or otherwise) shall be deemed a modification or waiver of that or any other right or remedy, nor shall it preclude any enforcement or further enforcement of that or any other right or remedy.

J. Survival. The following parts of this Agreement shall survive any expiration or termination of this Agreement: Section IX (C) (Limitation of Liability) and Section IX (K) (CONFIDENTIALITY), as well as any other provisions of this Agreement or any Bank account or service agreement, by their nature, are naturally intended to survive an expiration or termination of this Agreement or any Bank account or service agreement.

K. CONFIDENTIALITY. The terms of this Agreement shall be at all times subject to that certain Confidentiality and Nondisclosure Agreement dated _____, 2022.

L. Severability. If any term, covenant, or condition of this Agreement is held to be invalid or unenforceable in any respect, such invalidity or unenforceability shall not affect any other provision hereof and this Agreement shall be construed as if such invalid or unenforceable provision had never been contained in this Agreement.

- Samples of standard online reports and statements:
Your Relationship team invites you to explore various reports by reviewing our demo.
<https://businessonlinebankingdemo.umpquabank.com/>
We think you will find it very intuitive and flexible in the various formats supported.
User Guides and Reporting examples available upon request.

- Disclosures of litigation or investigations currently being conducted on your bank by state or federal bank regulators, the Attorney General's Office, consumer protection agencies, etc.

Umpqua Bank has nothing to report.

- Most recently audited financial statements as well as current rating from a nationally recognized statistical rating organization and Bauer Financial ratings

Umpqua Bank's financial statements and annual reports can be viewed via the link below.
[SEC Filings - Annual Reports | Columbia Banking System, Inc.](#)

Exhibit A – Pricing Matrix

City of Ukiah – Banking Services Bid Form (Mark Item Clearly if “No Proposal” or Contracted to Third Party)					
Account Services	Estimated Monthly Average	Standard Fee per Unit	Average Fee Per Unit	Total Monthly Cost	Total Annual Cost
General Account Services					
FDIC Insurance		\$0.00		\$0.00	\$0.00
Account Maintenance Monthly Fee	1	\$7.00	\$7.00.007.00	\$7.00	\$84.00
Deposit Assessment Fee		\$0.00		\$0.00	\$0.00
Deposit Coverage	4,500	.10		\$450.00	\$5,400.00
Depository Services					
Currency Deposited – Coins, \$ per	25	\$0.0018	same .0018	\$4.50	\$54.00
Currency Deposited – Bills, \$ per	146,000	\$0.0018	same	262.80	\$3,153.60
Checks Deposited (Remote Deposits, #	3,254	\$0.08	0.08	\$260.32	\$3123.84
Remote Deposit – Direct Send,	25	\$0.50	same .50	\$0.50	\$12.50
Remote Deposit Per Item Fee	4,000	\$0.08	\$0.08	\$320.00	\$3840.00
Returned Deposited Item	10	\$5.00		\$50.00	\$600.00
Remote Deposit Scanner	Remit	We can	Work with	Remit	\$0.00
Account Reconcilement Services					
Full Recon Monthly Maintenance	1	\$20.00		\$20.00	\$240.00
Full/Positive Pay Maintenance	1	\$10.00		\$10.00	\$120.00
Full/Positive Pay – per Item	750	\$0.035		\$26.25	\$315.00
Checks Paid Truncated	650	\$0.08		\$52.00	\$624.00
Checks Returned	4	\$5.00		\$20.00	\$240.00
Positive Pay Exceptions	6	\$0.01		\$0.06	\$0.72
ARP Recon Report – per Item	1,300	No Per Item fee			
ARP Recon Repots Maintenance	1	\$20.00		\$20.00	\$240.00
ARP Daily Paid Monthly Maintenance	1	\$50.00		\$50.00	\$600.00
Transmission Issue Input - Base	12	- no	Fee	For	service
Transmission Issue Input - Item	750	\$0.035	\$0.035	\$26.25	\$315.00
Transmission Output – Per Tx	1	-	No Per Item fee		
Transmission Issue Output – Per Item	500	-	No Per Item fee		
Online Banking Services					
Multi User Business Online Banking	12	See next line			
Flat Monthly fee not per user		\$30.00	\$30.00	\$30.00	\$360.00
Token Monthly Maintenance	5	\$1.50	\$1.50	\$7.50	\$90.00

City of Ukiah – Banking Services Bid Form (Mark Item Clearly if “No Proposal” or Contracted to Third Party)					
Account Services	Estimated Monthly Average	Standard Fee per Unit	Average Fee Per Unit	Total Monthly Cost	Total Annual Cost
Automated Clearing House (ACH)					
ACH Web Monthly Base Fee	1	\$10.00	\$10.00	\$10.00	\$120.00
ACH Originated Addenda Item	102	\$0.03	\$0.03	\$3.06	36.72
ACH Received Item	100	\$0.01	\$0.01	\$1.00	\$12.00
ACH Received Addenda Item	100	\$0.01	\$0.01	\$1.00	\$12.00
ACH Return/ NOC Faxed	1	\$1.25	\$1.25	\$1.25	\$15.00
ACH Electronic Credits	250	\$0.01	\$0.01	\$2.50	\$30.00
ACH Electronic Debits	20	\$0.01	\$0.01	\$2.00	\$24.00
ACH Ccd Credits Originated	3	\$0.01	\$0.01	\$0.03	\$0.36
ACH Batches	4	\$6.00	\$6.00	\$24.00	\$288.00
EDI Incoming ACH Wire	1	\$20.00	\$20.00	\$20.00	\$240.00
ACH Positive Pay	1	\$10.00	\$10.00	\$10.00	\$120.00
Check Disbursement					
Checks Paid – Account Payable	400	\$0.10	\$0.10	\$40.00	\$480.00
Checks Paid – Payroll	170	\$0.10	\$0.10	\$17.00	\$204.00
Stop Pay Manual	2	\$5.00	\$5.00	\$10.00	\$100.00
Wire and Other Funds Transfers					
Outgoing Domestic Wire – Electronic	3	\$5.00	\$5.00	\$15.00	\$180.00
Incoming Domestic Wire	3	\$5.00	\$5.00	\$15.00	\$180.00
Wire Web Monthly Maint.	1	\$10.00	\$10.00	\$10.00	\$10.00
Online Info Reporting					
Previous Day Maintenance	1	\$0.00	\$0.00	\$0.00	\$0.00
Previous Day Balances Reported	1	\$0.00	\$0.00	\$0.00	\$0.00
Previous Day Summary Items	1	\$0.00	\$0.00	\$0.00	\$0.00
Previous Day Detail Items	1	\$0.00	\$0.00	\$0.00	\$0.00
Umpqua Bank does not charge per Reporting is priced 0.00 this Reporting at no additional fee.					
Checking Imaging	20	\$5.00	\$5.00	\$5.00	\$60.00
Lockbox Services (Optional Service)					

City of Ukiah – Banking Services Bid Form (Mark Item Clearly if “No Proposal” or Contracted to Third Party)					
Account Services	Estimated Monthly Average	Standard Fee per Unit	Average Fee Per Unit	Total Monthly Cost	Total Annual Cost
<i>As Volumes were not provided – all pricing will be in the Standard fee per unit for clarity. Please note these are estimates and actual fees would be negotiated upon review of payment coupons and the City of Ukiah’s reporting needs. The following fees are provided:</i>					
Lockbox Monthly Maintenance		\$195.00			
Remittance Processed		\$0.50			
Document Scanned		\$0.09			
Image Archived		\$0.11			
Correspondence/Rejects		\$0.32			
Restrictive Processing		\$0.48			
Data Capture per Keystroke		\$0.02			
Multiple Payee		Bundle			
Fine sort >5 sorts		0.30			
Rough sort < 5 sorts		\$0.21			
Foreign check		\$16.00			
Process Cash		\$14.00			
Lockbox Monthly Maintenance		\$195.00			
Remittance Processed		\$0.50			
Document Scanned		\$0.09			
Image Archived		\$0.11			
Correspondence/Rejects		\$0.32			
Restrictive Processing		\$0.48			
Data Capture per Keystroke		\$0.02			
Multiple Payee		bundle			
Fine sort >5 sorts		0.30			
Rough sort < 5 sorts		\$0.21			
Foreign check		\$16.00			
Process Cash		\$14.00			
Mail Deliver		\$14.00			
Express mail		0.12			
Post office box rental		Varies			
Earnings Credit Rate	1.10				1.10



Umpqua Bank Provided Proforma



Umpqua Bank			
Account Name	City of Ukiah	Account Number	
Model Name	City of Ukiah – Combined	Model Analysis Date	9/23/2024
Model Billing Cycle	September, 2024		
Currency	USD		

Average Balances On Deposit	
Collected Balance Disclosure	
Ledger	6,900,000.00
-Float	0.00
= Collected	6,900,000.00
Positive Collected	0.00
Negative Collected	0.00
Investable Balance Disclosure	
Average Positive Collected Balance	0.00
= Investable Balance	<=6,900,000.00

Analysis Results	
Required Balance Disclosure	
Balance Required For Services	2,789,583.17
= Total Required Balance	2,789,583.17
Balance Position Disclosure	
Balance Position Basis	6,900,000.00
- Total Required Balance	2,789,583.17
= Balance Available for Other Service	4,110,416.83

	Proposed
Earnings Credit Amount	6,221.31
- Analyzed fees	2,515.20
Net Analyzed Result	3,706.11
Net analyzed credit of 3,706.11 will be waived.	
\$1.00 of fees is equal to 1,109.09 of Investable Balance.	
Investable Balance receives a proposed earnings credit of 1.100000%.	

Banking Services Proposal for City of Ukiah



Notes	
ESTIMATE ONLY	
Volumes and balances based on information provided for this comparison.	
Eligible service charges may be offset by Earnings Credit through account analysis.	
PROPOSAL	
This proposal and all information contained herein (this "Proposal") is confidential and proprietary to Umpqua Bank and has been prepared for the exclusive and confidential use of below named company.	
By accepting this Proposal, City of Ukiah agrees to maintain this Proposal in strict confidence and agrees not to disclose this Proposal in any manner to any other person, with the exception of their employees, officers and authorized individuals solely for the purpose of evaluating this Proposal.	
PROPOSAL PERIOD	
The pricing in this Proposal is offered for 90 days from the date below. If accepted within the 90 day proposal period,	



Umpqua Bank			
Account Name	City of Ukiah	Account Number	
Model Name	City of Ukiah - Combined	Model Analysis Date	9/23/2024
Model Billing Cycle	September, 2024		
Currency	USD		

the pricing will be applied at account opening or upon service application and reviewed annually each November.

- Waive Set Up Fees
- Standard Lockbox fees shown however pricing will be negotiated based on client needs and relationship

Umpqua Bank 9/20/2024
By Randy Teddy, CTP. Vice President Treasury Management Consultant
By Anastasia Efsthathiu, VP Relationship Manager Government Banking



Umpqua Bank			
Account Name	City of Ukiah	Account Number	
Model Name	City of Ukiah - Combined	Model Analysis Date	9/23/2024
Model Billing Cycle	September, 2024		
Currency	USD		

Services Performed			
Services Performed	Proposed Volume	Proposed Price	Proposed Total Fee
GENERAL ACCOUNT SERVICES			
MONTHLY ACCOUNT MAINTENANCE	2	7.0000	14.00
NEGATIVE COLLECTED BALANCE FEE	0	0.000000	0.00
STOP PAYMENT - ONLINE INITIATED	2	5.0000	10.00
PAPER STATEMENT FEE	1	3.0000	3.00
DEPOSIT ASSESSMENT FEE	6,900	0.1000	690.00
Subtotal - GENERAL ACCOUNT SERVICES			717.00
DEPOSITORY SERVICES			
REMOTE CAPTURE DEPOSIT	25	0.5000	12.50
REMOTE CAPTURE DEPOSIT-DIRECT SEND	48	0.5000	24.00
DEPOSITS POSTED	62	0.5000	31.00
CHECKS PAID	1,220	0.1000	122.00
ACH CREDITS	557	0.0100	5.57
ACH DEBITS	44	0.0100	0.44
DEPOSITED ITEMS: ON US	104	0.0800	8.32
DEPOSITED ITEMS: LOCAL FED	6,455	0.0800	516.40
RETURNED DEPOSIT ITEM	19	5.0000	95.00
BRANCH CURRENCY & COIN DEPOSITED	322,658	0.0018	580.78
Subtotal - DEPOSITORY SERVICES			1,395.01
ACCOUNT RECONCILIATION SERVICES			
FULL ACCOUNT RECON MO MAINT	1	20.0000	20.00
ACCT RECON DIRECT SEND SETUP /CUST	0	475.0000	0.00
ACCT RECON DELIVERY DAILY/TYPE/ACCT	1	50.0000	50.00
ACCT RECON DELIVERY MO /TYPE/ACCT	1	5.0000	5.00
Subtotal - ACCOUNT RECONCILIATION SERVICES			75.00
ACH ORIGINATION SERVICES			
ACH ONLINE MONTHLY MAINT	1	10.0000	10.00
ACH BATCHES ORIGINATED	4	6.0000	24.00
ACH CCD CREDITS ORIGINATED	7	0.0100	0.07
ACH ADDENDAS ORIGINATED	102	0.0300	3.06
ACH NOTIFICATION OF CHANGE	1	1.2500	1.25
Subtotal - ACH ORIGINATION SERVICES			38.38
WIRE TRANSFER SERVICES			
INCOMING DOMESTIC USD WIRE	3	5.0000	15.00
WIRE ONLINE MONTHLY MAINT	1	10.0000	10.00
OUTGOING DOMESTIC USD WIRE	1	5.0000	5.00
Subtotal - WIRE TRANSFER SERVICES			30.00
LOCKBOX SERVICES			
LBX SET UP FEE	0	275.0000	0.00
LBX MONTHLY MAINTENANCE	0	195.0000	0.00
LBX REMITTANCE PROCESSED	0	0.5000	0.00
LBX DOCUMENT SCANNED	0	0.0900	0.00
LBX IMAGE ARCHIVED	0	0.1100	0.00
LBX CORRESPONDENCE / REJECTS	0	0.3200	0.00
LBX RESTRICTIVE PROCESSING	0	0.4800	0.00
LBX DATA CAPTURE PER KEYSTROKE	0	0.0200	0.00



Umpqua Bank			
Account Name	City of Ukiah	Account Number	
Model Name	City of Ukiah - Combined	Model Analysis Date	9/23/2024
Model Billing Cycle	September, 2024		
Currency	USD		
Services Performed	Proposed Volume	Proposed Price	Proposed Total Fee
LBX MULTIPLE PAYEE	0	Bundle Def	0.00
LBX FINE SORT = OR > 5 SORTS	0	0.3000	0.00
LBX ROUGH SORT < 5 SORTS	0	0.2100	0.00
LBX REMIT PROCESS FOREIGN CHECK	0	16.0000	0.00
LBX REMIT PROCESS CASH	0	14.0000	0.00
LBX PKG US MAIL DELIVERY	0	0.0000	0.00
LBX IMAGE PAPER RETURN	0	0.1200	0.00
LBX REMIT PROCESSED EXPR MAIL	0	0.0000	0.00
LBX PKG MULTIPLE MAILING	0	0.0000	0.00
LBX POST OFFICE RETURNED MAIL	0	0.0000	0.00
Subtotal - LOCKBOX SERVICES			0.00
FRAUD PREVENTION SERVICES			
ACH POS PAY DR ACCOUNT MO MAINT	2	10.0000	20.00
CHECK POS PAY ACCT MO MAINT	2	10.00	10.00
CHECK POS PAY ISSUES	750	0.0350	26.25
POS PAY SCRUBBED EXCEPTION	6	0.0100	0.06
Subtotal - FRAUD PREVENTION SERVICES			56.31
ONLINE BANKING SERVICES			
ADVANCED IMAGE SEARCH MO MAINT	1	5.00	5.00
PREMIUM REPORTING	1	0.0000	0.00
MULTIUSER COMMERCIAL ONLINE BANKING	14	30.00	30.00
EXTENDED ACCT ACTIVITY RPT = 18 MO	2	5.0000	10.00
SCHED RPT BAL ACCT TRANS SETUP/COLD	0	500.0000	0.00
SCHED RPT BAL ACCT TRANS / MO /COLD	1	50.0000	50.00
TRANSMISSION FEE = WEEKLY	1	20.0000	20.00
TOKEN SECURITY	5	1.5000	7.50
COM ONLINE BANKING TOKEN SET UP FEE	0	60.0000	0.00
Subtotal - ONLINE BANKING SERVICES			122.50
REMOTE DEPOSIT SERVICES			
REMOTE DEP CAPTURE MO MAINT	1	30.0000	30.00
REMOTE DEP ADDITIONAL LOCATIONS	1	0.0000	0.00
REMOTE DEP ADDITIONAL ACCOUNTS	2	0.0000	0.00
RDC SCANNER PURCHASE	0	0.0000	0.00
Subtotal - REMOTE DEPOSIT SERVICES			30.00
REMOTE DEPOSIT IMAGE FILE SERVICES			
REMOTE DEP IMAGE FILE SET UP	0	300.00	0.00
REMOTE DEP IMAGE FILE MO MAINT	1	50.0000	50.00
Subtotal - REMOTE DEPOSIT IMAGE FILE SERVICES			50.00
Total Analyzed			2,515.20
Grand Total this Cycle			2,515.20

Disclosures

Statement of Confidentiality

This proposal contains detailed information about the capabilities of Umpqua Bank including systems, prices, and pricing strategy. These elements are essential to our business, and therefore confidentiality is usually requested. We understand that by submitting this proposal we agree to the proposal being subject to public disclosure.

The quoted terms, conditions, and pricing are firm for 120 days from the date of this proposal¹. Prices were established assuming volumes and services remain consistent with those given by City of Ukiah. We reserve the right to review the bid if not accepted within 90 days, or if volumes and/or services vary from those noted in our proposal.

Maintaining our Operational Strength

Umpqua Bank is continuously reviewing its operational platforms to ensure that we are providing the foremost technologies and processes. This allows us to focus on maintaining high quality, dependable, value-priced services. One of our main goals is to continue streamlining our operations so that we can direct both our money and talent in delivering the best services. We will communicate in a timely and comprehensive manner any changes to our services that materially affect our proposed recommendations and solutions to

¹ We are unable to give indemnities with respect to third-party claims growing out of treasury management services we provide to our clients. We are unable to provide treasury management services without an appropriate service agreement. We are unable to provide services without acceptable termination provisions.



AGENDA SUMMARY REPORT

SUBJECT: Report of a Retainer Agreement with Colantuono, Highsmith & Whatley, PC for Representation of the City of Ukiah in *Vichy Springs Resort, Inc. v. City of Ukiah*, Northern District of California, Case No. 1:24-cv-7106, Approval of Continued Use as Needed, and Approval of Corresponding Budget Amendment.

DEPARTMENT: City Attorney

PREPARED BY: Myles Fisette, Purchasing Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Ukiah adv. VSR Retainer Letter_signed

Summary: Council will receive a report regarding the retainer agreement with Colantuono, Highsmith & Whatley, PC for representation of the City of Ukiah in *Vichy Springs Resort, Inc. v. City of Ukiah*, Northern District of California, Case No. 1:24-cv-7106; will consider its continued use as needed and approval of corresponding budget amendment.

Background: Due to the federal court filing deadlines, the City Attorney needed to retain outside counsel to represent the City in the recently filed *Vichy Springs Resort v. City of Ukiah*, U.S. District Court, Northern District of California, Case No. 3:24-cv-07106-JSC ("the Action"). The City Attorney signed the attached retainer agreement (Attachment 1) which caps fees at \$10,000. Mathew Slentz in the Irvine office of the Colantuono firm specializes in inverse condemnation cases among others. He has prepared a motion to dismiss the lawsuit which was required to be and was filed on January 6, 2025.

Discussion: Staff acknowledges the continued need for the services of Colantuono, Highsmith & Whatley PC to represent the City in the action and is requesting approval of the removal of the \$10,000 cap on fees, to allow the continued use of the agreement as needed.

A budget amendment to the general fund is needed to cover these expected costs. Costs are expected to be up to, and possibly exceeding, \$60,000. Staff requests a budget amendment of \$60,000 and will return to Council for additional appropriation if an when additional funding is necessary.

Recommended Action: Receive the report regarding the retainer agreement with Colantuono, Highsmith & Whatley, PC for representation of the City of Ukiah in *Vichy Springs Resort, Inc. v. City of Ukiah*, Northern District of California, Case No. 1:24-cv-7106, and approve the removal of the \$10,000 cap and its continued use as needed along with the corresponding budget amendment.

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT: 10014000.52150.18475: \$0

PROPOSED BUDGET AMOUNT: 10014000.52150.18475: \$60,000

FINANCING SOURCE: General Fund

REVENUE: Yes / No **GRANT:** Yes / No

PREVIOUS CONTRACT/PURCHASE ORDER NO.: Contract 2425-161

COORDINATED WITH: Purchasing

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager

**COLANTUONO
HIGHSMITH
WHATLEY, PC**

MATTHEW C. SLENTZ | 949-545-9148 | MSLENTZ@CHWLAW.US

December 20, 2024

VIA ELECTRONIC MAIL ONLY

David Rapport, City Attorney
City of Ukiah
405 West Perkins Street
Ukiah, CA 95482

Re: **Representation of City of Ukiah in *Vichy Springs Resort, Inc. v. City of Ukiah*, Northern District of California Case No. 1:24-cv-7106**

Dear Dave,

As you asked, I write to propose the terms under which we agree to represent the City of Ukiah in the defense of the suit identified above. Colantuono, Highsmith & Whatley, PC and all of its professionals are very pleased to have the opportunity to represent the City in this matter.

This letter sets forth the basis upon which our firm will provide legal services to the City and bill for services and costs. The firm maintains a conflict of interest index which lists all clients of our firm and matters in which we represent them. We will not represent any party with an interest that may be adverse to an indexed person without first determining if a professional conflict of interest would arise. We propose to index the following with respect to this matter:

Client-Affiliated Parties:

City of Ukiah
City of Ukiah City Council

Adverse Parties:

Vichy Springs Resort, Inc.

420 SIERRA COLLEGE DRIVE, SUITE 140, GRASS VALLEY, CALIFORNIA 95945-5091 | (530) 432-7357
GRASS VALLEY | ORANGE COUNTY | PASADENA | SACRAMENTO | SONOMA

Please let me know if any of these names are incorrect or if there are other parties with an interest in this matter that we should list such as, for example, any other parties to the suit. Unless we hear from you to the contrary, we will assume that the above listing is accurate and complete. We have reviewed our files and our conflicts index and have no other client relationships which would interfere with our ability to represent the City in this matter.

The nature of the matter makes it impossible for us to precisely estimate the fees the City may incur. You will receive monthly statements informing you of the fees and costs incurred during the prior month. We will, of course, do our best to represent the City efficiently and without undue expense.

Please make payments payable to Colantuono, Highsmith & Whatley, PC directly to our Grass Valley office at:

Colantuono, Highsmith & Whatley, PC
420 Sierra College Drive, Suite 140
Grass Valley, CA 95945-5091

Our federal employer identification number is 75-3031545.

I will have primary responsibility for your representation, and the firm will use other attorneys and legal assistants in the best exercise of our professional judgment. If you have questions, concerns or criticisms at any time, please contact me at once. Naturally, we expect you to keep us reasonably informed of all significant developments regarding this representation.

We review all statements before they are issued to ensure the amount charged is appropriate. The statement for fees is simply the product of the hours worked multiplied by the hourly rates for the attorneys and legal assistants who did the work.

Our hourly rates are based upon the experience, reputation and ability of the lawyer or legal assistant performing the services, and for 2024 range between \$255 and \$605 per hour for attorneys' time, and between \$155 and \$200 for the time of paralegals and legal assistants. As a courtesy to you, however, we agree to cap our rates at \$395 per hour, which is a substantial discount from our full rates. Our rate structure in general and the rates of particular lawyers may be increased from time to time, and are usually adjusted as of the beginning of each calendar year. However, we will not lift the hourly cap stated here without first consulting with you about our need to do so.

It may be necessary to bill you for items such as, but not limited to, authorized travel, long distance telephone calls, filing fees, photocopying, computerized legal research outside the scope of our Westlaw contract and the like. These items are separately itemized on our statement as “disbursements.” These amounts will be billed in addition to our fees.

We will send you monthly statements, and expect payment within 15 days of the billing date. If payment is not received within 30 days of the billing date, we reserve the right to charge interest on the unpaid balance at the rate of 1% per month and to terminate our representation.

We rarely have disputes with clients over our fees. Nevertheless, you should be aware that you are entitled to require that any fee dispute be resolved by binding arbitration pursuant to the arbitration rules for legal fee disputes of the County Bar Association in any county in which we maintain an office. We agree that all disputes between us regarding the services rendered or fees charged not resolved via County Bar fee arbitration will be submitted to binding arbitration in Sacramento to be conducted by ADR Services, Inc. in accordance with its commercial arbitration rules. **YOU SHOULD REVIEW THIS PARAGRAPH CAREFULLY AND, IF YOU WISH, SEEK INDEPENDENT LEGAL COUNSEL REGARDING IT, AS YOU AND WE ARE AGREEING TO FOREGO SIGNIFICANT RIGHTS IN THE EVENT OF A DISPUTE BETWEEN US, INCLUDING THE RIGHT TO A JURY TRIAL.**

On occasion, we may receive small sums of money belonging to you, such as a credit for an overpayment by a vendor, a refund from a court, or the like. The California State Bar requires us to alert you to sums we receive on your behalf within 14 days of receipt and to forward those funds to you within 45 days of receipt unless we have your direction otherwise. Processing payments for small amounts may be burdensome to your accounting staff and to ours. Therefore, by signing this letter agreement for legal services, you agree that, should we receive any amount to your credit of \$500 or less and we do not have other instructions from you with respect to that money, we may place these funds in our client trust account and apply them to future invoices to you for our services. You can alter this agreement at any time as to some or all funds we hold by letting us know, in writing, how we should handle your money. We will inform you of our receipt of funds promptly upon each receipt and will remind you of your right to alter these standing instructions as to any payment.

You have the right to terminate our representation at any time. We have the same right, subject to an obligation to give you reasonable notice to arrange alternative representation. In either circumstance, you agree to secure new counsel to represent you as quickly as possible and to cooperate fully in the substitution of the new counsel as counsel of record. Notwithstanding the termination of our representation, you will remain obligated to pay to us all fees and costs incurred previously.

You agree that we may, in our discretion, maintain all or part of your client file in electronic format. The firm may store part or all of your documents using secure cloud storage services. If so, the firm will apply all reasonable methods to maintain the confidentiality of your files, just as it does for your non-digital information. Your data will be password protected and encrypted using currently available technology. Clients requiring information from their files may obtain that information only by written request to us.

You should know that we may use artificial intelligence tools in our representation of you. If we do so, we will ensure that your confidential information is maintained in confidence and that any writing or analysis produced by generative artificial intelligence is edited or confirmed by an attorney before use. If you have any questions or concerns about our use of artificial intelligence tools, please let us know.

You also agree that following termination of our attorney-client relationship, we will not be required to maintain your client file for more than two years. If you ask us to deliver your file to you, you agree that delivery of an electronic version, together with any materials that cannot be saved electronically, satisfies our obligation to release all your client papers and property to you. Two years after termination of our relationship, and after reasonable notice, you agree that we will be free to destroy your client file, including all electronic records. We may also discharge our obligation to maintain your file before two years expire by mailing a copy to you at your address last known to us. You agree that “reasonable notice” means our mailing a notice of our intent to destroy your client file to you at that address.

I apologize for the formality of this letter, but we are required by California law to provide this information to you in writing. We are also required to inform you that we currently maintain professional liability insurance coverage.

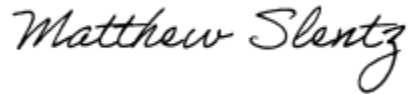
David Rapport, City Attorney

December 20, 2024

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Please review the foregoing and, if it meets with your approval, execute it and return it to me. If you have any questions, please feel free to call me at the direct-dial number above. Thank you for the opportunity to represent you!

Sincerely,



Matthew C. Slentz

MCS:MCS

cc: Michael G. Colantuono, Esq.

On behalf of the City of Ukiah, I agree to retain Colantuono, Highsmith & Whatley, PC to provide legal services as set forth above, fees not to exceed \$10,000 until agreement ratified by the Ukiah City Council.



Signature

Date: December 23, 2024

By: David J. Rapport

Title: Ukiah City Attorney



AGENDA SUMMARY REPORT

SUBJECT: Review and Accept the 2024 Development Impact Fees Report Along with Corresponding Actions.

DEPARTMENT: Finance

PREPARED BY: Dan Buffalo, Finance Director

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Annual Development Impact Fee Report 2024

Summary: The California Mitigation Fee Act (AB 1600) mandates that local agencies provide an annual report on development impact fees (DIFs) to ensure accountability and transparency in the use of such fees. The City of Ukiah's report for Fiscal Year 2023-24, prepared by NBS, provides a comprehensive summary of DIF revenues, expenditures, and fund balances. This report also identifies the public improvements funded by DIFs and ensures compliance with applicable legal requirements.

Background: The Mitigation Fee Act (Government Code Sections 66000 et seq.) requires cities to provide an annual accounting of DIF revenues and expenditures within 180 days of the fiscal year-end. The purpose is to demonstrate the appropriate collection, allocation, and use of DIF funds for public facilities and infrastructure necessitated by new development.

The City of Ukiah collects and tracks DIFs in separate funds to ensure proper allocation for specific purposes, including park development, water and sewer connections, and fire protection infrastructure. This year's report (Attachment 1) also includes compliance with Section 66013 for water and wastewater capacity charges.

Discussion:

Development Impact Fees Overview

The DIFs collected in FY 2023-24 funded various infrastructure projects and public improvements, ensuring the City maintains service levels as the community grows. The following funds were addressed:

1. Park Development Fund (300)

- Expenditures of \$7,331 on the Todd Grove Park BBQ Facility Reconstruction project.

2. Water Connection Fee Fund (822)

- Expenditures of \$9,485 on the Municipal Well Project.

3. Sewer Connection Fee Fund (843)

- Fund balance grew by \$287,079, with no planned capital projects in FY 2024-25.

4. Fire Impact Fee Fund (918)

- A \$20,720 interfund loan repayment was made for the Fire Station Mortgage on Lovers Lane.

Financial Summary

Beginning Fund Balances (FY 2023-24):

- Total of \$(731,610) across all funds, excluding interfund liabilities.

Ending Fund Balances (FY 2023-24):

- Total of \$(947,652) across all funds.

Planned Improvements for FY 2024-25

1. Water Connection Fee Fund:

- Downtown Streetscape (\$63,009).
- Water Resource Development for Todd Grove (\$40,915).
- Development of Additional Groundwater Facility (\$899,813)

2. No planned expenditures for the Sewer Connection Fee Fund or Park Development Fund in FY 2024-25.

Note: Water expansion fees were exhausted from capital projects and were subsidized by other water capital project funds. This resulted in a deficit balance of available resources. Planned improvements will also require subsidy from other water capital improvement funds. Future connection fees will replenish this fund.

Interfund Transfers and Loans

An interfund loan of \$255,188 for the Lovers Lane Fire Station was previously authorized. The FY 2023-24 repayment of \$20,720 demonstrates adherence to the repayment schedule with a 3.022% interest rate.

Compliance and Transparency

The City remains compliant with AB 1600 by providing the required information for each fund, including fee types, fund balances, and detailed expenditures. Additionally, no refunds were issued, and all fees were allocated for their intended purposes.

Fiscal Impact

The Annual Development Impact Fee Report demonstrates that all DIF revenues and expenditures align with legal requirements and the City's capital improvement goals. Acceptance of this report has no direct fiscal impact but provides transparent information for future budgeting and planning.

Recommended Action:

1. Review and accept the Annual Development Impact Fee Report for Fiscal Year 2023-24.
2. Direct Staff to post the report for public access, as required by Government Code Section 66006(b).
3. Approve Staff's plan to incorporate findings from this report into future budget and capital improvement planning efforts.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: N/A

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager

CITY OF UKIAH

Annual Development Impact Fee Report

Fiscal Year Ended June 30, 2024

December 27, 2024

Prepared by:
NBS
for the
CITY OF UKIAH



City of Ukiah



City Officials

Josefina Dueñas, Mayor
Douglas Crane, Vice Mayor
Susan Sher, Councilmember
Juan Orozco, Councilmember
Mari Rodin, Councilmember

City Executive Team

Sage Sangiacomo, City Manager
Shannon Riley, Deputy City Manager
David Rapport, City Attorney
Kristine Lawler, City Clerk
Allen Carter, City Treasurer
Daniel Buffalo, Director of Finance
Tim Eriksen, Director of Public Works
Craig Schlatter, Director of Community Development

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1. DEVELOPMENT IMPACT FEE ANNUAL REPORT

The California Mitigation Fee Act (Government Code Sections 66000 et seq.) mandates procedures for administration of impact fee programs, including collection and accounting, reporting, and refunds. Regarding reporting requirements, the Mitigation Fee Act requires annual reporting for each impact fee fund, and a separate five-year reporting process. This report meets the requirements described in 1.1 Annual Report below. A combined Annual and Five-Year Report will be provided in future years when needed to meet required reporting timelines.

1.1 Annual Report Requirements

Section 66006 (b) (1) requires that once each year, within 180 days of the close of the fiscal year, the local agency must make available to the public the following information for each separate account established to receive impact fee revenues:

1. A brief description of the type of fee in the account or fund; *(report section 2)*
2. The amount of the fee; *(report section 2)*
3. The beginning and ending balance of the account or fund; *(report section 3)*
4. The amount of the fees collected, and interest earned; *(report section 3)*
5. Identification of each public improvement on which fees were expended and the amount of the expenditures on each improvement, including the total percentage of the cost of the public improvement that was funded with fees; *(report section 4)*
6. Identification of the approximate date by which the construction of a public improvement will commence, if the District determines sufficient funds have been collected to complete financing of an incomplete public improvement; An identification of each public improvement identified in a previous report and whether construction began on the approximate date noted in the previous report. For a project identified for which construction did not commence by the approximate date provided in the previous report, the reason for the delay and a revised approximate date that the local agency will commence construction; *(report section 4)*
7. A description of each interfund transfer or loan made from the account or fund, including interest rates, repayment dates, and a description of the improvement on which the transfer or loan will be expended; *(report section 5)*
8. The amount of any refunds or allocations made pursuant to Section 66001, paragraphs (e) and (f); *(report section 6)*

The annual report must be reviewed by the City Council at its next regularly scheduled public meeting, but not less than 15 days after the statements are made public, per Section 66006 (b) (2).

Section 66013(d) has similar requirements for water and wastewater capacity charges in that, within 180 days after the close of each fiscal year, the local agency must make available to the public the following information:

1. A description of the charges deposited in the fund; *(report section 2)*
2. The beginning and ending balance of the fund and the interest earned from investment of moneys in the fund; *(report section 3)*
3. The amount of charges collected in that fiscal year; *(report section 3)*
4. An identification of:
 - a. Each public improvement on which charges were expended and the amount of expenditure for each improvement, including the percentage of the total cost of the public improvement that was funded with those charges if more than one source of funding was used; *(report section 4)*
 - b. Each public improvement on which charges were expended that was completed during that fiscal year; *(report section 4)*
 - c. Each public improvement that is anticipated to be undertaken in the following fiscal year; *(report section 4)*
5. A description of each interfund transfer or loan made from the capital facilities fund, including the public improvement on which the transferred or loaned charges are or will be expended and, in the case of an interfund loan, the date on which the loan will be repaid and the rate of interest that the fund will receive on the loan; *(report section 5)*

1.2 Five-Year Report

Prior to 1996, The Mitigation Fee Act required that a local agency collecting impact fees was required to expend or commit impact fee revenue within five years or make findings to justify a continued need for the money, otherwise those funds had to be refunded. SB 1693, adopted in 1996 as an amendment to the Mitigation Fee Act, changed that requirement in material ways.

Now, Section 66001 (d) requires that, for the fifth fiscal year following the first deposit of any impact fee revenue into an account or fund as required by Section 66006 (b), and every five years thereafter, the local agency shall make all of the following findings for any fee revenue that remains unexpended, whether committed or uncommitted:

1. Identify the purpose to which the fee will be put;
2. Demonstrate the reasonable relationship between the fee and the purpose for which it is charged;
3. Identify all sources and amounts of funding anticipated to complete financing of incomplete improvements for which impact fees are to be used;

4. Designate the approximate dates on which the funding necessary to complete financing of those improvements will be deposited into the appropriate account or fund.

Those findings are to be made in conjunction with the annual reports discussed above. If such findings are not made as required by Section 66001, the local agency could be required to refund the moneys in the account or fund, per Section 66001 (d).

Once the agency determines that sufficient funds have been collected to complete financing on incomplete improvements for which impact fee revenue is to be used, it must, within 180 days of that determination, identify an approximate date by which construction of the public improvement will be commenced (Section 66001 (e)). If the agency fails to comply with that requirement, it must refund impact fee revenue in the account according to procedures specified in Section 66001 (d).

2. CURRENT IMPACT FEES

2.1 Types of Impact Fees and Impact Fee Funds

The fees documented in the body of this Annual Development Impact Fee Report (Report) include the following fees listed below. The revenue and expenditures for each fee type is tracked by the City in a separate fund.

Table 1. Impact Fees and Impact Fee Funds

Fund No.	Fund/Fee Name	Purpose and Use of the Fee
300	Park Development	Park Development Fees, tracked in Fund 300, are enacted per the City's Code of Ordinances, Chapter 1, Article 21. Park and Recreation; Dedication; Reservations; Fees. Section Fees In Lieu of Land Dedication are governed by the Quimby Act (CA State GC 66477), not the Mitigation fee Act, and are not subject to the same standards of reporting as the City's other impact fees. The City has decided to report on these fees in a similar manner to other impact fees for transparency purposes. Revenues collected from Park Development Fees will be used to acquire park land, improve park infrastructure according to the stipulations of the Quimby Act.
822	Water Connection Fee	Water Connection Fees are established per the City's Code of Ordinances, Chapter 4, Fees for Water Transmission, Storage, and Production and Treatment Facilities. New structures built in the City requiring water service create demand for additional water storage capacity, water transmission lines, and water production and treatment facilities. In order to provide these facilities, the connection fees were adopted by City Council. Revenues collected from Water Connection Fees will be used to build water utility infrastructure needed to serve new development.
843	Sewer Connection Fee	Sewer Connection Fees are established per the City's Code of Ordinances, Chapter 2, Article 12. Sewer improvement fees provide funds for the enlargement of main trunk, interceptor line and sewage treatment facilities.

Fund No.	Fund/Fee Name	Purpose and Use of the Fee
918	Ukiah Valley Fire District Fire Impact Fee	Fire Development Mitigation Fees are established per the City's Code of Ordinances, Chapter 15. The City administers fire protection development mitigation fees for the Ukiah Valley Fire District and ensures the assessment and collection of these fees in connection with the issuance of building permits. The fire protection development mitigation fees are allocated on behalf of the Ukiah Valley Fire District for the acquisition of capital assets and equipment in order to ensure the provision of the capital assets and equipment necessary to maintain appropriate levels of fire protection services that are required as the result of new development projects.

2.2 Current Impact Fees

Development impact fees (DIFs) in the City of Ukiah are one-time charges levied on new development in Ukiah to fund various infrastructure, facilities, vehicles, and equipment. The following provides the list of impact fee amounts charged by the City in Fiscal Year 2023-24.

Park Development Fees – Per Chapter 1, Article 21, Section 8406 Amount of Fee in Lieu of Land Dedication: “Where a fee is required to be paid in lieu of land dedication, the amount of such fee shall be based upon the fair market value of the amount of land which would otherwise be required to be dedicated pursuant to §8403 hereof. The fair market value shall be determined at the time of filing the tentative map or parcel map.”

Fire Protection Mitigation Fee – \$0.43 per s.f. (Exempt the first 1,500 of additions to existing single-family dwellings, the first 500 s.f. of additions to other existing buildings, and the first 500 s.f. of new accessory buildings per assessor's parcel). The fee is computed on the total floor area, which includes all floors, heated and unheated, porches, and garages.

Water Connection Fees:

Fee Name	Meter Size	FY 2024 Fee Amount
Water Connection Fee	¾"	\$2,200.45 per meter size
	1"	\$3,667.41 per meter size
	1 ½"	\$7,334.82 per meter size
	2"	\$11,735.72 per meter size
	3"	\$23,471.44 per meter size
	4"	\$36,674.12 per meter size
	5" and larger	Tbd by City Council
Source: Draft Master Fee Schedule File December 2024		

Sewer Connection Fees:

Fee Name	Meter Size	FY 2024 Fee Amount
Sewer Connection Fee (for City Limits)	One bedroom	\$11,016.00 (0.90 ESSU)
	Two bedroom	\$12,240.00 (1.0 ESSU)
	Three bedroom	\$13,464.00 (1.10 ESSU)
	For each additional bedroom	\$1,224.00 (0.1 ESSU)
	Mobile Home Park fee (by space)	\$7,344.00 (0.60 ESSU)
	Source: Draft Master Fee Schedule File December 2024	

Drain Fixture Unit Capital Improvement Fee	Min. Trap Size	Price* (Within City Limits)	Price (Out of City, in UVSD)
Plumbing Appliance, Appurtenance or Fixture			
Bathtub or Combination Bath/Shower	1½"	\$ 872.88	\$ 894.67
Clothes Washer, domestic, standpipe	2"	\$ 1,309.32	\$ 1,405.91
Dental Unit, cuspidor	1¼"	\$ 436.44	\$ 383.43
Dishwasher, domestic, with independent drain	1½"	\$ 872.88	\$ 894.67
Drinking Fountain or Watercooler (per head)	1¼"	\$ 218.22	\$ 127.81
Food-waste-grinder, commercial	2"	\$ 1,309.32	\$ 1,405.91
Floor Drain, emergency	2"	\$ -	\$ -
Floor Drain (for additional sizes see Section 702)	2"	\$ 872.88	\$ 894.67
Shower single head trap	2"	\$ 872.88	\$ 894.67
Multi-head, each additional	2"	\$ 436.44	\$ 383.43
Lavatory, single	1¼"	\$ 436.44	\$ 383.43
Lavatory in sets	1½"	\$ 872.88	\$ 894.67
Washfountain	1½"	\$ 872.88	\$ 894.67
Washfountain	2"	\$ 1,309.32	\$ 1,405.91

Drain Fixture Unit Capital Improvement Fee	Min. Trap Size	Price* (Within City Limits)	Price (Out of City, in UVSD)
Sinks			
Bar	1½"	\$ 872.88	\$ 894.67
Clinical	3"	\$ 2,509.53	\$ 2,939.63
Commercial with food waste	1½"	\$ 1,309.32	\$ 1,405.91
Special Purpose	1½"	\$ 1,309.32	\$ 1,405.91
Special Purpose	2"	\$ 1,636.65	\$ 1,917.15
Special Purpose	3"	\$ 2,509.53	\$ 2,939.63
Kitchen, domestic (with or without food-waste-grinder and/or dishwasher)	1½"	\$ 872.88	\$ 894.67
Laundry (with or without discharge from a clothes washer)	1½"	\$ 872.88	\$ 894.67
Service or Mop Basin	2"	\$ 1,309.32	\$ 1,405.91
Service or Mop Basin	3"	\$ 1,309.32	\$ 1,405.91
Service, flushing rim	3"	\$ 2,509.53	\$ 2,939.63
Wash, each set of faucets		\$ 872.88	\$ 894.67
Urinal, integral trap 1.0 GPF	2"	\$ 872.88	\$ 894.67
Urinal, integral trap greater than 1.0 GPF	2"	\$ 872.88	\$ 894.67
Water Closet, 1.6 GPF Gravity Tank/Flushometer	3"	\$ 1,636.65	\$ 1,917.15
Water Closet greater than 1.6 GPF Gravity Tank/Flushometer	3"	\$ 2,509.53	\$ 2,939.63
* Based upon capital improvement fee per City Ordinance No. 1075			

3. FINANCIAL SUMMARY REPORT

The following financial summary provides an annual statement of revenues, and changes in fund balance for each impact fee fund, for the Fiscal Year End June 30, 2024. Figures shown in the table below are unaudited as of the date of this report.

Table 2. Financial Summary Fiscal Year 2023-24

Fund No.	300	822	843	918
Description	Park Development	Water Connection	Sewer Connection - City	Ukiah Valley Fire District
Fees	5,468	-	272,882	-
Interest	3,271	-	20,447	2,800
Fund Balance, Beginning of the Year¹	168,313	(1,844,827)	806,933	137,971
Fund Balance, End of the Year¹	39,911	(2,166,687)	1,094,012	85,112

¹ Beginning & Ending Fund Balance is defined as spendable balance and reported per financial reports provided by the City's Finance Department

4. PUBLIC IMPROVEMENTS

This section of the Annual Report identifies each public improvement on which fees were expended and the amount of the expenditures on each improvement, including the percentage of the cost of the public improvement that was funded with fees.

Table 3. Public Improvements Fiscal Year 2024

Fund	Fund Name	Project Name	Project Start	Project Finish	Project Phase	Total Project Funding	Impact Fees				
							Total Impact Fee Funded Amount	% Impact Fee Funded	Total Prior Year Impact Fee Expenditures	FY 2024 Impact Fee Expenditures	Impact Fee Funding Remaining
300	Park Development	Picnic Area at Todd Grove Park BBQ Facility Reconstruction	Apr-23	May-24	Active	\$ 131,224	\$ 50,000	38%	\$ -	\$ 7,331	\$ 42,669
822	Water Connection Fee Fund	Municipal Well Project	4/4/2024	6/30/2025	Active	\$ 407,726	\$ 407,726	100%	\$ -	\$ 9,485	\$ 398,241
TOTAL						\$ 538,950	\$ 457,726		\$ -	\$ 16,816	\$ 440,910

The Mitigation Fee Act also requires annual identification of the approximate date by which the construction of a public improvement will commence, if the City determines sufficient funds have been collected to complete financing of an incomplete public improvement. The projects listed above represent active uses of impact fee funds to complete current capital improvement projects. The City has also identified one public improvement project for Fund 918, UVFD Mitigation Fees, that has sufficient impact fee funds available. The City's 2024/25 Capital Improvement Plan shows planned purchase of a Command/Chief Vehicle.

Government Section 66013(d) has similar requirements for water and sewer connection fees, to identify each public improvement that is anticipated to be undertaken in the following fiscal year. The following is a list of planned improvements for the Water Connection Fee Fund and approved budget amounts in Fund 822 for Fiscal Year 2024-25:

- Downtown Streetscape, \$63,009
- Water Resource Development for Todd Grove, \$40,915
- Development of Additonal Groundwater Facility, \$899,813

There are no planned capital improvement projects Sewer Connection Fee Funds in Fiscal Year 2024-25.

5. INTERFUND LOANS

The Mitigation Fee Act requires a description of each interfund transfer or loan made from the account or fund, including interest rates, repayment dates, and a description of the improvement on which the transfer or loan will be expended.

Table 4. Interfund Loans Fiscal Year 2024

Date of Loan	Maturity Date	Purpose of Loan	Original Advance	Lender	Borrower	Fiscal Year 2024 Payment/ Transfer	Balance 06/30/2024	Interest Rate
04/01/23	04/01/33	Fire Station Mortgage, Lovers Lane	\$ 255,188	City of Ukiah	Ukiah Valley Fire District	\$ 20,720	\$ 229,229	3.022%

6. REFUNDS

The refunding requirements for the Mitigation Fee Act are summarized as follows:

Refunds under the Mitigation Fee Act: If the City determines that sufficient funds have been collected to complete financing on incomplete improvements for which impact fee revenue is to be used, it must, within 180 days of that determination, identify an approximate date by which construction of the public improvement will be commenced (Government Code Section 66001 (e)). If the agency fails to comply with that requirement, it must refund impact fee revenue in the account according to procedures specified in Section 66001 (d).

As discussed in Section 1.5 of this report, determinations regarding sufficient funds collected to complete incomplete improvements are provided by the District's annual Capital Improvement Plan. The City has not made a determination that sufficient funds have been collected to complete financing of any other incomplete public improvements. No refunds of impact fee monies were made or required.

Disclaimer: In preparing this report and any analysis and findings included herein, NBS has relied on several principal assumptions and considerations regarding financial matters, conditions and events that occurred or may occur in the future. This information and assumptions, including the City's budgets, financial reports, capital project data, and other information were provided by sources we believe to be reliable; however, NBS has not independently verified such information and assumptions. While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report, some assumptions will invariably not materialize as stated herein and may vary due to unanticipated events and circumstances



AGENDA SUMMARY REPORT

SUBJECT: Approve Change Order #7 to Contract 2324-169 with Kirby Construction Company to Complete Additional Repairs Discovered During Construction at the Electric Facility on Hastings Road, and Authorize a Budget Amendment in the Amount of \$25,000.

DEPARTMENT: Electric Utility

PREPARED BY: Cindy Sauers, Electric Utility Director

PRESENTER: Consent Calendar

ATTACHMENTS:

1. 2202_231117_CD100_BuildingPermit_Compiled_R2
2. Change Orders 1-6
3. COR #015 r.1 - Design Changes

Summary: Staff is requesting approval for a change order to complete various tasks that were not included in the original scope, and approval of a corresponding budget amendment in the amount of \$25,000.

Background: The City Council previously approved the purchase of 2.8 acres, including a 15,800 sq. ft. building located at 1350 Hastings Road, to serve as the Electric Service Center for the Electric Utility Department's operations. The Electric Service Center is designed to centralize electric operations, including Engineering, Construction, and Technical Services. Additionally, the facility will support training activities, material warehousing, and construction preparation.

In early 2023, site improvements were completed, including grading, roofing, fencing, and service equipment upgrades. However, on March 8, 2023, a fire occurred at the facility due to a failed exhaust fan. Immediate actions were taken to remediate the site and revise project drawings to include fire damage repairs.

The City received an insurance payment of \$471,488.51 to address fire-related damages. An additional \$185,138.94 was paid directly by the insurance company to West Coast Fire and Water for remediation activities.

On March 6, 2024, the City Council awarded a construction contract to Kirby Construction Company for the Hastings Tenant Improvements and Fire Damage Repair Project. The project plans are included as Attachment #1. The scope of the project includes renovating the building's interior to create office spaces, a conference room, and warehousing areas.

Discussion: During construction, several unforeseen conditions necessitated change orders to ensure compliance with building codes and address structural issues uncovered during demolition. These included:

- Installation of additional fire sprinklers required by code.
- Relocation of the HVAC system.
- Installation of additional electrical and data ports.
- Repairs due to previously undiscovered fire damage.

Copies of Change Orders #1–#6, totaling \$237,708.78, are provided as Attachment #2. These expenditures have left a balance of just over \$6,900 for the remainder of the project.

During the installation of upstairs flooring, water damage was discovered in the subfloor caused by a long-term leak from a door that had been improperly installed. This newly identified issue requires immediate repair to ensure structural integrity and prevent further damage. Additional items requiring a change order include additional electrical work as well as modifications to safety structures in mechanical areas. These items are addressed in Change Order #7, which totals \$15,472.27 (Attachment #3).

Staff is requesting approval of Change Order #7 and a corresponding budget amendment in the amount \$25,000 to cover the change order and to provide funds should any other issues arise.

Recommended Action: Approve Change Order #7 to Contract 2324-169 with Kirby Construction Company to complete additional repairs discovered during construction, and authorize a corresponding budget amendment in the amount of \$25,000.

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT: 80126100.80220.17023; \$14,376.87

PROPOSED BUDGET AMOUNT: 80126100.80220.17023; \$39,377

FINANCING SOURCE: 800 Fund

REVENUE: No **GRANT:** No

PREVIOUS CONTRACT/PURCHASE ORDER NO.: 2324-169

COORDINATED WITH: Mary Horger, Financial Services Manager

DIVERSITY-EQUITY INITIATIVES (DEI):

CLIMATE INITIATIVES (CI):

GENERAL PLAN ELEMENTS (GP):

Approved:


Sage Sangiacomo, City Manager

\\Users\Alexander\Documents\Projects\2202_Ukiah Electric\Drawings\06_Arch\CAD\2202_20117_UkiahElectric_BuildingPermit_R2.dwg
PRINTED: 11/22/23 11:31 AM

GENERAL NOTES

1. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE LOCAL BUILDING CODES AND REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS APPLICABLE TO SPECIFIC TRADES OR SUBCONTRACTORS. CONTRACTOR WILL HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND WILL HAVE SATISFIED HIMSELF AS TO THE CONDITION OF EXISTING WORK AND ADJACENT PROPERTY PRIOR TO SUBMISSION OF BID. NO ALLOWANCES WILL SUBSEQUENTLY BE MADE ON BEHALF OF THE CONTRACTOR BY REASON OF ANY OMISSION ON HIS PART TO INCLUDE THE COSTS OF ALL ITEMS OF WORK, EITHER LABOR OR MATERIALS, WHETHER THEY ARE OR ARE NOT ESPECIALLY OR PARTICULARLY SHOWN OR NOTED BUT WHICH ARE IMPLIED OR REQUIRED TO ATTAIN THE COMPLETED CONDITIONS PROPOSED IN THE DRAWINGS.
3. ALL SUBCONTRACTORS TO THE GENERAL CONTRACTOR SHALL INSPECT THE SITE AND SHALL CONVEY ANY QUESTIONS REGARDING DESIGN INTENT AND SCOPE OF WORK TO THE ARCHITECT PRIOR TO SUBMITTING BID AND PRIOR TO COMMENCING WORK.
4. CONTRACTOR SHALL COORDINATE THE WORK OF THE VARIOUS TRADES AND SUBCONTRACTORS AND SHALL BE RESPONSIBLE FOR ANY ACTS, OMISSIONS, OR ERRORS OF THE SUBCONTRACTORS AND OF PERSONS DIRECTLY OR INDIRECTLY EMPLOYED BY THEM.
5. CONTRACTOR TO ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS INCLUDING SAFETY OF PERSONS AND PROPERTY FOR THE DURATION OF THE PROJECT.
6. CONTRACTOR TO CONFORM TO HOMEOWNERS ASSOCIATION RULES AND GUIDELINES.
7. CONTRACTOR TO NOTIFY ARCHITECT IMMEDIATELY AND PRIOR TO ORDERING OF ALL LONG LEAD ITEMS AND OF APPROXIMATE DELIVERY DATES.
8. ALL CONSTRUCTION MATERIALS AND SUPPLIES TO BE STORED, HANDLED, AND INSTALLED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS.
9. IF ERRORS OR OMISSIONS ARE FOUND IN THE DRAWINGS THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
10. DRAWINGS SCHEMATICALLY INDICATE NEW CONSTRUCTION. THE CONTRACTOR SHOULD ANTICIPATE, BASED ON EXPERIENCE, A REASONABLE NUMBER OF ADJUSTMENTS TO BE NECESSARY TO MEET THE DESIGN OBJECTIVES AND SHOULD CONSIDER SUCH ADJUSTMENTS AS INCLUDED IN THE SCOPE OF WORK.
11. WHEN SPECIFIC FEATURES OF CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE GENERAL NOTES, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SIMILAR CONDITIONS.
12. ALL DIMENSIONS TO BE TAKEN FROM NUMERIC DESIGNATIONS ONLY; DIMENSIONS ARE NOT TO BE SCALED OFF DRAWINGS.
13. THESE NOTES TO APPLY TO ALL DRAWINGS AND GOVERN UNLESS MORE SPECIFIC REQUIREMENTS ARE INDICATED APPLICABLE TO PARTICULAR DIVISIONS OF THE WORK. SEE SPECIFICATIONS AND GENERAL NOTES IN THE SUBSECTIONS OF THESE DRAWINGS.
14. ALL DIMENSIONS ARE TO FACE OF FINISH, U.O.N.
15. WEATHER STRIP ALL DOORS LEADING FROM HEATED TO UNHEATED AREAS. PROVIDE VINYL BEAD TYPE WEATHER STRIPPING AT THESE DOORS AND WINDOWS. ALL SIDES OF THE DOOR MUST BE WEATHERSTRIPPED, INCLUDING THE THRESHOLD.
16. CAULK AND SEAL OPENINGS IN BUILDING EXTERIOR 1/8" OR GREATER TO PREVENT AIR INFILTRATION.
17. WINDOWS TO BE OPERABLE AND CLEANED, U.O.N.
18. ALL WALL FRAMING SHALL BE 2x4 @ 16" O.C. MINIMUM. U.O.N.
19. ALL GYPSUM BOARD SHALL BE 5/8" THICK, TYPE "X", U.O.N.
20. ALL GYPSUM AND/OR PLASTER SURFACES SHALL BE SMOOTH, CONTINUOUS, FREE OF IMPERFECTIONS, AND WITH NO VISIBLE JOINTS, U.O.N.
21. STUCCO OVER WOOD SHEATHING SHALL INCLUDE TWO LAYERS OF GRADE 'D' BUILDING PAPER.
22. STRUCTURAL WOOD MEMBERS ADJACENT TO CONCRETE ARE TO BE PRESSURE TREATED DOUGLAS FIR.

ABBREVIATIONS

& ∠ Ø # (D) (E) (N) (R)	AND ANGLE AT DIAMETER NUMBER DEMOLISH EXISTING NEW REPLACE IN KIND	F.O.C. F.O.F. F.O.S. FNDN. FT. FTG. FURR.	FACE OF CONCRETE FACE OF FINISH FACE OF STUD FOUNDATION FOOT OR FEET FOOTING FURRING	R. RAD. R.D. REC. RDWD. REF. REFR. REINF. REQUIRED RESILIENT R.L. RM. R.O. S. S.C. SCHED. SD SECT. S.G. SHR. SHEET SIM. SL. S.L.D. SPEC. SQ. S.S.D. S.S. STD. STL. STOR. STRUCT. SYM.	RISER RADIUS ROOF DRAIN RECOMMENDATION REDWOOD REFERENCE REFRIGERATOR REINFORCED REQUIRED RAIN LEADER ROOM ROUGH OPENING SOUTH SOLID CORE SCHEDULE SMOKE DETECTOR SECTION STAIN GRADE SHOWER SHEET SIMILAR SLOPE SEE LANDSCAPE DRAWINGS SPECIFICATION SQUARE SEE STRUCTURAL DRAWINGS STAINLESS STEEL STANDARD STEEL STORAGE STRUCTURAL SYMMETRICAL
A.B. ADJ. A.F.F. AGGR. ALN. ALUM. APPROX. ARCH. AV.	ANCHOR BOLT ADJACENT ABOVE FINISHED FLOOR AGGREGATE ALIGN ALUMINUM APPROXIMATE ARCHITECTURAL AUDIO VISUAL	GALV. GA. G.F.C. GL. GR. GRND. GSM. GYP.	GALVANIZED GAGE GROUND FAULT INTERCEPTOR CIRCUIT GLASS GRADE GROUND GALVANIZED SHEET METAL GYPSUM	H.C. HDWD. HDWR. HT. HORIZ. HR.	HOLLOW CORE HARDWOOD HARDWARE HEIGHT HORIZONTAL HOUR
BD. BLDG. BLK. BLKS. BMA. B.O. B.U.R. B/W	BOARD BUILDING BLOCK BLOCKING BIM. BOTTOM OF BUILT UP ROOFING BETWEEN	IN. INSUL. INT.	INCH OR INCHES. INSULATION INTERIOR	IN. INSUL. INT.	INCH OR INCHES. INSULATION INTERIOR
CAB. CEM. CER. CLG. CLKG. CLR. C.M.U. C.O. COL. CONC. CONC. CONT.	CABINET CEMENT CERAMIC CEILING CAULKING CLEAR CONC. MASONRY UNIT CENTER OF COLUMN CONCRETE CONTINUOUS	LAM. LAV. L.O. LT. MAX. MED. CAB. MECH. MEMB. MTL. MTD. MFR. MINIUM. MIR. MISC.	LAMINATE LAVATORY LINE OF LIGHT MAXIMUM MEDICINE CABINET MECHANICAL MEMBRANE METAL MOUNTED MANUFACTURER MINIMUM MIRROR MISCELLANEOUS	T. T.B. TEL. T&G. THK. TMPR. T.O. TO P. TOP OF WALL TO P.H. T.S. T.V. TYP.	TREAD TOWEL BAR TELEPHONE TONGUE AND GROVE THICK TEMPERED TOP OF TOP OF PAVEMENT TOP OF WALL TOILET PAPER HOLDER TUBULAR STEEL TELEVISION TYPICAL
DBL. DTL. DIA. DIM. DN. DR. DS. DWG. DWR.	DOUBLE DETAIL DIAMETER DIMENSION DOWN DOWNSPOUT DRAWING DRAWER	N. N.I.C. NO. NOM. N.T.S.	NORTH NOT IN CONTRACT NUMBER NOMINAL NOT TO SCALE	N. N.I.C. NO. NOM. N.T.S.	NORTH NOT IN CONTRACT NUMBER NOMINAL NOT TO SCALE
E. E.A. ELEC. ELEV. ENCL. EQ. EQUIP. EXT.	EAST EACH ELECTRICAL ELEVATION ENCLOSURE EQUAL EQUIPMENT EXTERIOR	O/ O.A. O.A.E. OBS. O.C. O.D. OPNG. OPP. O.R.B.	OVER OVERALL OR APPROVED EQUAL OBSURE ON CENTER OUTSIDE DIAMETER OPENING OPPOSITE OIL RUBBED BRONZE	O/ O.A. O.A.E. OBS. O.C. O.D. OPNG. OPP. O.R.B.	OVER OVERALL OR APPROVED EQUAL OBSURE ON CENTER OUTSIDE DIAMETER OPENING OPPOSITE OIL RUBBED BRONZE
F.D. F.F. & E. F.F. FIN. FLR. FLUOR. FIXT. F.O.	FLOOR DRAIN FURNITURE, FIXTURES & EQUIP. FINISH FLOOR FINISH FLOOR FLUORESCENT FIXTURE FACE OF	P.G. PL. PLAM. PLYWD. PR. PROPIN. PT.	PAINT GRADE PLATE PLASTIC LAMINATE PLYWOOD PAIR PROPERTY LINE PRESSURE TREATED	P.G. PL. PLAM. PLYWD. PR. PROPIN. PT.	PAINT GRADE PLATE PLASTIC LAMINATE PLYWOOD PAIR PROPERTY LINE PRESSURE TREATED

SITE AERIAL VIEW



VICINITY MAP



SYMBOL LEGEND

	DRAWING/DETAIL REFERENCE TAG DRAWING OR DETAIL SHEET WHERE DRAWING/DETAIL OCCURS
	SECTION/ELEVATION REFERENCE TAG INTERIOR ELEVATION SHEET WHERE SECTION OCCURS
	INTERIOR ELEVATION REFERENCE TAG INTERIOR ELEVATION SHEET WHERE INTERIOR ELEVATION OCCURS
	DOOR TAG
	WINDOW TAG
	APPLIANCE TAG
	REVISION TAG
	WALL TYPE TAG
	WORKPOINT OR DATUM
	THRESHOLD
	MATCHLINE
	ALIGN
	LINE ABOVE
	LINE BELOW
	PROPERTY LINE
	SETBACK
	DOOR/WINDOW OPERATION
	CENTER LINE
	CONCRETE
	INSULATION IN SECTION (BATT)
	INSULATION IN SECTION (RIGID)
	LATH AND PLASTER IN SECTION
	GYPSUM BOARD IN SECTION
	PLYWOOD IN SECTION
	FINISH WOOD IN SECTION
	GLASS IN SECTION
	DRAINABLE BATTENS
	DRAIN MAT
	DRAIN BOARD OR WATER PERMEABLE DRAIN LAYER
	SHEET APPLIED WATERPROOFING UNDER FLOOR VAPOR BARRIER (SEE INT. FLR. TYPES)
	PRE-APPLIED SHEET MEMBRANE
	FLUID APPLIED WATERPROOFING
	FLUID APPLIED AIR BARRIER
	ROOF UNDERLAYMENT OR SELF ADHERING MEMBRANE

PROJECT DATA

ZONED	[C-2] COMMERCIAL / INDUSTRIAL
APN	APN 180-070-19-00
EXISTING USE	OFFICES [B] / STORAGE [S-1]
PROPOSED USE	OFFICES [B] / STORAGE [S-1] (NO CHANGE)
LOT DIMENSION	APPROX. 290'-0" X 430'-0"
LOT SIZE	2.8 ACRES / 121,968 SQFT.
EXISTING SQFT.	15,800 SQFT.
CONST. TYPE	V-A
FIRE SPRINKLERS	YES
SEISMIC DESIGN CAT.	E
ORIG. CONST. DATE	2000

PROJECT DIRECTORY

OWNER	CITY OF UKIAH: ELECTRIC UTILITIES DIVISION 300 SEMINARY AVENUE UKIAH, CA 95482 T. 707-463-6200
ARCHITECT	REN / ALEXANDER DESIGN 301 SCOTT STREET UKIAH, CA 95482 T. 707-367-8020 E. STEVEN@RENALEXANDER.COM
STRUCTURAL	WHITCHURCH ENGINEERING 610 9TH STREET FORTUNA, CA 95540 T. 707-725-6926 E. BLW@WHITCHURCHENGINEERING.COM
MECHANICAL	WHITCHURCH ENGINEERING 610 9TH STREET FORTUNA, CA 95540 T. 707-725-6926 E. ETA@WHITCHURCHENGINEERING.COM
ELECTRICAL	WHITCHURCH ENGINEERING 610 9TH STREET FORTUNA, CA 95540 T. 707-725-6926 E. ETA@WHITCHURCHENGINEERING.COM
PLUMBING	WHITCHURCH ENGINEERING 610 9TH STREET FORTUNA, CA 95540 T. 707-725-6926 E. DCL@WHITCHURCHENGINEERING.COM
T-24 ENERGY	ABBAY TECHNICAL SERVICES 1125 16TH STREET, SUITE 216 ARCATA, CA 95521 T. 707-826-1433 E. ADMIN@ABBAYTECHNICALSERVICES.COM

LEGAL DESCRIPTION

PARCEL 2 OF PCL MAP MS 38-78, HASTINGS SUBURBAN ADDITION TO UKIAH FILED DEC 28, 1978 IN C2, D34, P2, MCR.

DRAWING INDEX

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	A0.2 EXISTING EXTERIOR PHOTOS		S2 MEZZANINE LEVEL STRUCTURAL PLAN
	A0.3 EXISTING INTERIOR PHOTOS		S3 MISCELLANEOUS DETAILS
	A0.4 INTERIOR CONCEPT VIEWS		S4 NOTES
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	A0.6 EGRESS DIAGRAMS		M1 MECHANICAL CALCULATIONS AND NOTES
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	A1.4 EXISTING / DEMO ROOF PLAN		P2 DRAINAGE PLAN
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	A2.2 PROPOSED MEZZ. LEVEL & SECOND LEVEL PLAN		T24.2 TITLE 24 BUILDING ENERGY REPORT
	A2.3 DOOR SCHEDULES		T24.3 TITLE 24 BUILDING ENERGY REPORT
	A2.4 WINDOW SCHEDULES		T24.4 TITLE 24 BUILDING ENERGY REPORT
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	A3.4 WALL SECTIONS		
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	A5.3 INTERIOR ELEVATIONS		
	A5.4 INTERIOR ELEVATIONS		
	A5.5 INTERIOR ELEVATIONS		
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	A8.2 EXTERIOR DETAILS		
	A9.1 INTERIOR DETAILS		

APPLICABLE CODES

2019 CA BLDG. CODE	2019 CA GREEN BUILDING STANDARDS CODE
2019 CA ELECTRICAL CODE	2019 CITY OF UKIAH CODE AMENDMENTS
2019 CA MECHANICAL CODE	
2019 CA PLUMBING CODE	
2019 CA ENERGY CODE	
2019 CA FIRE CODE	

SCOPE OF WORK

TENANT IMPROVEMENT FOR EXISTING WAREHOUSE BUILDING. NEW HVAC SYSTEM; NEW EXTERIOR WINDOWS & DOORS; NO BUILDING FOOTPRINT ALTERATIONS. **FIRE & WATER DAMAGE REPAIR FROM 3/8/2023 FIRE.**

DEFERRED SUBMITTALS

FIRE SPRINKLER & ALARM SYSTEM

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:
	REVISION - 2/17/2023 SR
	REVISION - 11/17/2023 SR

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:



SHEET TITLE:

TITLE SHEET

SHEET NO.:

A0.0

SYMBOL LEGEND	GENERAL PLUMBING NOTES	GENERAL ELECTRICAL NOTES	GENERAL MEP NOTES																								
COMMUNICATIONS  DATA JACK  DATA JACK FLOOR  INTERCOM CONTROLS  BELL/CHIME/BUZZER  CALL BUTTON  KEYPAD  SWITCH  SWITCH - DIMMABLE  SWITCH - 3 WAY  SWITCH - 3 WAY DIMMABLE  SWITCH - 4 WAY  SWITCH - 4 WAY DIMMABLE  SWITCH - AIR  SWITCH - JAMB  SWITCH - OCCUPANCY / VACANCY ELECTRICAL  JUNCTION BOX  DUPLEX OUTLET  DUPLEX OUTLET - 220V  DUPLEX OUTLET - CEILING  DUPLEX OUTLET - CLOCK  DUPLEX OUTLET - DEDICATED  DUPLEX OUTLET - WATER RESISTANT  DUPLEX OUTLET - GFI  DUPLEX OUTLET - HALF HOT  DUPLEX OUTLET - FLOOR  OUTLET - HALF HOT FLOOR  OUTLET - QUAD  SPEAKER - CEILING  ELECTRIC POCKET SHADE FIRE  CARBON MONOXIDE DETECTOR  SMOKE DETECTOR  COMBINED SMOKE DETECTOR & MONOXIDE DETECTOR  SPRINKLER HEAD LIGHTING  RECESSED CAN FIXTURE  SURFACE MOUNTED FIXTURE  PENDANT FIXTURE  RECESSED DIRECTIONAL  RECESSED DIRECTIONAL  LED TRACK LIGHTING  SURFACE MOUNT 4'-0" LED TUBE  WALL MOUNTED SCONCE  LED STRIP LIGHTING	1. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS. 2. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR SITE VERIFICATION OF EXISTING CONDITIONS, AND PROPER ENGINEERING OF PLUMBING INSTALLATION. 3. ALL SUPPLY LINES TO BE ISOLATED. 4. ALL DRAIN PIPES & WASTE LINES TO BE QUIET PIPE & ISOLATED FROM FRAMING 5. ALL NEW PLUMBING FIXTURES AND FITTINGS TO BE INSTALLED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS. 6. ALL SHOWERHEADS AND BATH LAVATORY FAUCETS TO BE 1.5 GPM MAX. 7. ALL KITCHEN SINK FAUCETS SHALL BE INSTALLED WITH AN AERATOR WITH A FLOW RESTRICTOR OR HAVE A MAXIMUM FLOW-RATE OF 1.8 GPM. 8. ALL TOILETS TO BE EPA WATERSENSE RATED 1.28 GPM. 9. ALL WATER OUTLETS AND HOSE-BIBS MUST HAVE A PERMANENT BACK-FLOW PREVENTER PER CPC 603.4.7. 10. A LISTED NON-REMOVABLE BACKFLOW PREVENTER OR ATMOSPHERIC VACUUM BREAKER INSTALLED AT LEAST 6" ABOVE THE HIGHEST POINT OF USEAGE SHALL PROTECT HOSE BIBS. CPC 603.4.7 11. UNDERGROUND PLASTIC GAS PIPING SHALL HAVE A MINIMUM OF 18" OF COVER AND SHALL HAVE AN ELECTRICALLY CONTINUOUS CORROSION-RESISTANT TRACER WIRE (MIN. 14GA.) BURIED WITH IT. ONE END OF THE TRACER WIRE SHALL BE BROUGHT ABOVE GROUND AT A WALL OR A RISER. CPC 1211.1.2 & 1211.1.7(C)	1. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS. 2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SITE VERIFICATION OF EXISTING CONDITIONS, AND PROPER ENGINEERING OF NEW/REVISED ELECTRICAL INSTALLATION. 3. ELECTRICAL SERVICE POWER TO BE EVALUATED FOR MEETING LIGHTING DESIGN AND EQUIPMENT REQUIREMENTS, PROPER POWER LEVEL SHALL BE PROVIDED. 4. ALL ELECTRICAL TRIMS SCREWLESS BY LUTRON IN WHITE U.O.N. 5. ALL NEW ELECTRICAL EQUIPMENT AND APPLIANCES TO BE INSTALLED ACCORDING TO MFR. REC. 6. NOTIFY ARCHITECT 24 HOURS PRIOR TO SETTING BOXES FOR RECESSED AND SURFACE MOUNTED FIXTURES, SWITCHES, OUTLETS, AND CABLE OUTLETS. ALL FIXTURES, SWITCHES, JACKS, OUTLETS, AND CONTROL PANELS, SHALL BE DETERMINED IN THE FIELD BY A "WALK THROUGH" WITH THE OWNER AND THE ARCHITECT. 7. LIGHTING IN CLOSETS SHALL COMPLY WITH CEC 410.16 8. OUTLETS IN BATHROOMS SHALL BE PROTECTED BY A GROUND-FAULT CIRCUIT INTERRUPTER (S). 9. INFORMATION REGARDING SIZING OF ELECTRICAL PANELS, LOCATION OF SUBPANELS, AND GROUNDING INFORMATION WILL BE SUBMITTED TO THE BUILDING INSPECTOR BY THE GENERAL CONTRACTOR PRIOR TO INSTALLATION. 10. ALL DIMENSIONS ARE TO FINISH SURFACES, U.O.N. * MOUNT ALL OUTLETS, PHONE JACKS, AND TELEVISION CABLE JACKS HORIZONTALLY ON BASE BOARD U.O.N. AGREE FINAL HEIGHT WITH ARCHITECT. * MOUNT ALL SWITCHES AND OUTLETS VERTICALLY AT +48" TO CENTERLINE ABOVE FINISH FLOOR IN BATHROOMS AND KITCHENS EXCEPT FOR THOSE DESIGNATED FOR APPLIANCES U.O.N. * MOUNT ALL SWITCHES AT +48" TO CENTERLINE ABOVE FINISH FLOOR U.O.N. * VERTICALLY ALIGN SWITCHES AND OUTLETS WHERE SHOWN GROUPED ON PLAN. 11. RECEPTACLES IN BATHROOMS MUST BE SUPPLIED BY AT LEAST ONE 20-AMP CIRCUIT THAT SHALL HAVE NOT OTHER OUTLET. CEC 210.11(C)(3) 12. A GFCI PROTECTED RECEPTACLE MUST BE INSTALLED WITHIN 24" OF EACH SINK. CEC 210.52(C)(1) 13. ALL 120-VOLT RECEPTACLES IN ANY DWELLING UNIT SHALL BE TAMPER-RESISTANT. CEC 406.11 14. ALL CIRCUITS TO BE AFCI PROTECTED UNLESS OTHERWISE ALLOWED BY CEC 201.12 15. ALL LIGHTING IN WET LOCATIONS TO BE RATED AS SUCH OR U.L. LISTED FOR WET LOCATIONS PER NEC 410.10 16. ALL LED LUMINARIES AND TRIMS TO BE CEC 2013 CERTIFIED 17. RECESSED CANS TO BE IC-RATED AND CERTIFIED AIR TIGHT WHEN IN CONTACT WITH INSULATION OR OTHERWISE REQ'D	1. ALL NEW ELECTRICAL ITEMS TO BE U.L. RATED. 2. FIXTURE SPECIFICATIONS TO BE COORDINATED w/ARCHITECT & OWNER. 3. ALL MEP WORK SHOWN IN ARCHITECTURAL DRAWINGS FOR REFERENCE & DESIGN PURPOSES ONLY. SEE ENGINEERING DRAWINGS. 4. MEP SUBCONTRACTOR RESPONSIBLE FOR ALL MEP WORK TO BE COMPLIANT TO ALL CODES & REGULATIONS. 5. ALL TITLE-24 REQ'TS PART OF THIS PERMIT. 6. ALL NEW ELECTRICAL EQUIPMENT AND APPLIANCES TO BE INSTALLED ACCORDING TO MANUFACTURES' RECOMMENDATIONS. ELECTRICAL SUBCONTRACTOR TO VERIFY ELECTRICAL REQUIREMENTS OF ALL APPLIANCES PRIOR TO WIRING. 7. CONTRACTOR TO NOTIFY OWNER PRIOR TO SETTING BOXES FOR RECESSED AND SURFACE MOUNT FIXTURES, SWITCHES, OUTLETS, DATA AND CABLE OUTLETS. ALL LOCATIONS SHALL BE VERIFIED AND DETERMINED IN FIELD BY A "WALK-THROUGH" WITH OWNER & ARCHITECT. 9. SEE ENGINEERING DRAWINGS FOR INFORMATION REGARDING SIZING OF ELECTRICAL PANELS, LOCATION OF SUBPANELS AND GROUNDING INFORMATION. 10. ALL SMOKE DETECTORS SHALL BE INTERCONNECTED & RECEIVE THEIR PRIMARY SOURCE OF POWER FROM .110V HARD WIRING WITH BATTERY BACK-UP PER CBC 907.2.11.2 11. ALL MAJOR APPLIANCES SHALL HAVE SEPARATE CIRCUITS PER ALL APPLICABLE CODE REQUIREMENTS. 12. ORIENT SWITCHES & OUTLETS VERTICALLY WHERE SHOWN GROUPED ON PLAN. 13. STYLE OF SWITCHES TO BE COORDINATED WITH ARCHITECT. 14. ALL NEW PLUMBING FIXTURES TO COMPLY w/SF GREEN BUILDING STANDARDS, SEE REQ'TS FOR INDOOR WATER USE ON A0.2. 15. ALL DIMENSIONS ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED: • MOUNT ALL SWITCHES AT 42" TO CENTERLINE ABOVE FINISH FLOOR UNLESS OTHERWISE NOTED IN DRAWINGS. • MOUNT ALL OUTLETS, PHONE/DATA JACKS, TELEVISION CABLE JACKS VERTICALLY 4" TO CENTERLINE FROM FINISH FLOOR UNLESS OTHERWISE NOTED ON PLAN. • MOUNT ALL SWITCHES AND OUTLETS HORIZONTALLY AT+44" TO CENTERLINE ABOVE FINISH FLOOR IN KITCHEN & BATHROOMS EXCEPT FOR THOSE DESIGNATED FOR APPLIANCES OR OTHERWISE NOTED IN DRAWINGS. • OUTLETS DESIGNATED FOR APPLIANCES TO BE MOUNTED AT NECESSARY HEIGHT PER MFR. REQUIREMENTS. 16. ALL ENVIRONMENTAL AIR DUCT EXHAUST SHALL TERMINATE MINIMUM OF 3'-0" FROM PROPERTY LINE AND 3'-0" AWAY FROM ANY OPENINGS TO THE BUILDING PER CMC 504.5 17. GAS FUE TERMINATION IN THE ROOF FOR THE FURNACE & HW HEATER TO COMPLY W/ CMC 802.6 18. APPLIANCES DESIGNED FOR FIXED POSITION (WATER HEATER & FURNACE) SHALL BE SUPPORTED TO SUSTAIN VERTICAL & HORIZONTAL LOADS AS REQ'D IN CMC 303.4. PROVIDE SEISMIC STRAPPING & BRACING 19. ALL GAS APPLIANCES TO BE UL LISTED AND PROVIDED WITH INSTALLATION REQUIREMENTS. 20. ALL REQUIRED FIRE ALARM AND DETECTION SYSTEMS INCLUDING FIRE EXTINGUISHER REQ'S TO BE PERMITTED SEPARATELY AND HANDLED UNDER GENERAL CONTRACTOR / FIRE CONSULTANT.																								
	CAL GREEN PLUMBING NOTES PLUMBING FIXTURES AND FITTINGS SHALL COMPLY WITH THE FOLLOWING: 1. WATER CLOSETS: ≤ 1.28 GAL/FLUSH 2. WALL MOUNTED URINALS: ≤ 0.125 GAL/FLUSH; ALL OTHER URINALS ≤ 0.5 GAL/FLUSH; SINGLE SHOWERHEADS: ≤ 2.0 GPM @ 80 PSI 3. MULTIPLE SHOWERHEADS: COMBINED FLOW RATE OF ALL SHOWERHEADS CONTROLLED BY A SINGLE VALVE SHALL NOT EXCEED 2.0 GPM @ 80 PSI, OR ONLY ONE SHOWER OUTLET IS TO BE IN OPERATION AT A TIME 4. RESIDENTIAL LAVATORY FAUCETS: MAXIMUM FLOW RATE ≤ 1.2 GPM @ 60 PSI; MINIMUM FLOW RATE ≥ 0.8 GPM @ 20 PSI 5. LAVATORY FAUCETS IN COMMON AND PUBLIC USE AREAS OF RESIDENTIAL BUILDINGS: ≤ 0.5 GPM @ 60 PSI 6. METERING FAUCETS: ≤ 0.25 GALLONS PER CYCLE 7. KITCHEN FAUCETS: ≤ 1.8 GPM @ 60 PSI; TEMPORARY INCREASE TO 2.2 GPM ALLOWED BUT SHALL DEFAULT TO 1.8 GPM	HIGH EFFICACY LAMPS <5W30 lm/W 5 - 15W45 lm/W 15 - 40W60 lm/W >40W90 lm/W																									
	PLUMBING FIXTURE COUNTS <table><tr><th>PLUMBING FIXTURE</th><th>EXISTING</th><th>PROPOSED</th><th>NET INCREASE</th></tr><tr><td>TOILET(S)</td><td>5</td><td>7</td><td>+2</td></tr><tr><td>SINK(S)</td><td>5</td><td>10</td><td>+5</td></tr><tr><td>SHOWER(S)</td><td>1</td><td>0</td><td>-1</td></tr><tr><td>FLOOR / MOP SINK(S)</td><td>1</td><td>1</td><td>0</td></tr><tr><td>DRINKING FOUNTAIN(S)</td><td>0</td><td>2</td><td>+2</td></tr></table>	PLUMBING FIXTURE	EXISTING	PROPOSED	NET INCREASE	TOILET(S)	5	7	+2	SINK(S)	5	10	+5	SHOWER(S)	1	0	-1	FLOOR / MOP SINK(S)	1	1	0	DRINKING FOUNTAIN(S)	0	2	+2	FIRE PROTECTION NOTES 1. FIRE SPRINKLER TO BE DESIGNED BY A LICENSED C-16 PROFESSIONAL, AND U.O.N. A DEFERRED SUBMITTAL BY GENERAL CONTRACTOR 2. SPRINKLER SYSTEM MUST COMPLY WITH NFPA 13 U.O.N. 3. INTERCONNECTED SMOKE ALARM SYSTEM WITH UNITS IN EA. SLEEPING ROOM, OUTSIDE EA. SLEEPING AREA, AND EA. ADDITIONAL STORY INCLUDING BASEMENTS 4. CO ALARM OUTSIDE EA. SLEEPING AREA, AND EA. ADDITIONAL STORY 5. REQUIRED SIGNAGE SHALL COMPLY WITH ALL PROVISIONS APPLICABLE INCLUDING CBC 1011 6. ALL SMOKE DETECTORS SHALL RECEIVE THEIR PRIMARY SOURCE OF POWER FROM BUILDING WIRING WITH BATTERY BACK-UP. 7. SMOKE/CO DETECTORS TO BE "SILHOUETTE" BY KIDIEE U.O.N.	GENERAL HVAC NOTES 1. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS. 2. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR SITE VERIFICATION OF EXISTING CONDITIONS, AND PROPER ENGINEERING OF HVAC INSTALLATION. 3. ALL NEW HVAC EQUIPMENT AND APPLIANCES TO BE INSTALLED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS. 4. HVAC SYSTEM TO PROVIDE CONSTANT, EVEN TEMPERATURE THROUGHOUT HOUSE, CAPABLE OF MAINTAINING 70 DEGREES FAHRENHEIT AT 36" A.F.F. DAMPERS TO BE ACCESSIBLE FOR NECESSARY ADJUSTMENTS. BALANCING OF SYSTEM TO BE PROVIDED AND COORDINATED WITH REGISTER PLACEMENT. 5. ALL HEATING AND COOLING DUCTS, INCLUDING PLENUMS, SHALL HAVE R-6 INSULATION MIN. UNLESS ENCLOSED ENTIRELY IN CONDITIONED SPACE 6. GAS VENT TERMINATIONS SHALL MEET THE REQUIREMENTS OF CMC 802.6 7. COMBUSTION AIR SHALL MEET THE REQUIREMENTS OF CMC CH. 7 8. ENVIRONMENTAL AIR DUCTS SHALL TERMINATE 3'-0" FROM THE PROPERTY LINE AND 3'-0" FROM OPENINGS INTO THE BUILDING PER CMC 504.5 AND PROVIDE WITH BACK-DRAFT DAMPERS PER CMC 504.1 10. ALL INTERIOR SPACES INTENDED FOR HUMAN OCCUPANCY SHALL BE PROVIDED WITH SPACE HEATING PER CBC 1204.1 VENTILATION 1. INTERMITTENT FANS TO BE 3 SONE MAX. CONTINUOUS FANS TO BE 1 SONE MAX. 2. WHOLE HOUSE FAN IN BATHROOM MUST BE LABELED "WHOLE HOUSE FAN" 3. ALL FANS TO BE ENERGYSTAR RATED AND VENT DIRECTLY TO OUTSIDE, WITH INTEGRAL HUMIDISTAT 4. ALL DUCT SIZES AS PER ASHRAE 62.2 TABLE 7.1 5. INSTALLATION OF FANS OVER 125 CFM TO BE FIELD TESTED TO MEET THE REQUIREMENTS OF ASHRAE 62.2
PLUMBING FIXTURE	EXISTING	PROPOSED	NET INCREASE																								
TOILET(S)	5	7	+2																								
SINK(S)	5	10	+5																								
SHOWER(S)	1	0	-1																								
FLOOR / MOP SINK(S)	1	1	0																								
DRINKING FOUNTAIN(S)	0	2	+2																								

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER

1350 HASTINGS ROAD

UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:

BY:

JOB NO.:

2202

DATE:

12/19/2022

DRAWN:

SR

CHECKED:

KG

SCALE:

AS NOTED ON 24" X 36"

STAMP:



SHEET TITLE:

GENERAL NOTES

SHEET NO.:

A0.1



4 NORTH & EAST ELEVATIONS (LOOKING SOUTHWEST FROM ROAD)



5 NORTH & EAST ELEVATIONS (LOOKING SOUTH FROM ROAD)



1 SOUTH FACADE FROM HASTINGS RD.



2 EAST FACADE FROM HASTINGS RD



3 WEST FACADE FROM HASTINGS RD.

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



City of Ukiah

ELECTRIC UTILITY DEPARTMENT

ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:

JOB NO.:	2202
DATE:	12/19/2022
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STAMP:

LICENSED ARCHITECT

STEVEN A. RATNER

201696

12/19/2022

RENEWAL DATE

STATE OF CALIFORNIA

SHEET TITLE:

EXISTING EXTERIOR PHOTOS

SHEET NO.:

A0.2

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6 EXISTING STAIR TO SECOND LEVEL



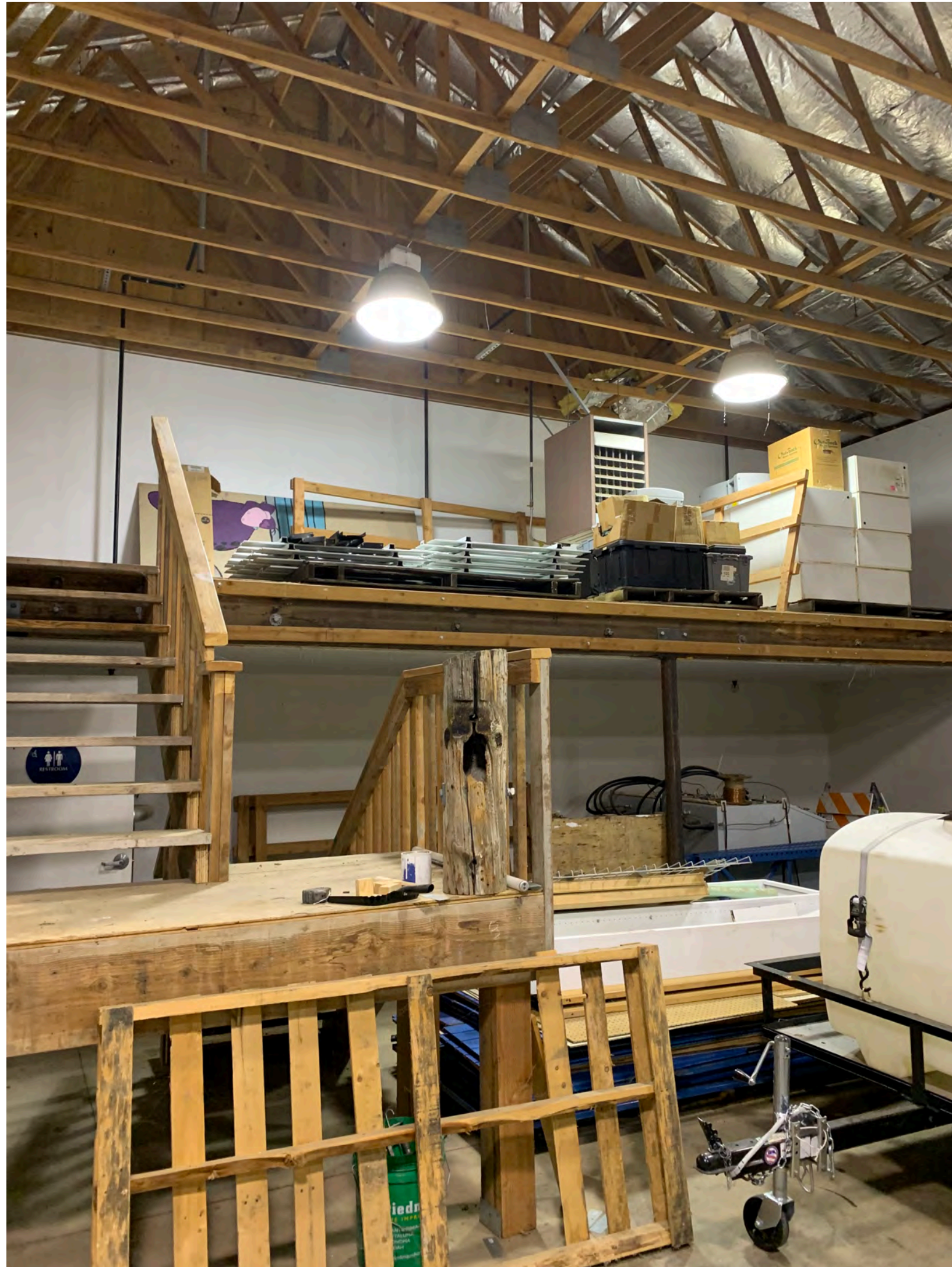
2 EXISTING READY ROOM AREA / MECH. RM.



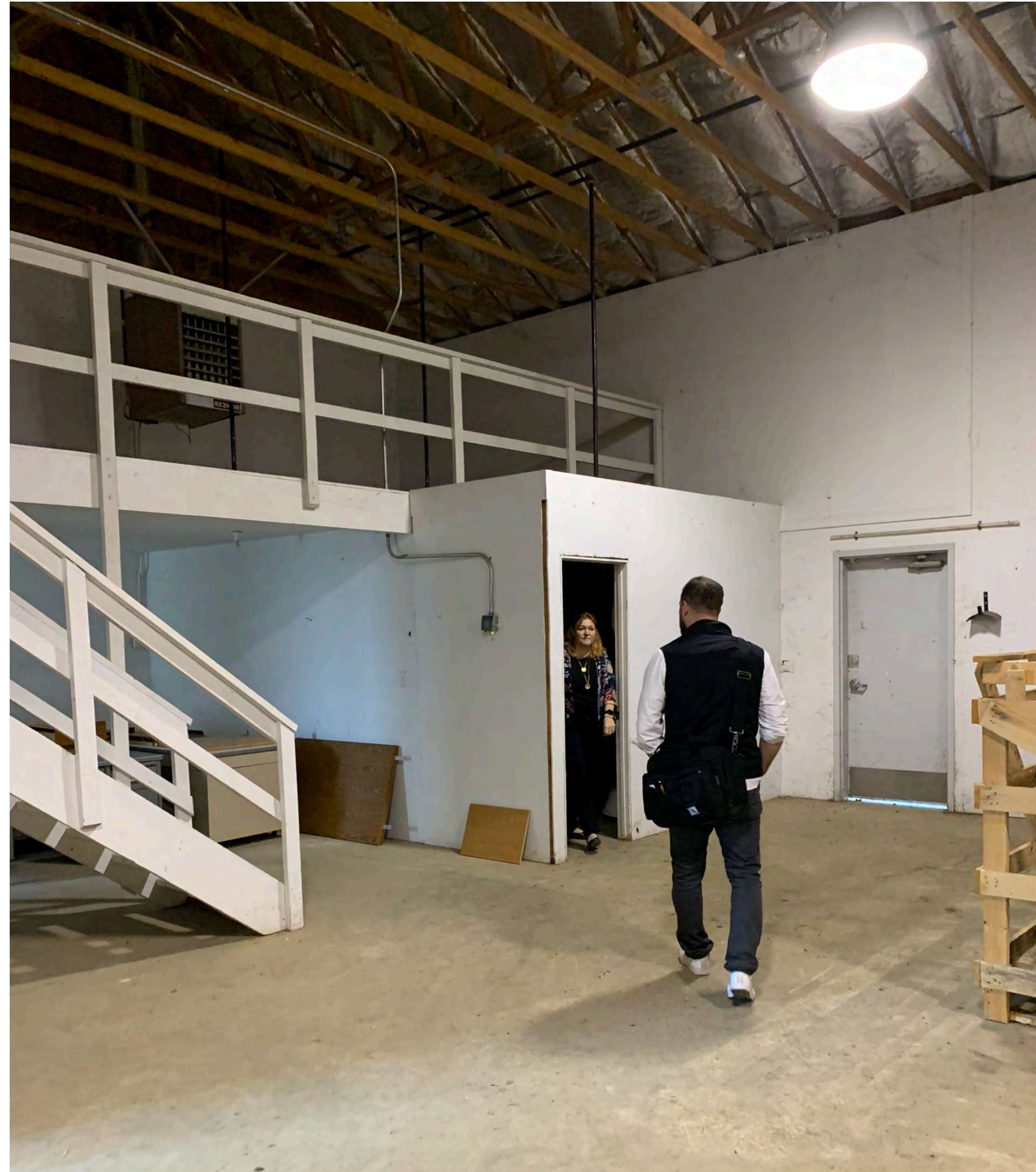
1 EXISTING OPEN AREA UNDER SECOND FLOOR



5 EXISTING BAY 2 MEZZANINE



4 EXISTING BAY 3 MEZZANINE



3 EXISTING BAY 2 MEZZANINE

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:



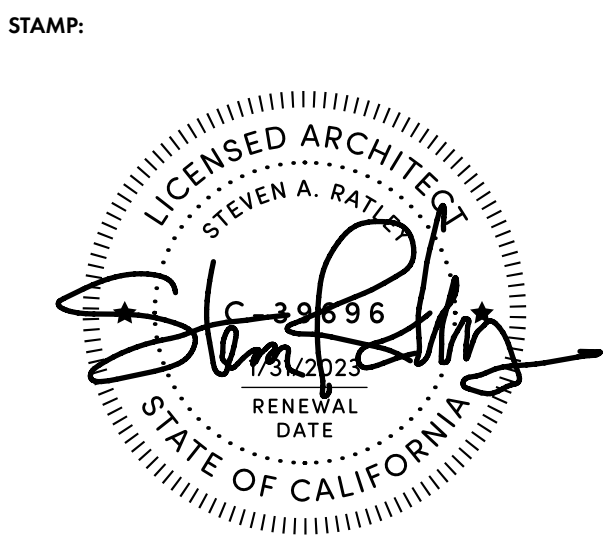
ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:

JOB NO.:	2202
DATE:	12/19/2022
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CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"



SHEET TITLE:
**EXISTING INTERIOR
PHOTOS**

SHEET NO.:

A0.3



3 VIEW INSIDE WORKSHOP



1 VIEW AT OFFICE CORRIDOR



2 VIEW OUTSIDE CONFERENCE ROOM

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER

1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

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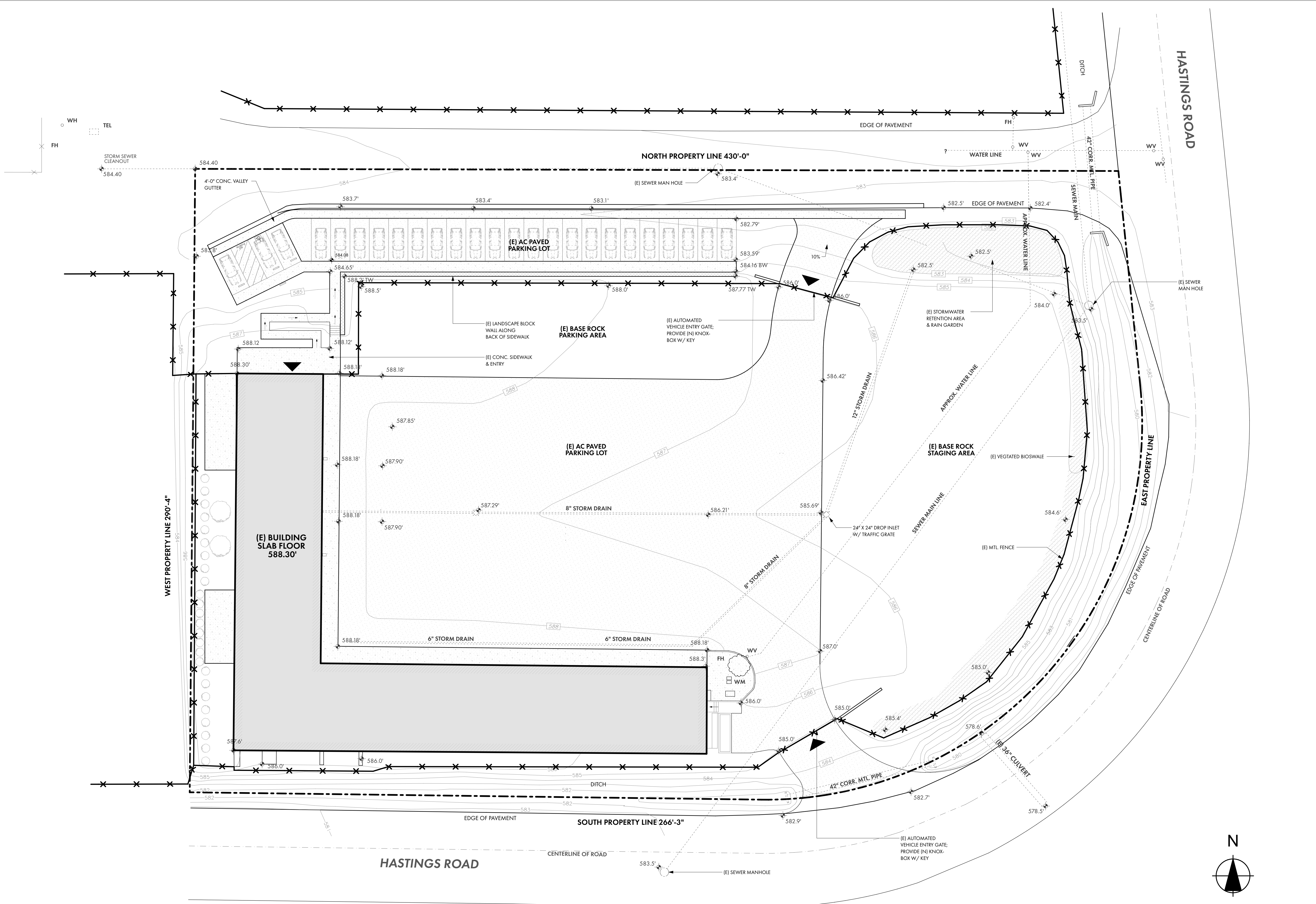
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INTERIOR CONCEPT
VIEWS

SHEET NO.:

A0.4

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1 SITE PLAN
SCALE: 1" = 20'

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



City of Ukiah

ELECTRIC UTILITY DEPARTMENT

ELECTRIC SERVICE CENTER

1350 HASTINGS ROAD

UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:

JOB NO.:	2202
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CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:

LICENSED ARCHITECT

STEVEN A. RATTI

220696

12/19/2022

RENEWAL DATE

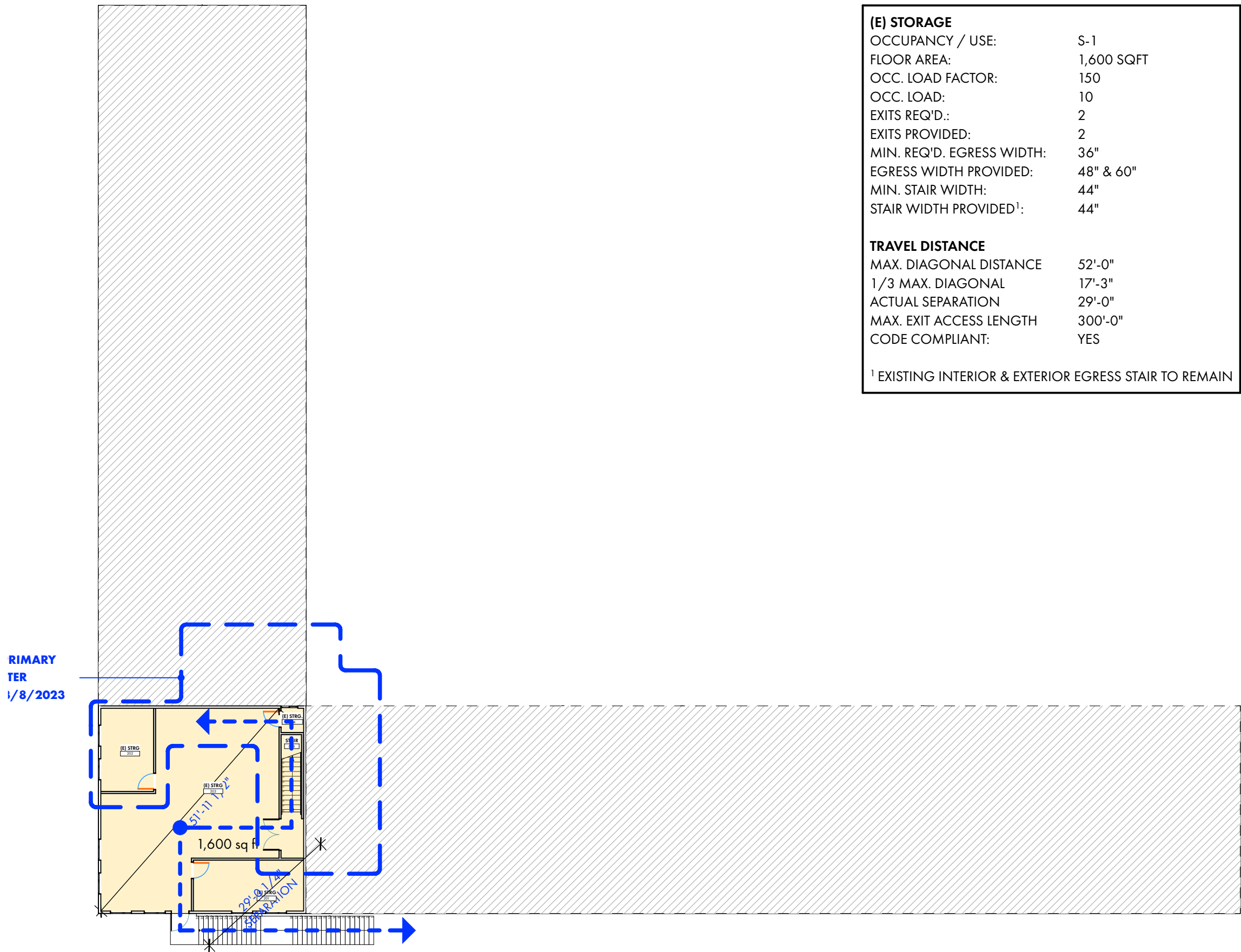
STATE OF CALIFORNIA

SHEET TITLE:

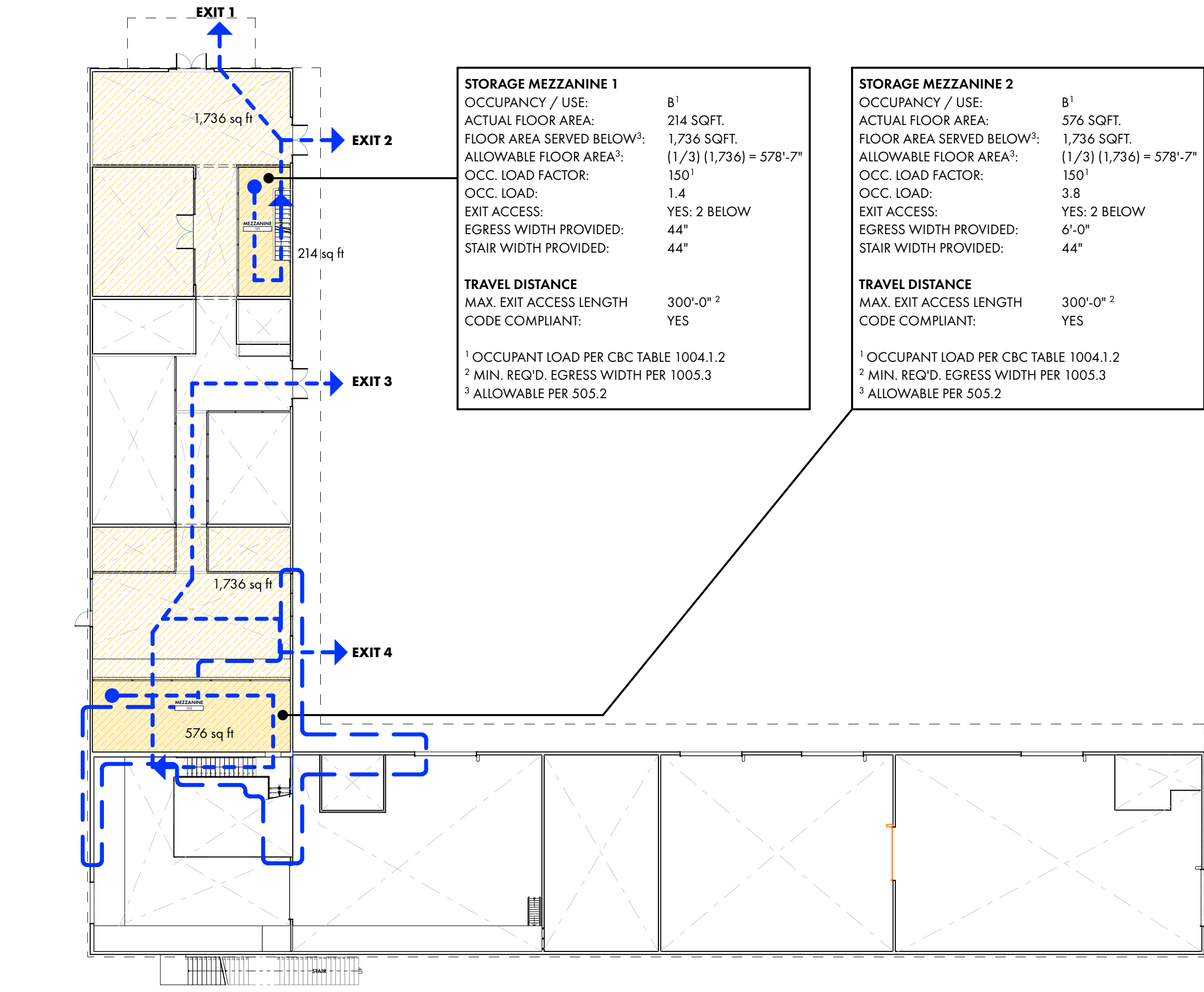
SITE PLAN

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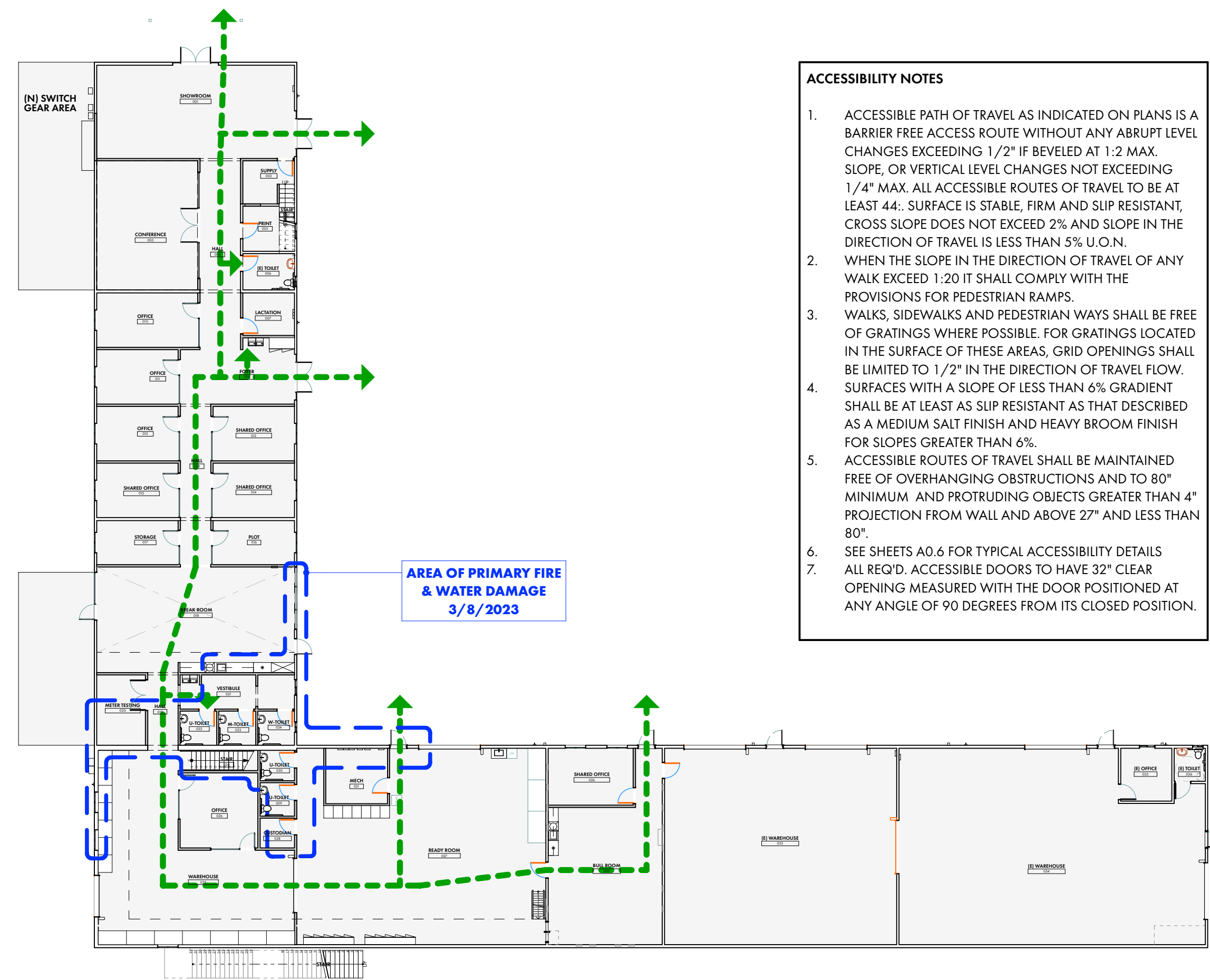
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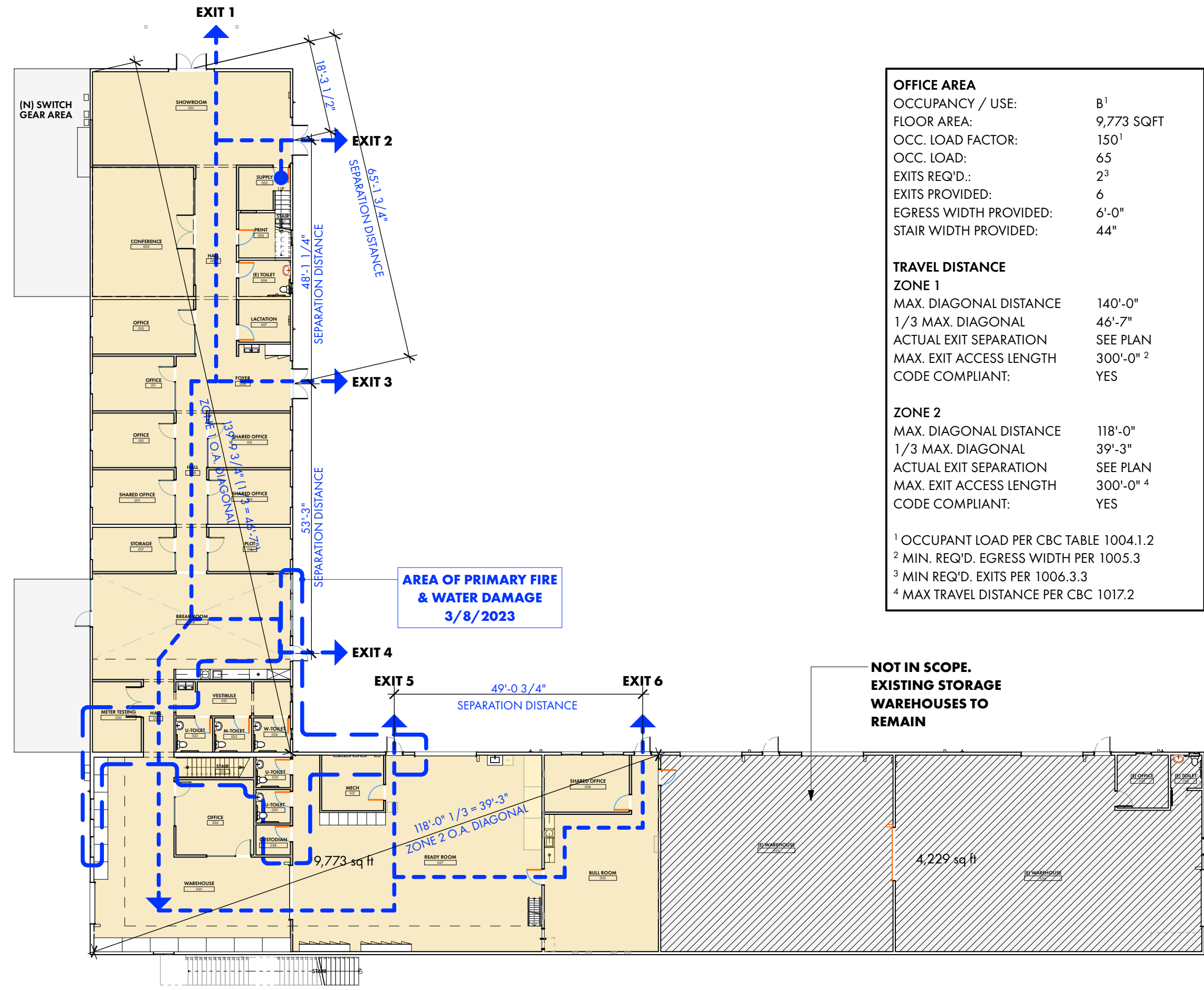
3 SECOND LEVEL EGRESS PLAN
SCALE: 1" = 20'



2 MEZZ. LEVEL EGRESS PLAN
SCALE: 1" = 20'



4 GROUND LEVEL ACCESSIBLE PATH OF TRAVEL
SCALE: 1" = 20'



1 GROUND LEVEL EGRESS PLAN
SCALE: 1" = 20'

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

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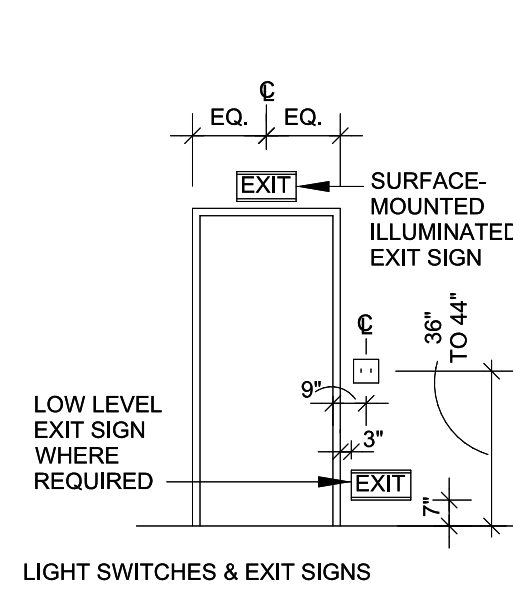
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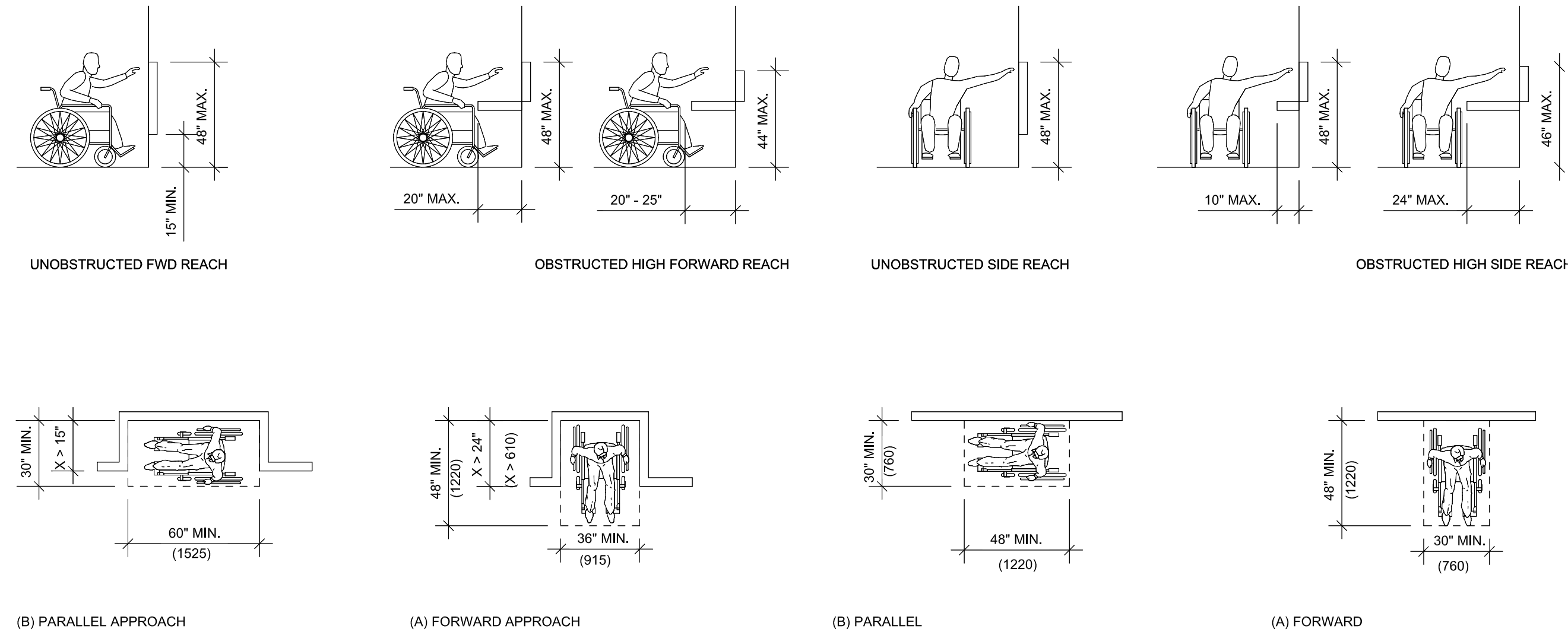
EGRESS DIAGRAM

SHEET NO.:

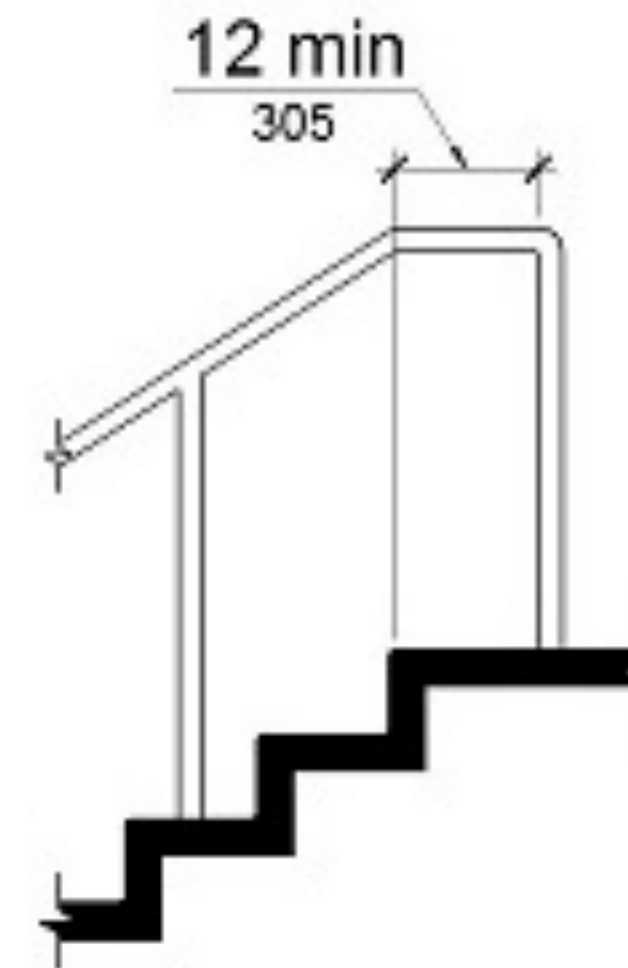
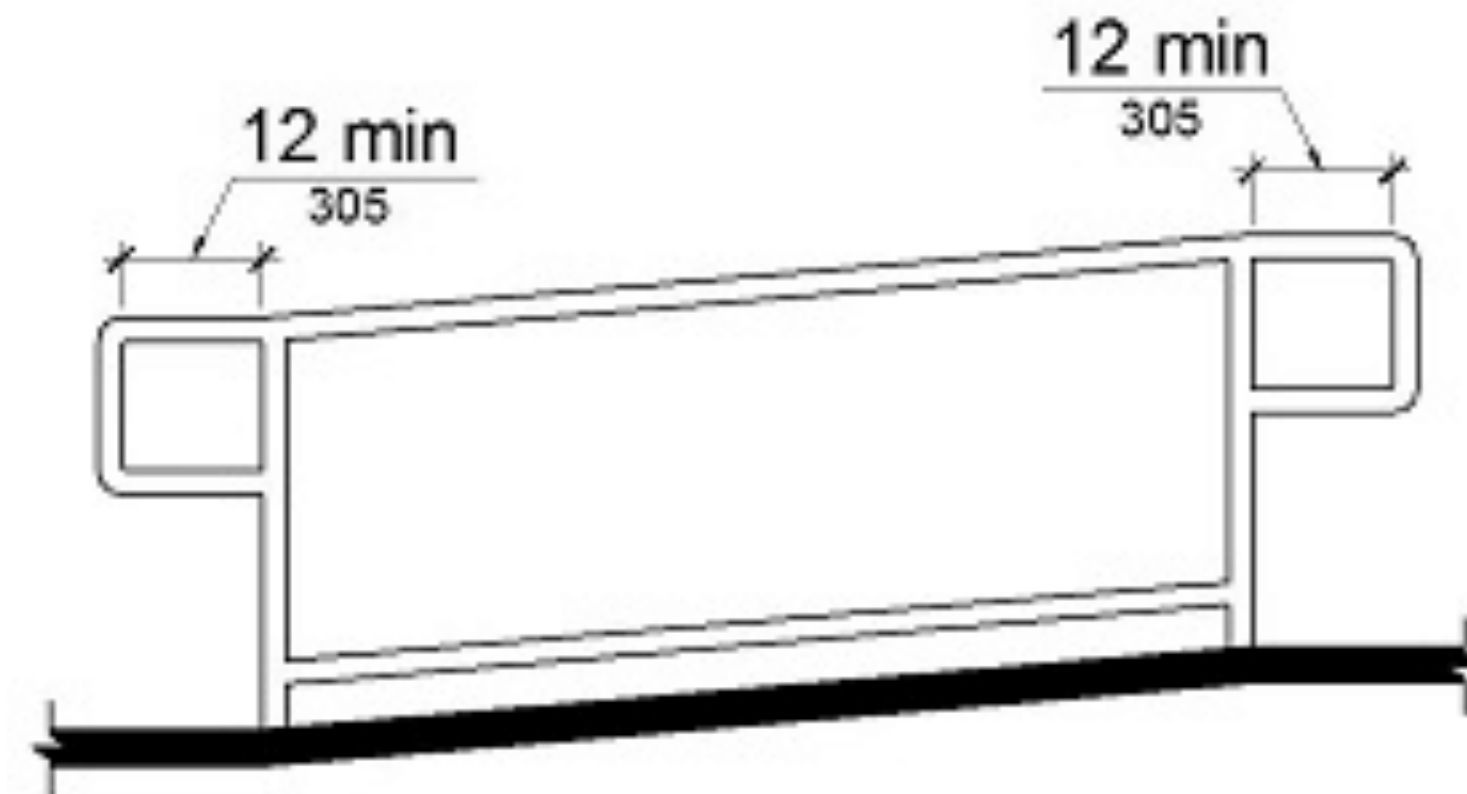


6 DOORS & DOORWAYS

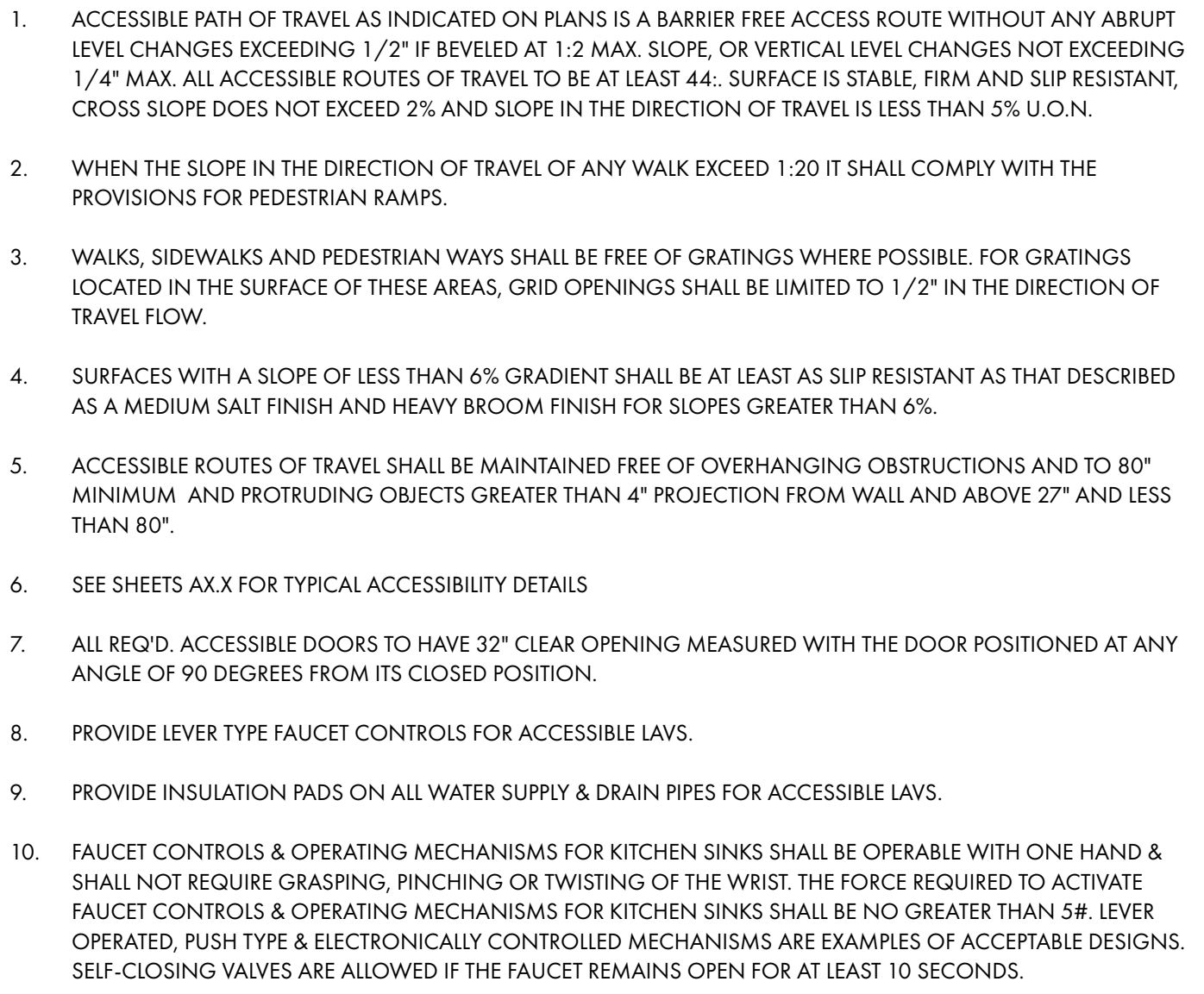
NOT TO SCALE



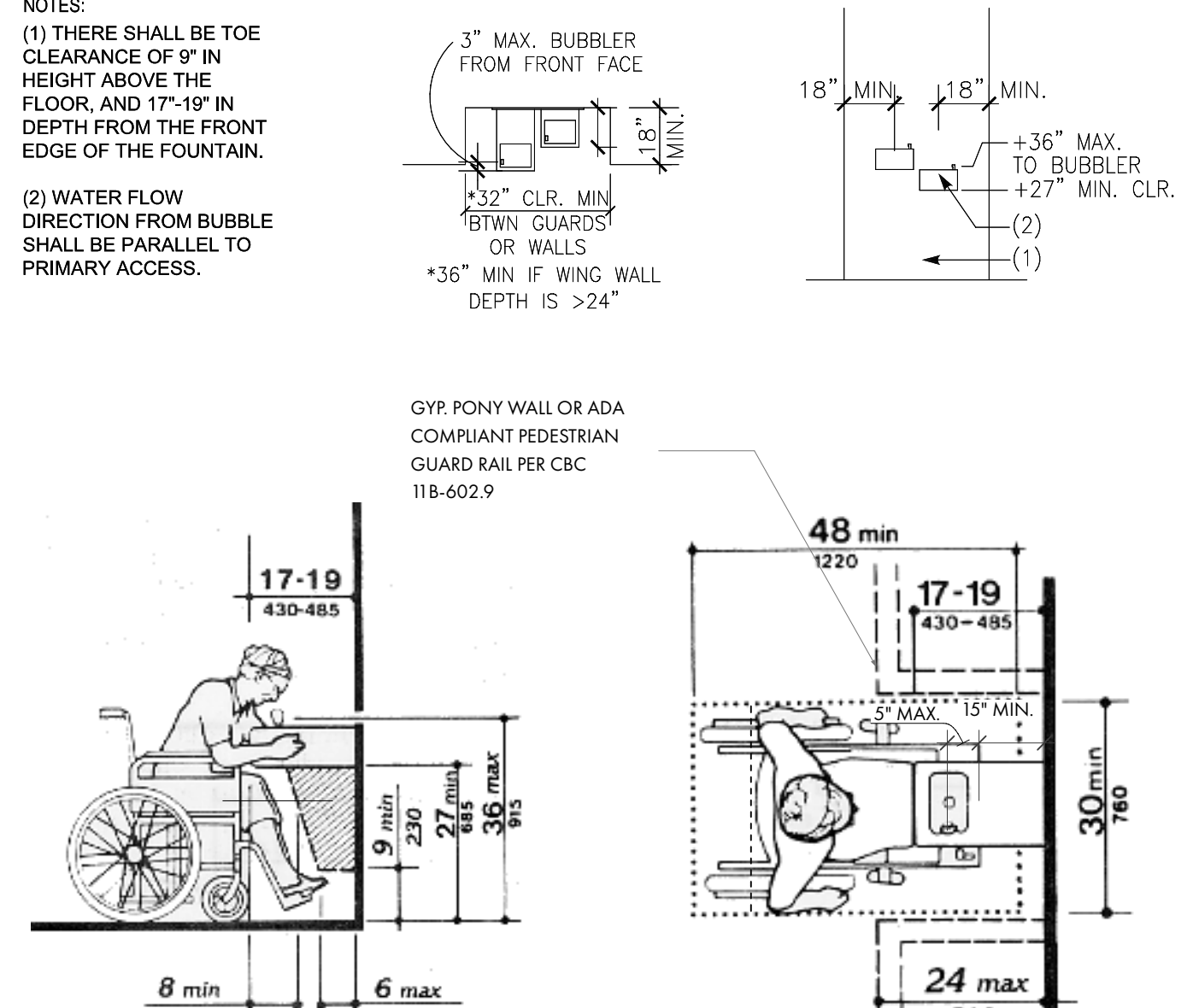
5 WHEELCHAIR REACH
NOT TO SCALE



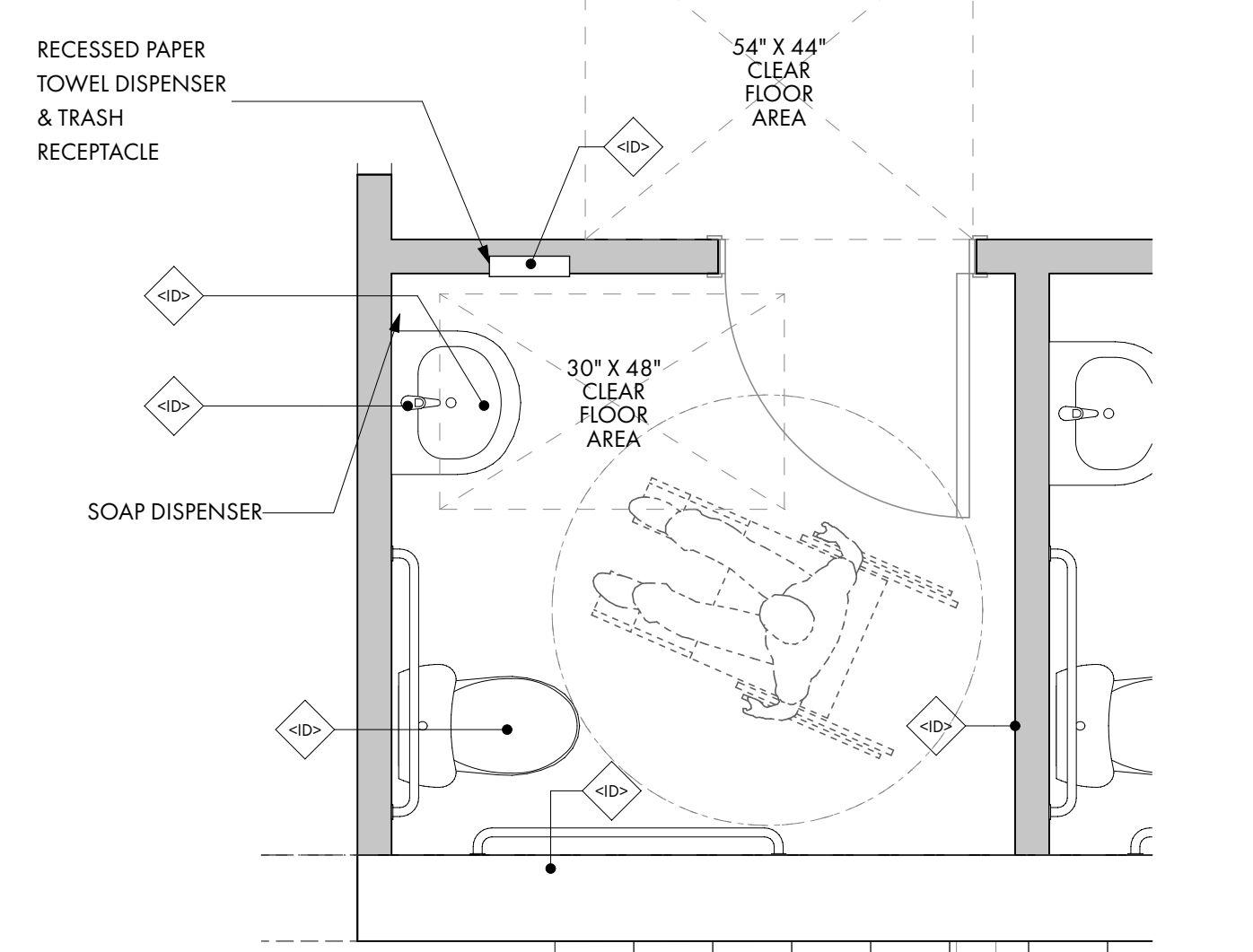
1 HANDRAIL @ T.O. STAIR
SCALE: 3/4" = 1'-0"



3 GENERAL ACCESSIBILITY NOTES



2 ADA DRINKING FOUNTAIN DETAIL
SCALE: 1/2" = 1'-0"



4 TYP. ENLARGED RESTROOM PLAN
SCALE: 1/2" = 1'-0"

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

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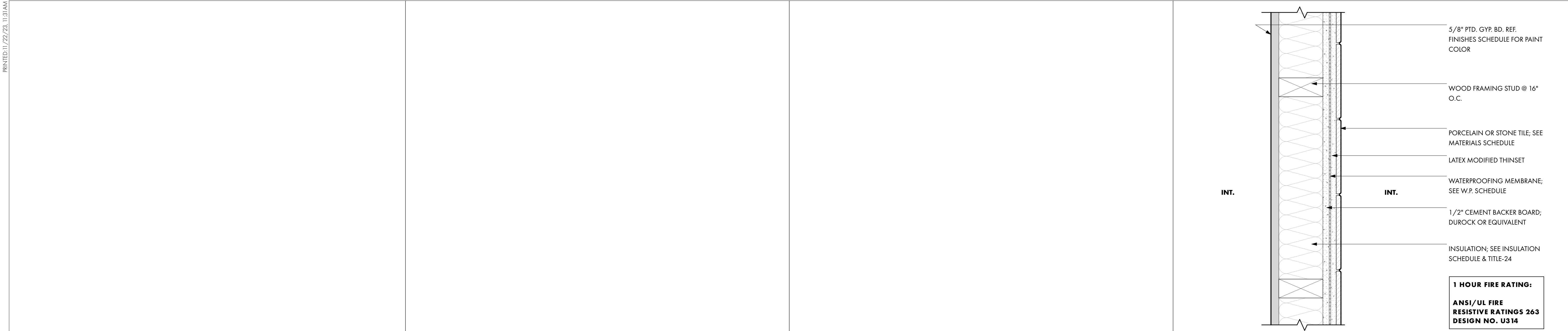
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

[illegible][illegible][illegible]

Y	NA	RESPON. PARTY
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Page 140 of 1236

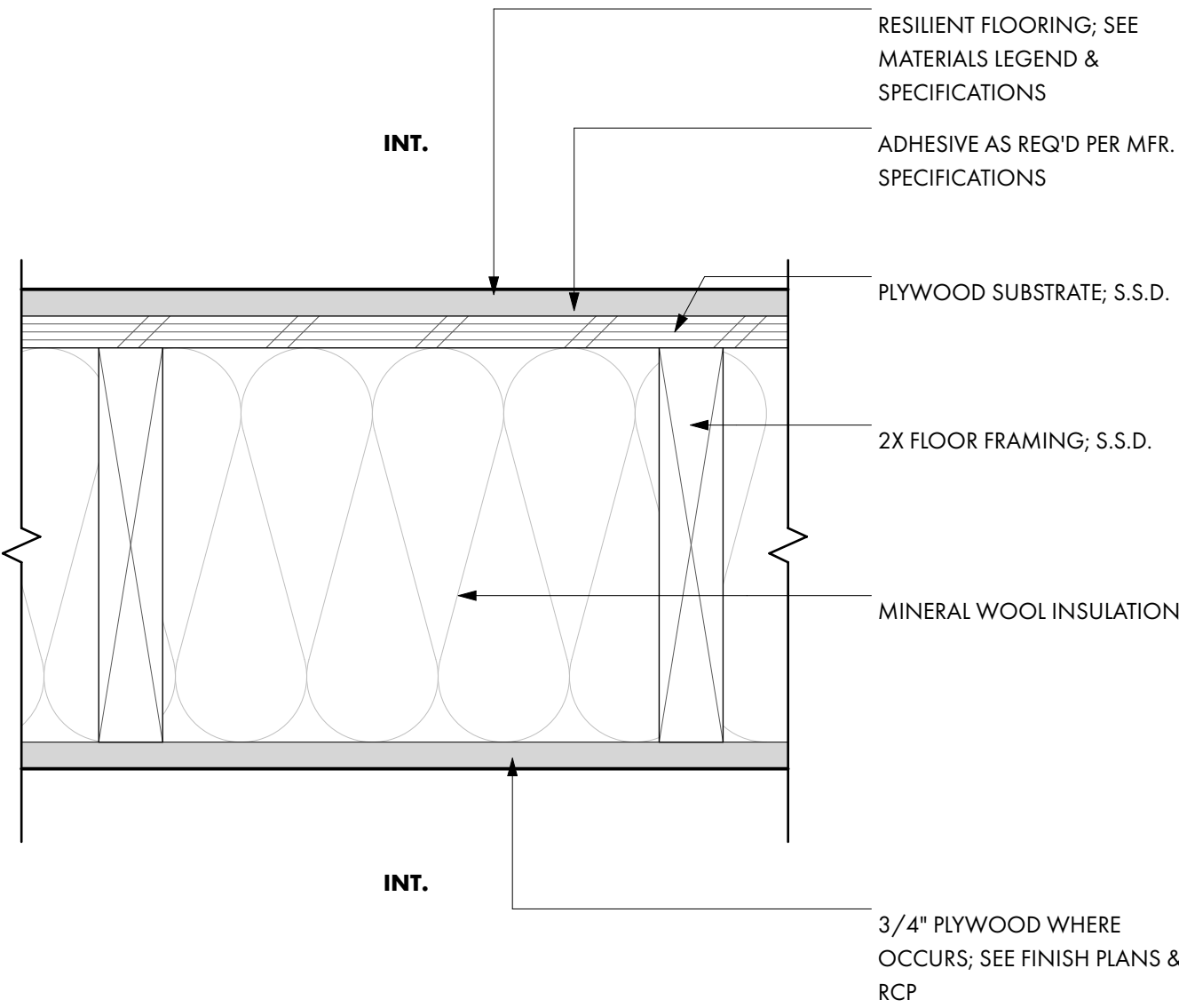


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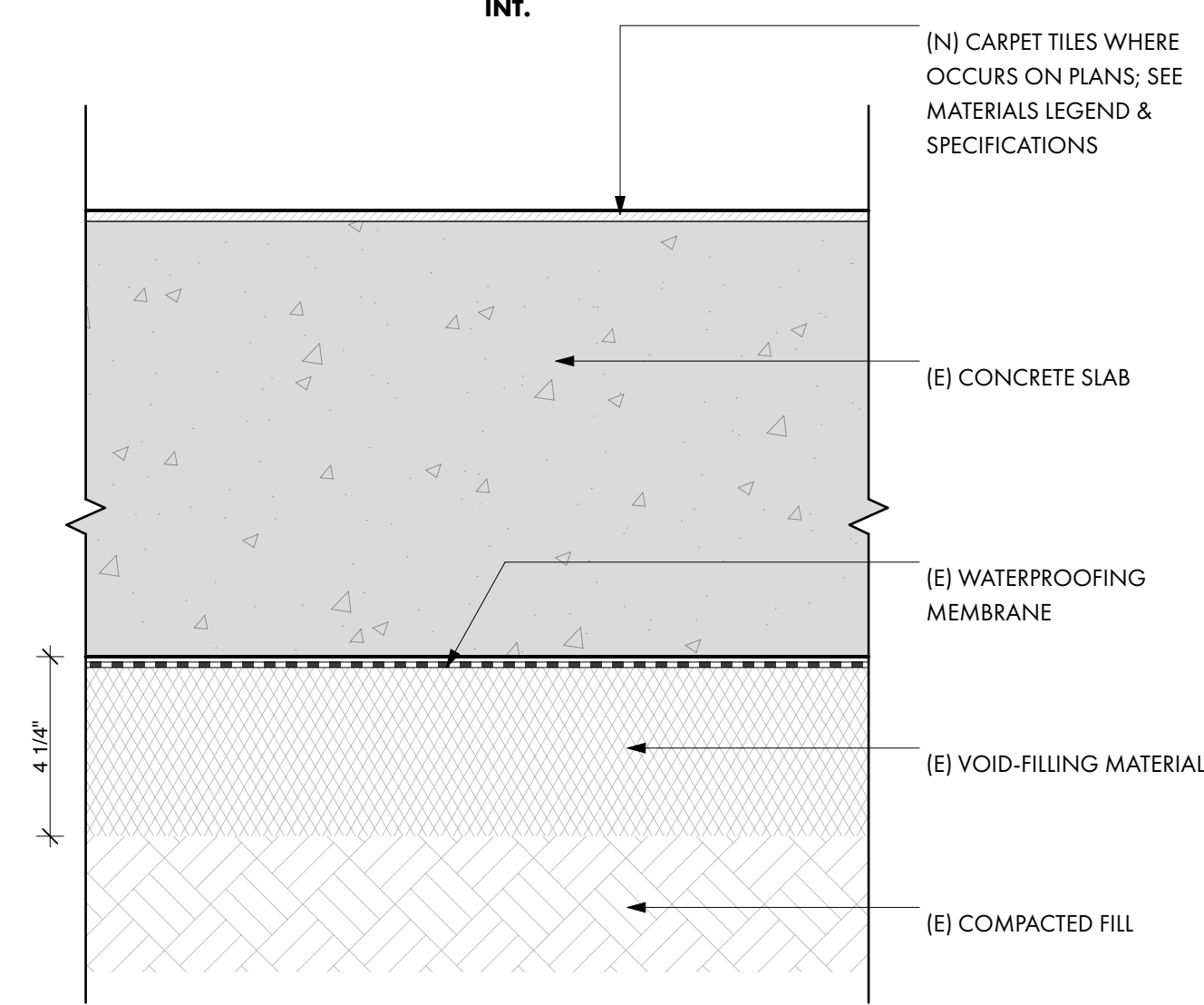
N NOT USED
SCALE: 3" = 1'-0"

N NOT USED
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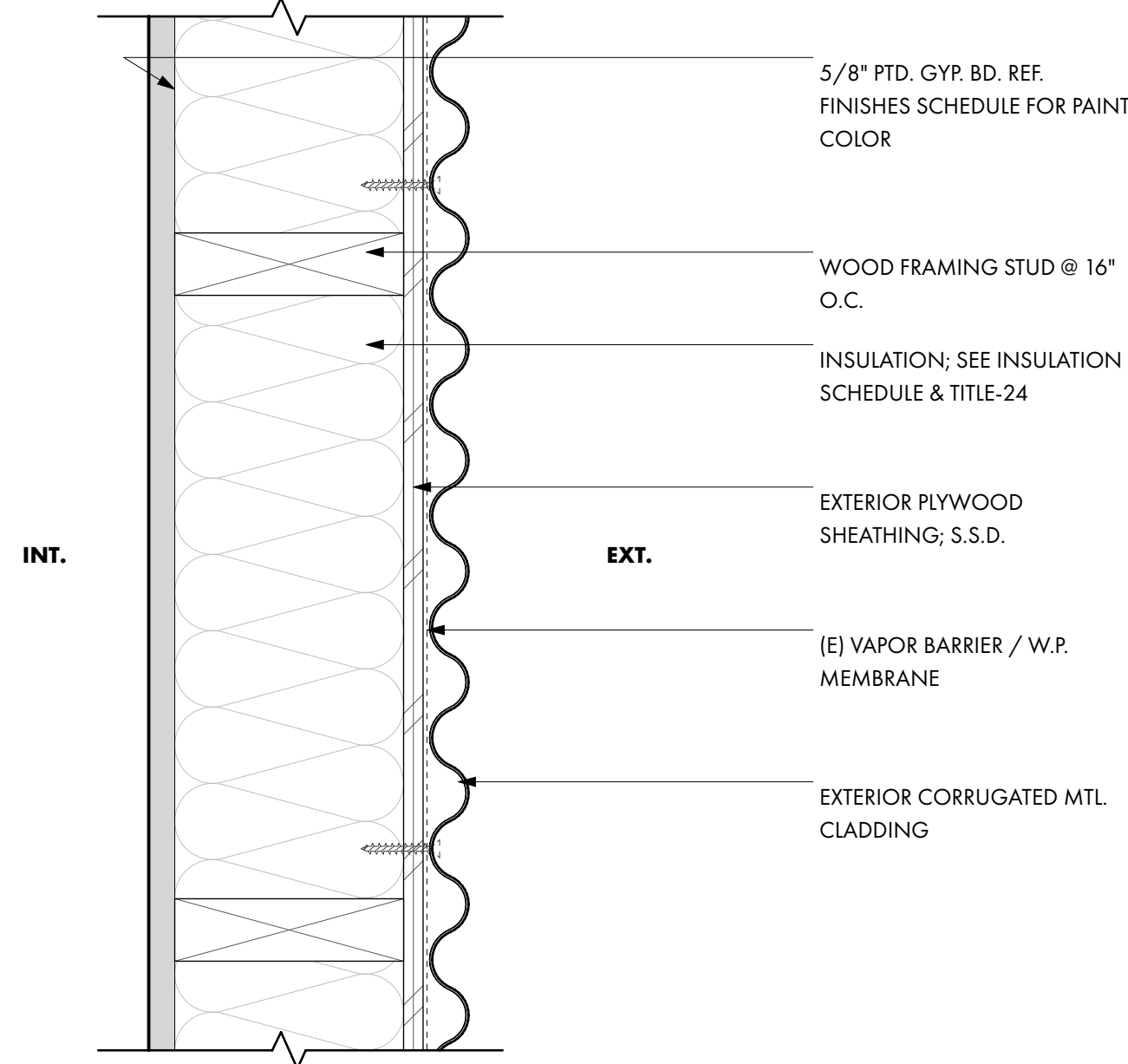
B WALL TYPE B - GYP. - TILE
SCALE: 3" = 1'-0"



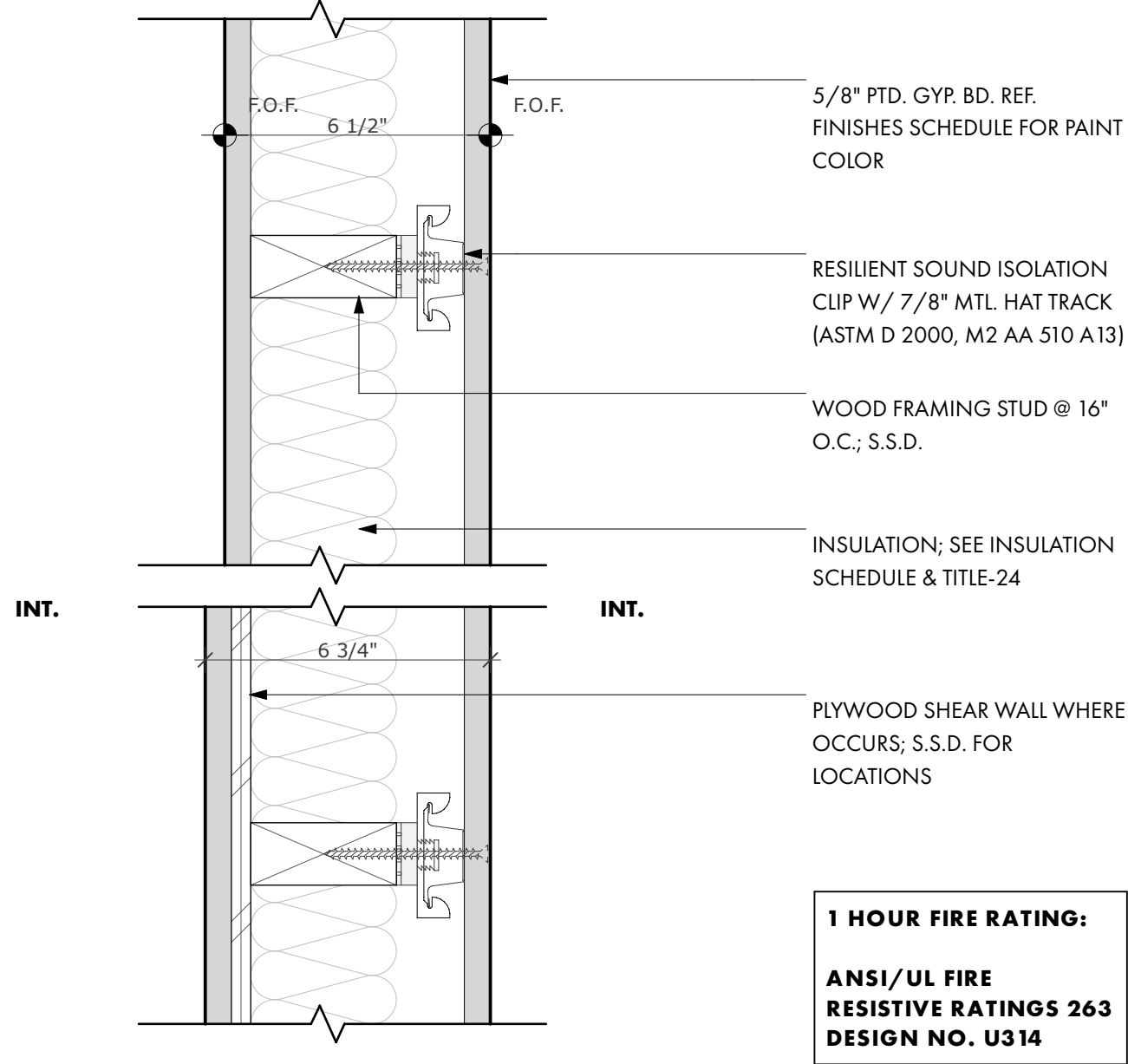
E CEILING TYPE E - WD. FRAME / GYP.
SCALE: 3" = 1'-0"



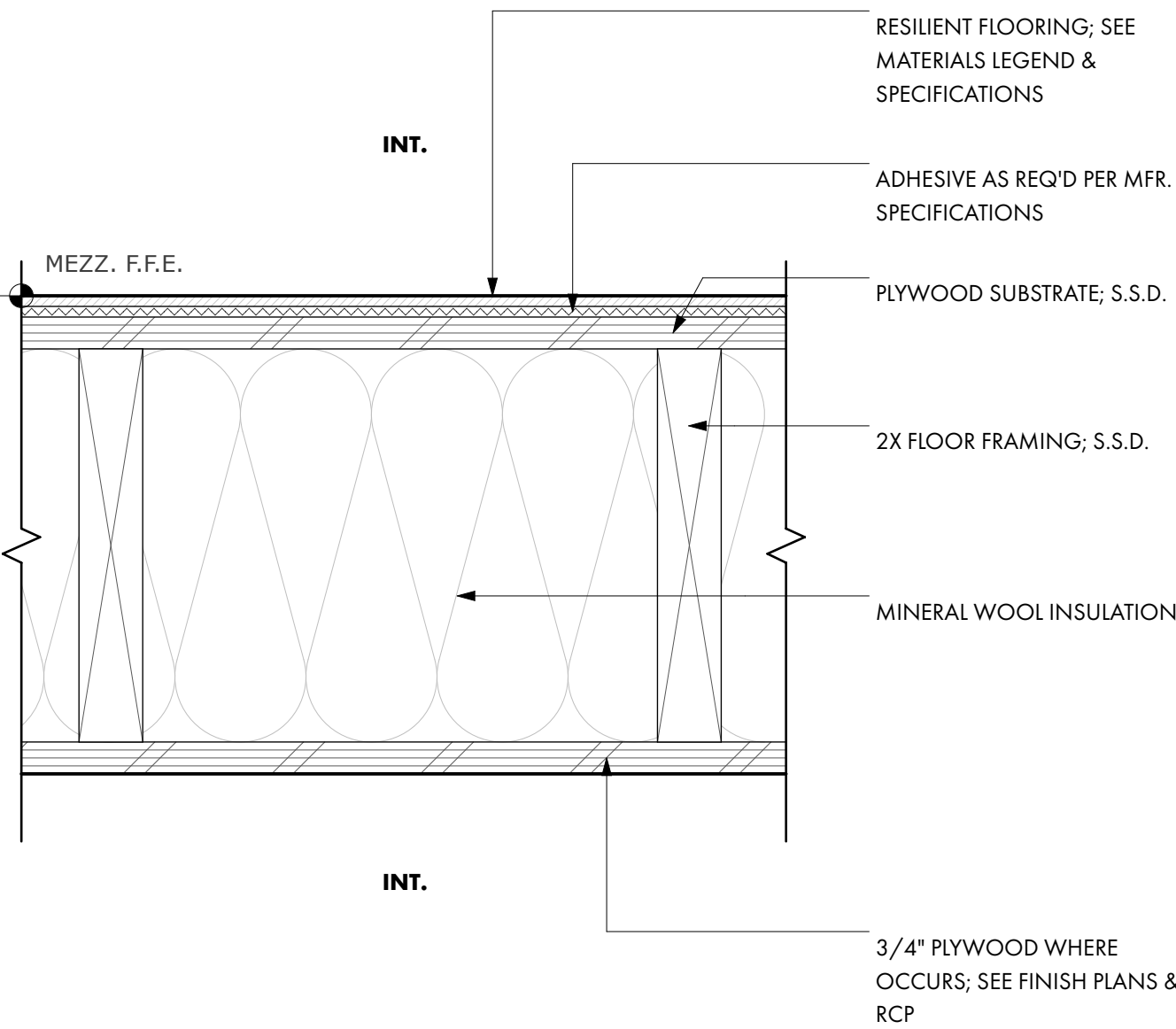
B2 FLOOR TYPE B - (E) CONC. SLAB W/ CARPET TILES
SCALE: 3" = 1'-0"



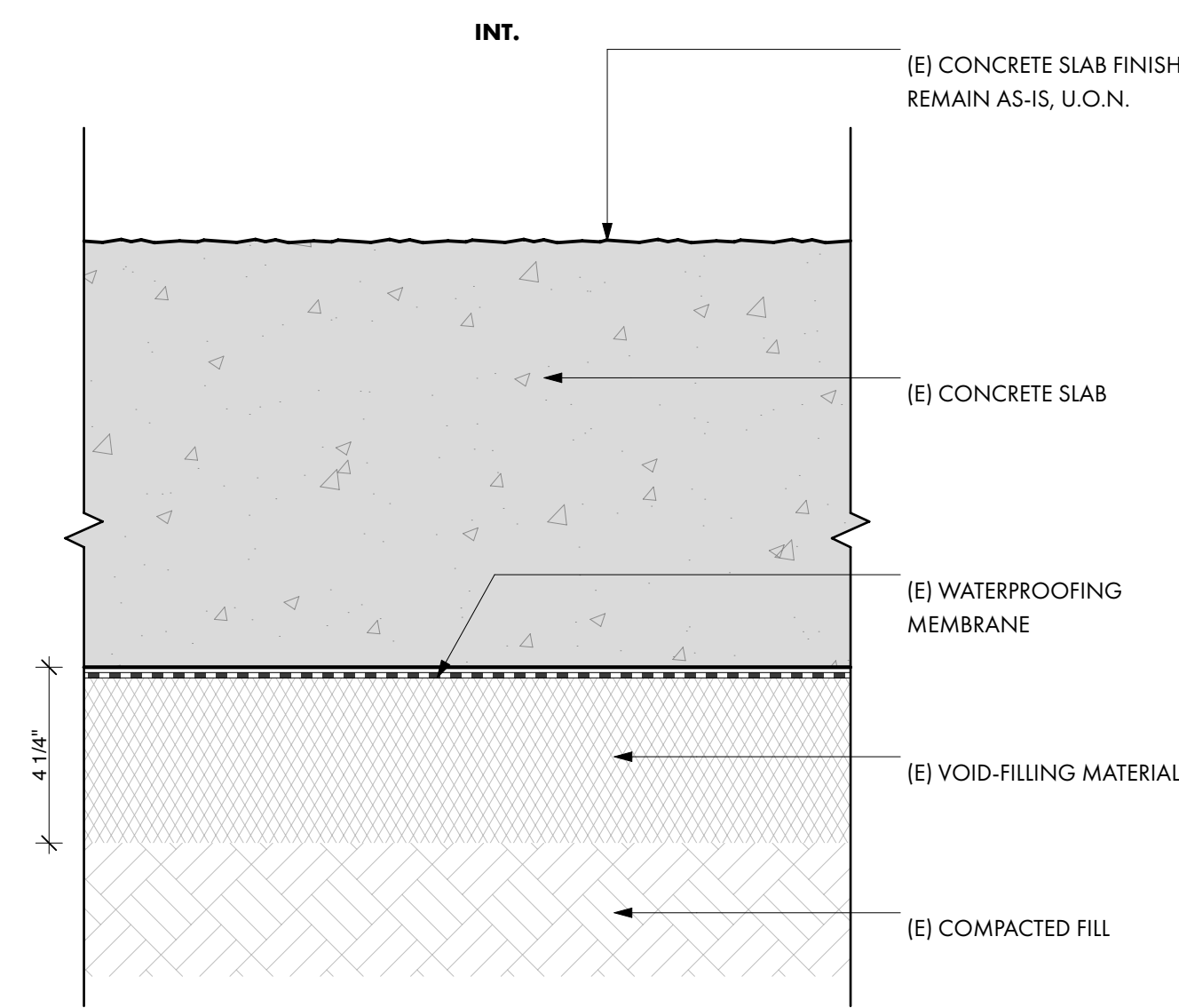
D WALL TYPE D - EXT. METAL - GYP.
SCALE: 3" = 1'-0"



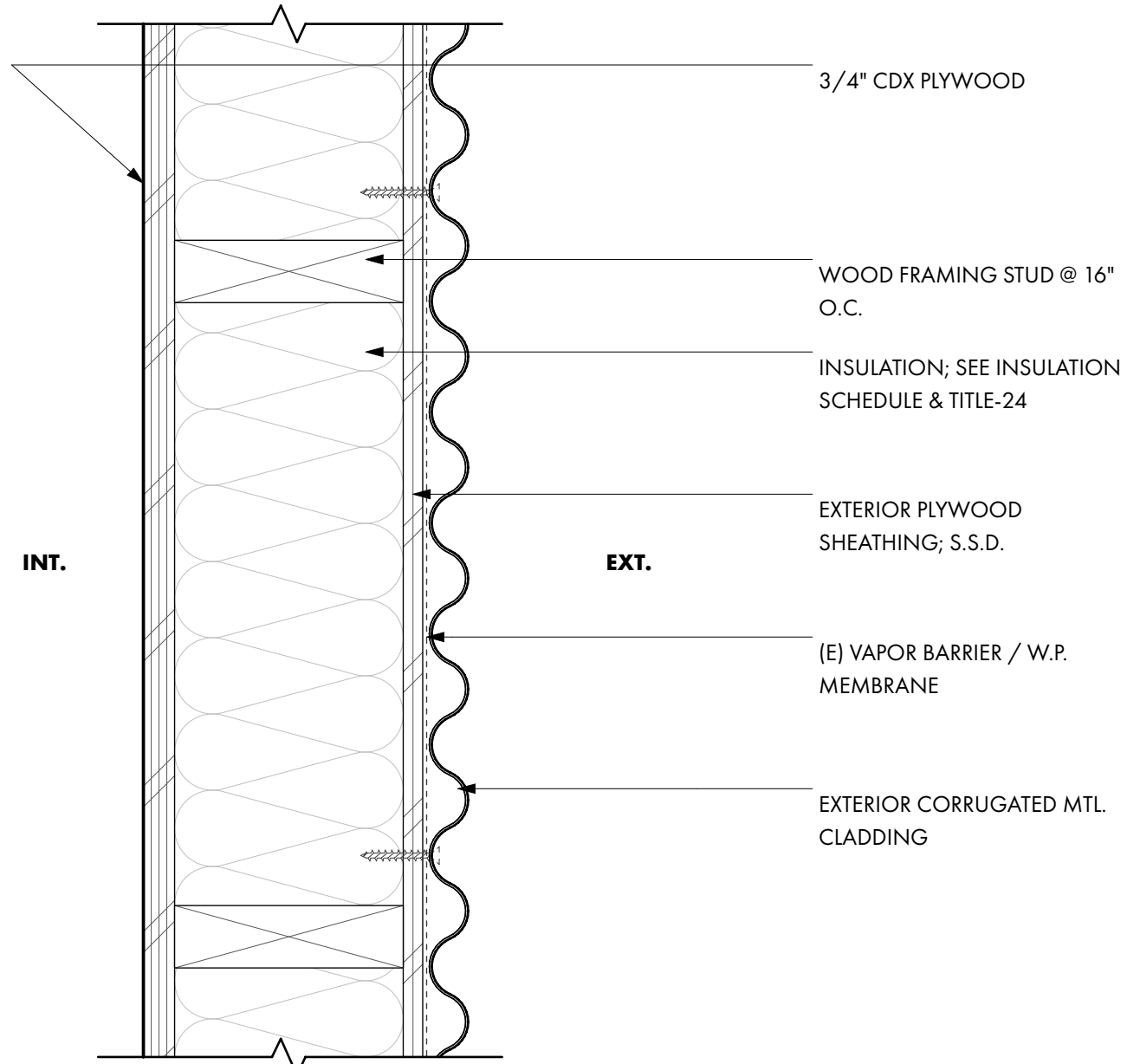
A1 WALL TYPE A1 - ACOUSTIC GYP.
SCALE: 3" = 1'-0"



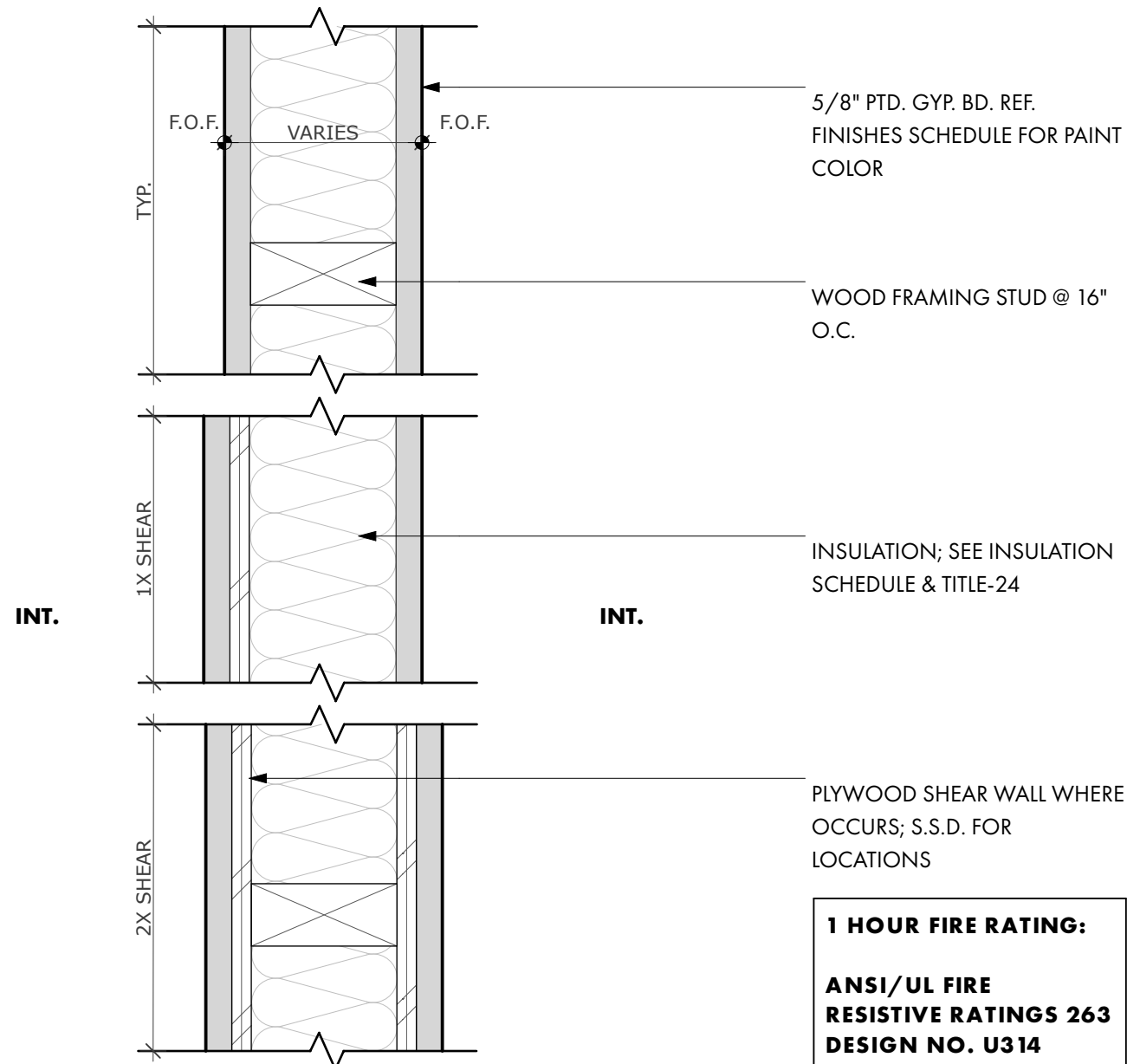
D FLOOR TYPE D - WD. FRAME W/ RES. FLOORING
SCALE: 3" = 1'-0"



B1 FLOOR TYPE B - (E) CONCRETE SLAB
SCALE: 3" = 1'-0"



C WALL TYPE C - EXT. METAL - PLYWD
SCALE: 3" = 1'-0"



A WALL TYPE A - 1 HR. GYP. - GYP.
SCALE: 3" = 1'-0"

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:

ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

REVISIONS:	BY:

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:

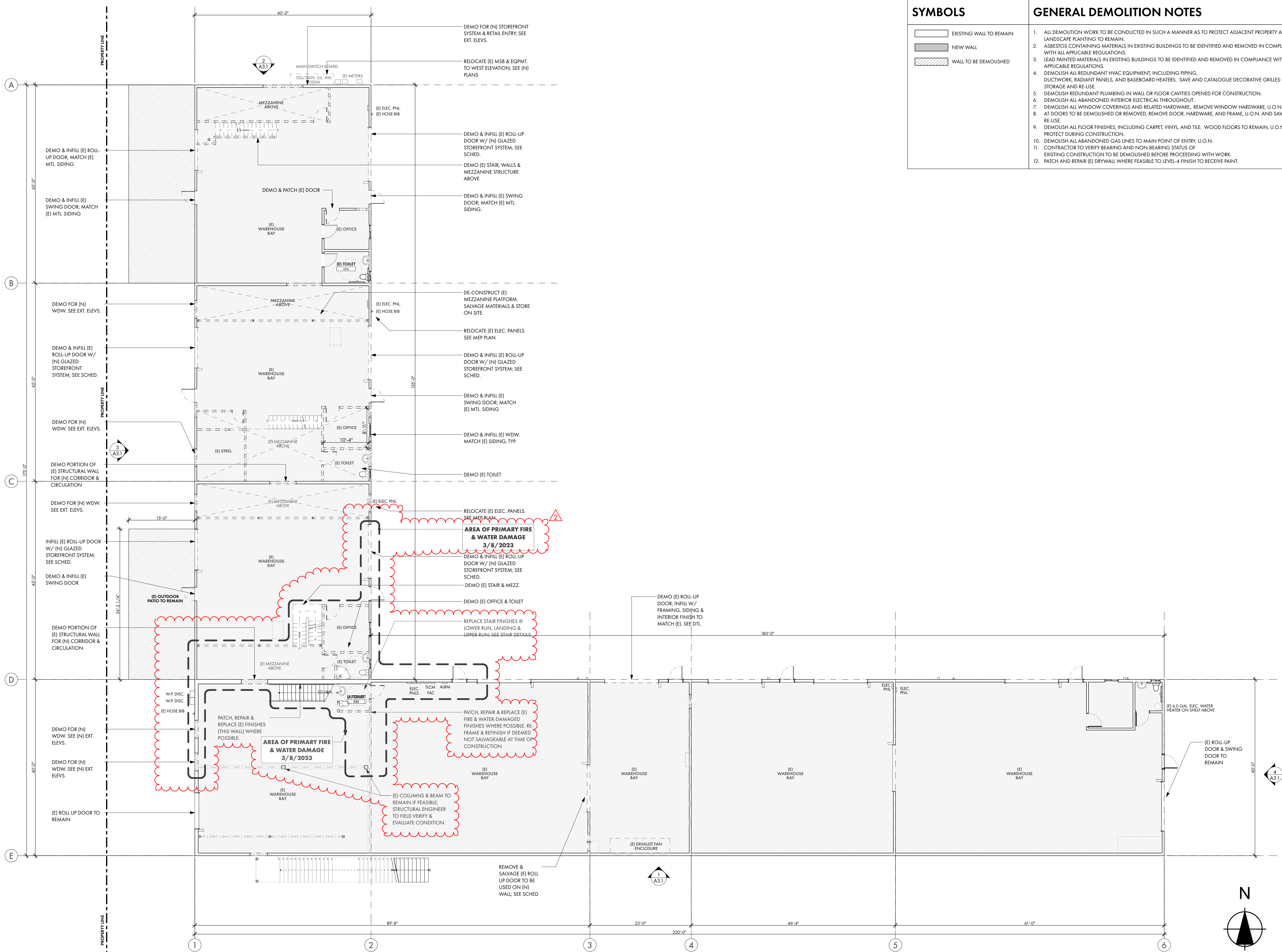
SHEET TITLE:

WALL & FLOOR ASSEMBLIES

SHEET NO.:

A0.11

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SYMBOLS	GENERAL DEMOLITION NOTES
EXISTING WALL TO REMAIN	1. ALL DEMOLITION WORK TO BE CONDUCTED IN SUCH A MANNER AS TO PROTECT ADJACENT PROPERTY AND LANDSCAPE PLANTING TO REMAIN.
NEW WALL	2. ASBESTOS CONTAINING MATERIALS IN EXISTING BUILDINGS TO BE IDENTIFIED AND REMOVED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS.
WALL TO BE DEMOLISHED	3. LEAD PAINTED MATERIALS IN EXISTING BUILDINGS TO BE IDENTIFIED AND REMOVED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS.
	4. DEMOLISH ALL REDUNDANT HVAC EQUIPMENT, INCLUDING PIPING, DUCTWORK, RADIANT PANELS, AND BASEBOARD HEATERS. SAVE AND CATALOGUE DECORATIVE GRILLES FOR STORAGE AND RE-USE.
	5. DEMOLISH REDUNDANT PLUMBING IN WALL OR FLOOR CAVITIES OPENED FOR CONSTRUCTION.
	6. DEMOLISH ALL ABANDONED INTERIOR ELECTRICAL THROUGHOUT.
	7. DEMOLISH ALL WINDOW COVERINGS AND RELATED HARDWARE. REMOVE WINDOW HARDWARE, U.O.N. AND SAVE FOR RE-USE.
	8. AT DOORS TO BE DEMOLISHED OR REMOVED, REMOVE DOOR, HARDWARE, AND FRAME, U.O.N. AND SAVE FOR RE-USE.
	9. DEMOLISH ALL FLOOR FINISHES, INCLUDING CARPET, VINYL, AND TILE. WOOD FLOORS TO REMAIN, U.O.N. PROTECT DURING CONSTRUCTION.
	10. DEMOLISH ALL ABANDONED GAS LINES TO MAIN POINT OF ENTRY. U.O.N.
	11. CONTRACTOR TO VERIFY BEARING AND NON-BEARING STATUS OF EXISTING CONSTRUCTION TO BE DEMOLISHED BEFORE PROCEEDING WITH WORK.
	12. PATCH AND REPAIR (E) DRYWALL WHERE FEASIBLE TO LEVEL-4 FINISH TO RECEIVE PAINT.

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:

ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:
2 REVISION - 11/17/2023	SR

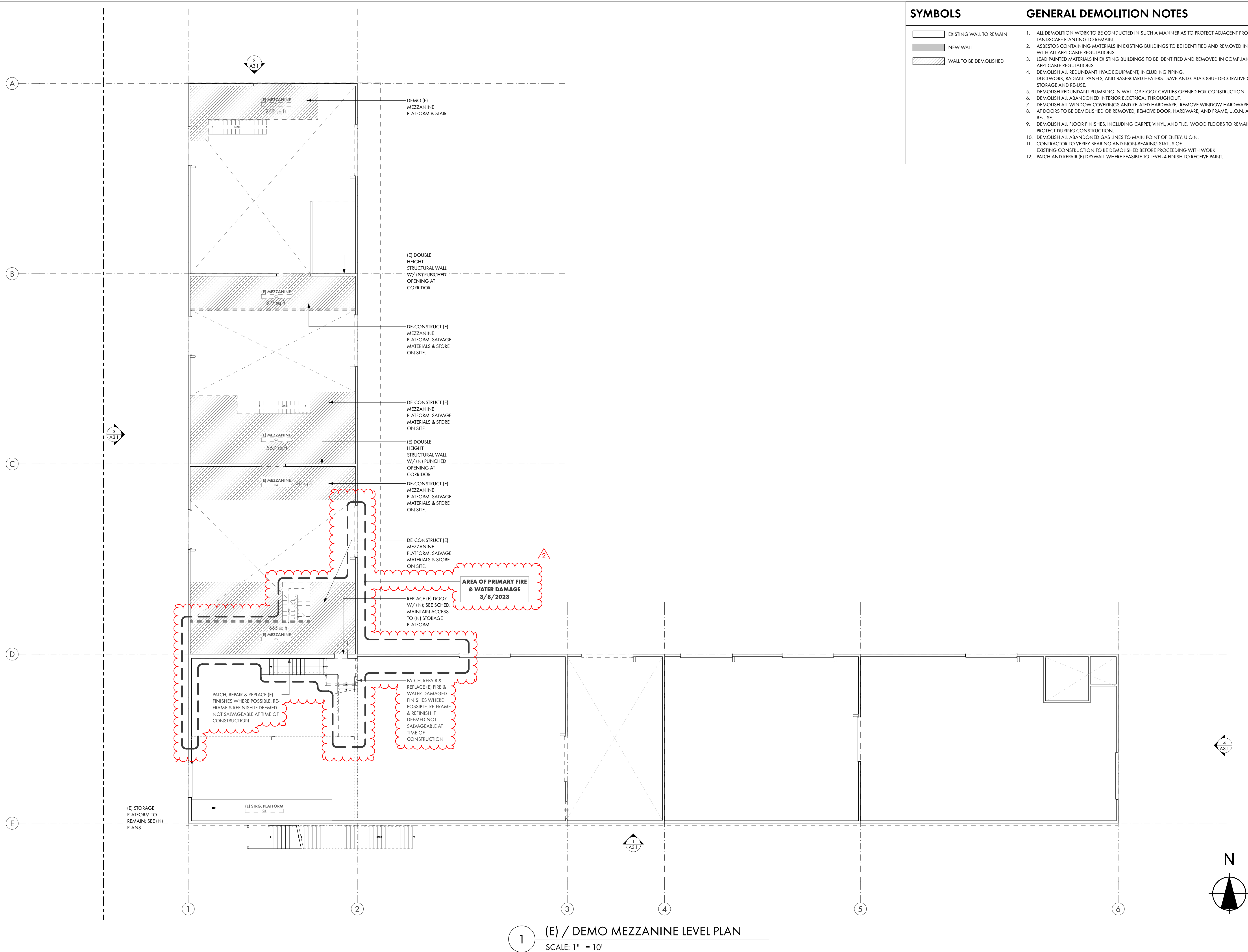
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DRAWN: SR
CHECKED: KG
SCALE: AS NOTED ON 24" X 36"

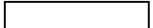
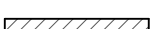
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SHEET TITLE:
**EXISTING / DEMO
GROUND FLOOR PLAN**

SHEET NO.:
A1.1

1 (E) / DEMO GROUND LEVEL PLAN
SCALE: 1" = 10'



SYMBOLS		GENERAL DEMOLITION NOTES	
	EXISTING WALL TO REMAIN	1.	ALL DEMOLITION WORK TO BE CONDUCTED IN SUCH A MANNER AS TO PROTECT ADJACENT PROPERTY AND LANDSCAPE PLANTING TO REMAIN.
	NEW WALL	2.	ASBESTOS CONTAINING MATERIALS IN EXISTING BUILDINGS TO BE IDENTIFIED AND REMOVED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS.
	WALL TO BE DEMOLISHED	3.	LEAD PAINTED MATERIALS IN EXISTING BUILDINGS TO BE IDENTIFIED AND REMOVED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS.
		4.	DEMOLISH ALL REDUNDANT HVAC EQUIPMENT, INCLUDING PIPING, DUCTWORK, RADIANT PANELS, AND BASEBOARD HEATERS. SAVE AND CATALOGUE DECORATIVE GRILLES FOR STORAGE AND RE-USE.
		5.	DEMOLISH REDUNDANT PLUMBING IN WALL OR FLOOR CAVES OPENED FOR CONSTRUCTION.
		6.	DEMOLISH ALL ABANDONED INTERIOR ELECTRICAL THROUGHOUT.
		7.	DEMOLISH ALL WINDOW COVERINGS AND RELATED HARDWARE, REMOVE WINDOW HARDWARE, U.O.N.
		8.	AT DOORS TO BE DEMOLISHED OR REMOVED, REMOVE DOOR, HARDWARE, AND FRAME, U.O.N. AND SAVE FOR RE-USE.
		9.	DEMOLISH ALL FLOOR FINISHES, INCLUDING CARPET, VINYL, AND TILE. WOOD FLOORS TO REMAIN, U.O.N. PROTECT DURING CONSTRUCTION.
		10.	DEMOLISH ALL ABANDONED GAS LINES TO MAIN POINT OF ENTRY, U.O.N.
		11.	CONTRACTOR TO VERIFY BEARING AND NON-BEARING STATUS OF EXISTING CONSTRUCTION TO BE DEMOLISHED BEFORE PROCEEDING WITH WORK.
		12.	PATCH AND REPAIR [E] DRYWALL WHERE FEASIBLE TO LEVEL-4 FINISH TO RECEIVE PAINT.

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:
② REVISION - 11/17/2023	SR

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:



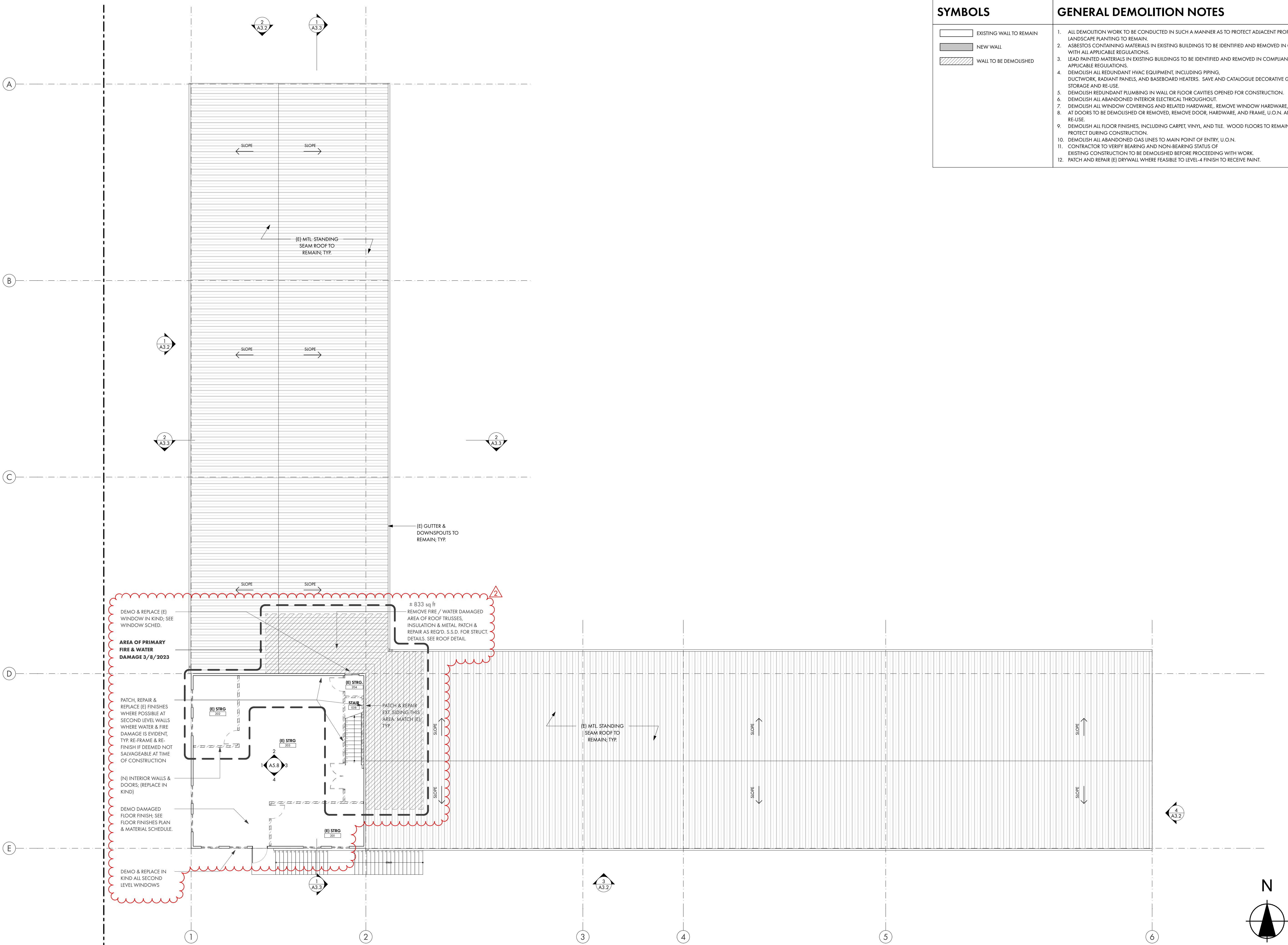
SHEET TITLE:

EXISTING / DEMO
MEZZ. LEVEL PLAN

SHEET NO.:

A1.2

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SYMBOLS	GENERAL DEMOLITION NOTES
EXISTING WALL TO REMAIN NEW WALL WALL TO BE DEMOLISHED	1. ALL DEMOLITION WORK TO BE CONDUCTED IN SUCH A MANNER AS TO PROTECT ADJACENT PROPERTY AND LANDSCAPE PLANTING TO REMAIN. 2. ASBESTOS CONTAINING MATERIALS IN EXISTING BUILDINGS TO BE IDENTIFIED AND REMOVED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS. 3. LEAD PAINTED MATERIALS IN EXISTING BUILDINGS TO BE IDENTIFIED AND REMOVED IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS. 4. DEMOLISH ALL REDUNDANT HVAC EQUIPMENT, INCLUDING PIPING, DUCTWORK, RADIANT PANELS, AND BASEBOARD HEATERS. SAVE AND CATALOGUE DECORATIVE GRILLES FOR STORAGE AND RE-USE. 5. DEMOLISH REDUNDANT PLUMBING IN WALL OR FLOOR CAVITIES OPENED FOR CONSTRUCTION. 6. DEMOLISH ALL ABANDONED INTERIOR ELECTRICAL THROUGHOUT. 7. DEMOLISH ALL WINDOW COVERINGS AND RELATED HARDWARE. REMOVE WINDOW HARDWARE, U.O.N. AND SAVE FOR RE-USE. 8. AT DOORS TO BE DEMOLISHED OR REMOVED, REMOVE DOOR, HARDWARE, AND FRAME, U.O.N. AND SAVE FOR RE-USE. 9. DEMOLISH ALL FLOOR FINISHES, INCLUDING CARPET, VINYL, AND TILE. WOOD FLOORS TO REMAIN, U.O.N. PROTECT DURING CONSTRUCTION. 10. DEMOLISH ALL ABANDONED GAS LINES TO MAIN POINT OF ENTRY, U.O.N. 11. CONTRACTOR TO VERIFY BEARING AND NON-BEARING STATUS OF EXISTING CONSTRUCTION TO BE DEMOLISHED BEFORE PROCEEDING WITH WORK. 12. PATCH AND REPAIR (E) DRYWALL WHERE FEASIBLE TO LEVEL-4 FINISH TO RECEIVE PAINT.

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:

City of Ukiah

ELECTRIC UTILITY DEPARTMENT

ELECTRIC SERVICE CENTER

1350 HASTINGS ROAD

UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:

BY:

2 REVISION - 11/17/2023 SR

JOB NO.:

2202

DATE:

12/19/2022

DRAWN:

SR

CHECKED:

KG

SCALE:

AS NOTED ON 24" X 36"

STAMP:

LICENSED ARCHITECT

STEVEN A. RATTI

20696

12/19/2022

RENEWAL DATE

STATE OF CALIFORNIA

SHEET TITLE:

EXISTING / DEMO

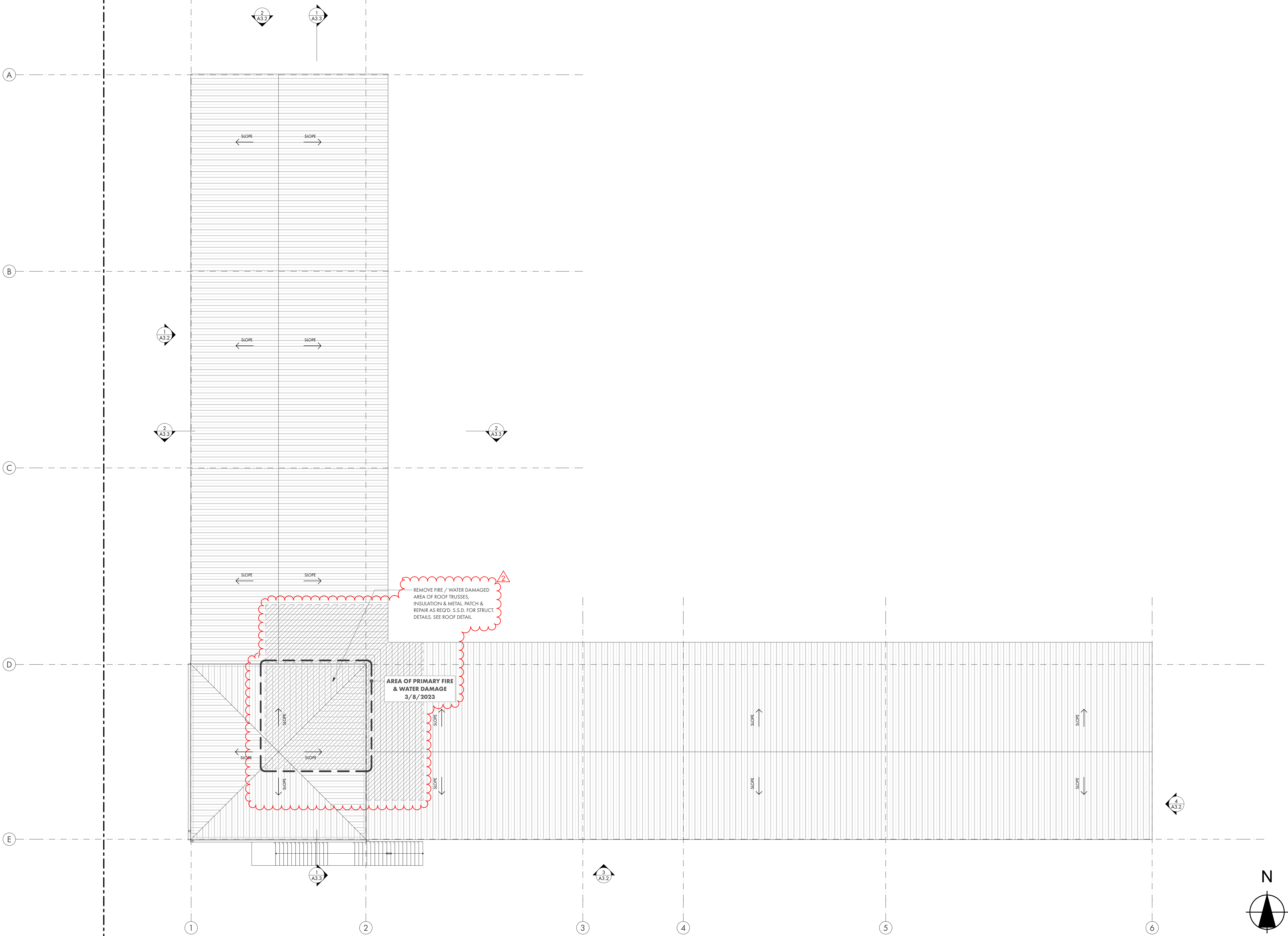
SECOND FLOOR PLAN

SHEET NO.:

A1.3

1 (E) / DEMO SECOND LEVEL PLAN
SCALE: 1" = 10'

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1 (E) ROOF LEVEL PLAN
SCALE: 1" = 10'

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:
2 REVISION - 11/17/2023	SR

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
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SCALE:	AS NOTED ON 24" X 36"

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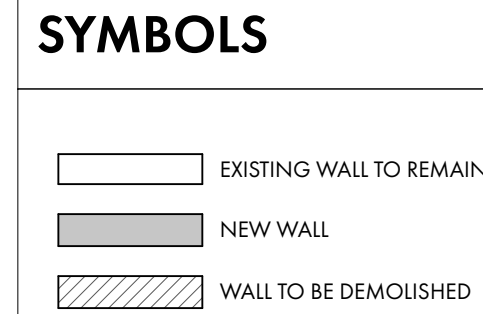


SHEET TITLE:

EXISTING / DEMO
ROOF PLAN

SHEET NO.:

A1.4



UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:		BY:
1	REVISION - 2/17/2023	SR
2	REVISION - 11/17/2023	SR

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

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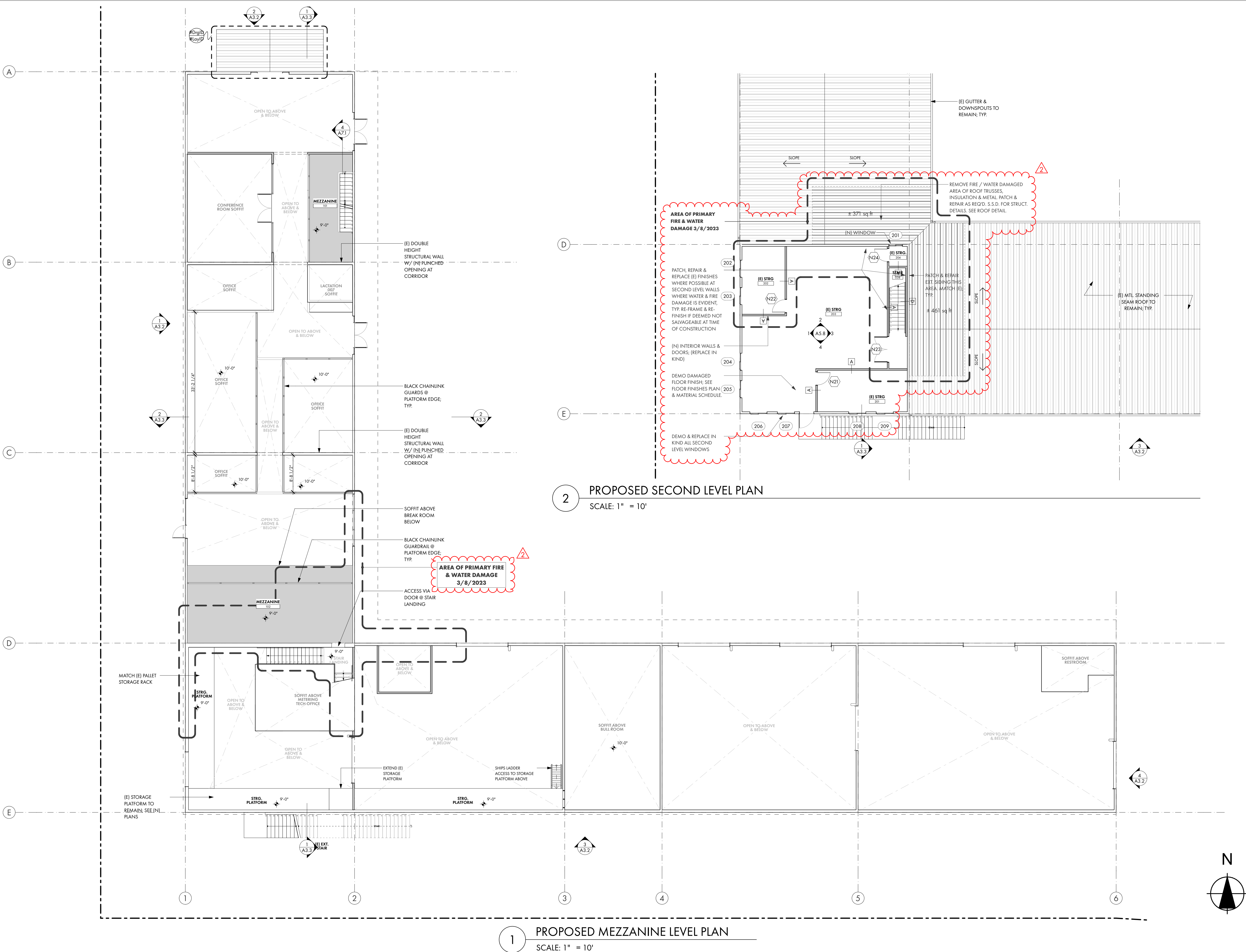
SHEET TITLE:

PROPOSED GROUND FLOOR PLAN

SHEET NO.:

A2.1

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UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

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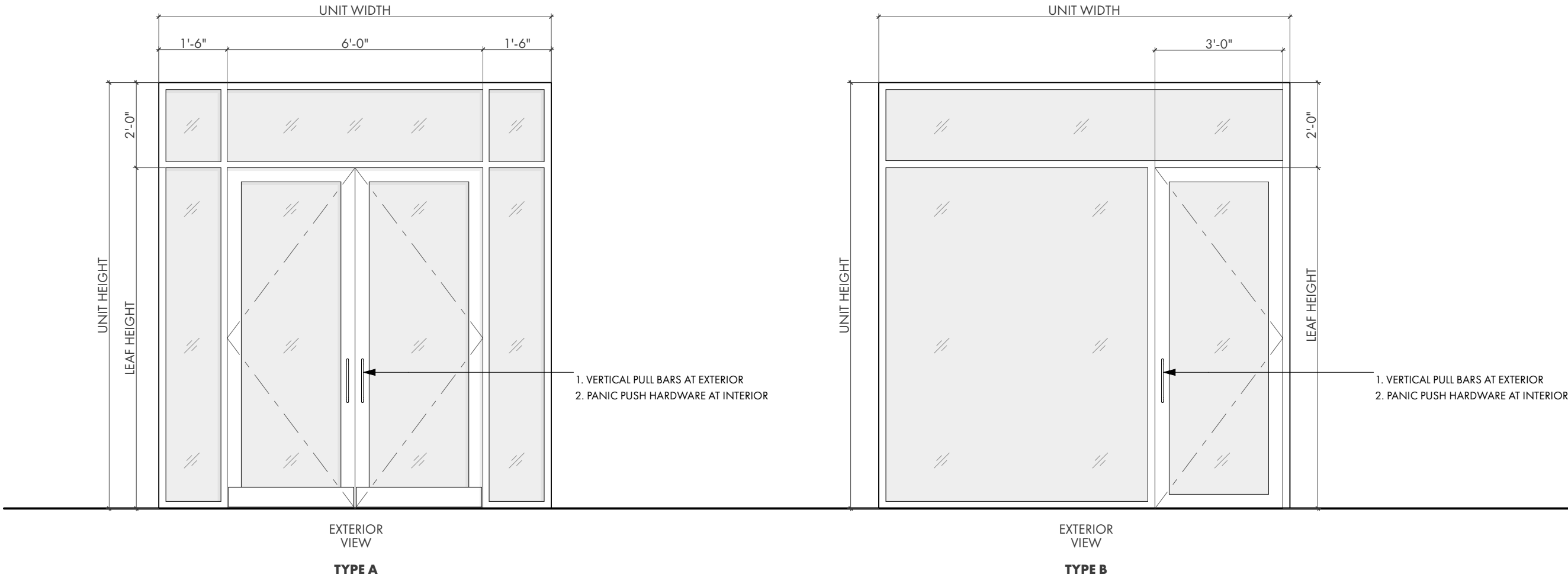


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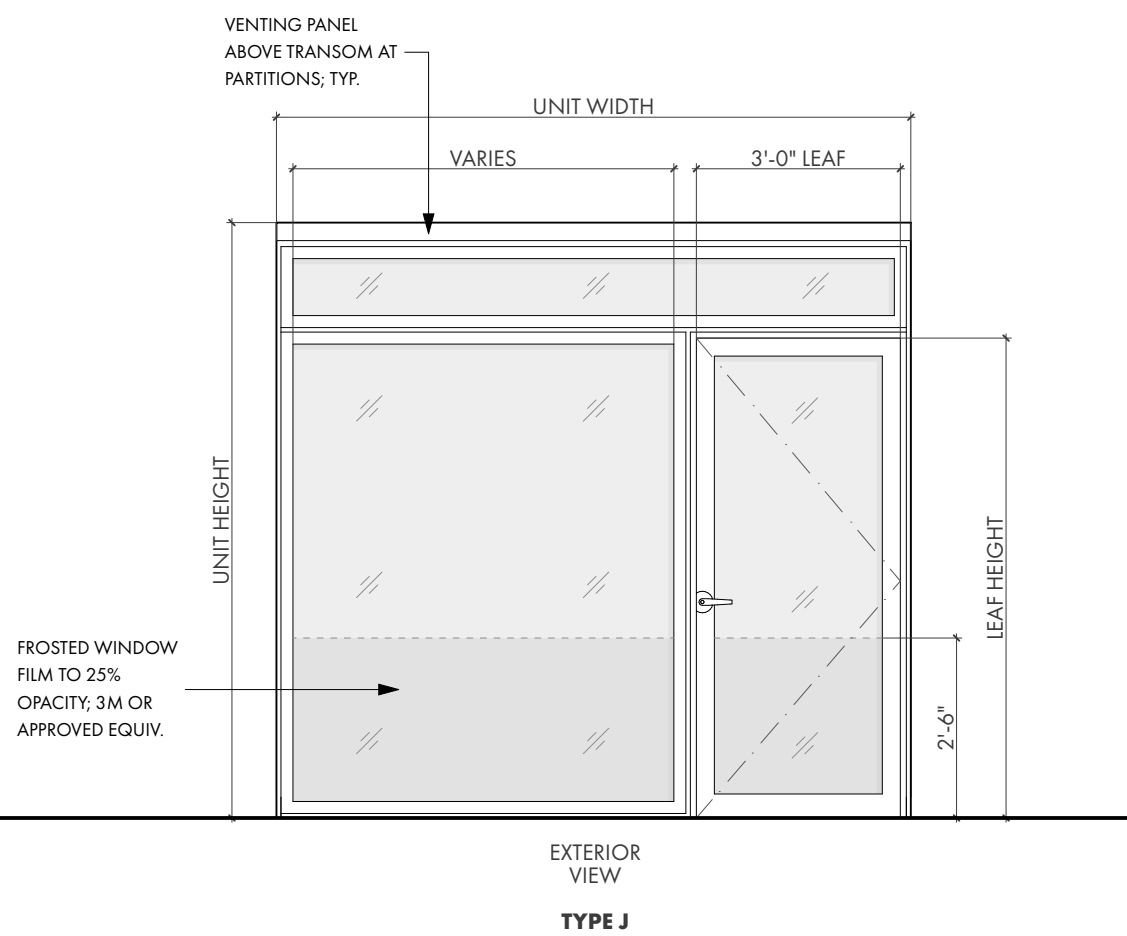
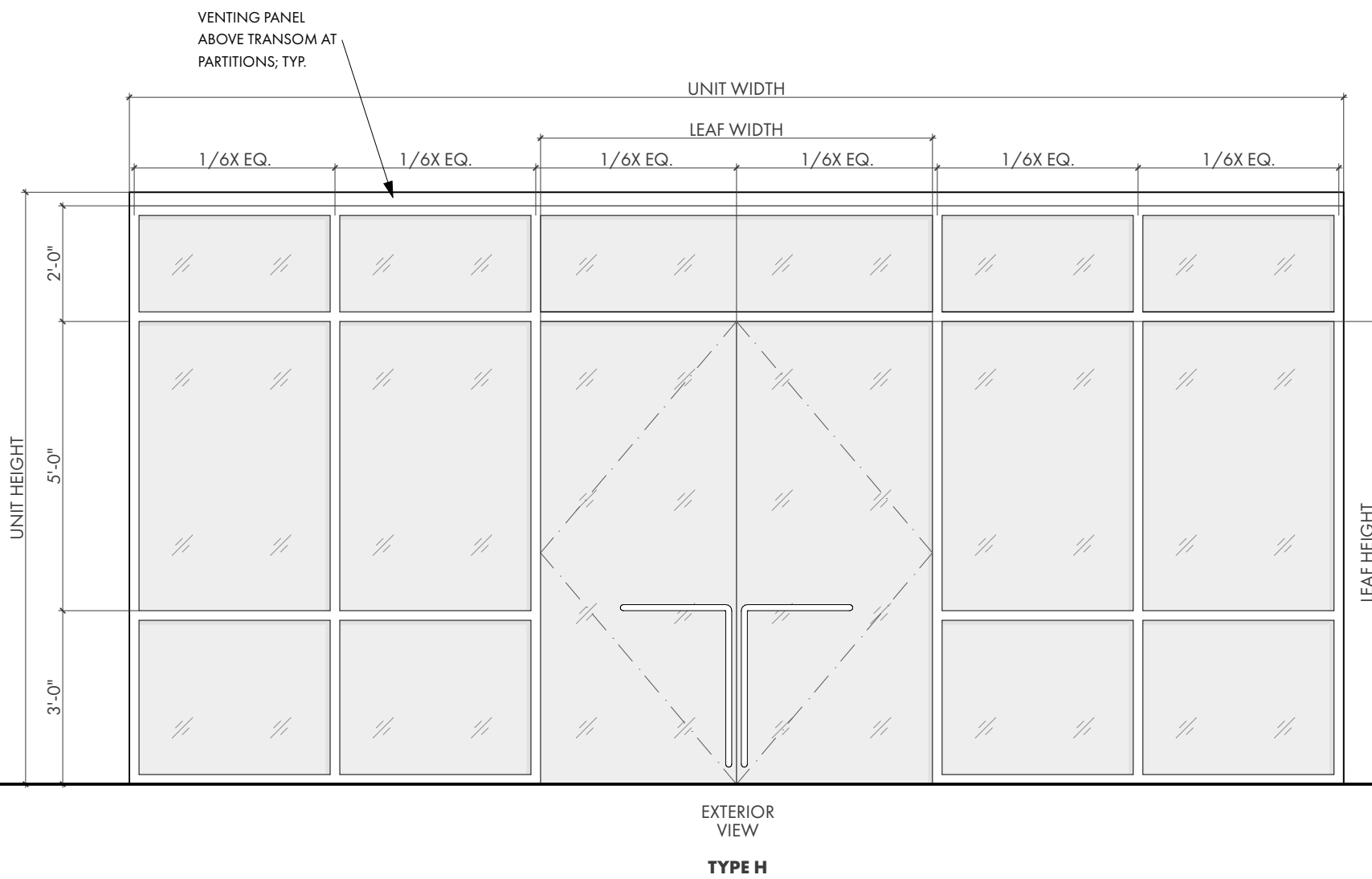
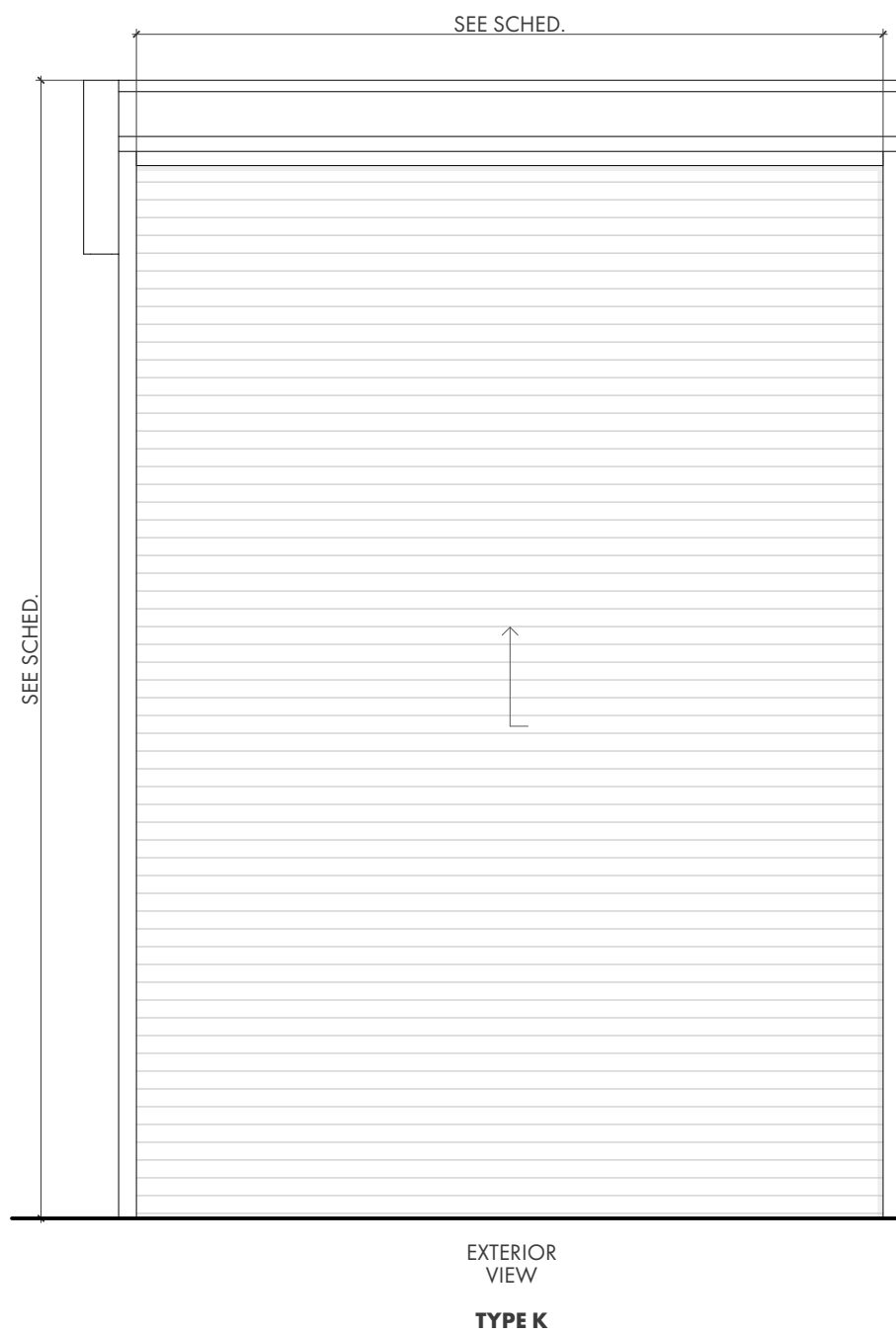
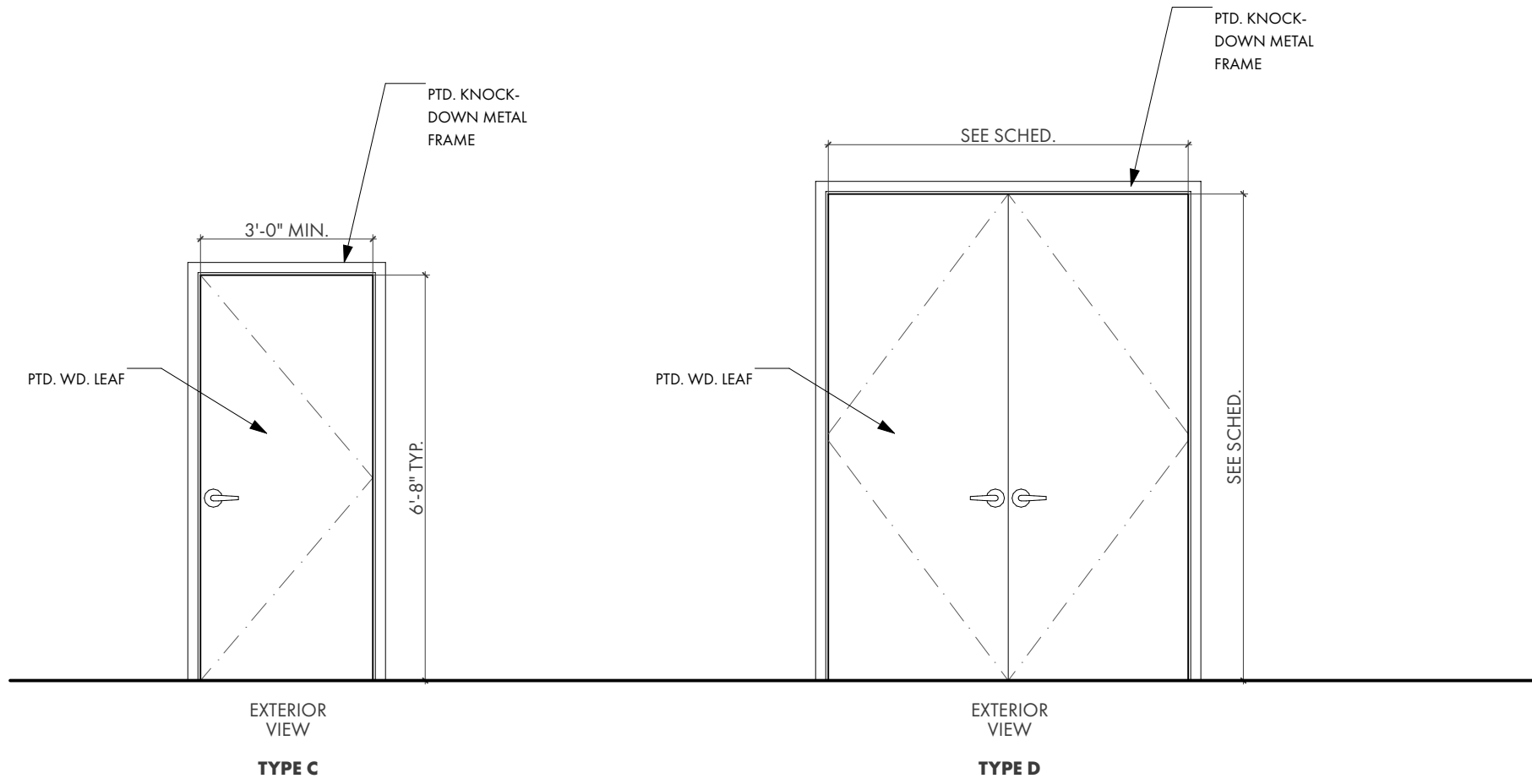
**PROPOSED MEZZ. LEVEL
& SECOND LEVEL PLAN**

SHEET NO.:

A2.2



4 EXTERIOR DOOR ELEVATIONS
SCALE: 3/8" = 1'-0"



DOOR SCHEDULE																					
MARK	TYPE	POSITION	MANUFACTURER / PRODUCT LINE	UNIT DIMENSIONS	LEAF DIMENSIONS	THK.	MATERIAL	FINISH / COLOR	GLAZING	U-VALUE	MINIMUM STC RATING	SHGC	FRAME		FIRE RATING	HARDWARE SET	REMARKS				
													MATERIAL	FINISH / COLOR							
E01	A	Exterior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	9'-0"x10'-0"	6'-0"x8'-0"	1 3/4"	ALUMINUM	ANODIZED / BLACK	Y	-	-	-	ALUMINUM	ANODIZED / BLACK	-	KEYED ENTRY / PANIC BAR INT.	NEW BURGLAR ALRM TO TIE INTO EXISTING ALARM SYSTEM				
E02	A	Exterior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	9'-0"x10'-0"	6'-0"x8'-0"	1 3/4"	ALUMINUM	ANODIZED / BLACK	Y	-	-	-	ALUMINUM	ANODIZED / BLACK	-	KEYED ENTRY / PANIC BAR INT.	NEW BURGLAR ALRM TO TIE INTO EXISTING ALARM SYSTEM				
E03	A	Exterior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	9'-0"x10'-0"	6'-0"x8'-0"	1 3/4"	ALUMINUM	ANODIZED / BLACK	Y	-	-	-	ALUMINUM	ANODIZED / BLACK	-	KEYED ENTRY / PANIC BAR INT.	NEW BURGLAR ALRM TO TIE INTO EXISTING ALARM SYSTEM				
E04	B	Exterior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	9'-4 3/4"x10'-0"	3'-0"x8'-0"	1 3/4"	ALUMINUM	ANODIZED / BLACK	Y	-	-	-	ALUMINUM	ANODIZED / BLACK	-	KEYED ENTRY / PANIC BAR INT.	NEW BURGLAR ALRM TO TIE INTO EXISTING ALARM SYSTEM				
F01	H	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	21'-0"x10'-0"	6'-9"x8'-0"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F02	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F03	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F04	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F05	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F06	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F07	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F08	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	6'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F09	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	6'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F10	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
F11	J	Interior	CRLAURENCE, ARCADIA, OR APPROVED EQUIVALENT	8'-9 3/4"x8'-0"	3'-0"x6'-8"	1 3/4"	ALUMINUM	ANODIZED / BLACK	-	-	40	-	ALUMINUM	ANODIZED / BLACK	-	PRIVACY					
N01	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	SECURITY	SEE FINISHES SCHEDULE FOR PAINT COLOR SPEC				
N02	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PASSAGE					
N03	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N04	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N05			NOT USED																		
N06	D	Interior	TRUDOOR OR APPROVED EQUIVALENT	6'-1"x6'-8 1/2"	6'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	SECURITY					
N07	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N08	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N09	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N10	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	SECURITY					
N11	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N11.1	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N12	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	SECURITY					
N13	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PASSAGE					
N14	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY					
N15	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PASSAGE					
N21	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY	SEE FINISHES SCHEDULE FOR PAINT COLOR SPEC				
N22	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY	SEE FINISHES SCHEDULE FOR PAINT COLOR SPEC				
N23	C	Interior	TRUDOOR OR APPROVED EQUIVALENT	6'-1"x6'-8 1/2"	6'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	PRIVACY	SEE FINISHES SCHEDULE FOR PAINT COLOR SPEC				
N24	D	Interior	TRUDOOR OR APPROVED EQUIVALENT	3'-1 1/2"x6'-8 3/4"	3'-0"x6'-8"	1 3/4"	SOLID CORE WOOD	PAINTED / F-1	-	-	-	-	METAL	PAINTED / F-1	-	DUMMY	SEE FINISHES SCHEDULE FOR PAINT COLOR SPEC				
R06	K	Interior	EXISTING - MOVED TO IN LOCATION. SEE PLANS	11'-0"x16'-0 3/8"	10'-6"x15'-0"	2"	METAL	LEFT TO REMAIN	-	-	-	-	LEFT TO REMAIN	PAINTED / F-1	-	ROLL-UP					

NOTE: SEE TECHNICAL SPECIFICATIONS FOR DOOR HARDWARE

5 INTERIOR DOOR ELEVATIONS
SCALE: 3/8" = 1'-0"

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:


City of Ukiah
ELECTRIC UTILITY DEPARTMENT
ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:

REVISION - 11/17/2023

BY:

SR

JOB NO.:

2202

DATE:

12/19/2022

DRAWN:

SR

CHECKED:

KG

SCALE:

AS NOTED ON 24" X 36"

STAMP:



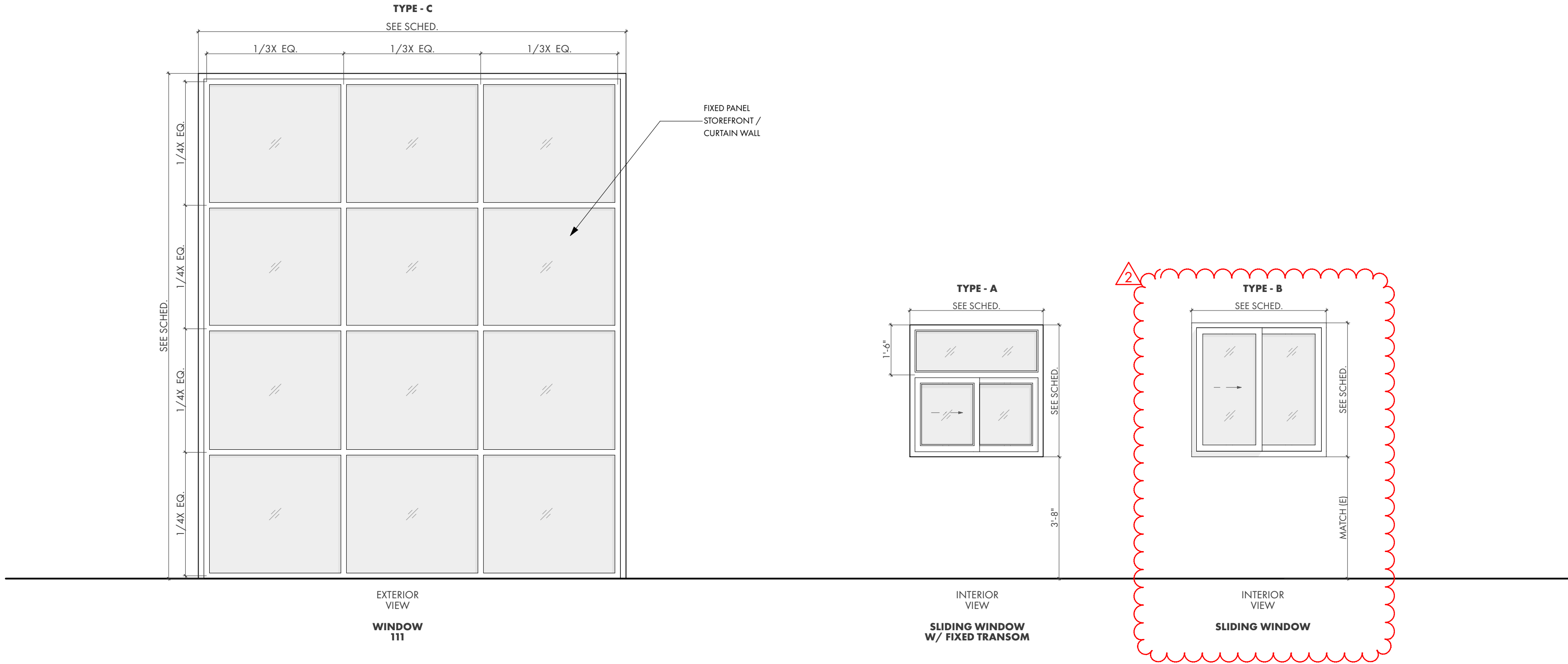
SHEET TITLE:

DOOR SCHEDULES

SHEET NO.:

A2.3

WINDOW SCHEDULE													
MARK	TYPE	WIDTH	HEIGHT	MANUFACTURER / PRODUCT LINE	OPERATION	GLAZING	U-VALUE	SHGC	MATERIAL	FINISH / COLOR	FIRE RATING	HARDWARE	REMARKS
101	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
102	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
103	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
104	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
105	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
106	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
107	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
108	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
109	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
110	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
111	C	12'-4 1/2"	15'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	FIXED	-	-	-	ALUMINUM	ANODIZED / BLACK	-	NONE	MOTORIZED ROLLER SHADE MOUNTED ABOVE
112	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
113	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
114	A	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER W/ FIXED TRANSOM	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
201	B	3'-2 3/8"	2'-1 3/4"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
202	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
203	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
204	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
205	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
206	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
207	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
208	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE
209	B	4'-0"	4'-0"	CRLAURENCE, ARCADIA, WESTERN OR APPROVED EQUIVALENT	SLIDER	-	-	-	ALUMINUM	ANODIZED / BLACK	-	STANDARD	CORDED ROLLER SHADE MOUNTED ABOVE



3

WINDOW ELEVATIONS

SCALE: 3/8" = 1'-0"

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



City of Ukiah
ELECTRIC UTILITY DEPARTMENT

ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:		BY:
2	REVISION - 11/17/2023	SR
JOB NO.:	2202	
DATE:	12/19/2022	
DRAWN:	SR	
CHECKED:	KG	
SCALE:	AS NOTED ON 24" X 36"	

STAMP:



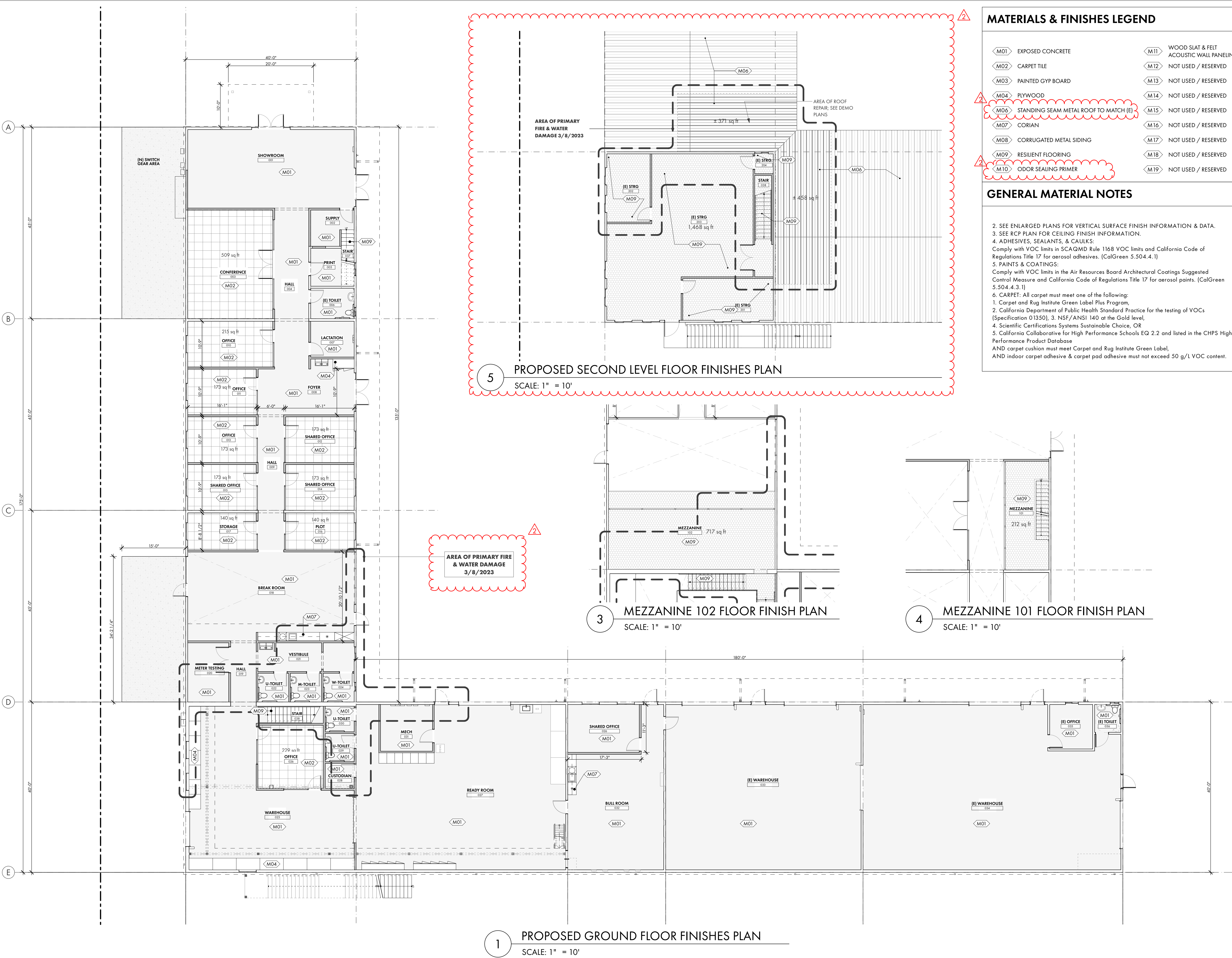
SHEET TITLE:

WINDOW SCHEDULES

SHEET NO.:

A2.4

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MATERIALS & FINISHES LEGEND

M01	EXPOSED CONCRETE	M11	WOOD SLAT & FELT ACOUSTIC WALL PANELING
M02	CARPET TILE	M12	NOT USED / RESERVED
M03	PAINTED GYP BOARD	M13	NOT USED / RESERVED
M04	PLYWOOD	M14	NOT USED / RESERVED
M06	STANDING SEAM METAL ROOF TO MATCH (E)	M15	NOT USED / RESERVED
M07	CORIAN	M16	NOT USED / RESERVED
M08	CORRUGATED METAL SIDING	M17	NOT USED / RESERVED
M09	RESILIENT FLOORING	M18	NOT USED / RESERVED
M10	ODOR SEALING PRIMER	M19	NOT USED / RESERVED

GENERAL MATERIAL NOTES

2. SEE ENLARGED PLANS FOR VERTICAL SURFACE FINISH INFORMATION & DATA.
3. SEE RCP PLAN FOR CEILING FINISH INFORMATION.
4. ADHESIVES, SEALANTS, & CAULKS:
Comply with VOC limits in SCAQMD Rule 1168 VOC limits and California Code of Regulations Title 17 for aerosol adhesives. (CalGreen 5.504.4.1)
5. PAINTS & COATINGS:
Comply with VOC limits in the Air Resources Board Architectural Coatings Suggested Control Measure and California Code of Regulations Title 17 for aerosol paints. (CalGreen 5.504.4.3.1)
6. CARPET: All carpet must meet one of the following:
1. Carpet and Rug Institute Green Label Plus Program,
2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350), 3. NSF/ANSI 140 at the Gold level,
4. Scientific Certifications Systems Sustainable Choice, OR
5. California Collaborative for High Performance Schools EQ 2.2 and listed in the CHPS High Performance Product Database
AND carpet cushion must meet Carpet and Rug Institute Green Label,
AND indoor carpet adhesive & carpet pad adhesive must not exceed 50 g/L VOC content.

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

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BUILDING PERMIT

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SCALE:	AS NOTED ON 24" X 36"

STAMP:



SHEET TITLE:

PROPOSED FLOOR
FINISHES PLANS

SHEET NO.:

A2.5

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Room No.	Room	Flooring						Walls / Base						Ceiling						Millwork				
		Material Tag	Mfr.	Finish	Color	Area / SQ FT	NOTES	Material	Mfr.	Finish	Color	Area / SQ FT	NOTES	Material	Mfr.	Finish	Color	Area / SQ FT	NOTES	ITEM	MATERIAL	COLOR	REF	NOTES
001	SHOWROOM	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR		-	-	-		EXISTING EXPOSED					
002	SUPPLY	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
003	CONFERENCE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65 / FEATURE WALL: INTRIGUE - 1580	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
								M11	AKUPANEL	WALNUT	WALNUT	SEE INT. ELEVATIONS	BLACK FELT-BACKED ACOUSTIC PANELING W/ WALNUT VENEER MDF SLATS, AKUPANEL OR APPROVED EQUIVALENT											
004	HALL	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR		-	-	-		EXISTING EXPOSED					
005	PRINT	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
006	TOILET	M01	-	EXISTING	-	SEE A2.5		M03.1/M07.1	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
007	LACTATION	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
008	FOYER	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65 / FEATURE WALL: INTRIGUE - 1580	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR		-	-	-		EXISTING EXPOSED	COAT CLOSET	M04/M07	CLEAR FIN ON PLYWOOD - CORIAN -DEEP ANTHRACITE- BACK SPLASH	A5.3	CORIAN BEHIND WATER FOUNTAIN
009	HALL	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M10	ZINSSER		CLEAR	SEE A6.2	EXISTING EXPOSED / END OF HALL WITHIN THE BREAK RM BAY PAINTED WITH ODOR SEALING PRIMER					
010	OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
011	OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
012	SHARED OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
013	OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
014	SHARED OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
015	SHARED OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
016	PLOT	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
017	STORAGE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
018	BREAK RM	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65 / FEATURE WALL: INTRIGUE - 1580	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M10	ZINSSER		CLEAR	SEE A6.2	EXISTING EXPOSED PAINTED WITH ODOR SEALING PRIMER	ISLAND / KITCHENETTE	M04/M07	CLEAR FIN ON PLYWOOD - CORIAN -DEEP ANTHRACITE- COUNTERTOP + BACK SPLASH	A3.5 / A4.1/ A5.4	
019	HALL	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR		-	-	-	SEE A6.1	EXPOSED JOISTS/JU'S					
020	METER TESTING	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
021	VESTIBULE	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
022	U-TOILET	M01	-	EXISTING	-	SEE A2.5		M03/M07	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE A0.6 TYP	-	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
023	M-TOILET	M01	-	EXISTING	-	SEE A2.5		M03/M07	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE A0.6 TYP	-	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
024	W-TOILET	M01	-	EXISTING	-	SEE A2.5		M03/M07	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE A0.6 TYP	-	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
025	WAREHOUSE	M01	-	EXISTING	-	SEE A2.5		M04	-	-	-	SEE INT. ELEVATIONS	EXISTING WALL PANELING TO REMAIN	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.2	DEMO AND REPLACE (E) WATER / SMOKE DAMAGE GYP WITH NEW	PALET STORAGE PLATFORMS / WOOD SHELVING	M04	CLEAR FIN ON PLYWOOD	A5.5	
026	SHARED OFFICE	M02	FLOR CARPET TILE			SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR: 197 SHADED WB TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
027	READY ROOM	M01	-	EXISTING	-	SEE A2.5		M04	-	-	-	SEE INT. ELEVATIONS	EXISTING WALL PANELING TO REMAIN	M10	ZINSSER		CLEAR	SEE A6.2	EXISTING EXPOSED PAINTED WITH ODOR SEALING PRIMER	WORKTOP AND STORAGE CUBBIES	M04	CLEAR FIN ON PLYWOOD	A5.6	
028	CUSTODIAN	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
029	U-TOILET	M01	-	EXISTING	-	SEE A2.5		M03.1/M07.1	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE A0.6 TYP	-	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
030	(E) TOILET	M01	-	EXISTING	-	SEE A2.5		M03.1/M07.1	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE A0.6 TYP	-	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
031	MECH	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M10	ZINSSER		CLEAR	SEE A6.2	EXISTING EXPOSED PAINTED WITH ODOR SEALING PRIMER					
032	BULL ROOM	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE WALL BASE DURACOVE 1/8" (TYPE TP) -COLOR (TBD) TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1		KITCHENETTE	M04/M07	CLEAR FIN ON PLYWOOD - CORIAN -DEEP ANTHRACITE- COUNTERTOP + BACK SPLASH	A4.1/A5.7	
033	(E) WAREHOUSE	M01	-	EXISTING	-	SEE A2.5		-	-	-	-	-	-	-	-	-	-	-						
034	(E) WAREHOUSE	M01	-	EXISTING	-	SEE A2.5		-	-	-	-	-	-	-	-	-	-	-						
035	(E) OFFICE	M01	-	EXISTING	-	SEE A2.5		M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE -COLOR TO MATCH (E) FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
036	(E) TOILET	M01	-	EXISTING	-	SEE A2.5		M03.1/M07.1	BENJAMIN MOORE / CORIAN	LEVEL 4	TOP OF WALL: INTRIGUE-1580 BASE: CORIAN -GLACIER WHITE	SEE A0.6 TYP	-	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.1						
037	STAIR	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	STAIR TREADS, NOSING AND COMPONENTS TO BE COLOR SPLASH SPECKLED TILE AND TREAD	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER WALL BASE DURACOVE 1/8" (TYPE TP) COLOR: VM4 GREEN SMOKE	-	-	-	-	SEE A6.2	EXISTING EXPOSED					
038	STAIR	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	STAIR TREADS, NOSING AND COMPONENTS TO BE COLOR SPLASH SPECKLED TILE AND TREAD	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE -COLOR TO MATCH (E) FLOOR ON FLOOR UNDER STAIR - NO BASE ON STAIR TREADS	M03	-	-	-	SEE A6.2						
101	MEZZANINE	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	4" BASE TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER BASE -COLOR TO MATCH (E) FLOOR ON FLOOR UNDER STAIR - NO BASE ON STAIR TREADS	-	-	-	-	SEE A6.2	EXISTING EXPOSED					
102	MEZZANINE	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	4" BASE TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	4" JOHNSONITE RUBBER WALL BASE DURACOVE 1/8" (TYPE TP) COLOR: VM4 GREEN SMOKE	M10	ZINSSER		CLEAR	SEE A6.2	EXISTING EXPOSED PAINTED WITH ODOR SEALING PRIMER					
201	(E) STORAGE	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	4" BASE TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	NEW GYP WHERE REQ'D, PATCH AND REPAIR EXISTING TO MATCH -4" JOHNSONITE RUBBER WALL BASE DURACOVE 1/8" (TYPE TP) COLOR: VM4 GREEN SMOKE	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.2						
202	(E) STORAGE	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	4" BASE TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	NEW GYP WHERE REQ'D, PATCH AND REPAIR EXISTING TO MATCH -4" JOHNSONITE RUBBER WALL BASE DURACOVE 1/8" (TYPE TP) COLOR: VM4 GREEN SMOKE	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.2						
203	(E) STORAGE	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	4" BASE TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	NEW GYP WHERE REQ'D, PATCH AND REPAIR EXISTING TO MATCH -4" JOHNSONITE RUBBER WALL BASE DURACOVE 1/8" (TYPE TP) COLOR: VM4 GREEN SMOKE	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.2						
204	(E) STORAGE	M09	JOHNSONITE	RUBBER COLOR SPLASH SPECKLED TILE AND TREAD	DOUGLAS FIR V16	SEE A2.5	4" BASE TO MATCH FLOOR	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE INT. ELEVATIONS	NEW GYP WHERE REQ'D, PATCH AND REPAIR EXISTING TO MATCH -4" JOHNSONITE RUBBER WALL BASE DURACOVE 1/8" (TYPE TP) COLOR: VM4 GREEN SMOKE	M03	BENJAMIN MOORE	LEVEL 4	CHANTILLY LACE - 0C65	SEE A6.2						

1

MATERIALS & FINISHES SCHEDULE

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



APPROVALS:

BUILDING PERMIT

REVISIONS:		BY:

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:



SHEET TITLE:

SCHEDULES

SHEET NO.:

A2.6

1 PLUMBING FIXTURES, FITTINGS & ACCESSORIES SCHEDULE

PLUMBING FIXTURES, FITTINGS & ACCESSORIES SCHEDULE

ARCHITECTS



1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS

BUILDING PERMIT

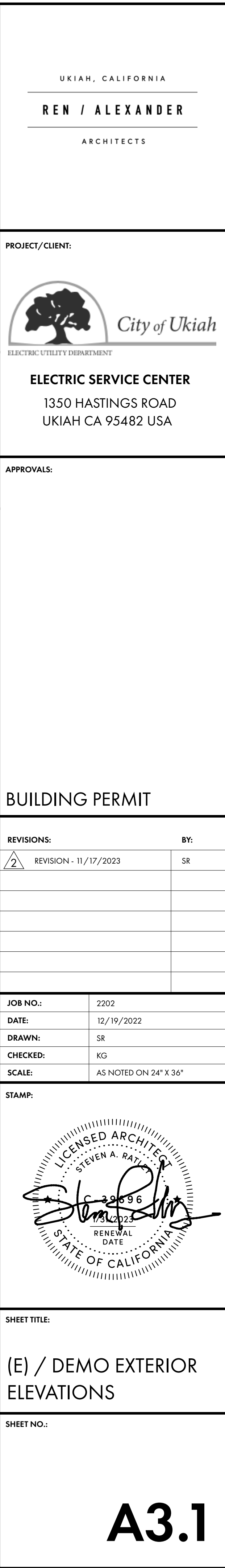
LICENSED ARCHITECT
 STEVEN A. RATNER
 C-336696
 08/01/2023
 RENEWAL
 DATE
 STATE OF CALIFORNIA

SHEET TITLE

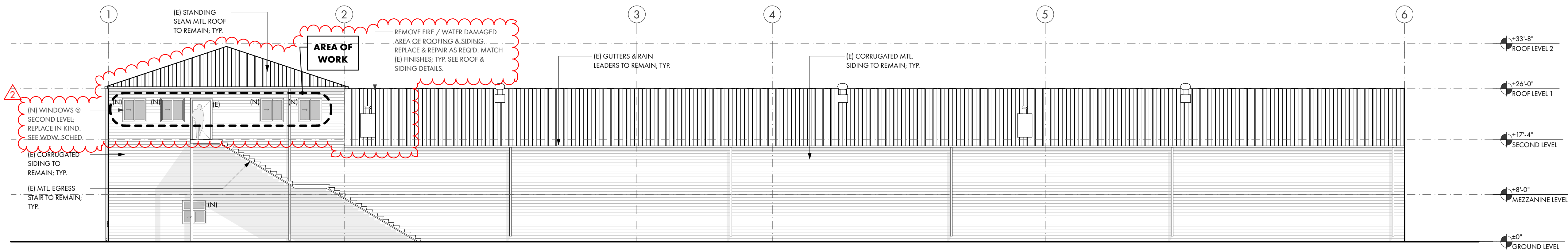
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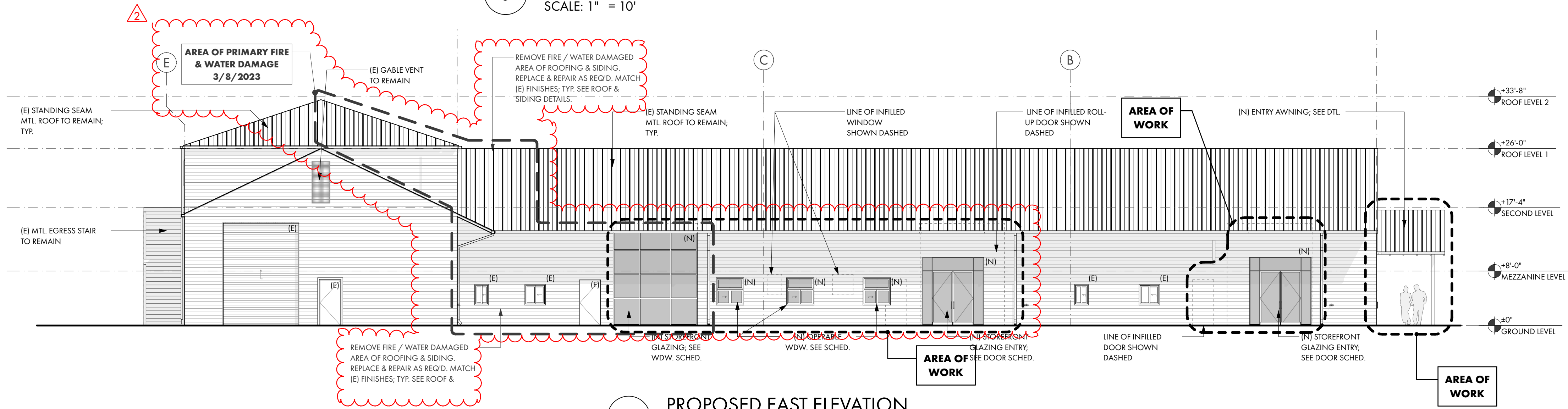
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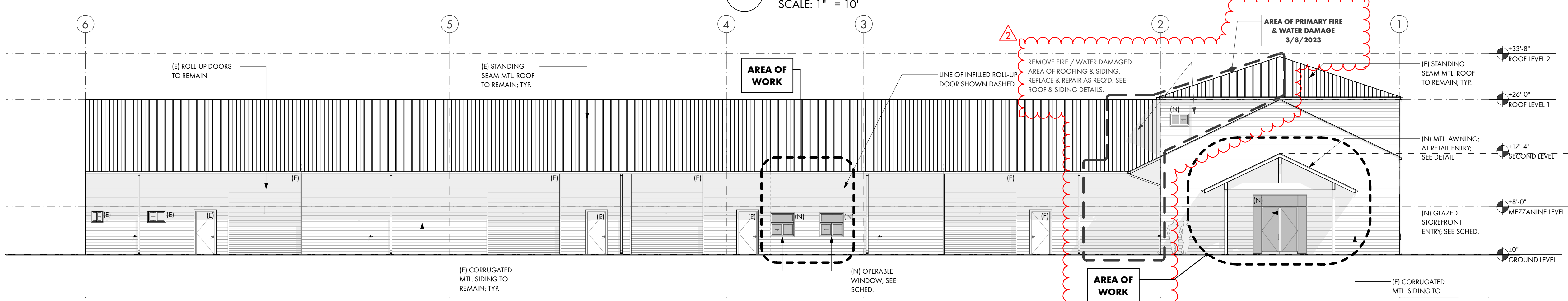
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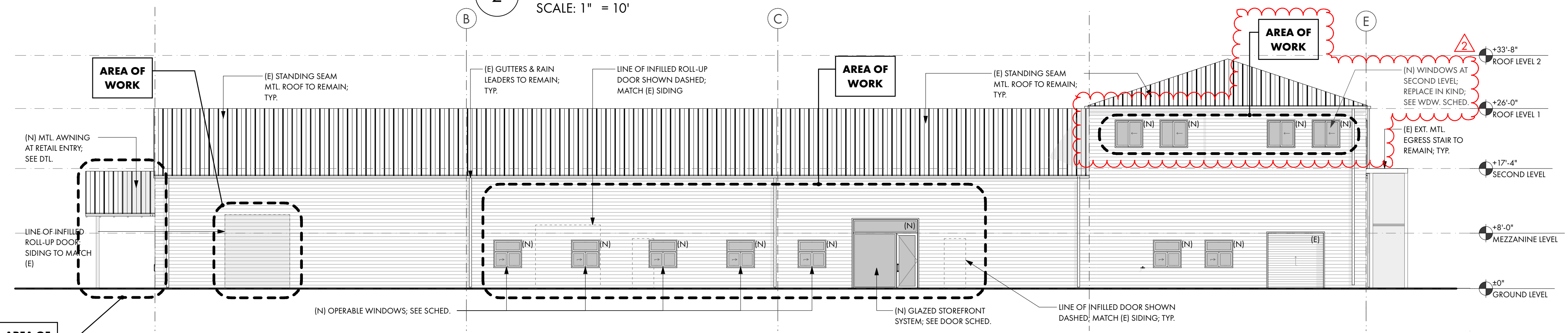
3 PROPOSED SOUTH ELEVATION
SCALE: 1" = 10'



4 PROPOSED EAST ELEVATION
SCALE: 1" = 10'



2 PROPOSED NORTH ELEVATION
SCALE: 1" = 10'



1 PROPOSED WEST ELEVATION
SCALE: 1" = 10'

UKIAH, CALIFORNIA
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PROJECT/CLIENT:

ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

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DATE:	12/19/2022
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SCALE:	AS NOTED ON 24" X 36"

STAMP:

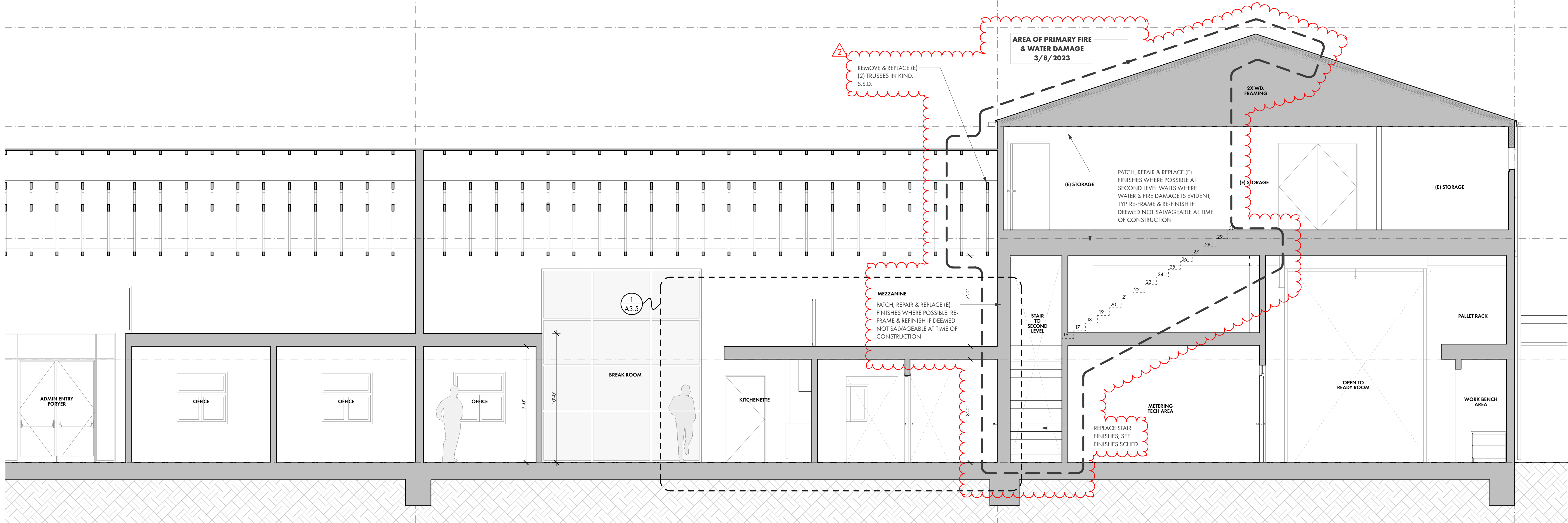


SHEET TITLE:
PROPOSED EXTERIOR
ELEVATIONS

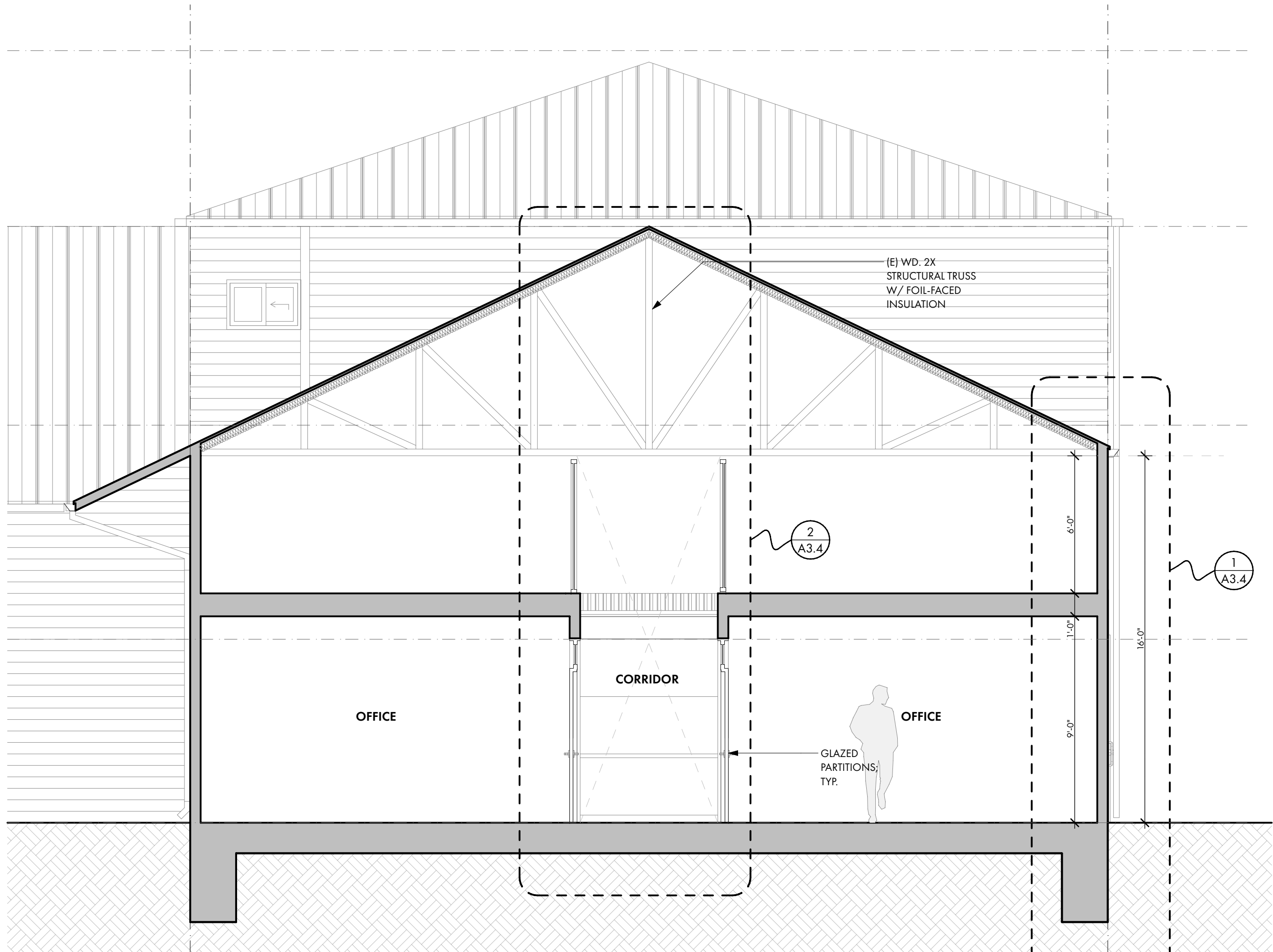
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A3.2

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1 PROPOSED LONG SECTION
SCALE: 1/4" = 1'-0"



2 PROPOSED CROSS SECTION
SCALE: 1/4" = 1'-0"

UKIAH, CALIFORNIA

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PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

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JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

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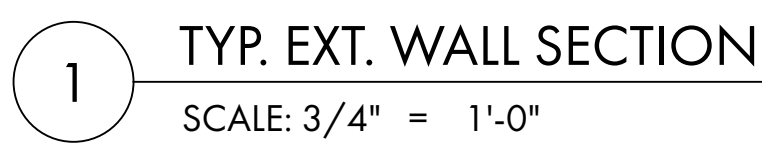


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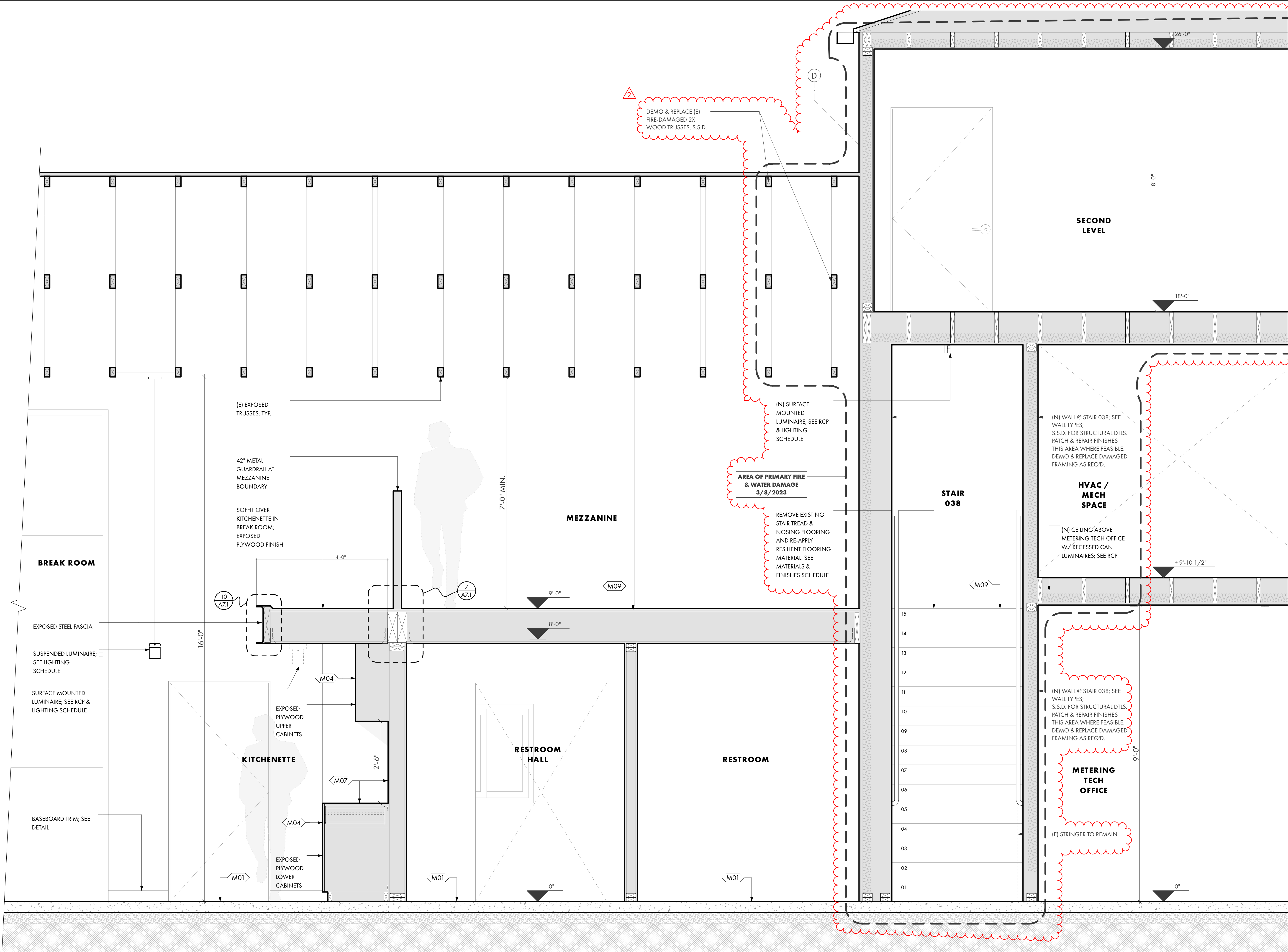
PROPOSED SECTIONS

SHEET NO.:

A3.3



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1 WALL SECTION @ BREAK ROOM
SCALE: 3/4" = 1'-0"

UKIAH, CALIFORNIA

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1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

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JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:



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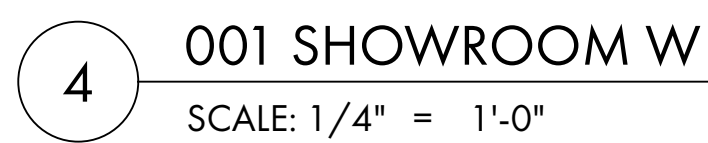
WALL SECTIONS

SHEET NO.:

A3.5

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PROJECT/CLIENT:



APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:
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JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
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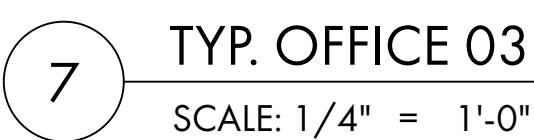
STAMP:



INTERIOR ELEVATIONS

SHEET NO.:

A5.1



ARCHITECTS

ELECTRIC UTILITY DEPARTMENT

1350 HASTINGS ROAD
UKIAH CA 95482 USA

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DATE:	12/19/2022
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SCALE:	AS NOTED ON 24" X 36"

STAMP:



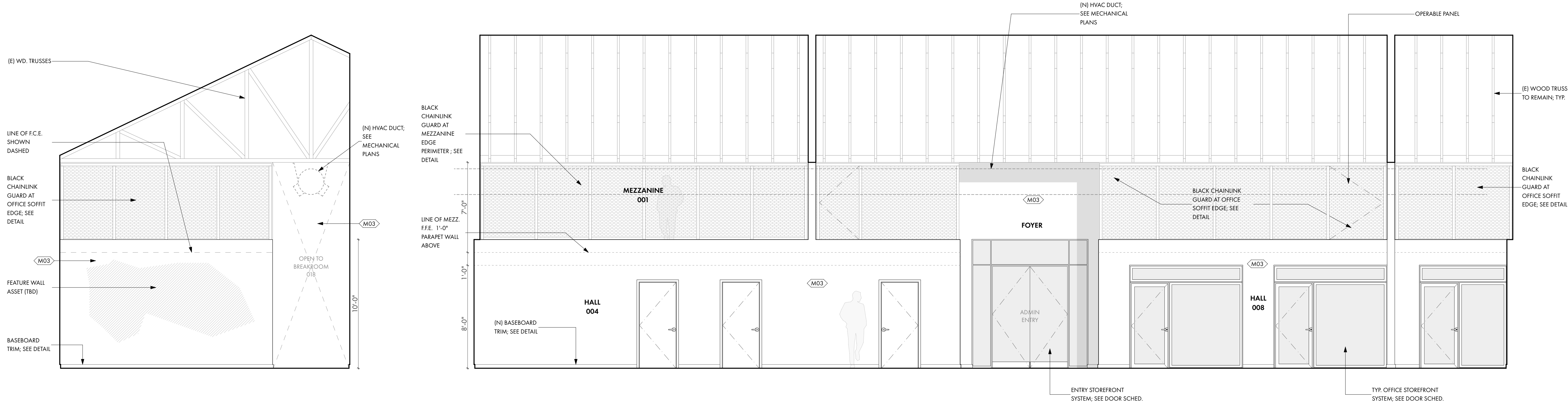
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INTERIOR ELEVATIONS

SHEET NO.:

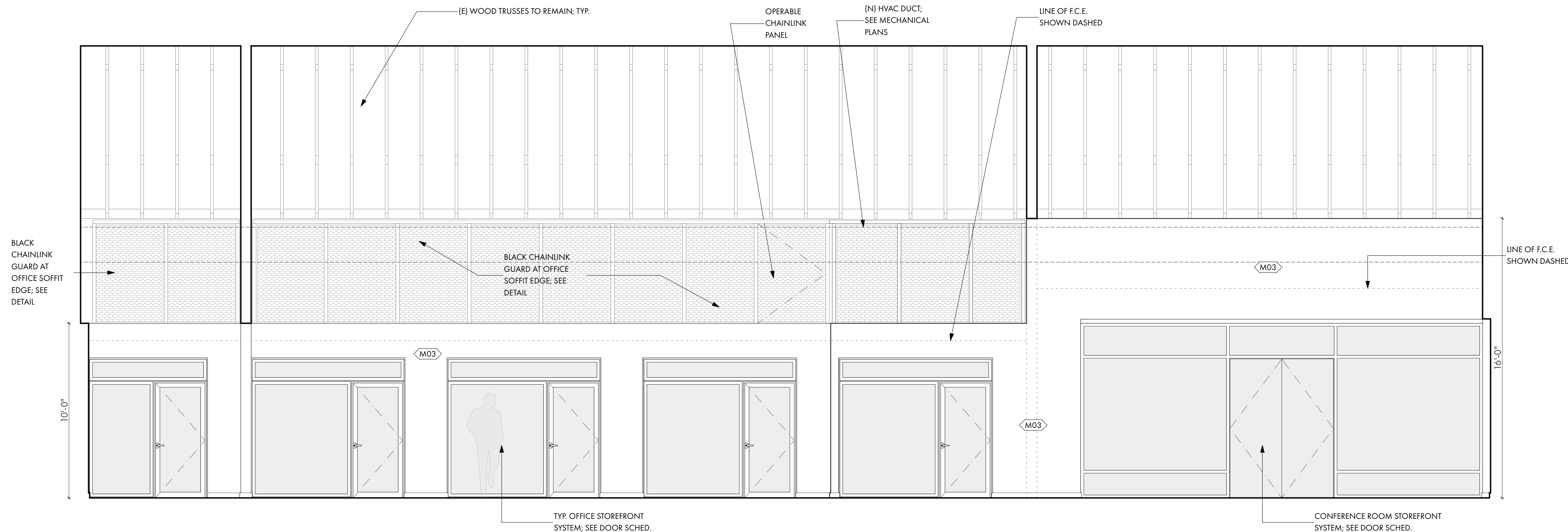
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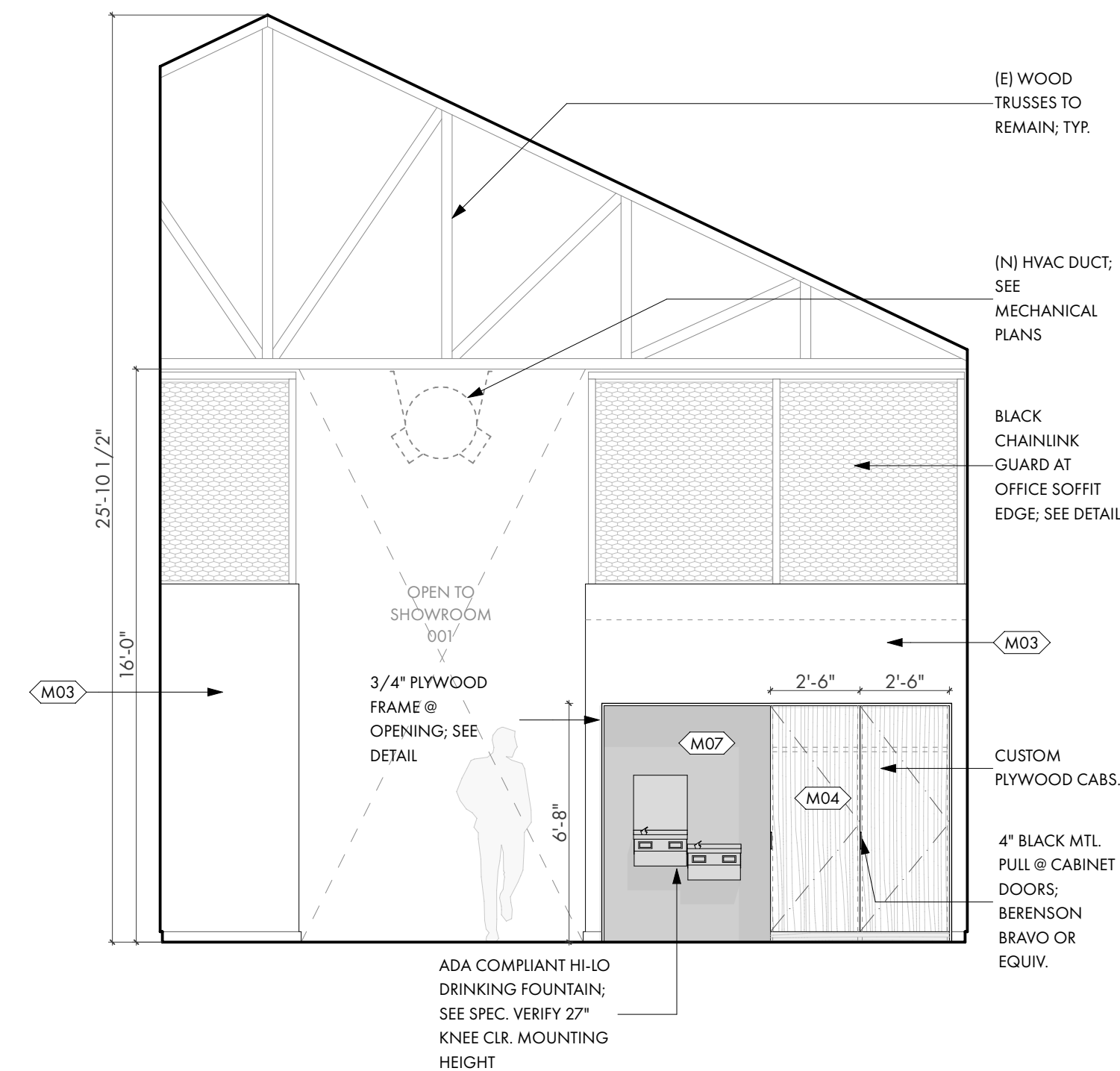


3 FOYER, 004 HALL & 009 HALL 03
SCALE: 1/4" = 1'-0"

2 FOYER, 004 HALL & 009 HALL 02
SCALE: 1/4" = 1'-0"



4 FOYER, 004 HALL & 009 HALL 04
SCALE: 1/4" = 1'-0"



1 FOYER, 004 HALL & 009 HALL 01
SCALE: 1/4" = 1'-0"

UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

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JOB NO.:	2202
DATE:	12/19/2022
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SCALE:	AS NOTED ON 24" X 36"

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INTERIOR ELEVATIONS

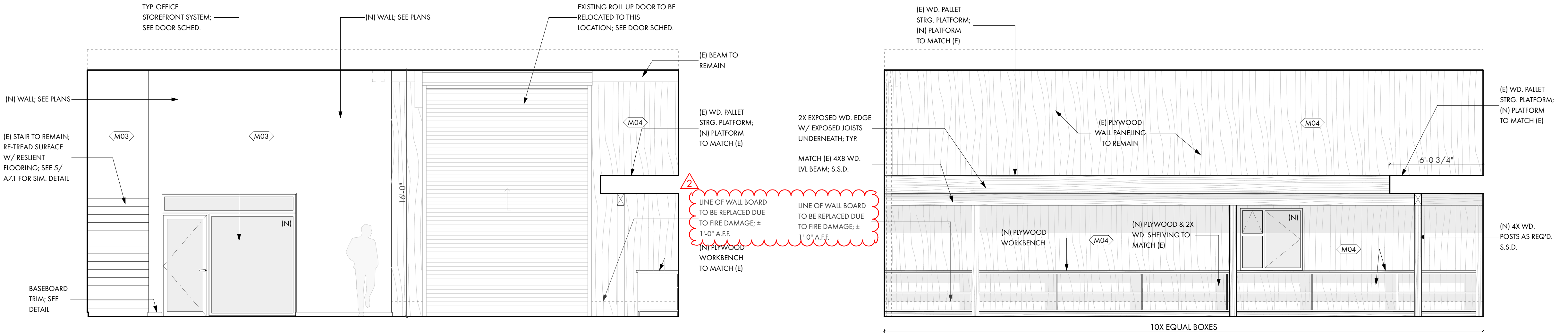
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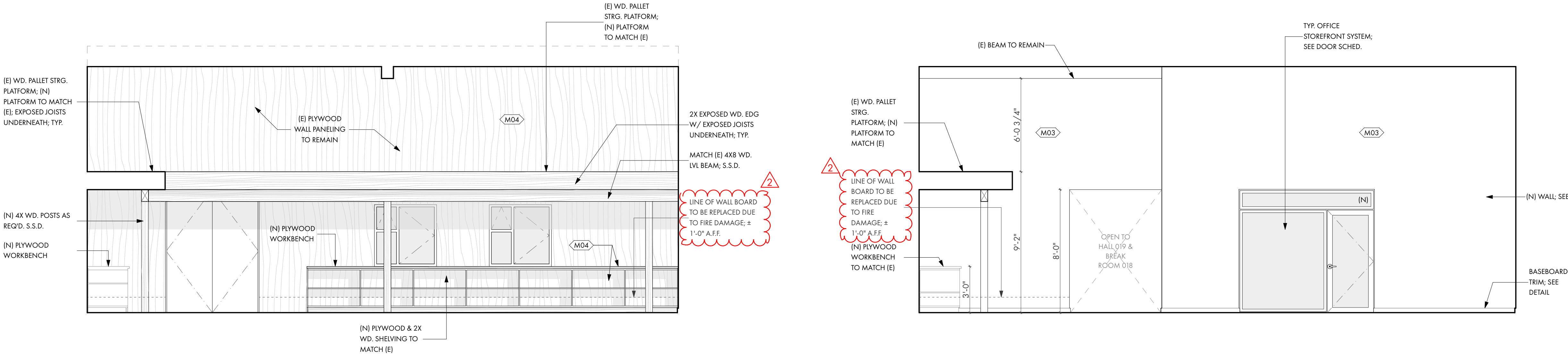


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2 WORKSHOP 02
SCALE: 1/4" = 1'-0"

3 WORKSHOP 03
SCALE: 1/4" = 1'-0"



4 WORKSHOP 04
SCALE: 1/4" = 1'-0"

1 WORKSHOP 01
SCALE: 1/4" = 1'-0"

UKIAH, CALIFORNIA
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1350 HASTINGS ROAD
UKIAH CA 95482 USA

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BUILDING PERMIT

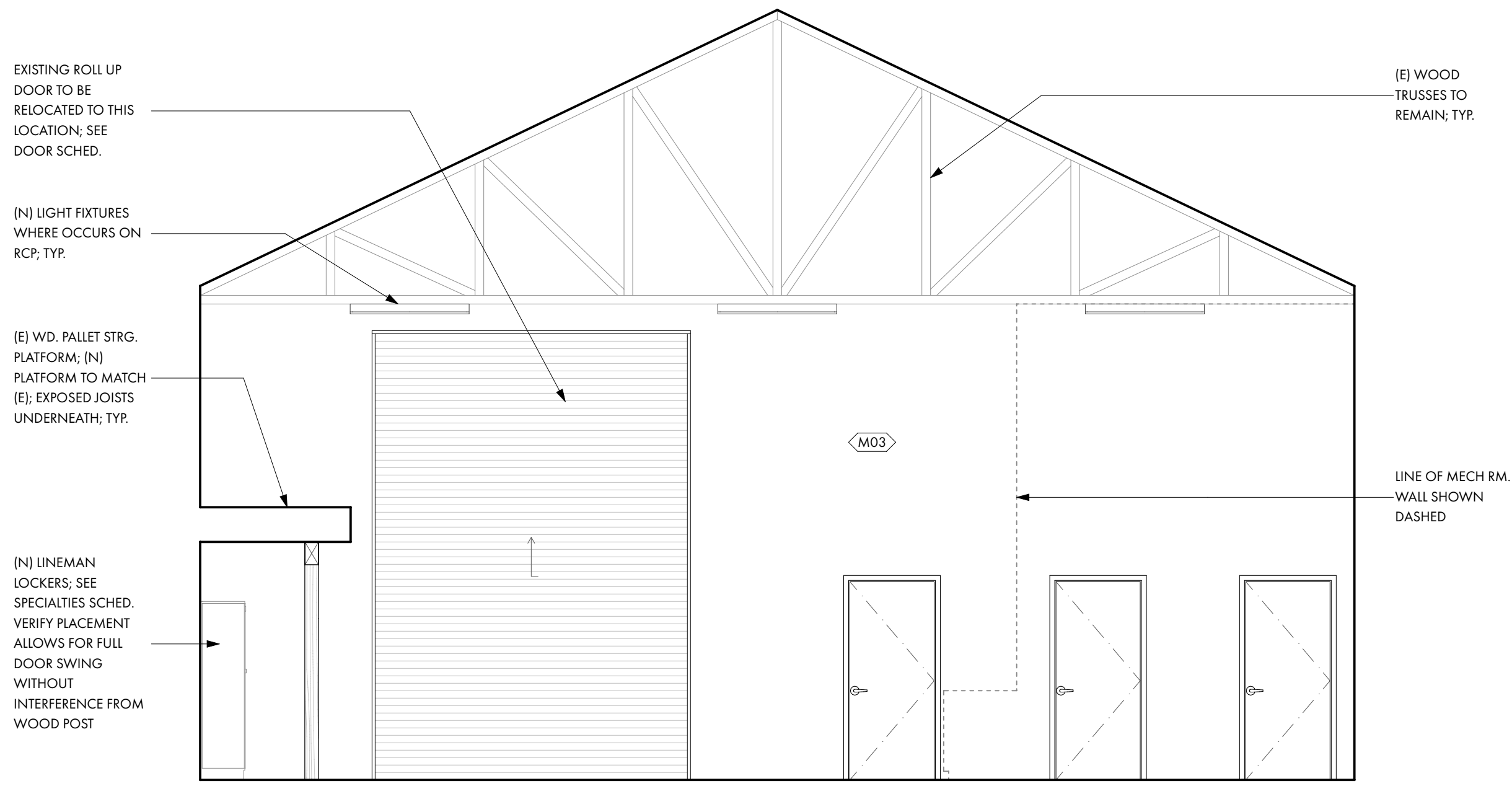
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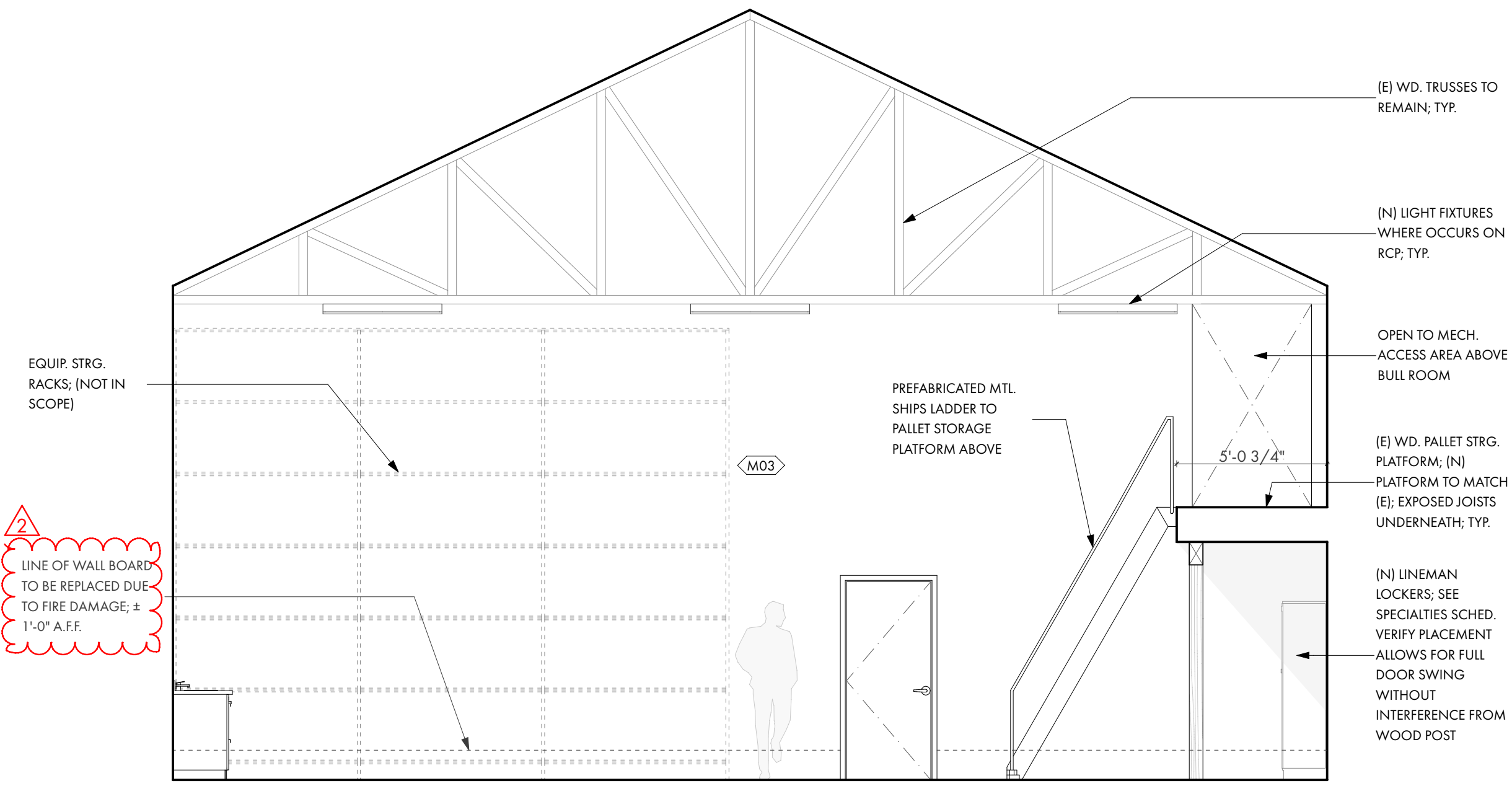
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INTERIOR ELEVATIONS
SHEET NO.:

A5.5

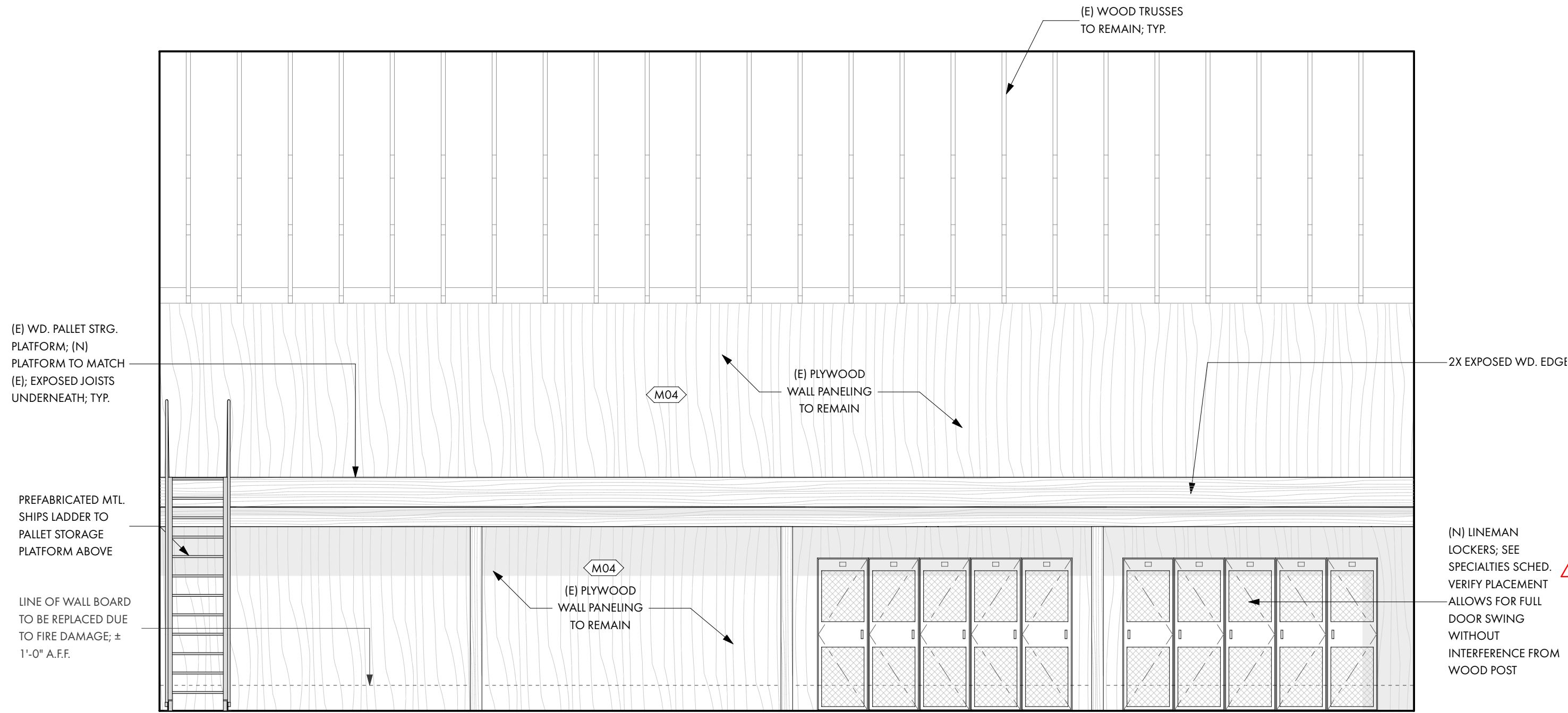
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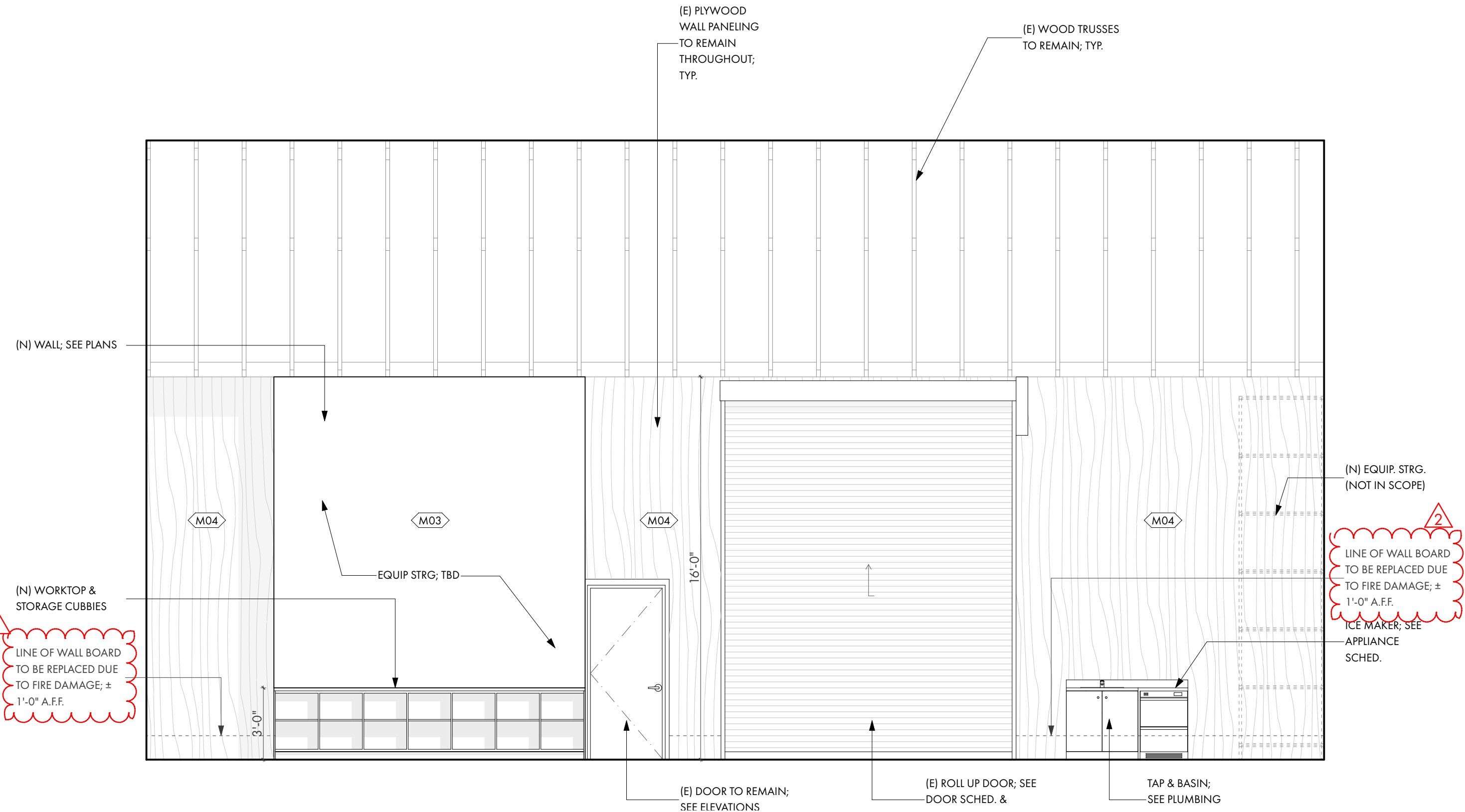
4 READY ROOM 04
SCALE: 1/4" = 1'-0"



2 READY ROOM 02
SCALE: 1/4" = 1'-0"



3 READY ROOM 03
SCALE: 1/4" = 1'-0"



1 READY ROOM 01
SCALE: 1/4" = 1'-0"

UKIAH, CALIFORNIA
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1350 HASTINGS ROAD
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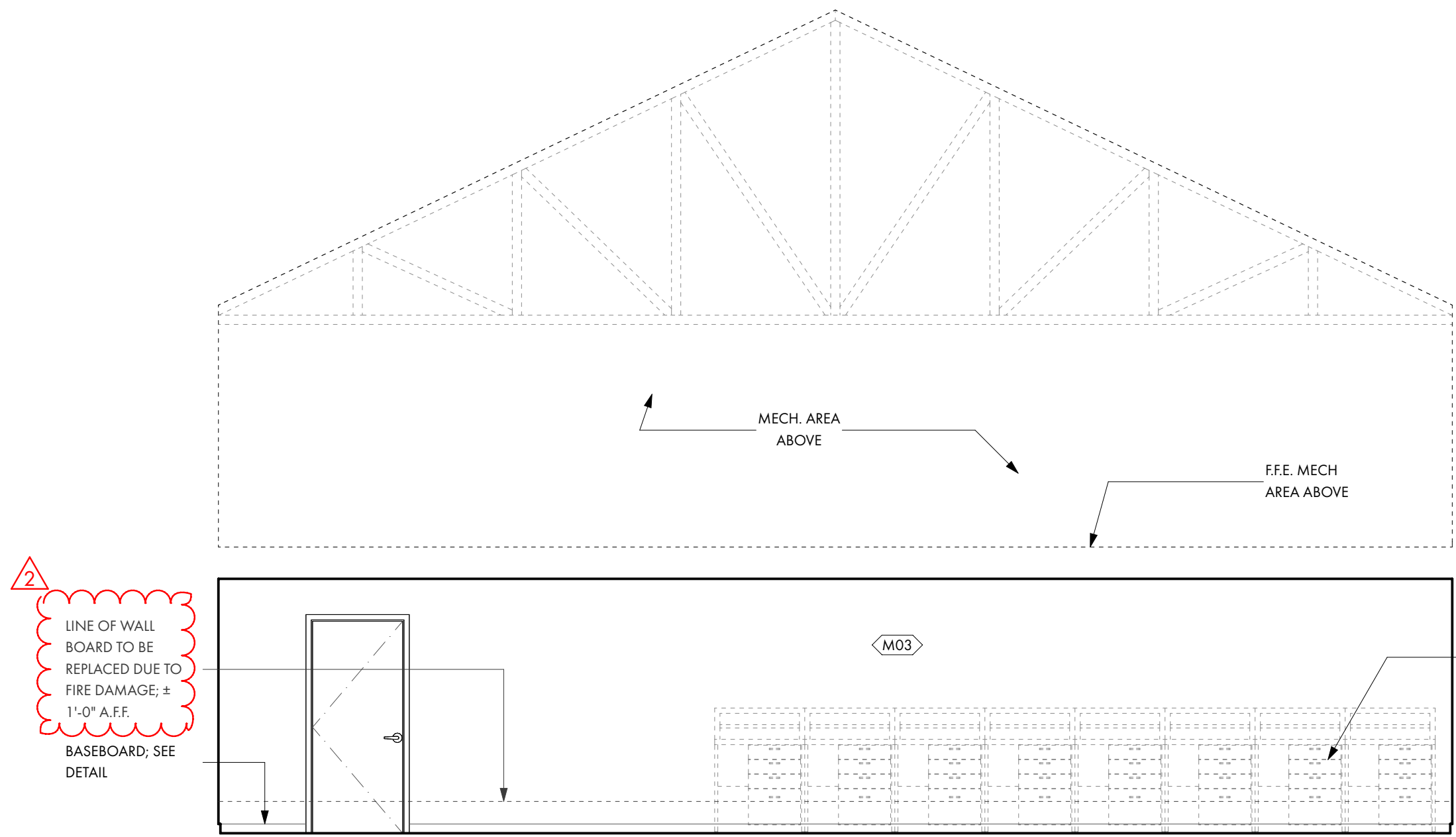
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INTERIOR ELEVATIONS

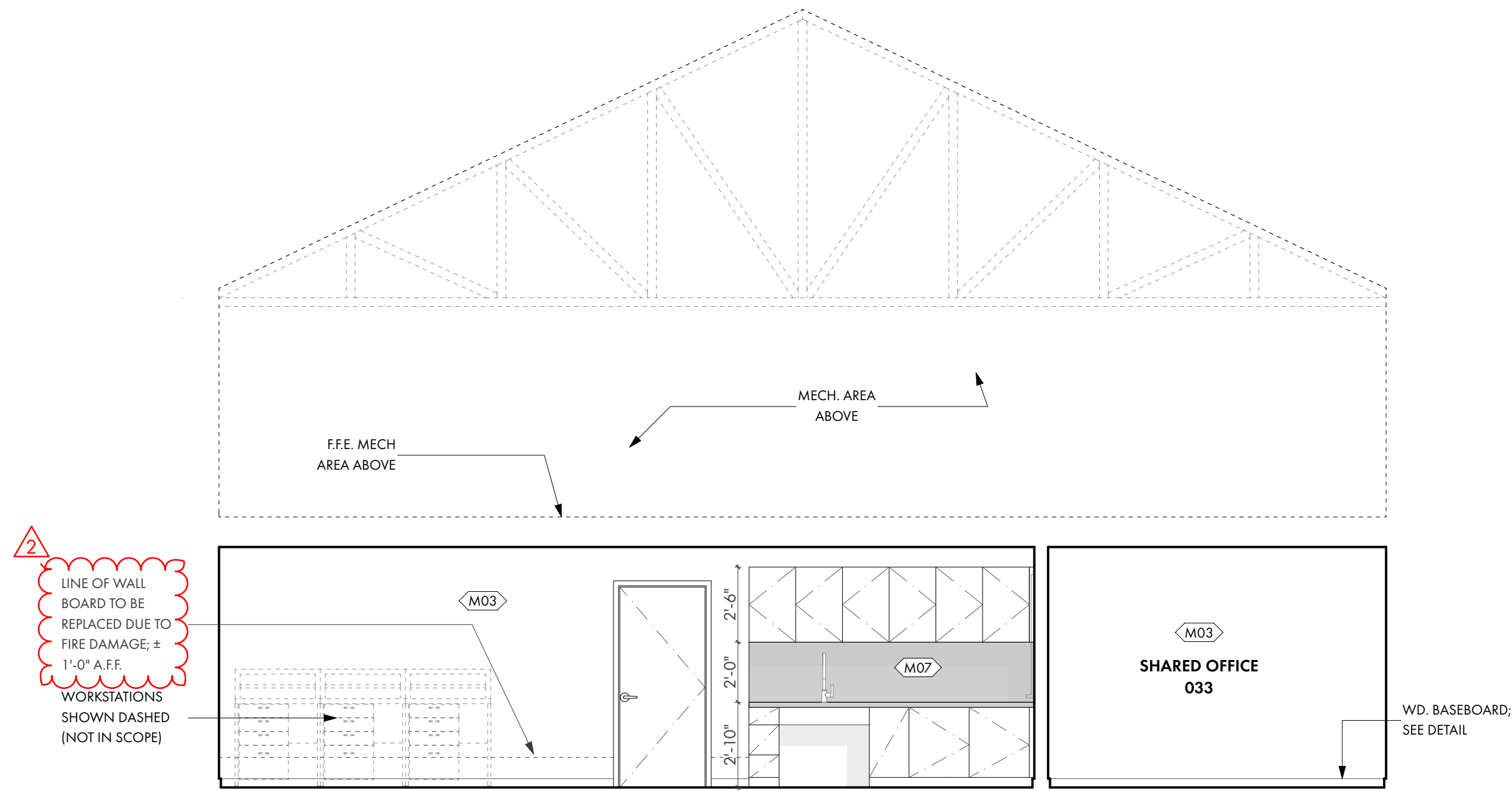
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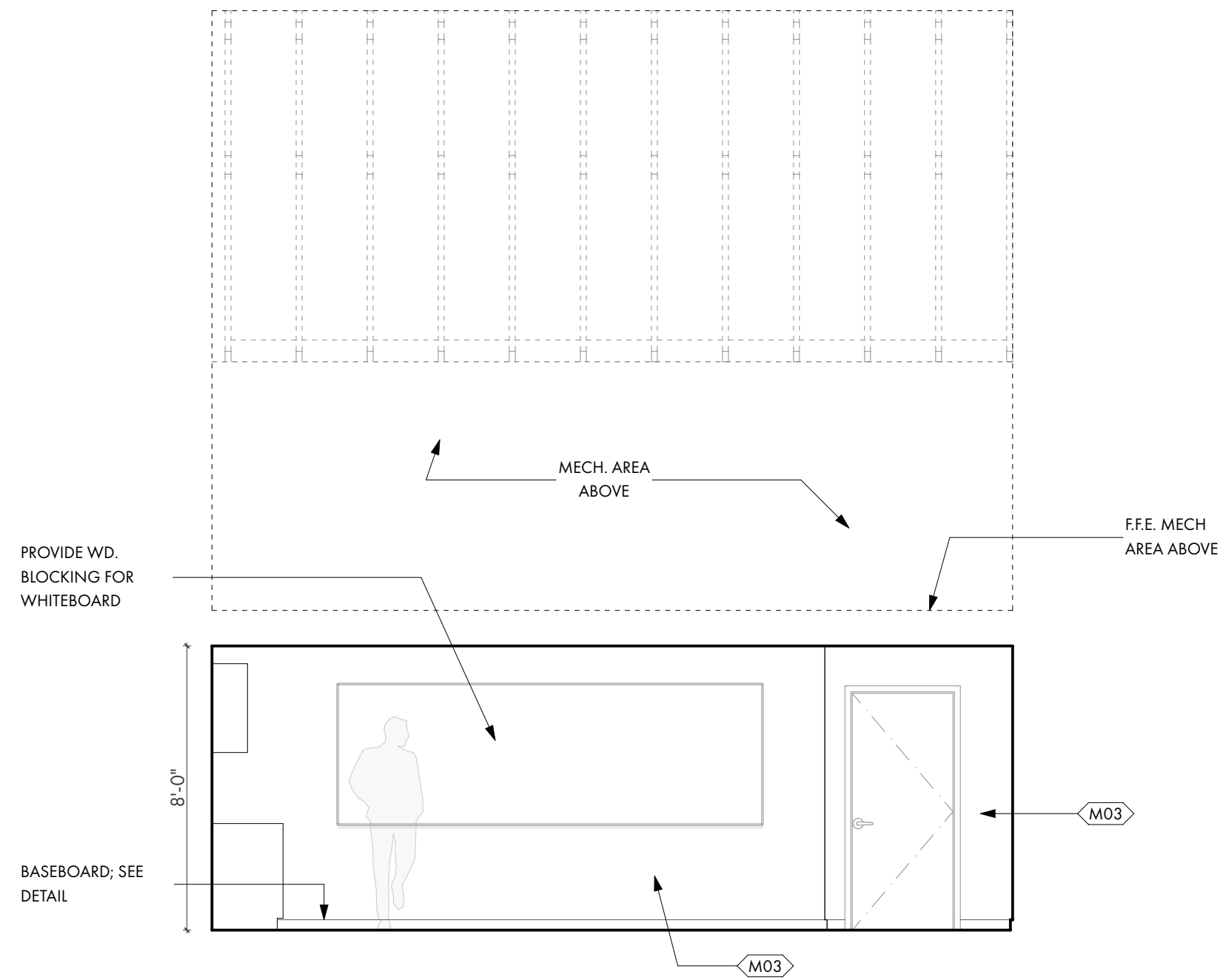
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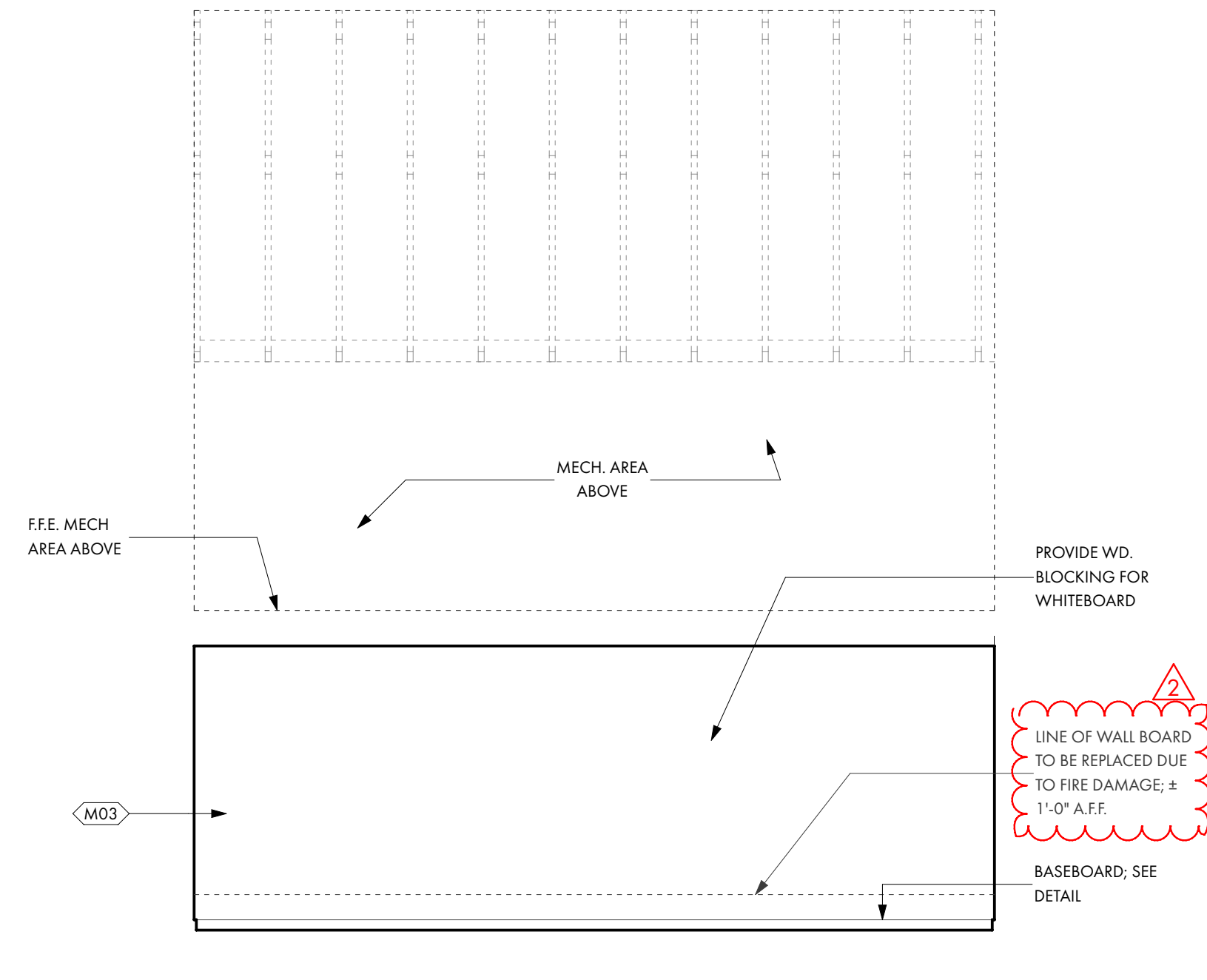
2 BULL ROOM 02
SCALE: 1/4" = 1'-0"



4 BULL ROOM 04
SCALE: 1/4" = 1'-0"



1 BULL ROOM 01
SCALE: 1/4" = 1'-0"



3 BULL ROOM 03
SCALE: 1/4" = 1'-0"

UKIAH, CALIFORNIA
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ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

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JOB NO.:	2202	
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SCALE:	AS NOTED ON 24" X 36"	

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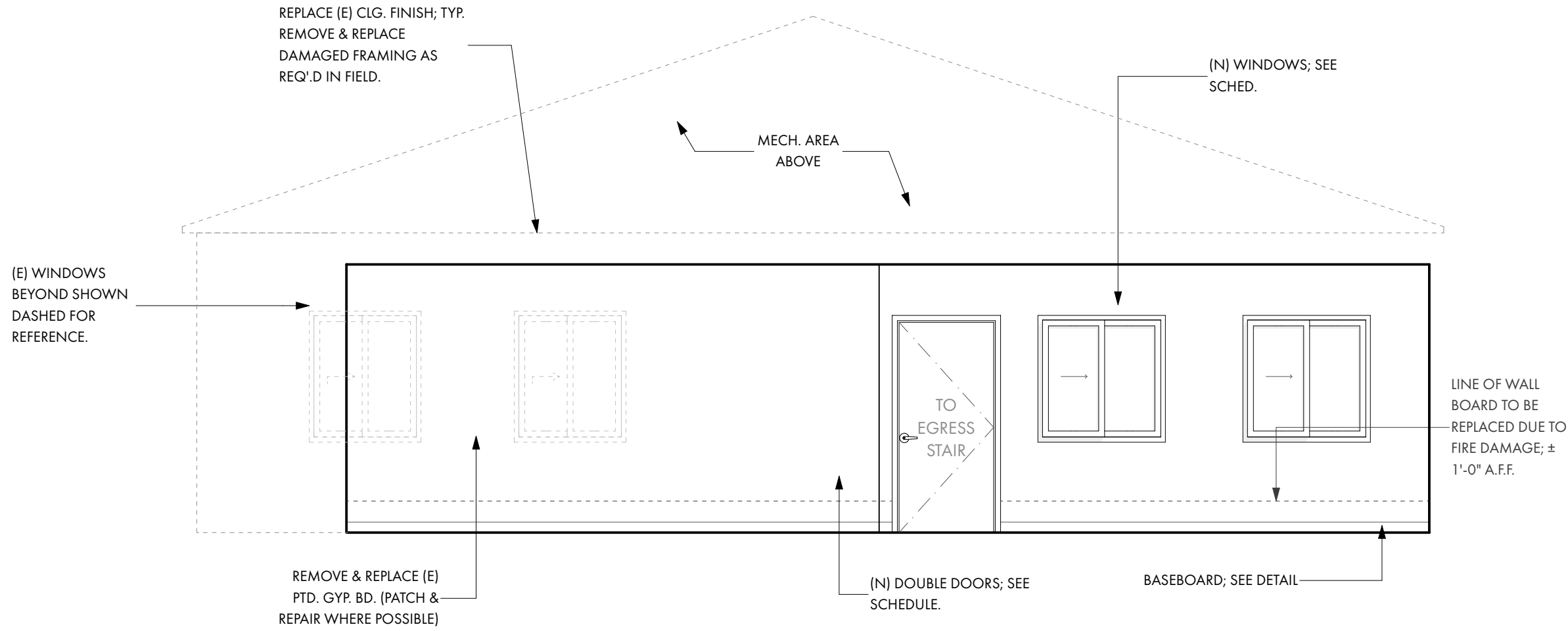
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INTERIOR ELEVATIONS

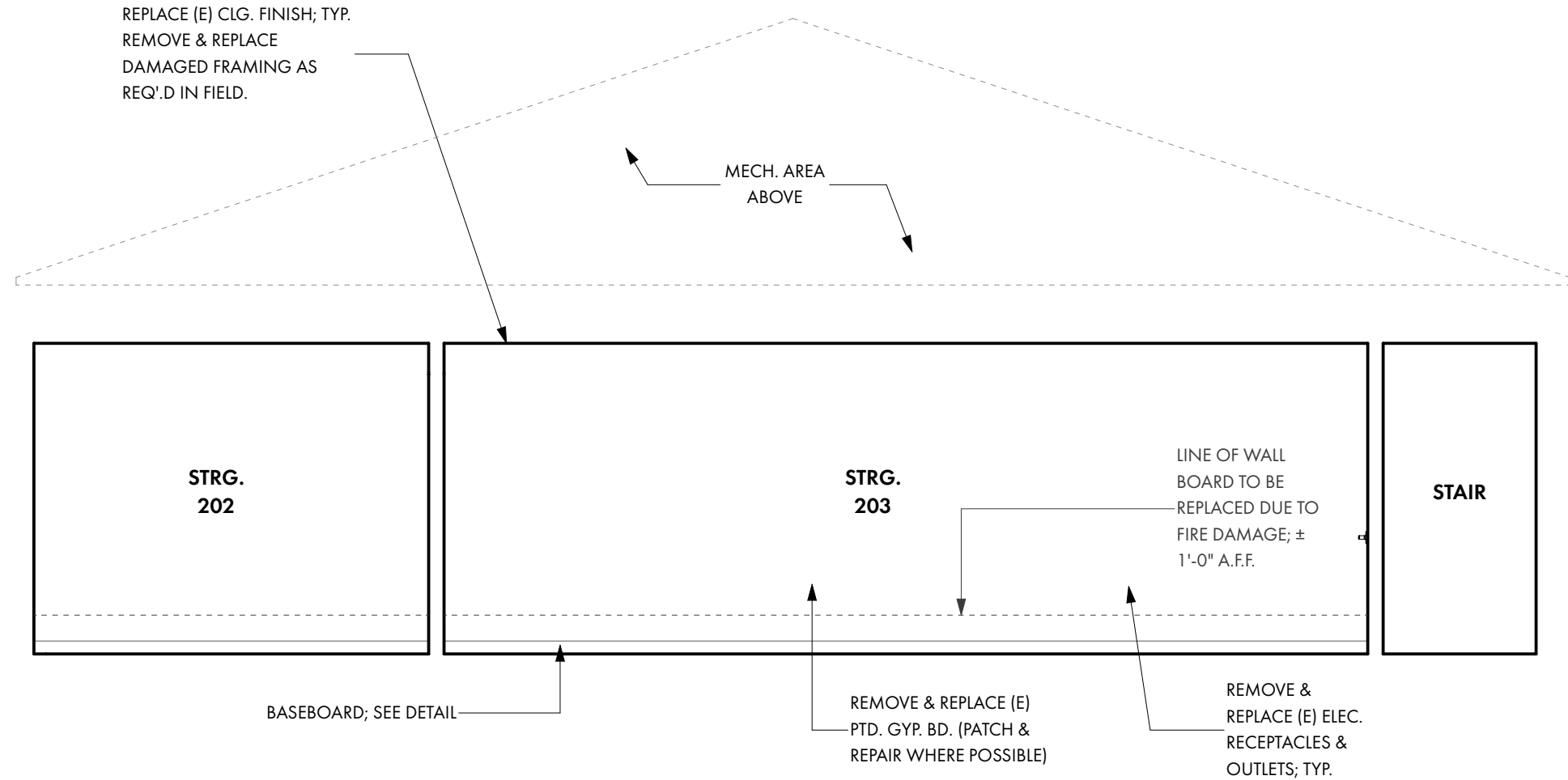
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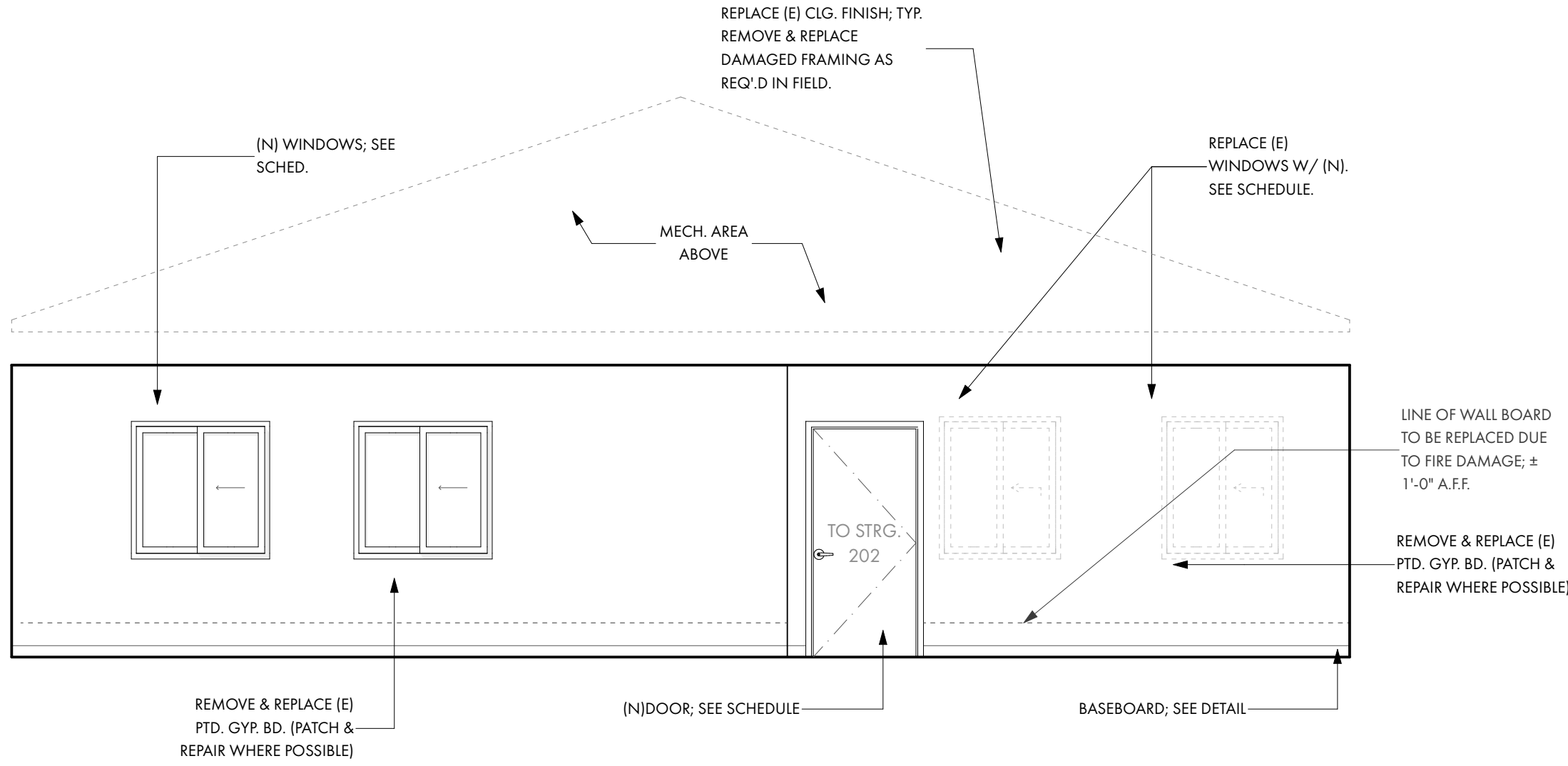
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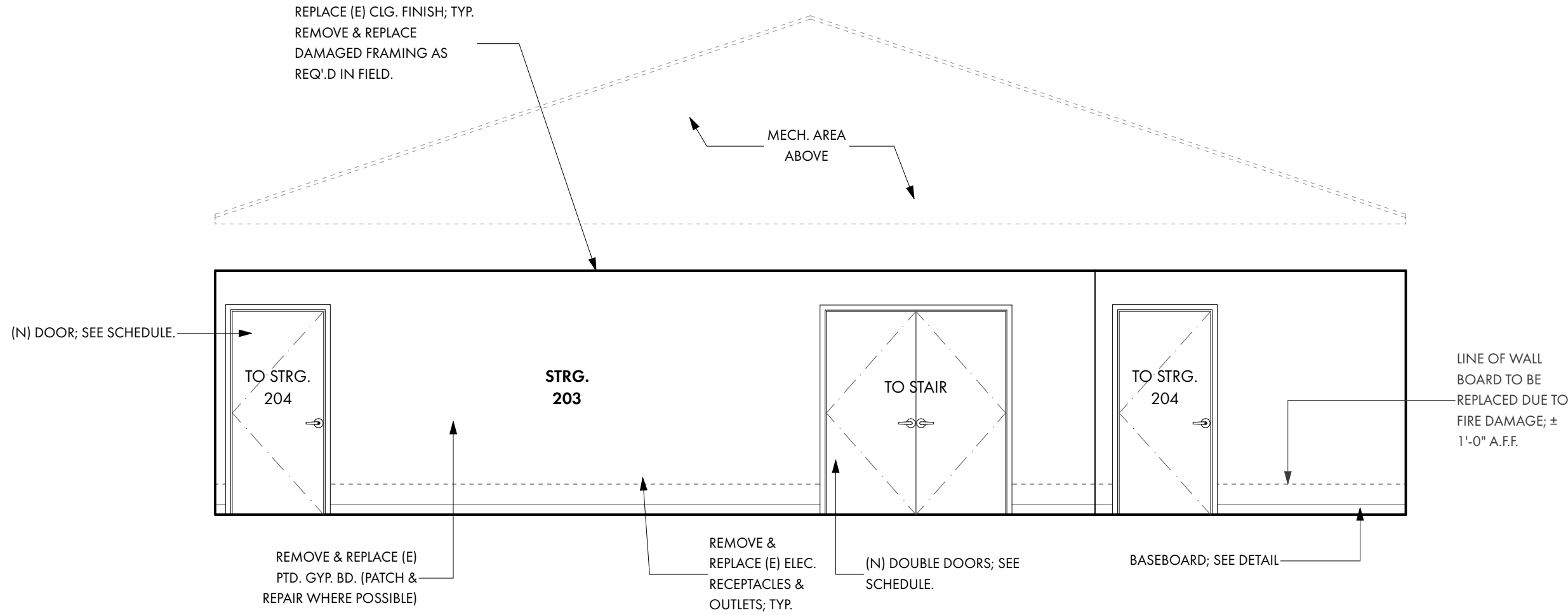
3 SECOND LEVEL (EAST)
SCALE: 1/4" = 1'-0"



1 SECOND LEVEL (WEST)
SCALE: 1/4" = 1'-0"



4 SECOND LEVEL (SOUTH)
SCALE: 1/4" = 1'-0"



2 SECOND LEVEL (NORTH)
SCALE: 1/4" = 1'-0"

UKIAH, CALIFORNIA
REN / ALEXANDER
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UKIAH CA 95482 USA

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SCALE:	AS NOTED ON 24" X 36"

STAMP:

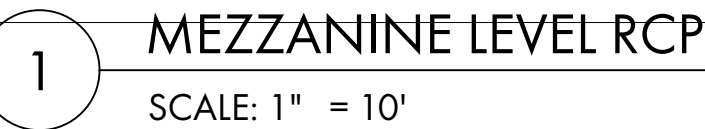


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INTERIOR ELEVATIONS

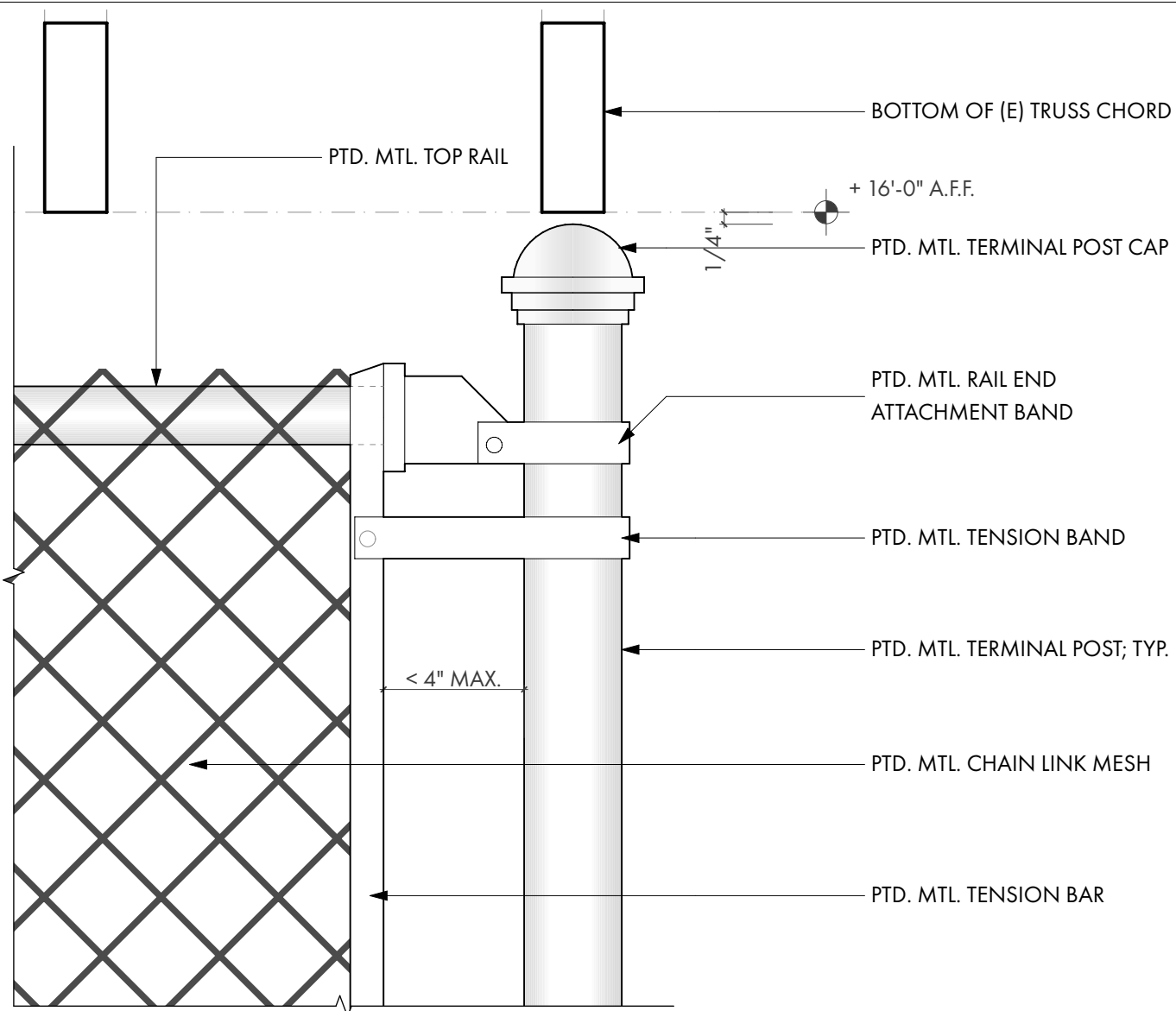
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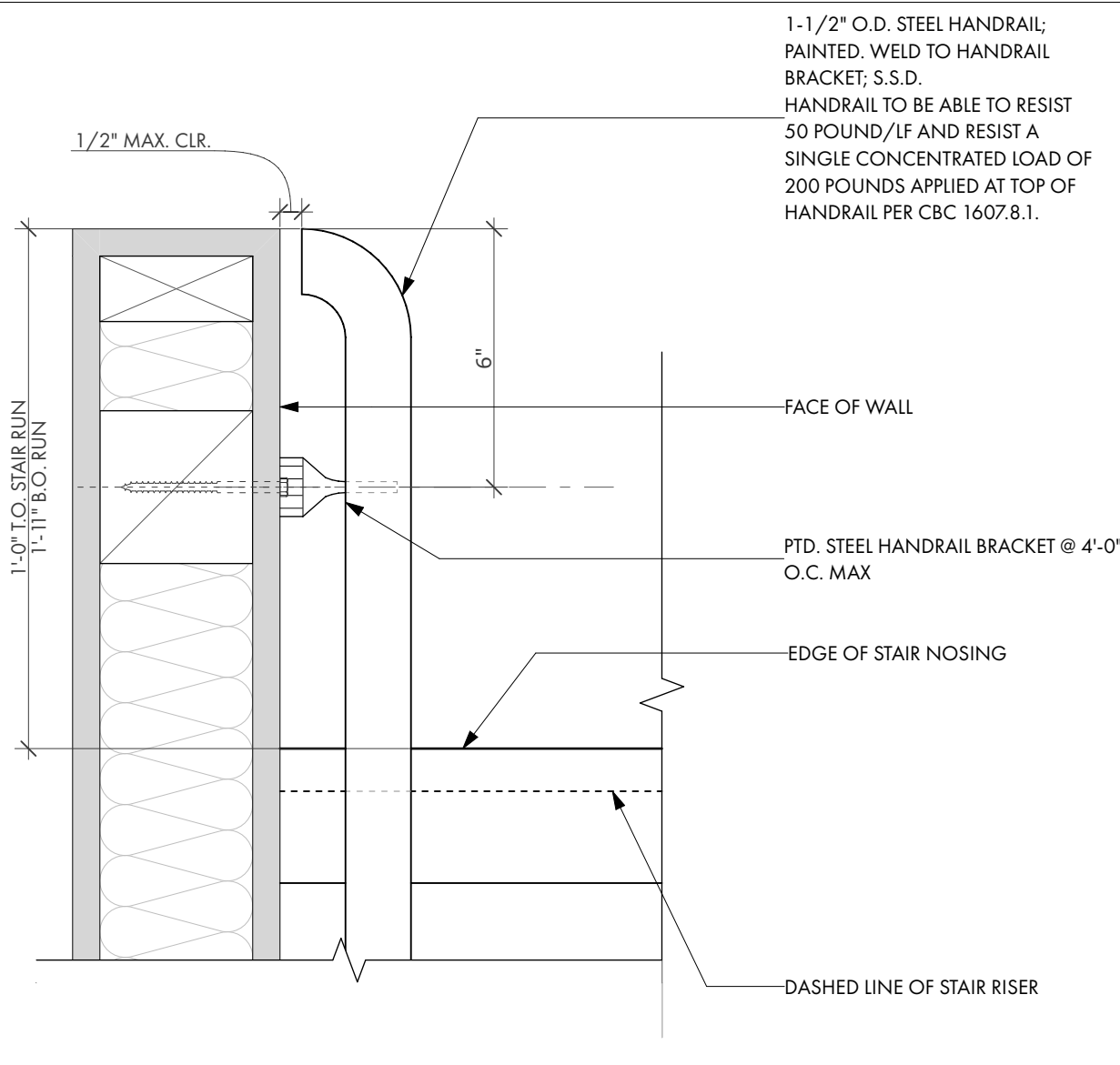


	BATH FAN / LIGHT COMBO
	CEILING FAN
	BATH FAN
	OUTDOOR HEATER
	CEILING SUPPLY REGISTER
	CEILING RETURN REGISTER
	FLOOR SUPPLY REGISTER
	FLOOR RETURN REGISTER
	WALL SUPPLY REGISTER
	WALL RETURN REGISTER
	THERMOSTAT
	REMOTE THERMOMETER SENSOR

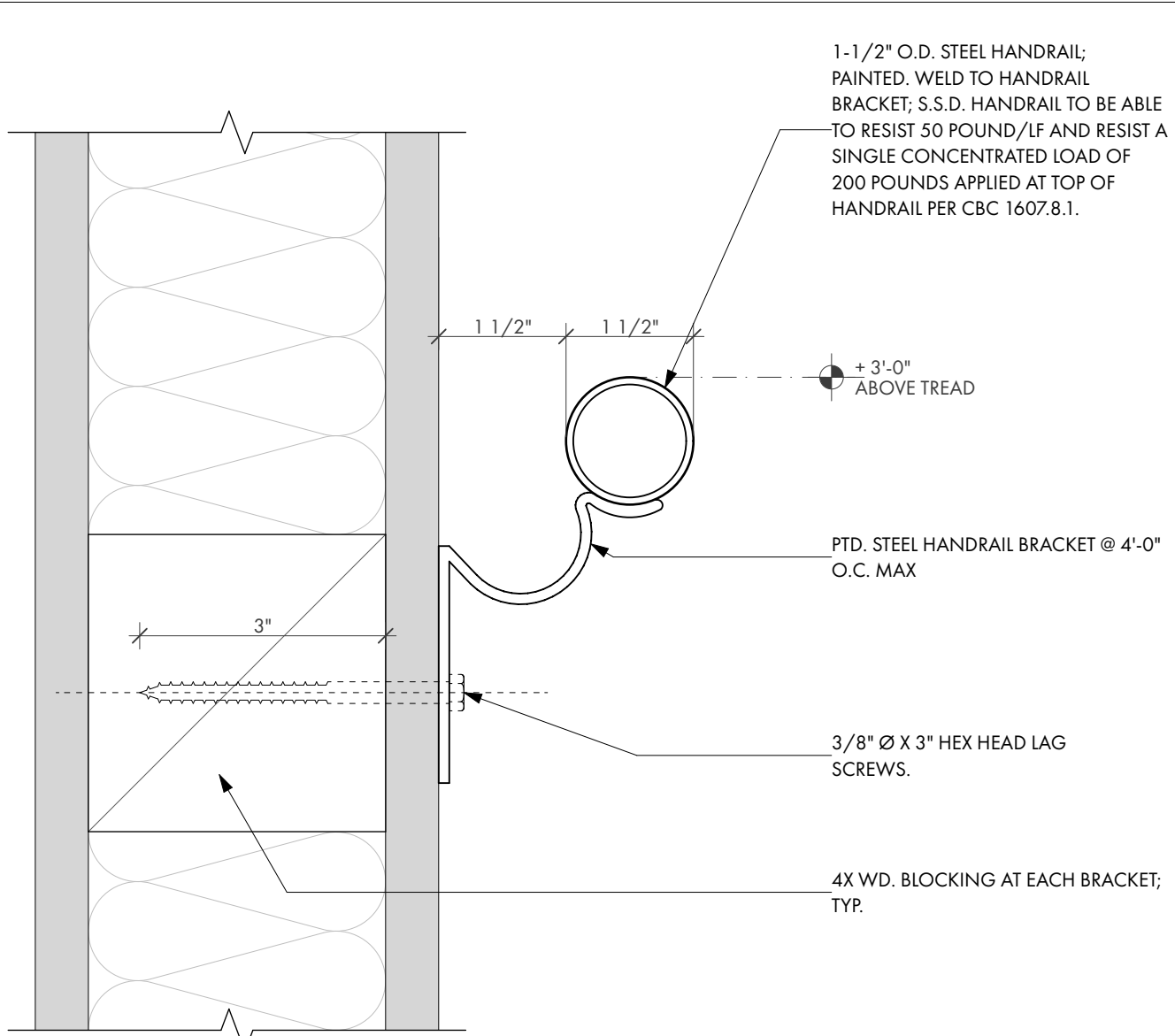
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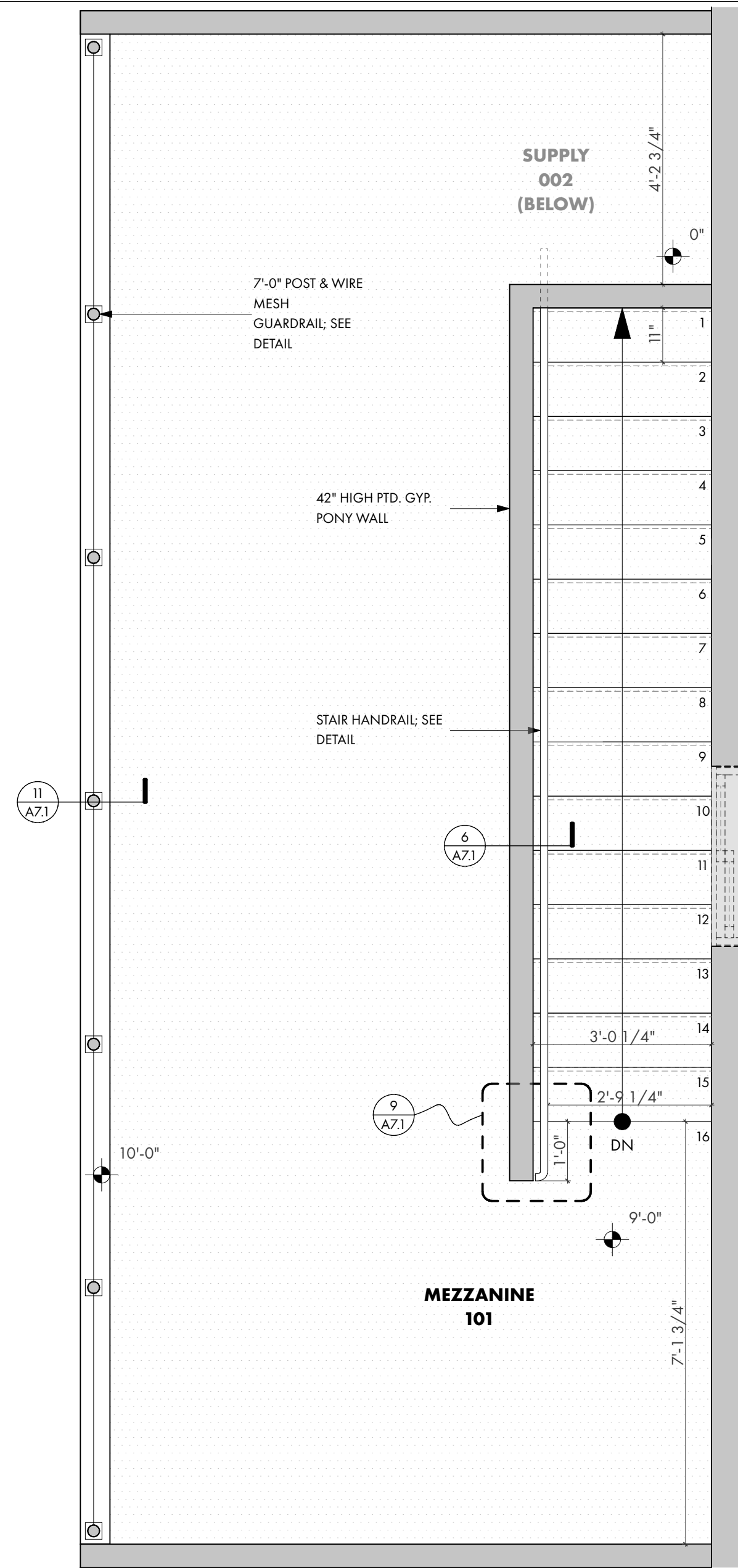
12 SCREEN @ BOTTOM OF TRUSS
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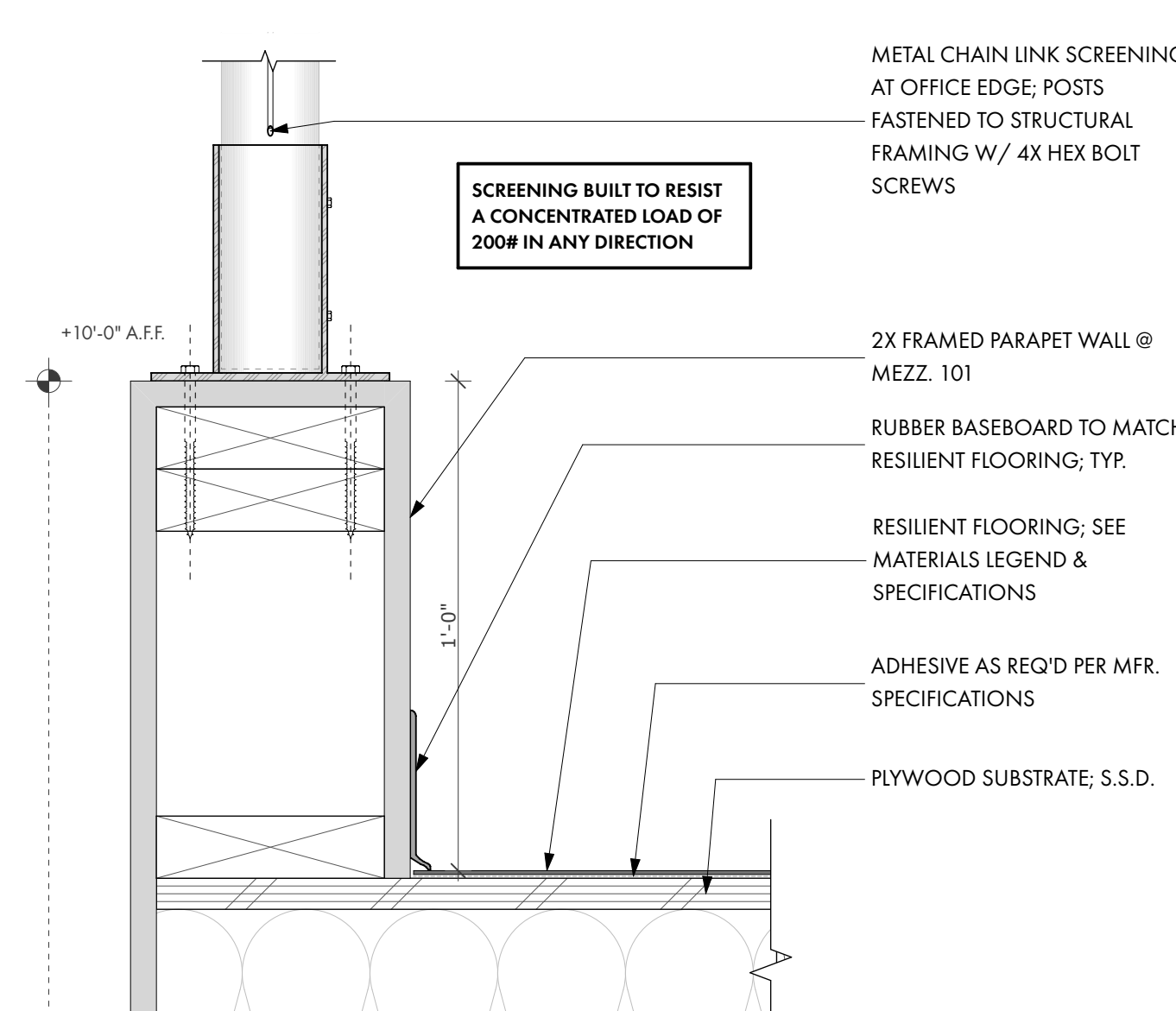
9 PLAN: STAIR HANDRAIL EXTENSION
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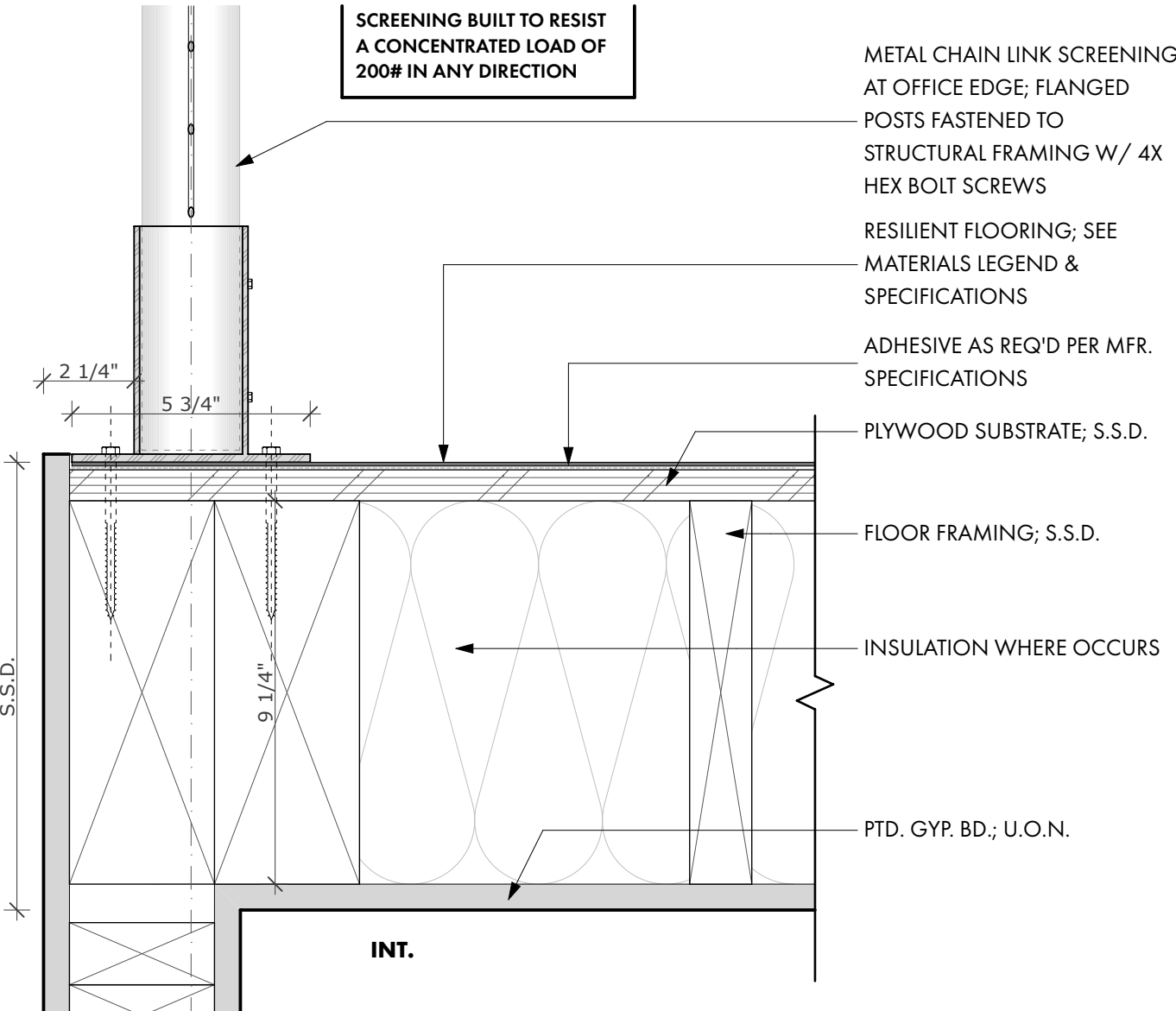
6 TYP. STAIR HANDRAIL DETAIL
SCALE: 6" = 1'-0"



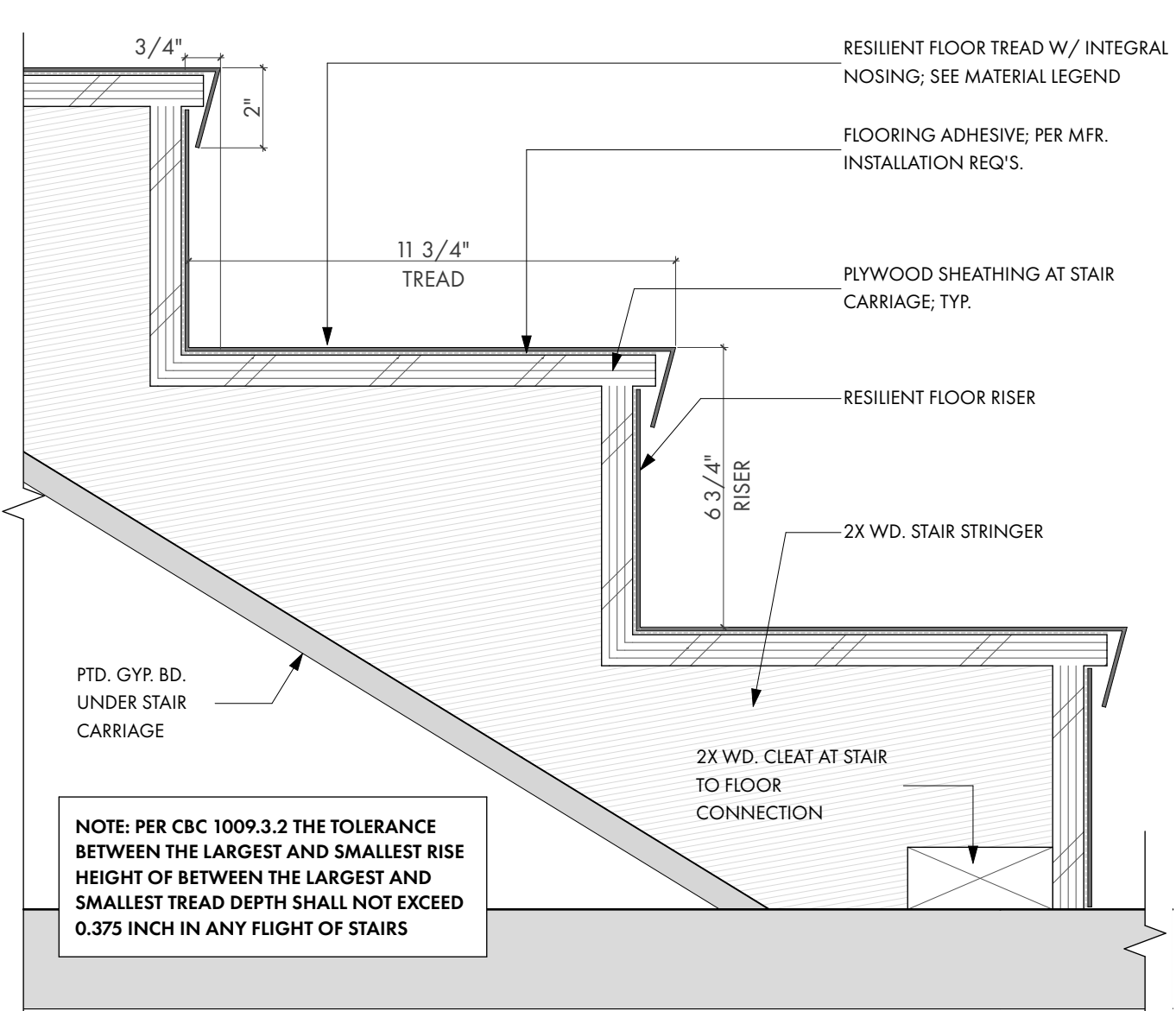
5 ENLARGED STAIR PLAN
SCALE: 1/2" = 1'-0"



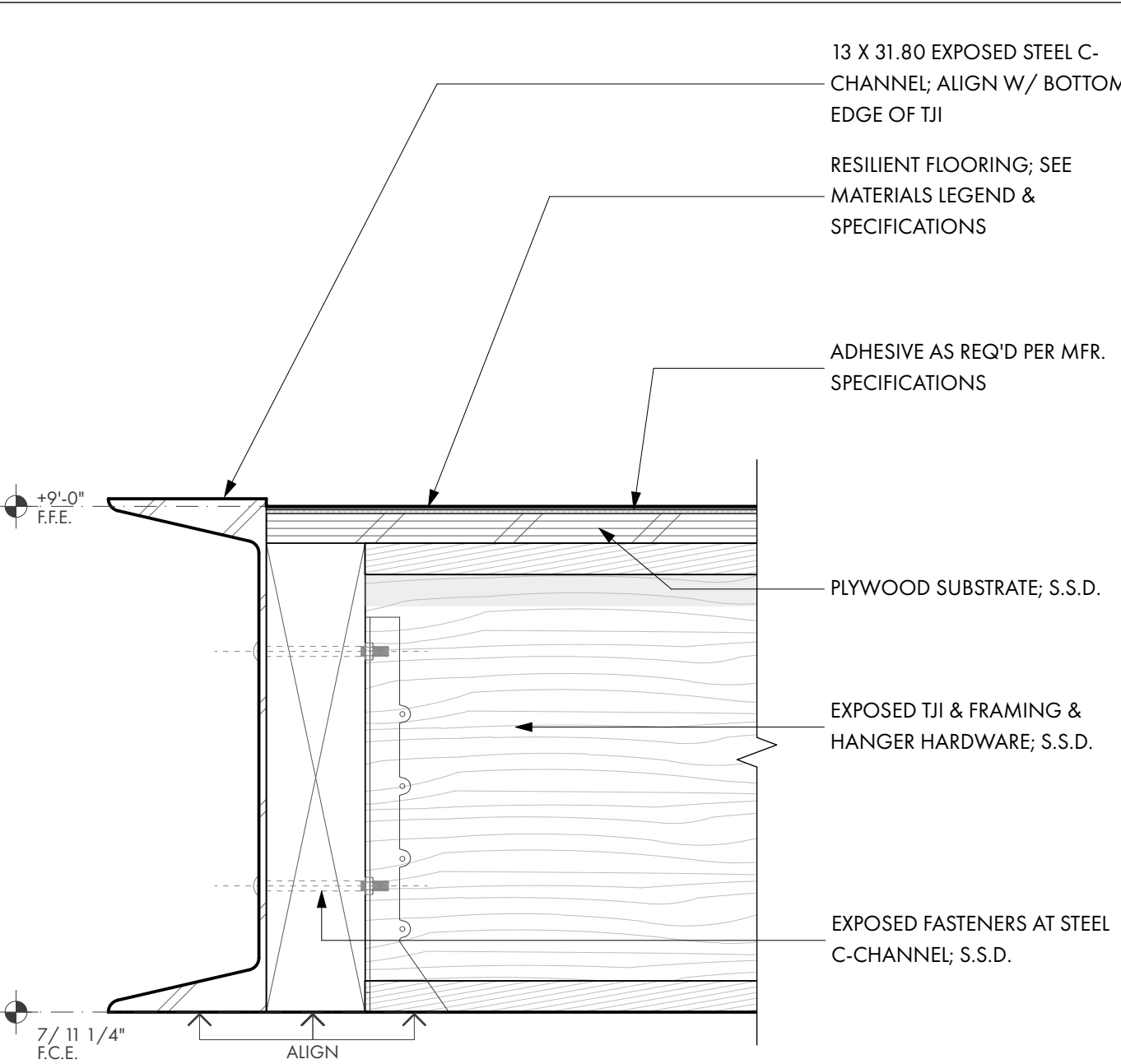
11 SCREEN @ MEZZANINE 101
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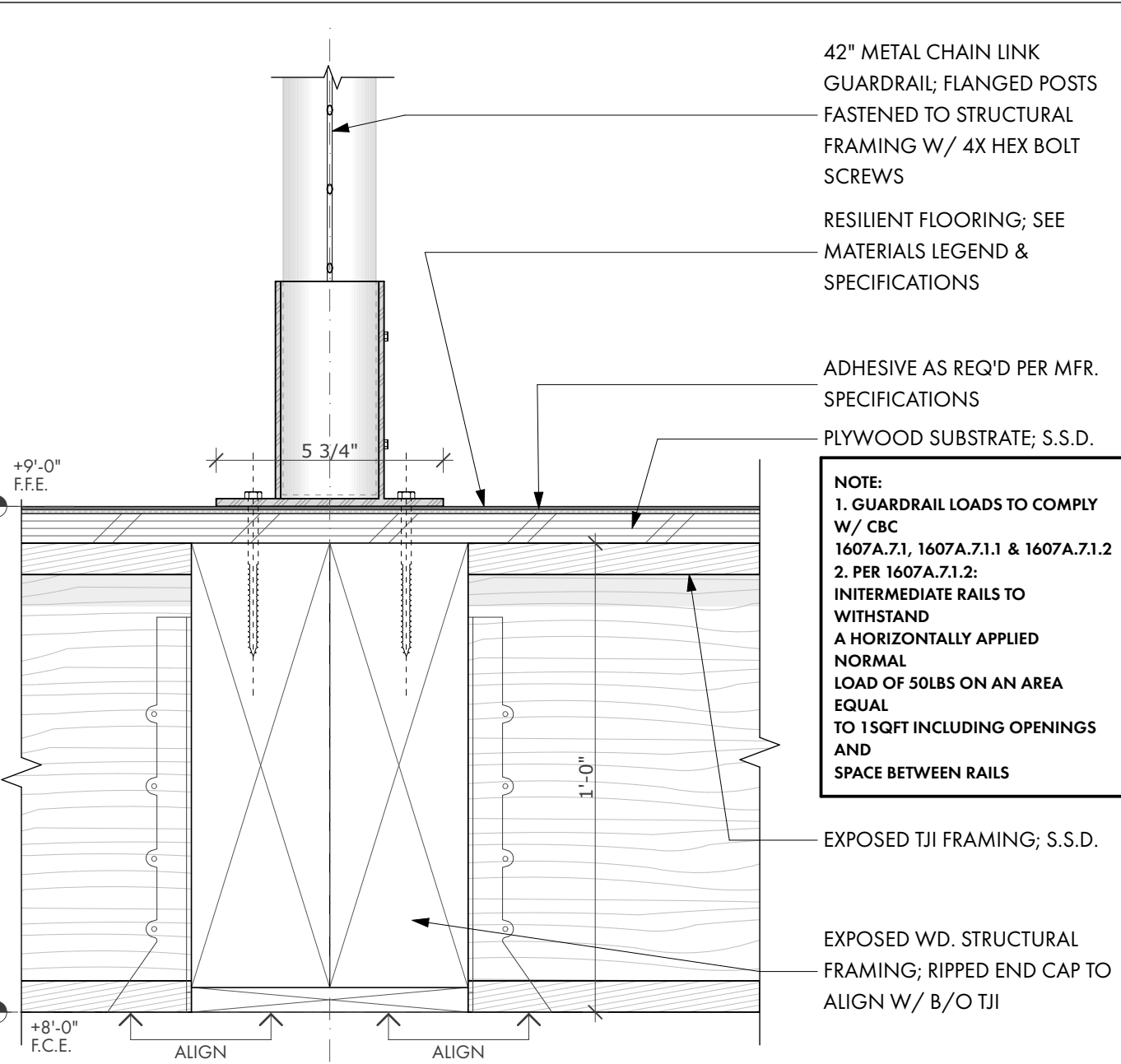
8 TYP. SCREEN AT OFFICE HEADER
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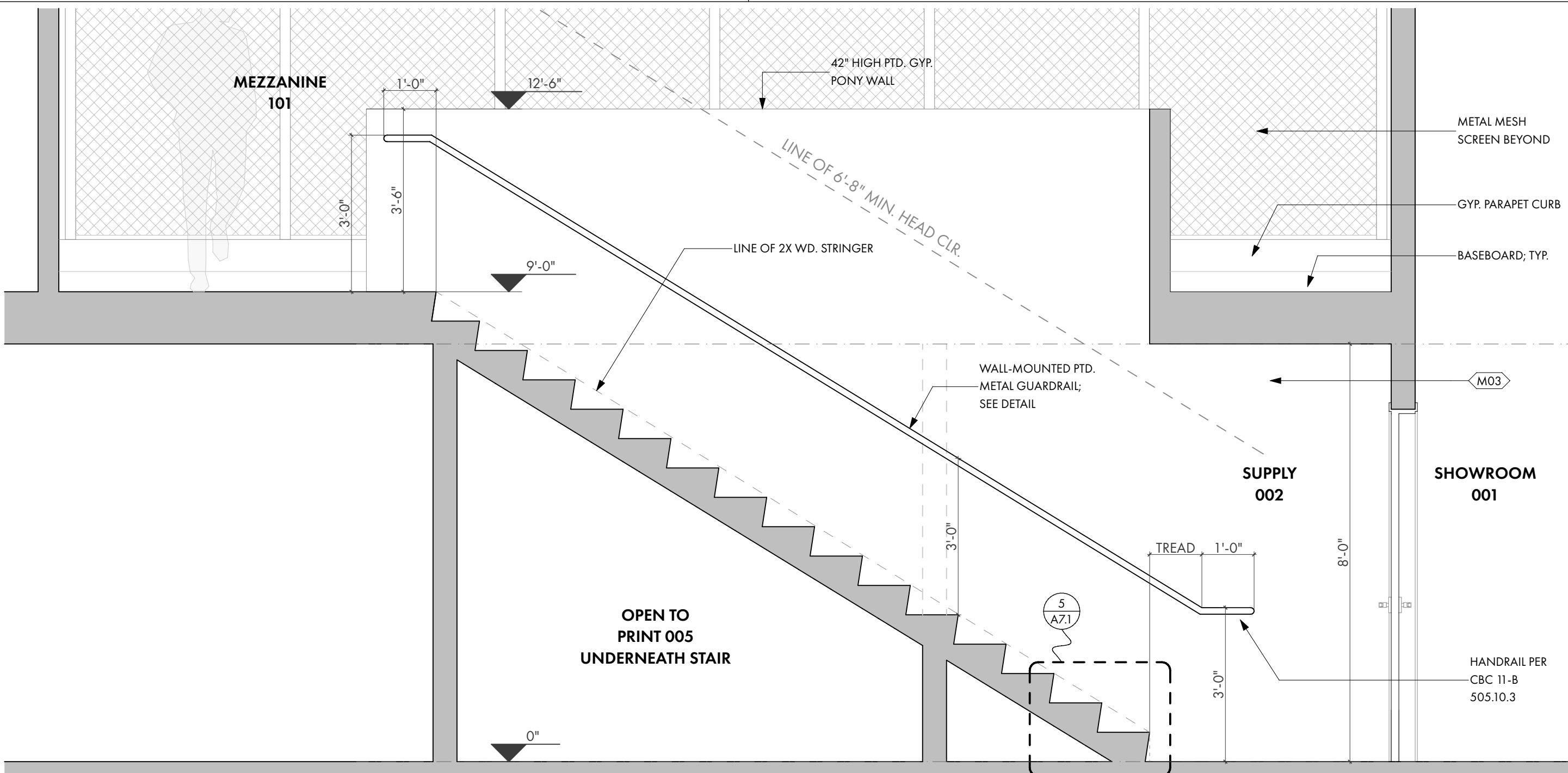
5 TYP. STAIR TREAD DETAIL
SCALE: 3" = 1'-0"



10 FASCIA DETAIL AT MEZZ. 102 EDGE
SCALE: 3" = 1'-0"



7 TYP. GUARDRAIL AT MEZZ. 102
SCALE: 3" = 1'-0"



4 STAIR SECTION
SCALE: 1/2" = 1'-0"

UKIAH, CALIFORNIA
REN / ALEXANDER
ARCHITECTS

PROJECT/CLIENT:

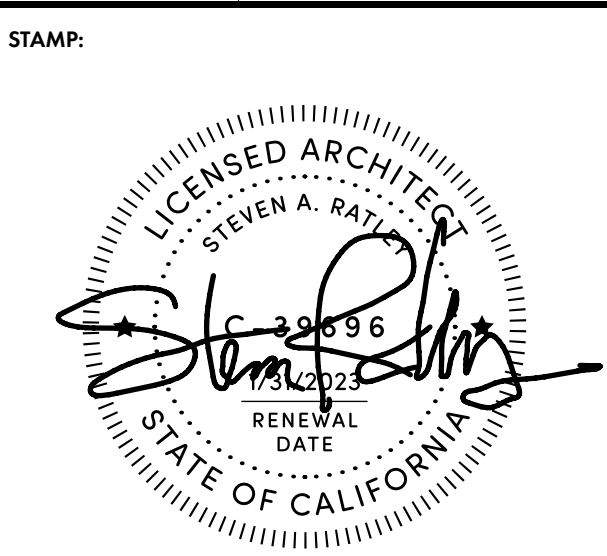


APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:
REVISION - 2/17/2023	SR

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
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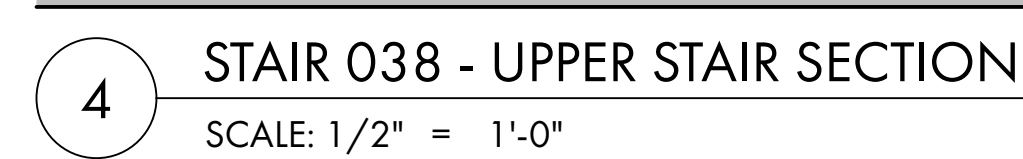
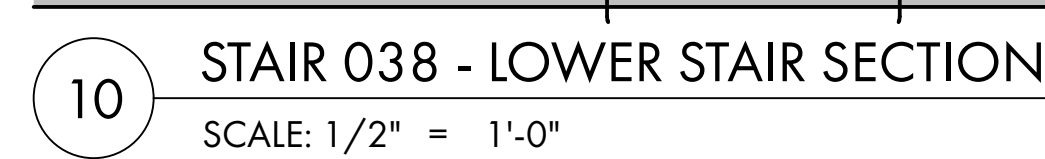
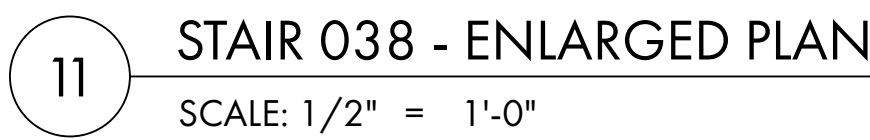


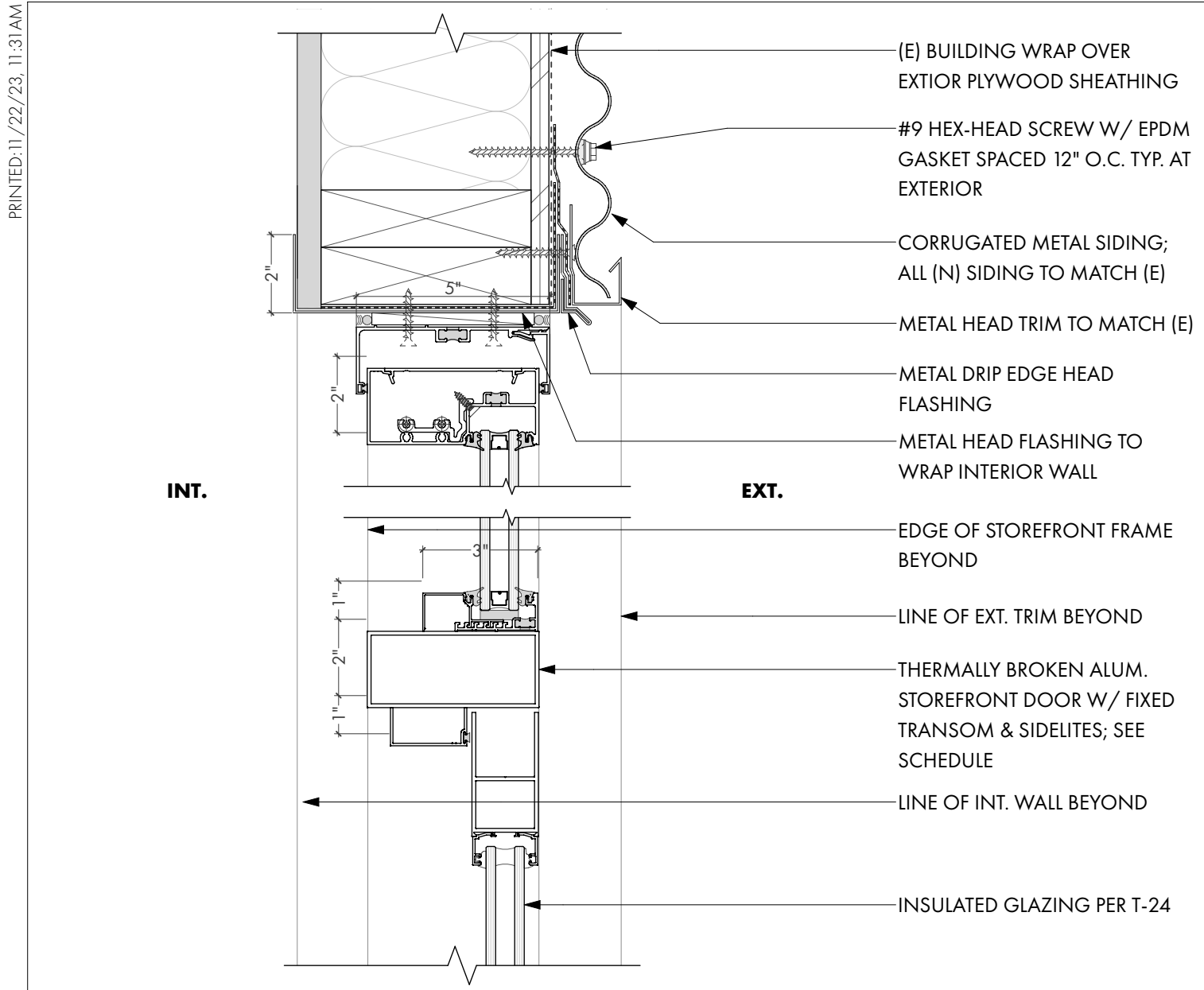
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STAIR & RAILING
DETAILS

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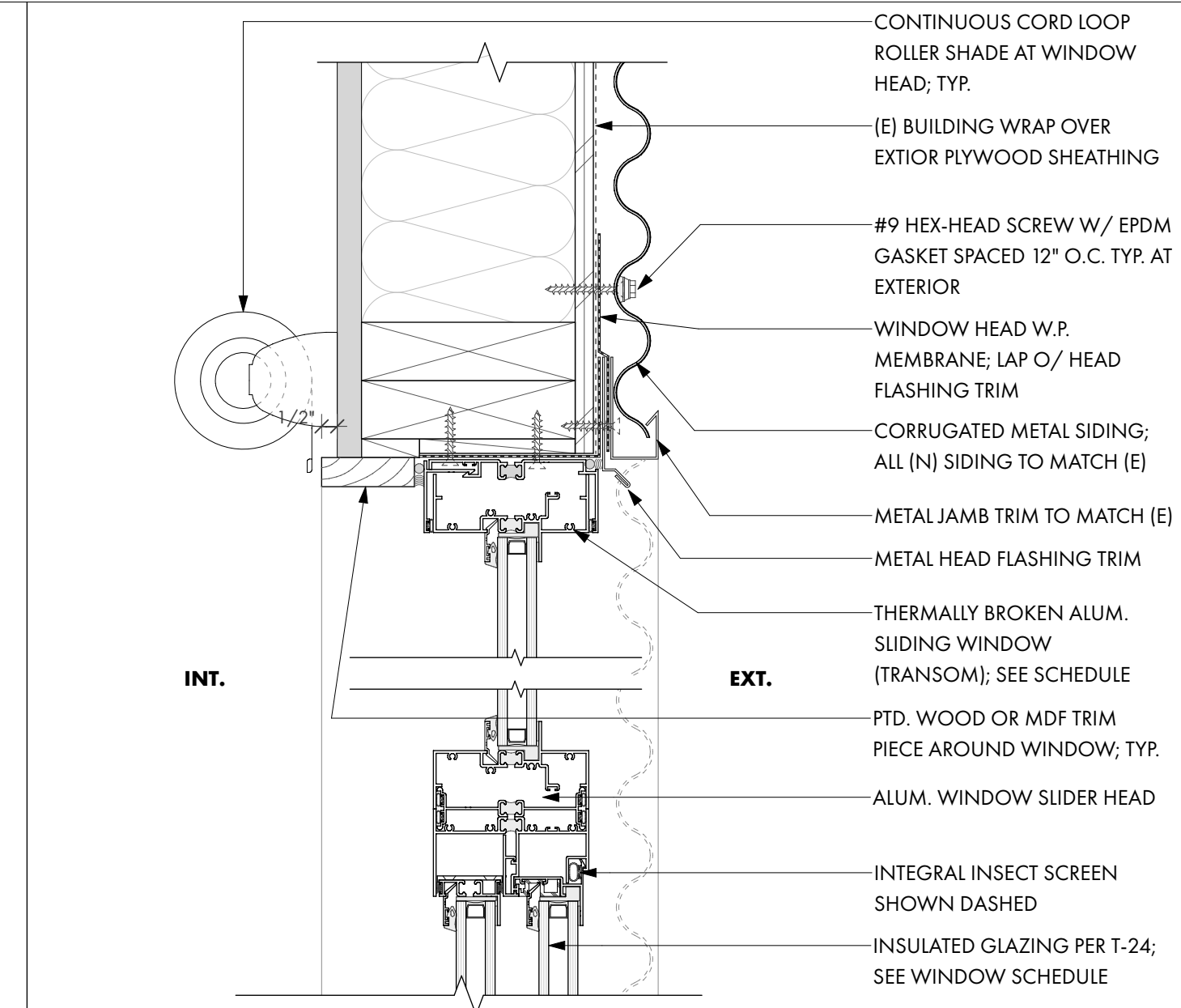
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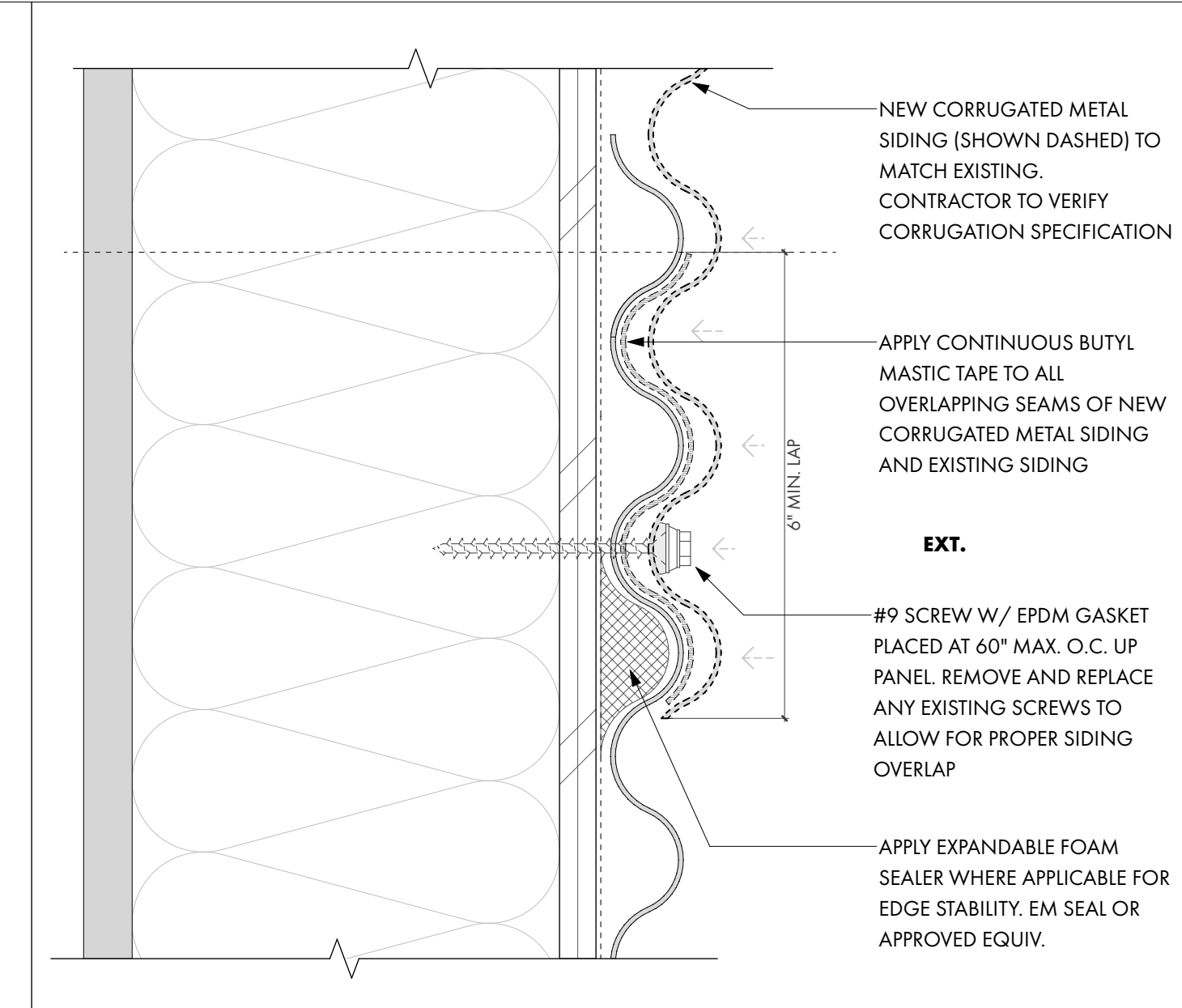
12 TYP. STOREFRONT HEADER DETAIL

SCALE: 3" = 1'-0"



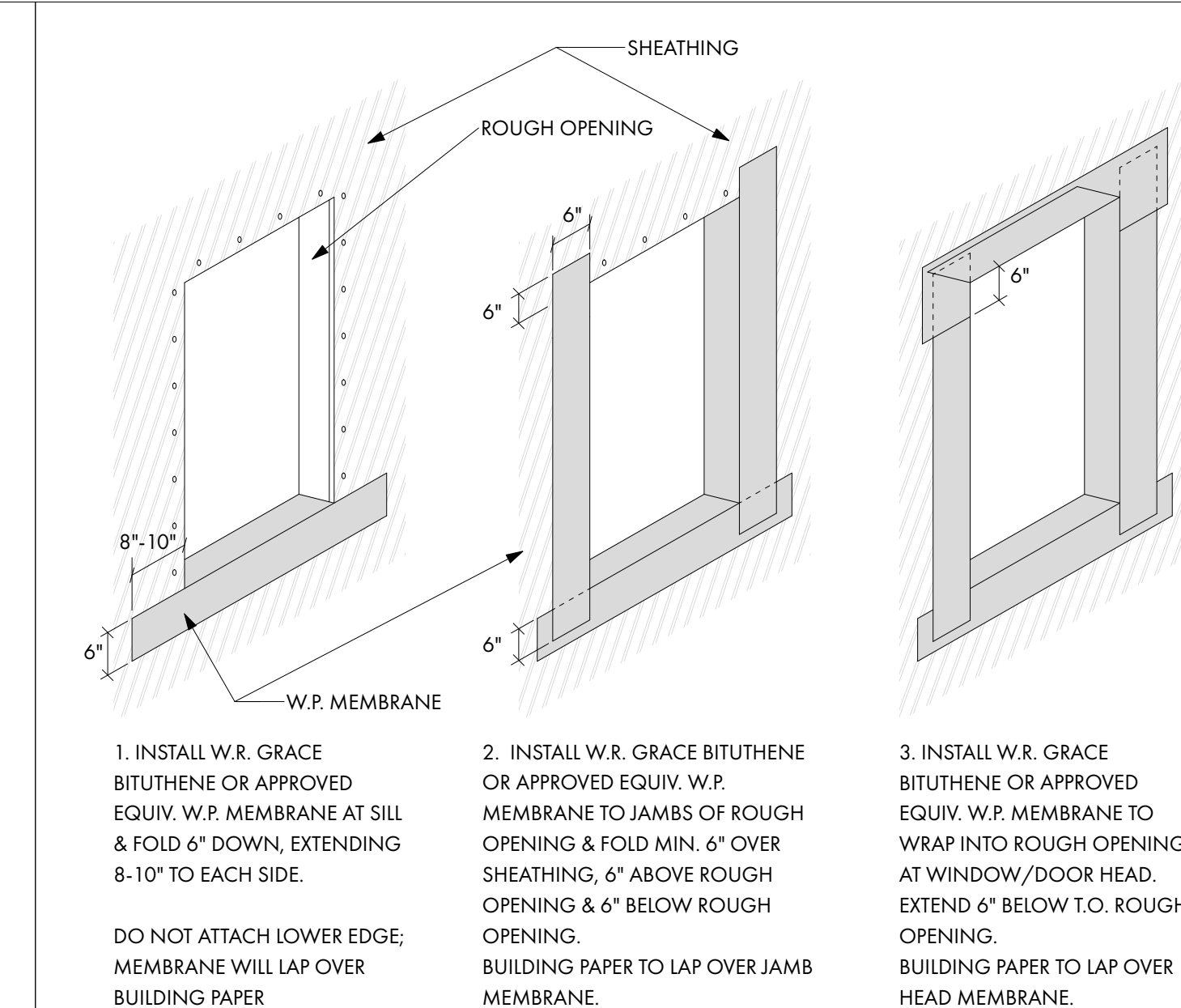
9 TYPICAL WINDOW HEAD DETAIL

SCALE: 3" = 1'-0"



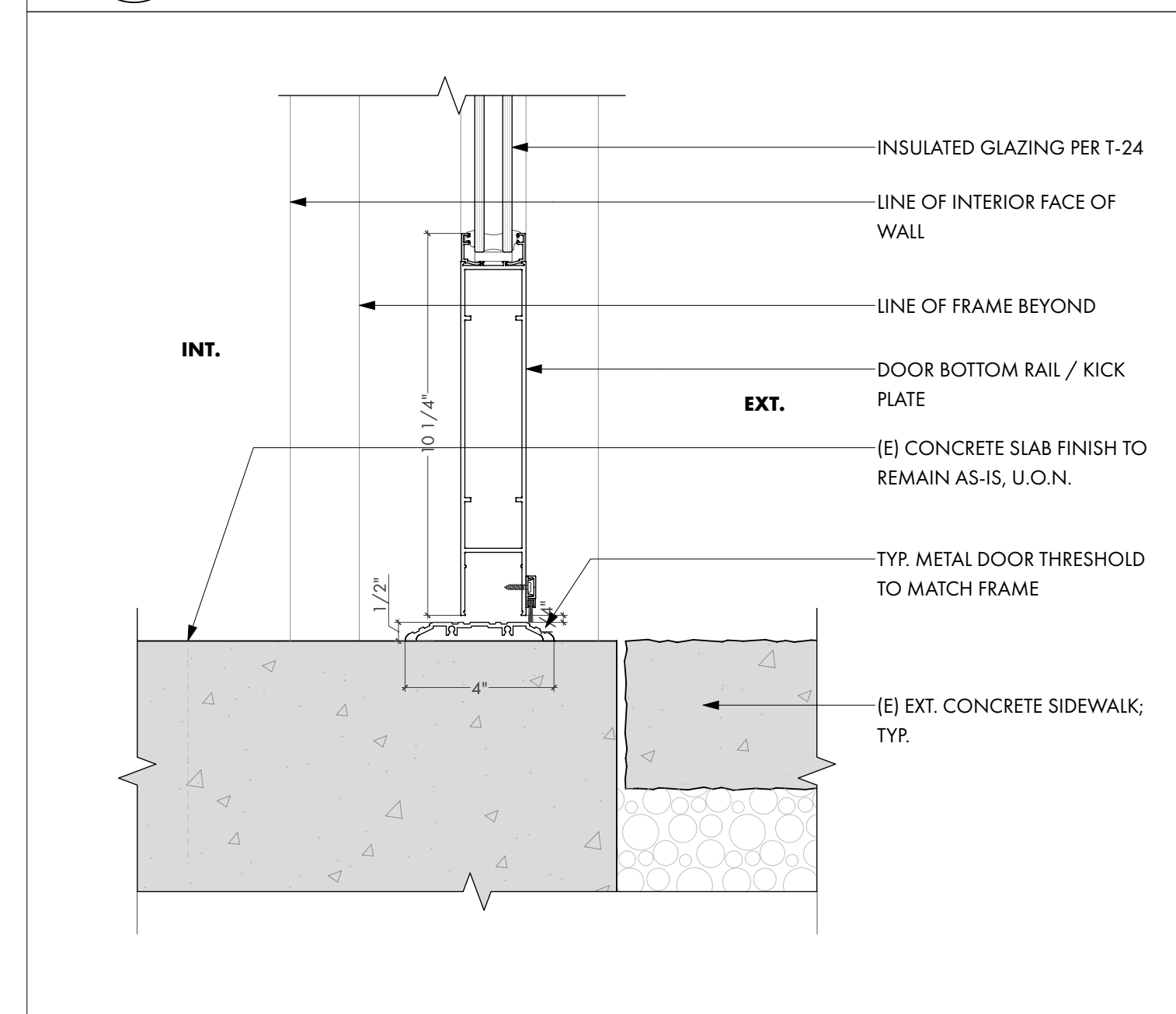
6 NEW CORRUGATED SIDING INSTALLATION DETAIL

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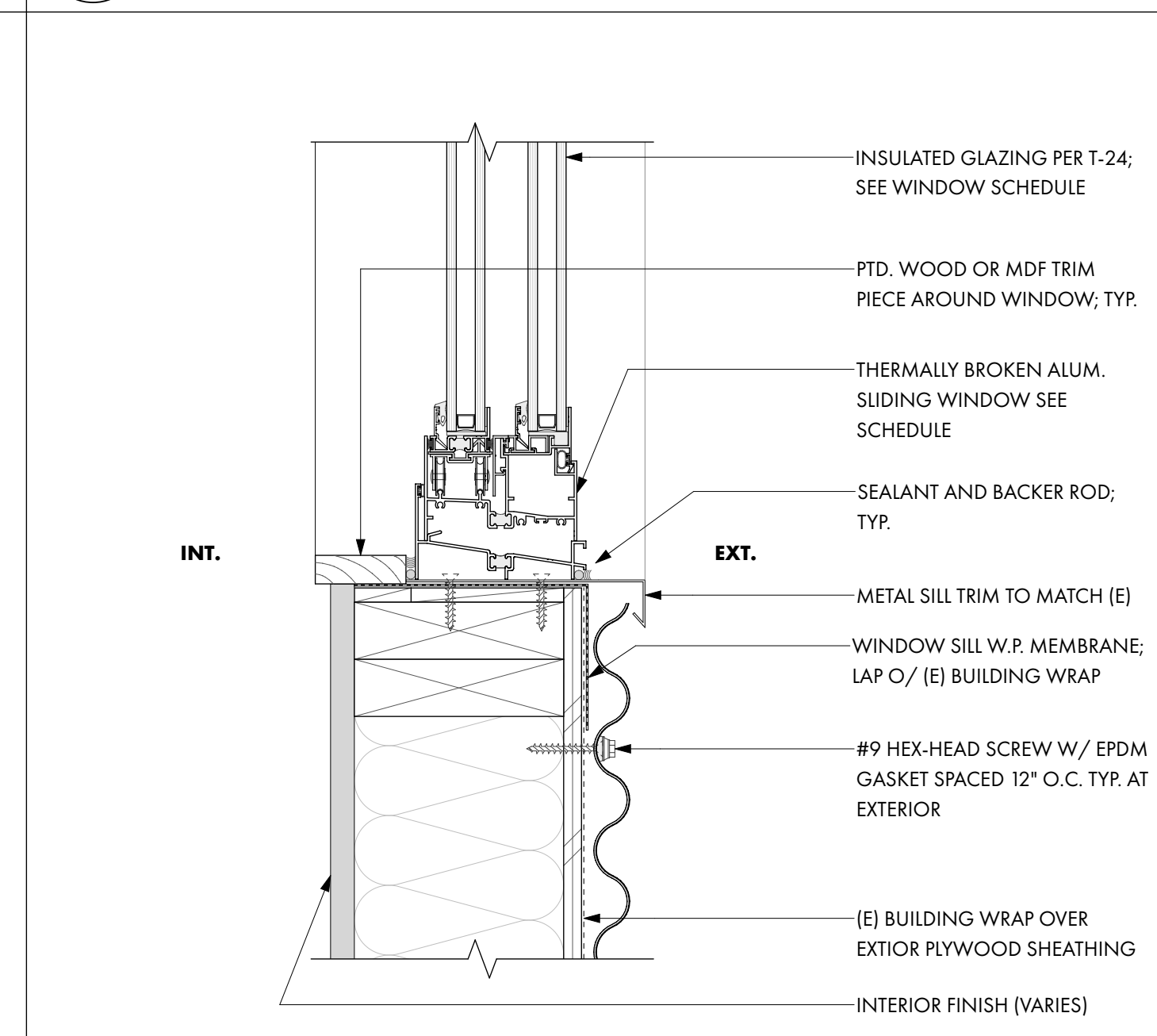
3 TYP. WINDOW W.P. SEQUENCE - SHEET MEMBRANE

SCALE: 3" = 1'-0"



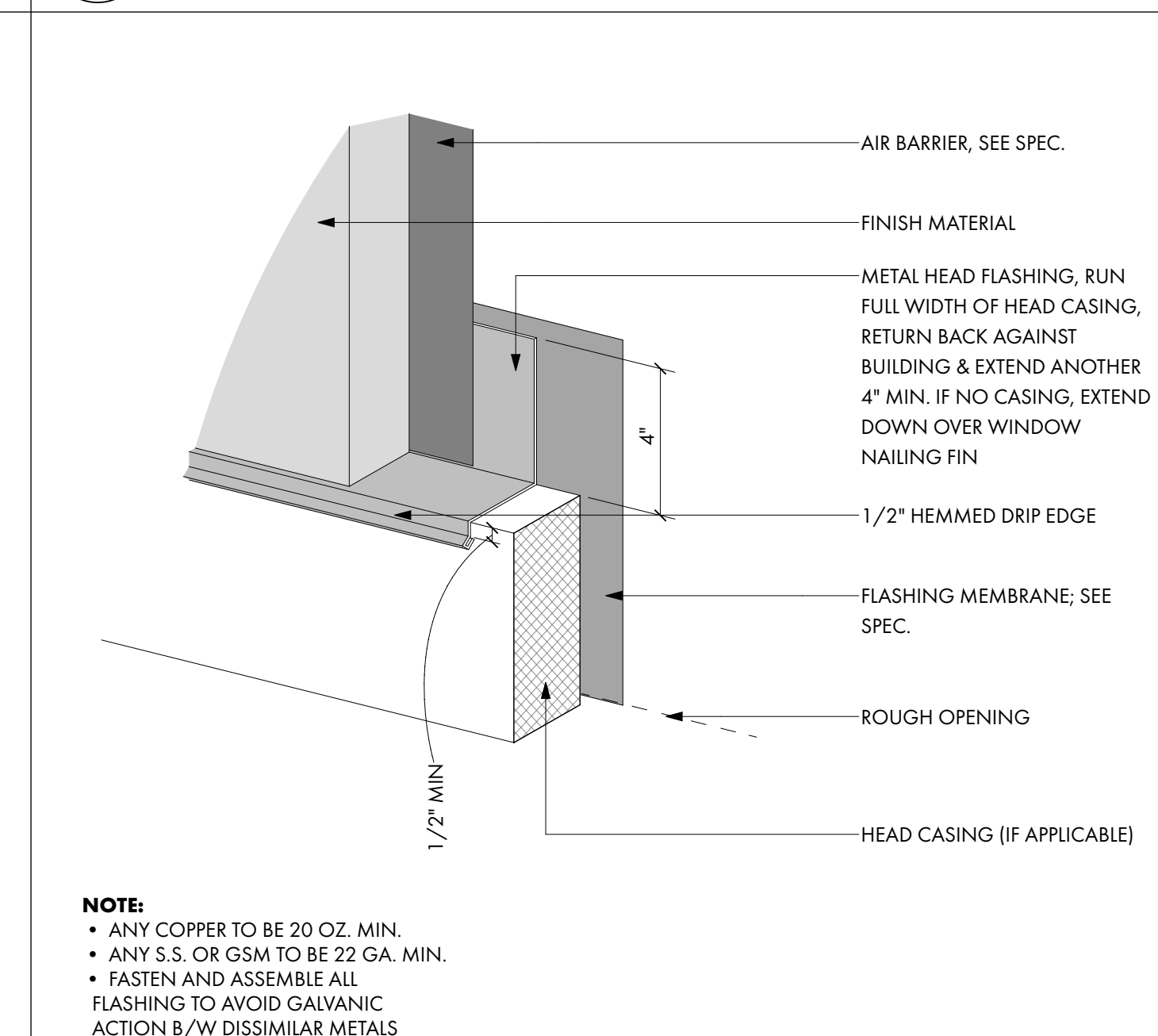
11 TYP. STOREFRONT THRESHOLD DETAIL

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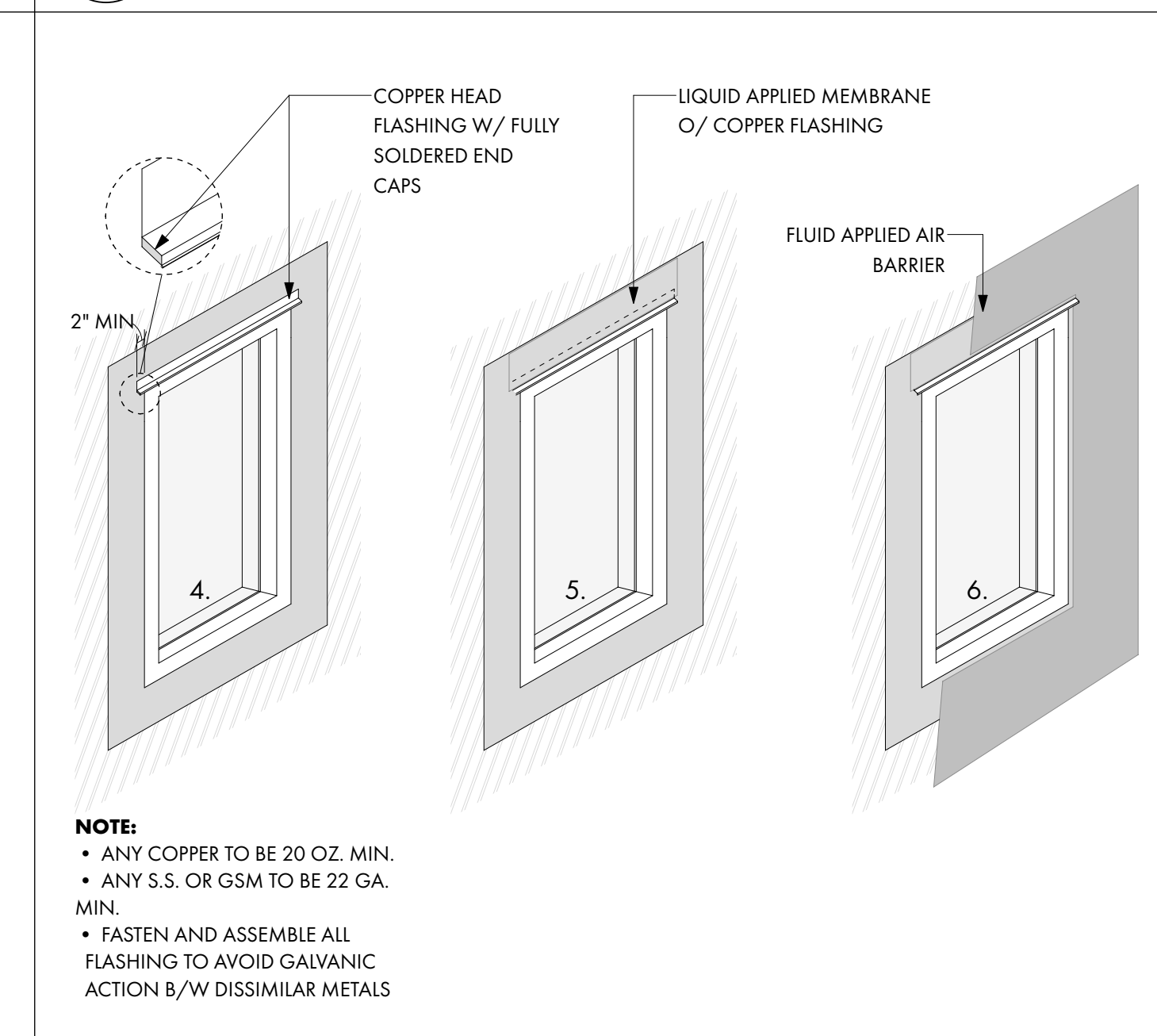
8 TYP. WINDOW SILL DETAIL

SCALE: 3" = 1'-0"



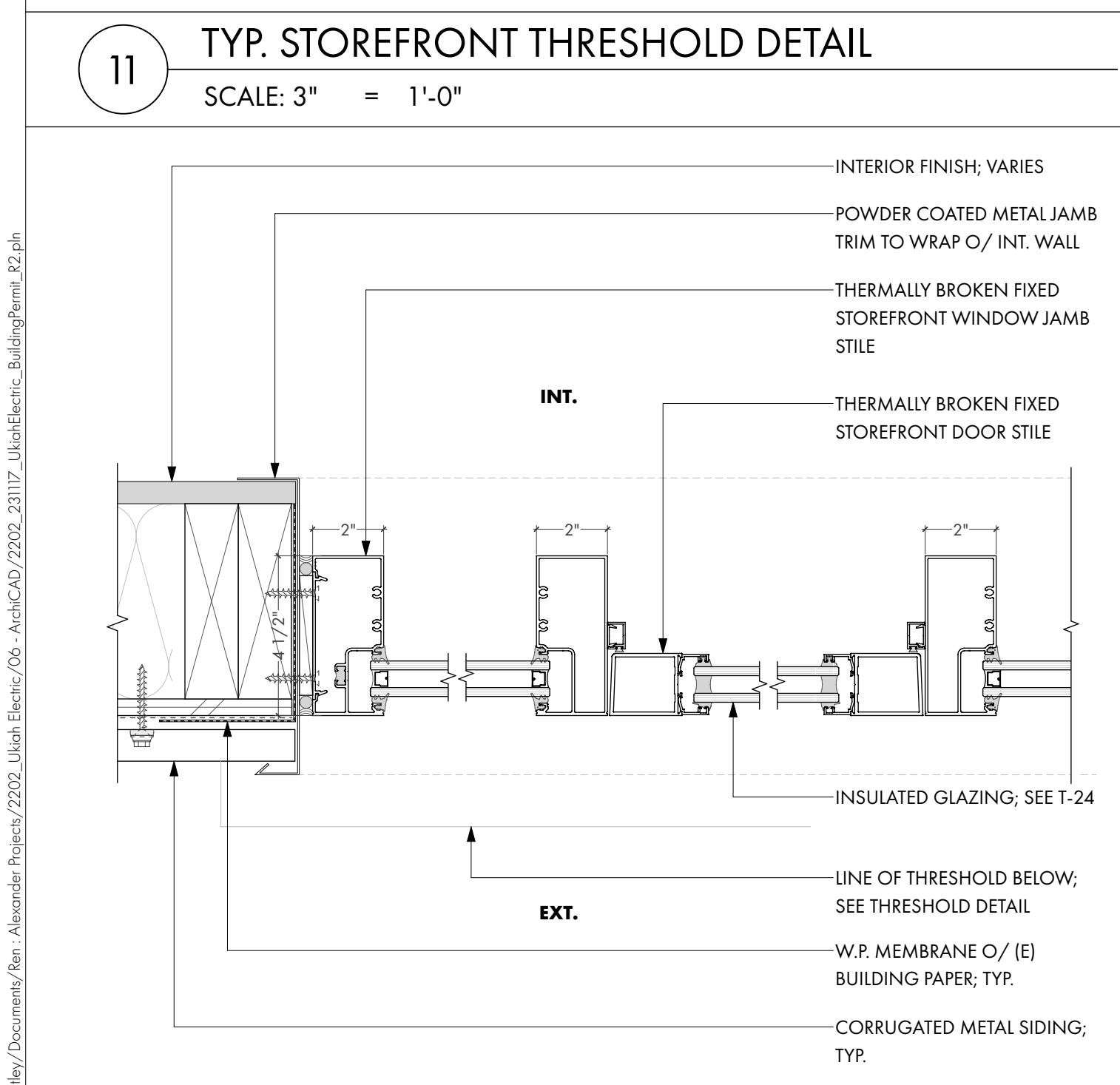
5 TYPICAL WINDOW HEAD FLASHING

SCALE: 3" = 1'-0"



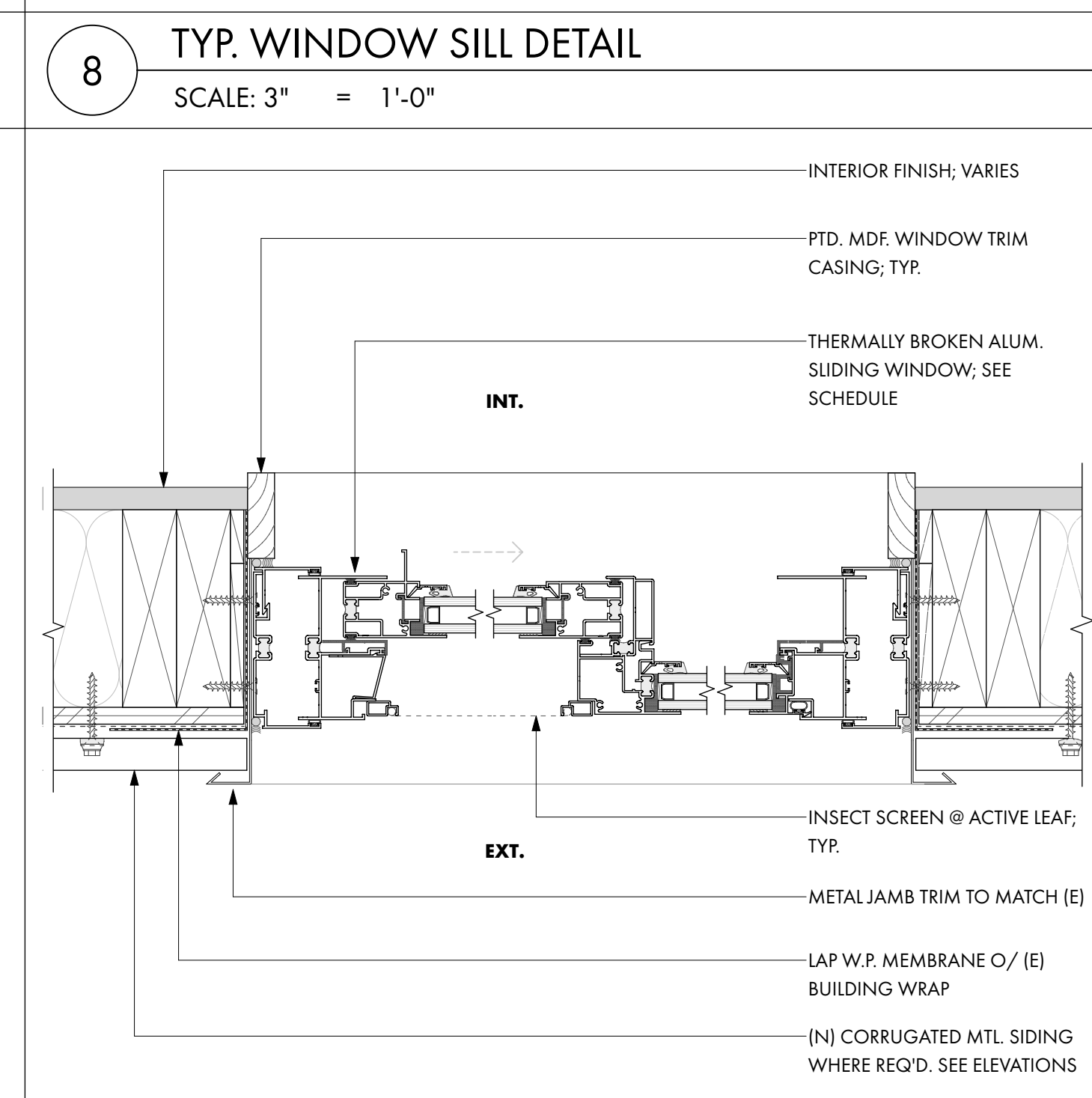
1 TYP. WINDOW W.P. SEQUENCE - FLUID MEMBRANE

SCALE: 3" = 1'-0"



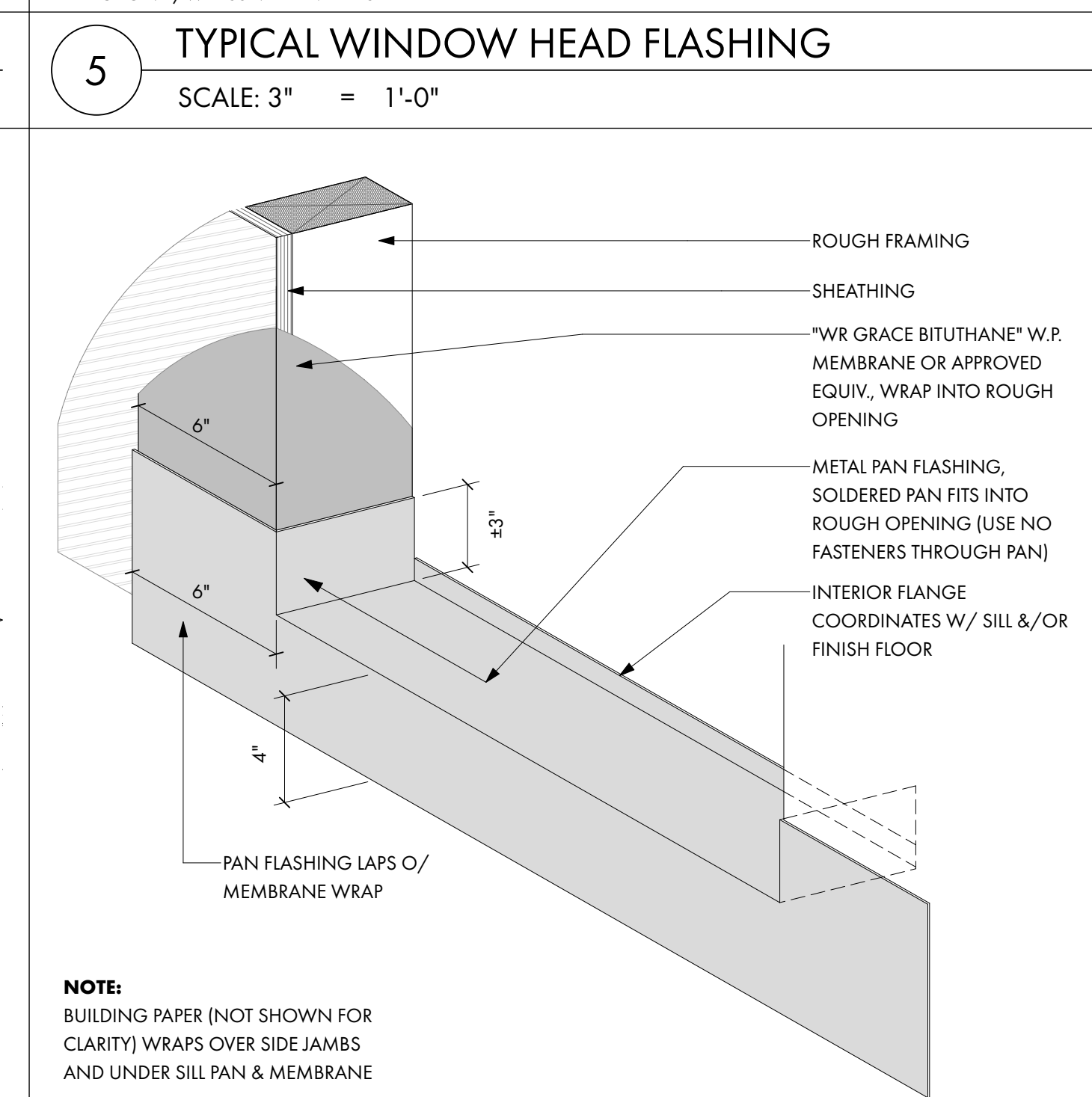
10 TYP. STOREFRONT JAMB DETAIL

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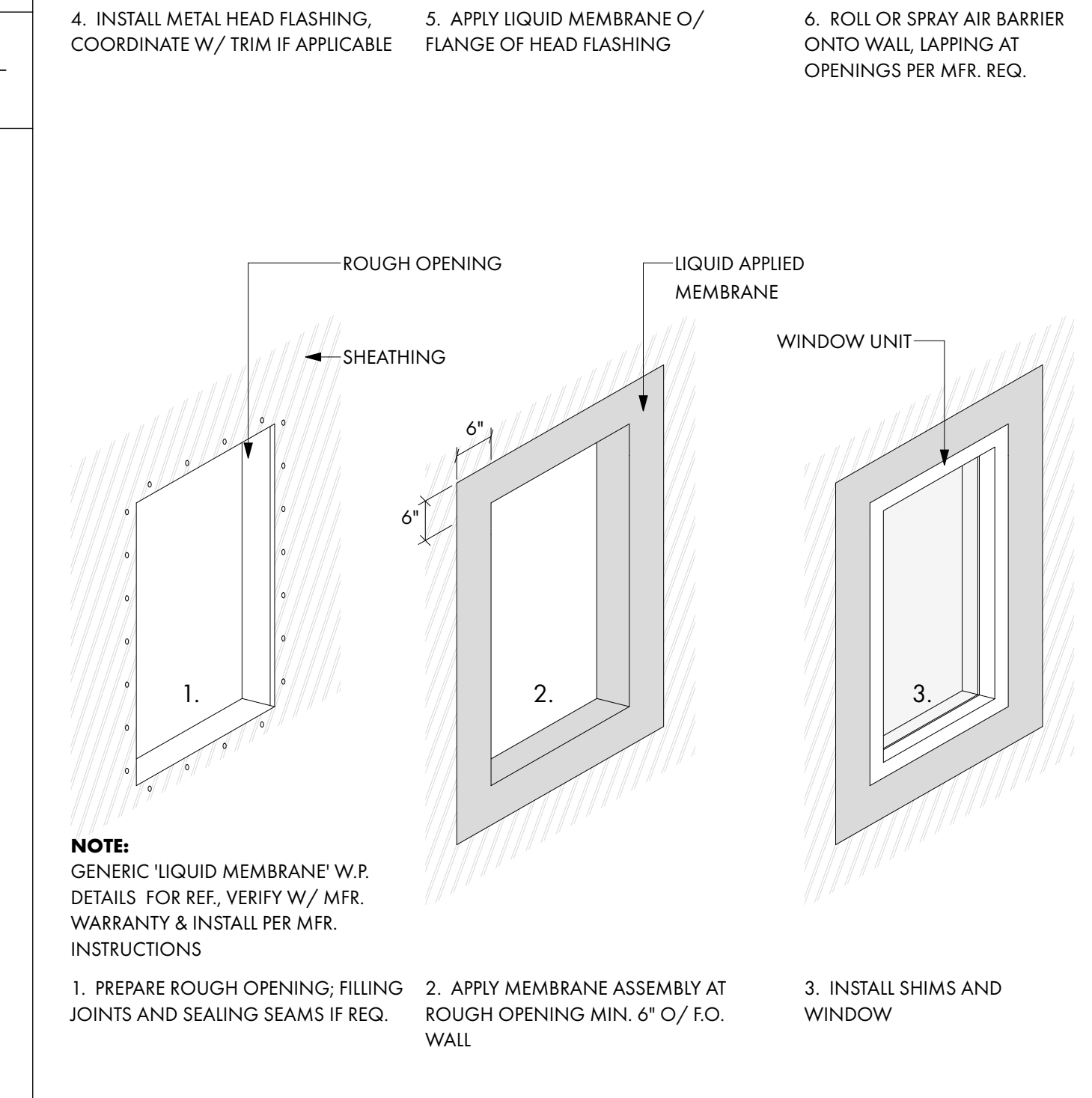
7 TYP. WINDOW JAMB DETAIL

SCALE: 3" = 1'-0"



4 TYPICAL WINDOW SILL FLASHING

SCALE: 3" = 1'-0"



UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:

City of Ukiah
ELECTRIC UTILITY DEPARTMENT

ELECTRIC SERVICE CENTER

1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

REVISIONS:	BY:

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

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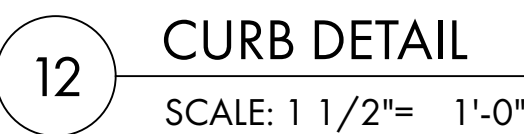
LICENSED ARCHITECT
STEVEN A. RATTI
20696
12/19/2022
RENEWAL
DATE
STATE OF CALIFORNIA

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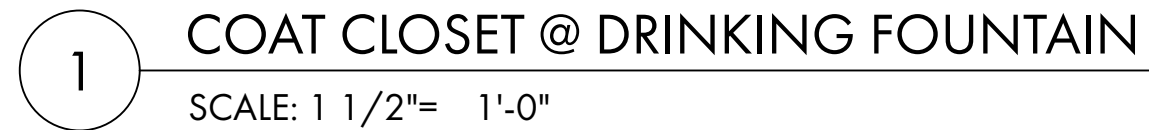
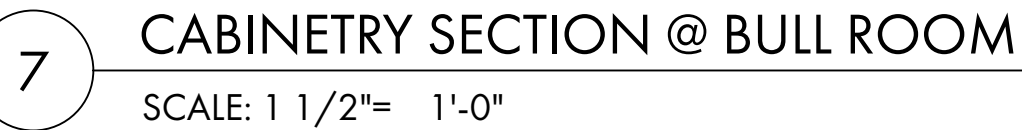
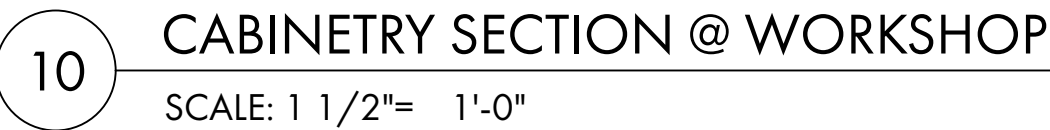
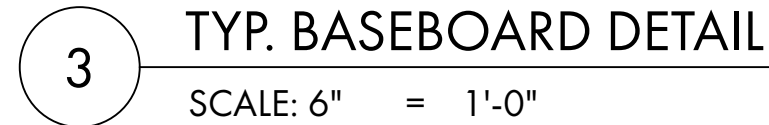
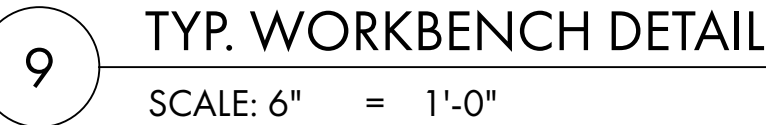
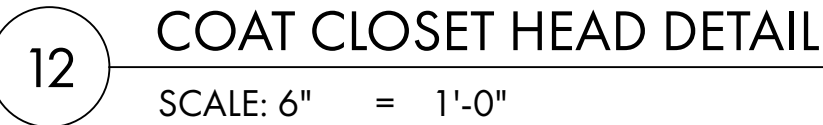
EXTERIOR DETAILS

SHEET NO.:

A8.1



A8.2



SHEET TITLE:

SHEET NO.:

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GENERAL NOTES

1. ALL CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORMED TO THE 2019 EDITION OF THE CALIFORNIA BUILDING CODE, 2019 EDITIONS OF THE CALIFORNIA ELECTRICAL AND FIRE CODES, AND ALL APPENDICES THERETO, CALTRANS STANDARD PLANS & SPECIFICATIONS, LATEST EDITION.
2. THE CONTRACTOR SHALL PROVIDE WORKMANS COMPENSATION INSURANCE & LIABILITY INSURANCE.
3. THE CONTRACTOR SHALL GUARANTEE ALL LABOR AND MATERIAL FOR A MINIMUM OF ONE YEAR.
4. THE GENERAL CONTRACTOR SHALL VERIFY ALL THE SITE CONDITIONS AND DIMENSIONS BEFORE STARTING WORK. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
5. FEATURES OF CONSTRUCTION SHOWN ARE TYPICAL AND SHALL APPLY GENERALLY THROUGHOUT SIMILAR CONDITIONS.
6. DETAILS SHOWN ON TYPICAL DETAIL SHEETS SHALL BE USED WHENEVER APPLICABLE. UNLESS OTHERWISE SHOWN, SPECIFIC DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER TYPICAL DETAILS. SPECIFIC NOTES SHOWN ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER SPECIFICATIONS.
7. ALL CONDITIONS SHOWN OR NOTED AS EXISTING ARE BASED ON BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE DRAWINGS, NO WARRANTY IS IMPLIED AS TO THEIR ACCURACY.
8. ALL BUILDING MATERIAL SHALL BE NEW MATERIAL, UNLESS OTHERWISE APPROVED OR SPECIFIED BY ENGINEER.
9. CONTRACTORS SHALL VERIFY EASEMENTS (PUBLIC OR PRIVATE) FOR SEWER, WATER, ELECTRICAL, TELEPHONE, CABLE T.V., AND GAS PRIOR TO STARTING CONSTRUCTION.
10. VERIFY ALL UTILITY DATA AND LOCATIONS PRIOR TO ANY WORK. ONSITE UTILITIES SHALL BE COORDINATED WITH THE APPROPRIATE AGENCY OR UTILITY COMPANY.
11. THE DESIGN CONSULTANTS ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF PRODUCTS OR MATERIALS NOT SPECIFIED IN THESE DRAWINGS.
12. ACCEPT NO INK OR PENCIL CORRECTIONS TO THESE DRAWINGS WITHOUT THE OWNER'S REPRESENTATIVE INITIAL OR SIGNATURE. THE DESIGN CONSULTANTS SHALL BE HELD HARMLESS FOR ALL CHANGES NOT IN CONFORMANCE WITH THIS PROVISION.
13. ALL USERS OF THESE DRAWINGS AGREE BY USING THESE DRAWINGS TO HOLD THE DESIGN CONSULTANTS HARMLESS FOR ANY AND ALL WORK THAT DOES NOT CONFORMED TO THE REQUIREMENTS AND MINIMUM STANDARDS OF THE C.B.C., ORDINANCES, AND ACCEPTABLE STANDARDS.
14. THESE DRAWINGS ARE THE PROPERTY OF THE DESIGN CONSULTANTS AND ARE NOT TO BE USED IN PART FOR ANY WORK OTHER THAN THE LOCATION SHOWN HEREON.
15. THE DESIGN CONSULTANTS AND THE OWNER SHALL HAVE NO CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES FOR ANY SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
16. THE CONTRACTOR SHALL COMPLY WITH ALL OF THE APPLICABLE REQUIREMENTS OF THE FEDERAL WILLIAMS - STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) OF 1970' AND ANY AMENDMENTS THERETO. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE ENGINEER OR THE CITY OF UTAH BUILDING DEPARTMENT.
17. WHERE DIMENSIONS ARE SHOWN ON THE PLANS, THEY SHALL GOVERN OVER SCALE, DO NOT SCALE DRAWINGS. IN THE EVENT OF CONTRADICTION, USE THE MOST STRINGENT SPECIFICATION AND NOTIFY THE ENGINEER.
18. THE CONTRACTOR SHALL COMPARE ALL PAGES OF THE PLANS; ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
19. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR AND SUBCONTRACTORS SHALL REMOVE SURPLUS MATERIALS AND DEBRIS FROM THE SITE. CONTRACTOR SHALL REMOVE ALL DELETERIOUS MATERIAL FROM SITE INCLUDING BUT NOT LIMITED TO: BROKEN CONCRETE, STUMPS, ROCKS, DEBRIS, ASPHALT RUBBLE, GARBAGE, ETC. AND LEGALLY DISPOSE OF ABOVE.
20. LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE FROM RECORD INFORMATION ONLY AND ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION AND CONSTRUCTION IN ANY AREA. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (USA) AT 1-800-642-2444 A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION. CONTRACTORS SHALL IMMEDIATELY REPORT ANY DISCREPANCIES IN RECORD INFORMATION TO ENGINEER AND DEVELOPER PRIOR TO CONSTRUCTING ANY WORK.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE SAFETY REQUIREMENTS.
22. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS ON OR ADJACENT TO PROJECT SITE. CONTRACTOR SHALL REPAIR OR REPLACE ALL DAMAGE TO EXISTING IMPROVEMENTS TO THE SATISFACTION OF THE CITY OF UTAH BUILDING DEPARTMENT OR PRIVATE PROPERTY OWNER INVOLVED.
23. BEAMS, JOISTS AND OTHER STRUCTURAL ELEMENTS SHALL NOT BE CUT OR PENETRATED EXCEPT AS SHOWN ON STRUCTURAL DETAILS OR SPECIFICALLY APPROVED BY THE ENGINEER. NO OVER CUTTING IS ALLOWED FOR CUTS OR PENETRATIONS OF STRUCTURAL ELEMENTS.
24. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, BRACING OR SHORING SHALL SUPPORT STRUCTURES WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. BRACING AND SHORING REQUIREMENTS SHALL BE ACCEPTABLE TO THE ENGINEER OF RECORD.

PLYWOOD SHEATHING

1. WHERE NOTED ON STRUCTURAL DRAWINGS, EXTERIOR AND INTERIOR SHEAR WALLS, FLOORS AND ROOFS SHALL BE SHEATHED WITH DOUGLAS FIR PLYWOOD, STRUCTURAL II, C-D OR BETTER, WITH EXTERIOR GLUE. STRUCTURAL ORIENTED STRAND BOARD (OSB) MAY BE SUBSTITUTED FOR PLYWOOD FOR SHEAR WALLS.
2. ALL PLYWOOD SHEATHING USED STRUCTURALLY SHALL EXTEND CONTINUOUSLY BEHIND ALL FINISHES. WHERE PLYWOOD SHEATHING IS TO BE PLASTERED, IT SHALL BE PROTECTED BY AN UNBROKEN LAYER OF MOISTURE-TIGHT PAPER UNDER LATHING.
3. IN GENERAL, PLYWOOD SHEETS SHALL BE 4' x 8' or 4'x10'. THE LONG DIMENSION MAY BE HORIZONTAL OR VERTICAL AT WALLS. ROOF AND FLOOR SHEETS SHALL HAVE FACE PLIES ACROSS JOISTS OR FRAMING MEMBERS WITH THE END JOINTS STAGGERED 4'-0". ALL PLYWOOD JOINTS SHALL BE ACCURATELY CENTERED ON SUPPORTING ELEMENTS INCLUDING BLOCKING.
4. SHEAR WALLS WITH PLYWOOD ON BOTH SIDES SHALL HAVE VERTICAL JOINTS STAGGERED.

CONCRETE NOTES

1. CONCRETE SHALL CONFORM TO THE APPLICABLE PROVISIONS OF CHAPTER 19 OF THE CALIFORNIA BUILDING CODE (CBC), 2019 EDITION. SEE SOILS REPORT/PLANS FOR ANY SPECIAL INSPECTION REQUIREMENTS PRIOR TO THE PLACEMENT OF CONCRETE.
2. MATERIALS--
- A. CONCRETE -- CONCRETE SHALL BE READY-MIXED AND SHALL CONFORM TO ASTM C94. THE MAXIMUM-CEMENT RATIO FOR STRUCTURAL CONCRETE SHALL BE PER ACI CHAPTER 4 318-11. MAY SUBSTITUTE 20% CEMENT w/ FLY ASH.
- MAXIMUM AGGREGATE SIZE -- 1 1/2 INCHES
- SUMP -- 4 INCHES PLUS OR MINUS 1 INCH
- 28 DAY COMPRESSIVE STRENGTH -- 3,000 P.S.I.
- CEMENT -- PORTLAND CEMENT CONFORMING TO ACI 318-11 SEC 3.2
- AGGREGATES -- SHALL CONFORM TO THE LATEST VERSION OF THE CBC.
- ADMIXTURES -- WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER.
- B. REINFORCING -- REINFORCING BARS SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60 WITH BAR MARKS LEGIBLY ROLLED INTO THE SURFACE INDICATING THE SIZE, TYPE OF STEEL AND YIELD STRENGTH. ALL WELDED REINFORCING BARS SHALL MEET THE REQUIREMENTS OF ASTM A706. CONCRETE COVERAGE TO FACE OF REINFORCING BARS, UNLESS OTHERWISE NOTED ON PLANS, SHALL BE:
- 3 INCHES WHERE CONCRETE IS CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.
- 1 1/2 INCHES FOR # 5 OR SMALLER BARS WHERE CONCRETE IS EXPOSED TO EARTH OR WEATHER AFTER THE REMOVAL OF FORMS.
- 3/4 INCH FOR #11 BARS AND SMALLER IN SLABS AND WALLS WHERE CONCRETE IS NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND.
3. FORMS-- FORMS SHALL CONFORM TO THE SHAPE, LINES AND DIMENSIONS SHOWN ON THE PLANS AND SHALL BE SUFFICIENTLY TIGHT TO PREVENT LEAKAGE OF MORTAR ABOVE FINISHED GRADE. FORMS SHALL BE SECURELY BRACED AND HELD IN PLACE. CONCRETE FOOTINGS BELOW THE FINISHED GRADE MAY BE FORMED. FORMS (AND SOIL THAT CONCRETE WILL BE PLACED AGAINST) SHALL BE WETTED DOWN JUST PRIOR TO PLACING CONCRETE. ALL FORMS SHALL BE REMOVED AFTER THE CONCRETE HAS SET.
4. WORKMANSHIP--
- A. REINFORCING -- REINFORCING BARS SHALL BE ACCURATELY PLACED AND SECURED AND SHALL BE SUPPORTED BY CHAIRS, SPACERS OR HANGERS. ALL BAR SPLICES SHALL BE LAPPED A MINIMUM OF 40 BAR DIAMETERS UNLESS OTHERWISE SHOWN. STAGGER SPLICES WHEN POSSIBLE. REINFORCING SHALL BE FREE OF ALL LOOSE RUST OR SCALE.
- B. PLACING -- THE CONCRETE SHALL BE PLACED IN A MANNER SO AS TO PREVENT SEPARATION OF THE AGGREGATE AND SHALL BE WELL CONSOLIDATED TO PREVENT THE FORMING OF VOIDS. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED, EXCEPT FOR SLABS ON GRADE THAT ARE 6" OR LESS IN THICKNESS.
- C. SLUMP -- SLUMP TESTS ARE TO CONFORM TO ASTM C143.
- D. FINISHING -- THE TOP OF THE FLOOR SLAB SHALL BE GIVEN A LIGHT BROOM FINISH. FORMED SURFACES SHALL BE GIVEN A SACK FINISH. ALL VOIDS AND HOLES SHALL BE REPAIRED PRIOR TO FINISHING.
- E. CURING -- IT IS RECOMMENDED THAT THE CONCRETE SLAB BE WET CURED CONTINUOUSLY AND UNINTERRUPTED FOR A MINIMUM OF 7 DAYS SUBSEQUENT TO INITIAL SETUP BEFORE BEING LOADED WITH BUILDING LOADS (FORKLIFT, METAL MAT'L., ETC...). CONTRACTOR IS RESPONSIBLE TO ENSURE THAT SLAB IS SUFFICIENTLY CURED BEFORE SERVICE LOADS ARE APPLIED TO SLAB.
- F. EXPANSION JOINTS -- EXPANSION JOINTS SHALL BE FILLED WITH A PRE-MOLDED FILLER CONFORMING TO ASTM D1751 AND SHALL BE PLACED IN THE CORRECT POSITION PRIOR TO PLACING CONCRETE. EXPANSION JOINTS AT A MINIMUM 100' IN ONE DIRECTION.
- G. CONTROL JOINTS -- CONTROL JOINTS MAY BE SAW CUT, PREFORMED OR TOOLED. CONSTRUCTION JOINTS AND CONTROL JOINTS SHALL DIVIDE SLAB INTO AREAS NOT EXCEEDING 1 1/2 TO 1. CONTRACTOR SHALL SUBMIT LAYOUT PLAN SHOWING PROPOSED CONTROL AND CONSTRUCTION JOINT LOCATIONS. JOINT SPACING SHALL NOT EXCEED 25 FEET IN EITHER DIRECTION. SIMI RIGID SEALANT TO BE METZGER/MCGUIRE "WM-80" OR EQUAL.
- H. SLAB SURFACE -- SLAB SURFACE SHALL NOT VARY MORE THAN 3/8":10' MAXIMUM.

STRUCTURAL GLUED-LAMINATED MEMBERS

1. ALL STRUCTURAL GLUED-LAMINATED MEMBERS SHALL BE:

SIMPLE SPANS: 24F-V4 DOUGLAS FIR

CANTILEVERED AND CONTINUOUS SPANS: 24F-V8 DOUGLAS FIR

2. ADHESIVE SHALL BE EXTERIOR TYPE ADHESIVE MEETING REQUIREMENTS OF ASTM D2569.
3. ALL BEAMS SHALL BE CAMBERED UNLESS OTHERWISE NOTED. CAMBER SHALL BE AS NOTED ON PLANS. IF NOT NOTED ON PLANS, CAMBER SHALL BE L/400 WHERE L IS THE CLEAR SPAN BETWEEN SUPPORTS. CANTILEVER SPANS SHALL BE CAMBERED UPWARD AT THE CANTILEVER END Lc/200 WHERE Lc IS THE CANTILEVER LENGTH FROM THE SUPPORT.
4. ALL STRUCTURAL GLUE-LAMINATED BEAMS SHALL BE STAMPED WITH THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (A.I.T.C.) CERTIFICATE OF CONFORMANCE, THE A.I.T.C. CERTIFICATE OF CONFORMANCE SHALL BE GIVEN TO THE BUILDING INSPECTOR PRIOR TO INSTALLATION.

DESIGN CRITERIA

1. CODES & STANDARDS
2019 CALIFORNIA BUILDING CODE
2. VERTICAL LOADS:
AWNING/ROOF LIVE=20psf
MEZZANINE LIVE=50psf, OFFICES
STORAGE PLATFORM LIVE=125psf-LIGHT STORAGE
ACCESSIBLE CEILING LIVE=40psf-20psf PER CODE+20 psf ANCILLARY
- FLOOR LIVE=50 psf OFFICE, 40 psf RESIDENTIAL, 20 psf
WALLS=12 psf INTERIOR WALLS, 15 psf EXTERIOR LOADS.
3. LATERAL LOADS:

WIND= EXPOSURE CAT. C, RISK=II
4. SEISMIC: $v=C_s W$
 $C_s=9s_s/R/I$
 $S_s=1.585$
 $R= 6.5$ WOOD SHEAR WALLS
 $I= 1.0$

SPECIAL INSPECTION

ALL STRUCTURAL AND EARTH-WORK INSPECTIONS SHALL MEET THE REQUIREMENTS OF THE CURRENT CALIFORNIA BUILDING CODE AND LOCAL ORDINANCES. THE OWNER OR THE ENGINEER OF RECORD ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS WHO SHALL PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE FOLLOWING TYPES OF WORK:

1. POST-INSTALLED ANCHORS AND DOWELS-- DURING INSTALLATION OF POST-INSTALLED ANCHORS AND DOWELS PER MANUFACTURER'S SPECIFICATIONS.
2. CONCRETE -- PRIOR TO AND DURING THE PLACEMENT OF ALL BUILDING CONCRETE AND DURING SLUMP TEST AND PREPARATION OF TEST CYLINDERS.
3. REINFORCING STEEL -- PRIOR TO THE CLOSING OF FORMS OR THE DELIVERY OF CONCRETE TO THE JOB SITE..

SPECIAL INSPECTOR/ENGINEER OF RECORD CONTACT INFORMATION:
WHITCHURCH ENGINEERING, INC.
610 9TH STREET
FORTUNA, CA 95540
(707)-725-6926

SPECIAL INSPECTOR TO BE APPROVED BY OWNER AND ENGINEER OF RECORD.

PLEASE PROVIDE AT LEAST 48 HOUR ADVANCE NOTICE FOR ANY INSPECTIONS NEEDED.

SUBMITTALS

- CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ENGINEER THE FOLLOWING:
1. MIX DESIGNS FOR ALL CONCRETE WORK
2. REINFORCING STEEL SHOP DRAWINGS

SUBMIT TWO COPIES FOR REVIEW. ORDERING OF MATERIALS, FABRICATION, OR ANY RELATED WORK SHALL NOT PROCEED UNTIL SUBMITTALS HAVE BEEN STAMPED APPROVED BY THE ENGINEER AND BUILDING DEPARTMENT APPROVAL HAS BEEN OBTAINED.

BRACING & SHORING

1. THE STABILITY AND INTEGRITY OF THE STRUCTURE, DURING CONSTRUCTION SHALL BE MAINTAINED AT LEVELS GENERALLY ACCEPTABLE WITHIN THE CONSTRUCTION INDUSTRY BY THE USE OF BRACING, SHORING AND UNDERPINNING UNTIL THE PROPOSED STRUCTURE IS COMPLETED. IN NO CASE SHALL THE STRUCTURE, OR ANY PORTION OF IT, BE ALLOWED TO BECOME UNSAFE DURING CONSTRUCTION.
2. THE BRACING AND SHORING SYSTEMS REQUIRED TO PROVIDE TEMPORARY SUPPORT OF THE STRUCTURE DURING CONSTRUCTION SHALL BE DESIGNED TO SUPPORT THE DEAD, LIVE, SOILS, EARTHQUAKE AND WIND LOADS THAT MAY BE IMPOSED ON THE STRUCTURE DURING CONSTRUCTION IN ACCORDANCE WITH INDUSTRY STANDARDS AND GENERALLY ACCEPTED ENGINEERING PRINCIPLES.
3. THE CONTRACTOR SHALL SUBMIT PROPOSED SHORING, BRACING AND UNDERPINNING SYSTEMS TO THE ENGINEER FOR REVIEW. THE SUBMITTAL WILL BE REVIEWED ONLY IN SO FAR AS THE DETAILS AFFECT THE CHARACTER OF THE FINISHED WORK, BUT THE DETAILS OF THE DESIGN WILL BE LEFT TO THE CONTRACTOR WHO SHALL BE RESPONSIBLE FOR THE SUCCESSFUL COMPLETION OF THE WORK.
4. NO CONSTRUCTION OF THE BRACING, SHORING OR THE UNDERPINNING SYSTEM, OR ORDERING MATERIALS SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS RECEIVED REVIEWED SUBMITTALS BY THE ENGINEER.
5. THE SUBMITTALS SHALL SHOW LAYOUT, SIZE OF MEMBERS, CONNECTION DETAILS AND CONSTRUCTION SEQUENCE FOR ALL BRACING AND SHORING SYSTEMS. THE SUBMITTALS SHALL BE ACCOMPANIED BY STRUCTURAL CALCULATIONS SIGNED BY A REGISTERED CIVIL ENGINEER OF THE STATE OF CALIFORNIA.
6. FOLLOWING COMPLETION OF REVIEW BY THE ENGINEER OF RECORD AND INCORPORATION OF REVIEW COMMENTS INTO THE SUBMITTALS, THE PLANS AND CALCULATION SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDED IN THIS SUBMITTAL SHALL BE A LETTER FROM THE ENGINEER OF RECORD INDICATING THAT THE SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN PLANS AND SPECIFICATIONS.

POST-INSTALLED ANCHORS IN CONCRETE

1. ADHESIVE ANCHORS SYSTEMS
CONTINUOUSLY INSPECT DURING SETUP AND INSTALLATION OF ADHESIVE ANCHORS SYSTEMS IN ACCORDANCE WITH CBC TBL 1705 3 AND ICC ESR-2508.
2. CONCRETE SCREW ANCHOR
PERIODICALLY INSPECT DURING SETUP AND INSTALLATION OF CONCRETE SCREW TYPE ANCHORS IN ACCORDANCE WITH CBC TBL 1705 3 AND ICC-ES ESR-2713.

NON-SHRINK GROUT

CONTINUOUSLY INSPECT THE PLACEMENT OF NON-SHRINK GROUT

STRUCTURAL STEEL AND MISCELLANEOUS IRON

SPECIAL INSPECTIONS FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 380.

SPECIAL INSPECTION FOR STRUCTURAL STEEL MEMBERS AND CONNECTIONS THAT ARE PART OF THE LATERAL FORCE RESISTING SYSTEM SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341

VERIFY THAT MILL CERTIFICATES SHOW STRUCTURAL STEEL AND MISCELLANEOUS IRON IS IN COMPLIANCE WITH PROJECT SPECIFICATIONS.

HIGH-STRENGTH BOLTING

PRIOR TO BOLTING OPERATIONS:

1. VERIFY THAT MANUFACTURERS CERTIFICATE OF COMPLIANCE FOR BOLTS, NUTS AND WASHERS MEETS THE PROJECT SPECIFICATIONS.
2. VERIFY THAT THE METHODS OF TIGHTENING TO BE USED BY THE CONTRACTOR COMPLY WITH AISC SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS CURRENT EDITION.
3. PERFORM TENSION CALIBRATION TESTS WITH THE CONTRACTORS TOOLS ON 5 BOLT ASSEMBLIES FOR EACH DIAMETER, LENGTH, GRADE, PRODUCTION LOT, AND TIGHTENING METHOD. TO BE USED ON THE PROJECT INCLUDING PRETENSIONED ANCHOR RODS. TESTS SHALL BE PER AISC SPECIFICATIONS.

DURING BOLTING OPERATIONS:

1. VERIFY THAT ALL PILES OF CONNECTED MATERIAL HAVE BEEN DRAWN TOGETHER TO BE A SNUG CONDITION AS DEFINED PER AISC SPECIFICATIONS BEFORE FINAL TIGHTENING.
2. VERIFY PLACEMENT OF MATCH-MARKS OR WRENCH CALIBRATION AS REQUIRED. CONTINUOUSLY INSPECT FINAL TIGHTENING OPERATIONS PER AISC SPECIFICATIONS.
3. EXCEPTION: THE SPECIAL INSPECTION NEED NOT BE PRESENT DURING ALL FINAL TIGHTENING OPERATIONS PROVIDED IT CAN BE VERIFIED THAT PROPER PROCEDURES WERE FOLLOWED. (I.E. THE USE OF OTTS 'TWIST-OFF' TYPE BOLTS OR MATCH-MARKING)

WELDING

1. WELDING INSPECTION SHALL BE IN COMPLIANCE WITH AWS D1.1. THE BASIS FOR WELDING INSPECTOR QUALIFICATIONS SHALL BE AWS D1.1. VERIFY MATERIALS, WELDING PROCEDURES AND QUALIFICATIONS OF WELDER PRIOR TO THE START OF THE WORK.
2. CONTINUOUSLY INSPECT ALL STRUCTURAL WELDINGS.
- EXCEPTIONS:
- a. SINGLE PASS FILLET WELDS NOT EXCEEDING 5/16" MAY HAVE PERIODIC INSPECTION.
- b. FLOOR AND ROOF DECK WELDING MAY HAVE PERIODIC INSPECTION.
- c. WELDED STUDS USED FOR DIAPHRAGM OR COMPOSITE CONSTRUCTION MAY HAVE PERIOD INSPECTION.
- d. WELDED SHEET STEEL FOR COLD FORMED STEEL FRAMING MAY HAVE PERIODIC INSPECTION.
- e. WELDED STAIRS AND RAILING SYSTEMS MAY HAVE PERIODIC INSPECTION.
3. NONDESTRUCTIVE TESTING: ALL COMPLETE JOINT PENETRATION WELDS REQUIRE ULTRASONIC TESTING. THE RATE OF TESTING MAY BE REDUCED TO 25% IF THE FAILURE RATE MEETS THE REQUIREMENTS OF CBC.

PLYWOOD SHEATHING

1. WHERE NOTED ON STRUCTURAL DRAWINGS, EXTERIOR AND INTERIOR SHEAR WALLS, FLOORS AND ROOFS SHALL BE SHEATHED WITH DOUGLAS FIR PLYWOOD, STRUCTURAL II, C-D OR BETTER, WITH EXTERIOR GLUE. STRUCTURAL ORIENTED STRAND BOARD (OSB) MAY BE SUBSTITUTED FOR PLYWOOD FOR SHEAR WALLS.
2. ALL PLYWOOD SHEATHING USED STRUCTURALLY SHALL EXTEND CONTINUOUSLY BEHIND ALL FINISHES. WHERE PLYWOOD SHEATHING IS TO BE PLASTERED, IT SHALL BE PROTECTED BY AN UNBROKEN LAYER OF MOISTURE-TIGHT PAPER UNDER LATHING.
3. IN GENERAL, PLYWOOD SHEETS SHALL BE 4' x 8' or 4'x10'. THE LONG DIMENSION MAY BE HORIZONTAL OR VERTICAL AT WALLS. ROOF AND FLOOR SHEETS SHALL HAVE FACE PLIES ACROSS JOISTS OR FRAMING MEMBERS WITH THE END JOINTS STAGGERED 4'-0". ALL PLYWOOD JOINTS SHALL BE ACCURATELY CENTERED ON SUPPORTING ELEMENTS INCLUDING BLOCKING.
4. SHEAR WALLS WITH PLYWOOD ON BOTH SIDES SHALL HAVE VERTICAL JOINTS STAGGERED.

Table 2.1. Acceptable ASTM A563 Nut Grade and Finish and ASTM F436 Washer Type and Finish

ASTM Desig.	Bolt Type	Bolt Finish ¹	ASTM A563 nut grade and finish ¹	ASTM F436 washer type and finish ^{2,3}
A305	1	Plain (uncoated)	C, C3, D, DH ⁴ and DH3; plain	1: plain
		Galvanized	DH ⁴ ; galvanized And lubricated	1: galvanized
	3	Plain	C3 and DH3; plain	3: plain
		Plain (uncoated)	C, C3, DH ⁴ and DH3; plain	1: plain ⁵
F1652	1	Mechanically Galvanized	DH ⁴ ; mechanically galvanized and lubricated	1: mechanically galvanized ⁵
		3	Plain	C3 and DH3; plain
A490	1	Plain	DH ⁴ and DH3; plain	1: plain
		3	Plain	DH3; plain

¹ Applicable only if washer is required in Section 6.

² Required in all cases under nut per Section 6.

³ The substitution of ASTM A194 grade 2H nuts in place of ASTM A563 grade DH nuts is permitted.

⁴ "Galvanized" as used in this table refers to hot-dip galvanizing in accordance with ASTM A153 or mechanical galvanizing in accordance with ASTM B695.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS PER AWS "STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS WELDING CODE.
2. ARC WELDING ELECTRODES SHALL BE E70 SERIES FOR A36, A57, A500, A572 AND A992 MATERIAL AND E80 SERIES FOR A705 REINFORCING STEEL. ALL ELECTRODES SHALL BE LOW HYDROGEN WITH A MINIMUM CVN VALUE OF 20 FT LBS AT 0 DEGREES F. EXCEPTIONS:
- a. METAL DECK WELDING
- b. STAIR AND HANDRAIL WELDING
- c. LIGHT GAGE STEEL WELDING
3. WELD METAL TOUGHNESS SHALL BE REPORTED ON THE ELECTRODE MANUFACTURER'S CERTIFICATE OF COMPLIANCE.
4. TACK WELDS, AIR-ARC GOUGING AND FLAME CUTTING SHALL NOT BE PERFORMED WITHOUT ADEQUATE PREHEAT OR INCORPORATION INTO THE FINAL WELD.
5. THE FILLER METAL MANUFACTURER'S PUBLISHED RECOMMENDATIONS SHALL BE THE BASIS FOR DETERMINING THE ALLOWABLE RANGE OF ESSENTIAL VARIABLES FOR THE PRE-QUALIFIED WPS.
6. UNLESS NOTED OTHERWISE ON THE PLANS, BACK-UP BARS FOR CJP WELDS SHALL BE REMOVED FOLLOWED BY BACK-GOUGING AND BACK-WELDING.
7. THE WELDING INSPECTOR SHALL FURNISH THE ENGINEER WITH A REPORT VERIFYING THAT ALL WELDS HAVE BEEN DONE IN CONFORMITY WITH THE PLANS, SPECIFICATIONS, CURRENT AWS D1.1 AND ANY OTHER APPLICABLE CODES.

TRUS JOIST® PRODUCT SPECIFICATION GENERAL NOTES

1. ALL SPECIFIED ENGINEERED WOOD PRODUCTS SHALL BE MANUFACTURED AND LABELED AS TRUS JOIST PRODUCTS BY WEYERHAEUSER. ICC-ES CODE EVALUATION REPORTS SHALL BE THE FOLLOWING:
- ESR-1153 FOR TJI ®JOISTS ESR-1387 FOR TIMBERSTRAND ®LSL, MICROLLAM ®LVL & PARALLAM ®PSL
2. MODIFICATIONS/ALTERNATES: THE SPECIFICATION IS BASED ON TRUS JOIST ENGINEERED WOOD PRODUCTS. NO ALTERNATIVES, MODIFICATIONS OR SUBSTITUTIONS ARE ALLOWED UNLESS THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SUBMITS IN WRITING FOR SUCH REQUESTS TO THE PROJECT ENGINEER FOR APPROVAL, NO LATER THAN TWO WEEKS PRIOR TO BID. ALTERNATE PRODUCTS MUST HAVE A CURRENT ICC-ES CODE EVALUATION REPORT WITH LISTED DESIGN PROPERTIES EQUIVALENT OR GREATER THAN SPECIFIED PRODUCTS. SUBSTANTIATING CALCULATIONS SHALL BE SUBMITTED. ALL HOLES, TAPERED CUTS AND NOTCHING SHALL BE JUSTIFIED FOR ALTERNATE. CONTRACT SHALL REFLECT ANY PRICE CHANGES. THE ENGINEER OF RECORD SHALL BE REIMBURSED FOR ANY REVIEW TIME.
3. ALL L JOISTS SHALL BE MANUFACTURED WITH LVL FLANGE MATERIAL. WEB MATERIAL SHALL BE EQUIVALENT TO PERFORMANCE PLUS ®OSB.
4. DIAPHRAGM CAPACITY AND NAILING LIMITATIONS OF ALTERNATE SHALL BE SUBSTANTIATED AS EQUIVALENT IN AN ICC-ES CODE EVALUATION REPORT.
5. ALL TIMBERSTRAND ®LSL RIM BOARD/BLOCKING SUBSTITUTIONS SHALL BE ICC-ES REPORT EVALUATED FOR USE AS RIM BOARD/BLOCKING AND/OR BE CROSS-PLY LAMINATED.
6. ALL EQUIVALENT FIRE AND SOUND RATINGS FOR FLOOR/CEILING ASSEMBLIES SHALL BE SUBSTANTIATED IN AN ICC-ES CODE EVALUATION REPORT OR SIMILAR THIRD PARTY EVALUATION AS EQUIVALENT TO TJI JOIST ASSEMBLIES.
7. INSTALLATION: ALL SPECIFIED ENGINEERED PRODUCTS SHALL BE INSTALLED IN ACCORDANCE TO THE MANUFACTURERS SPECIFICATIONS AND THE APPLICABLE STRUCTURAL DETAILS FROM THE APPROVED PLANS.
8. PENETRATIONS: ALL PENETRATIONS MUST BE APPROVED BY THE DESIGNER OF RECORD PRIOR TO PERFORMING WORK.

CARPENTRY

1. CARPENTRY SHALL CONFORM TO THE PROVISIONS OF THE CURRENT CALIFORNIA BUILDING CODE.
2. FRAMING LUMBER SHALL BE DOUGLAS FIR, GRADES AS FOLLOWS UNLESS OTHERWISE NOTED ON DRAWINGS:
- | | |
|--------------|---------------------------|
| A. MUD SILLS | PRESSURE TREATED HEM FIR. |
| B. PLATES | NO. 2 OR BETTER |
| C. STUDS | 2x4 OR 3x4 CONSTRUCTION |
| | 2x6 AND LARGER NO. 2 |
| D. JOISTS | NO. 2 |
| E. BEAMS | NO. 2 |
| F. POSTS | NO. 2 |
3. TOP PLATES OF EXTERIOR WALLS SHALL NOT BE CUT TO LAP THE TOP PLATES OF INTERSECTING WALLS EXCEPT AT EXTERIOR WALL CORNERS OR AS OTHERWISE NOTED ON DRAWINGS.
4. BOLTS IN WOOD SHALL BE MACHINE BOLTS UNLESS OTHERWISE NOTED.
5. BOLT HOLES IN WOOD AND STEEL SHALL BE THE DIAMETER OF THE BOLT PLUS 1/16".
6. WHERE REQUIRED FOR INSULATION, HEADER WIDTH MAY BE REDUCED BY 2".
7. FOR DOUBLE TOP PLATES LAP SPICE, USE (8) 16d.

THESE PLANS ARE ORIGINALLY
PRINTED ON 24"x36" PAPER.



REVISIONS

BY

2-17-23

GKK

ENGINEER

WHITCHURCH ENGINEERING, INC.

NO. 00914

02/17/23

610 9th Street Fortuna, California 95540

Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS

APN: 150-070-19

Site Address: 1350 Hastings Ave, Ukiah, Ca.

For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95492

NOTES/TYPICAL DETAILS

11/7/2023

Date

DEC 19 '22

Scale

AS NOTED

Design

BLW

Drawn

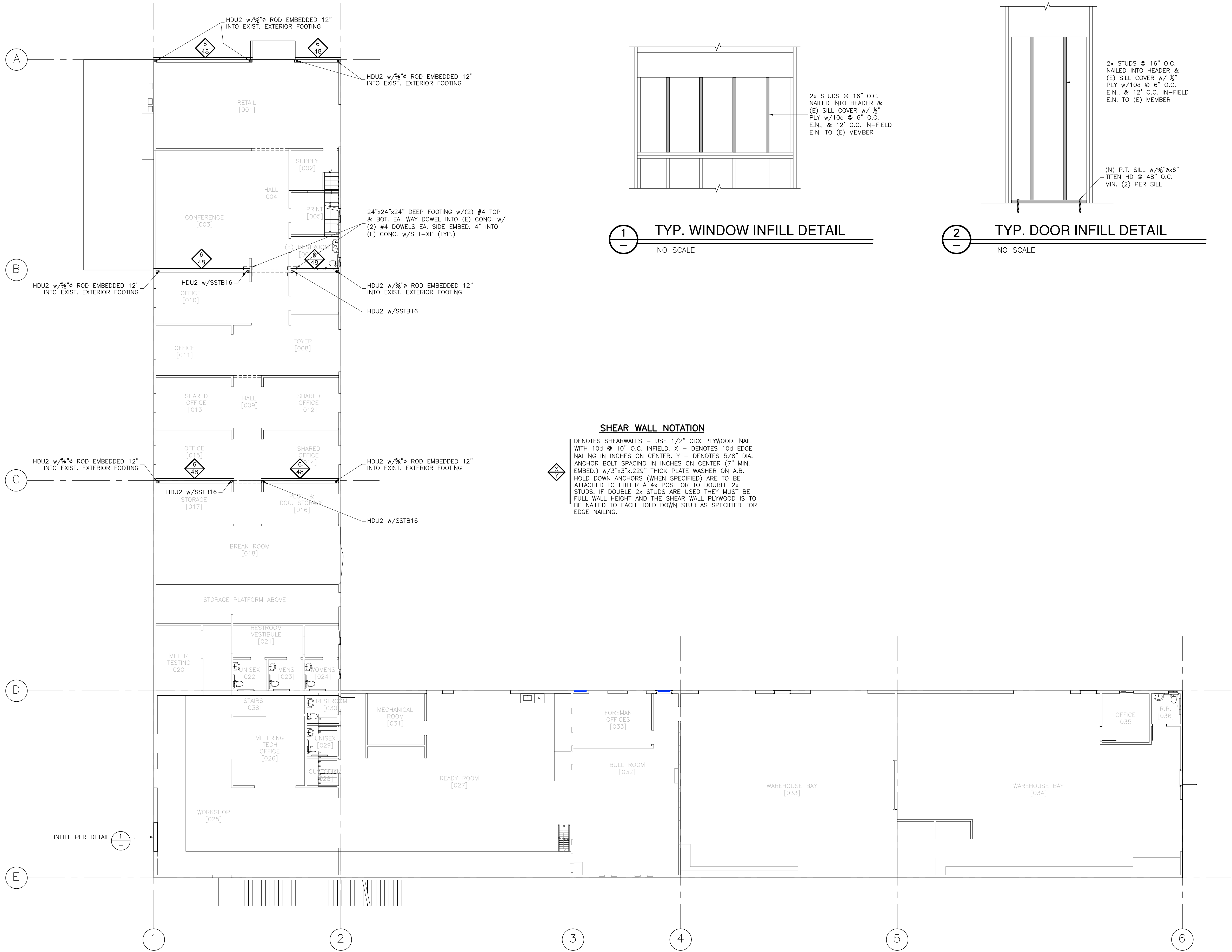
GKK

Job

COU2201

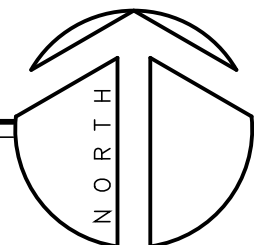
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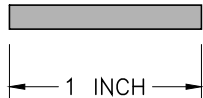


GROUND FLOOR STRUCTURAL PLAN

SCALE: 3/32"=1'-0"

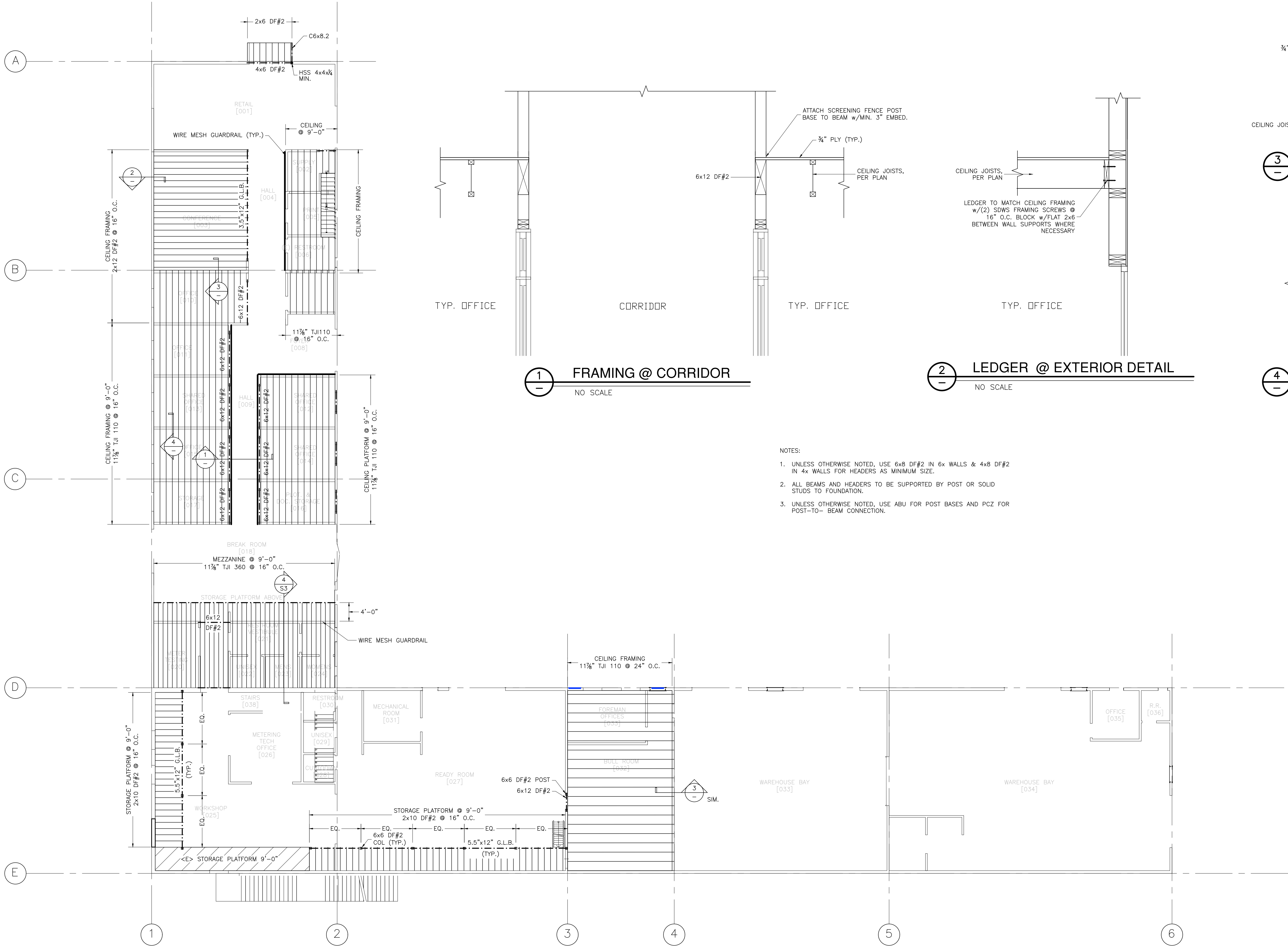


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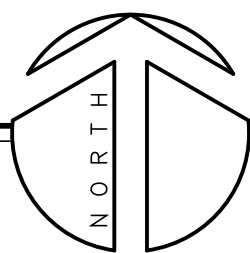
REVISIONS		BY
Δ	2-17-23	GKK
		02/17/23
PROFESSIONAL ENGINEER WHITCHURCH ENGINEERING, INC. NO. 00914 DATE: 11/17/2023 SITE OF PROJECT 610 9th Street Fortuna, California 95540 Phone (707) 725-6926		
HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS Site Address: 1350 Hastings Ave, Ukiah, CA. APN: 180-070-19		
GROUND FLOOR STRUCTURAL PLAN For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482		
Date	DEC 19 '22	
Scale	AS NOTED	
Design	BLW	
Drawn	GKK	
Job	COU2201	
Sheet	S1	

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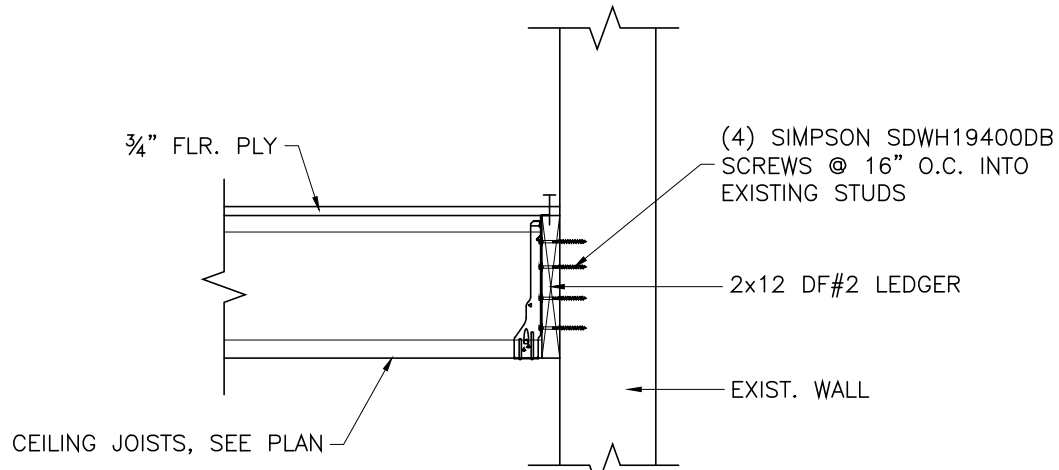
CEILING/MEZZANINE PLAN

SCALE: 3/32"=1'-0"



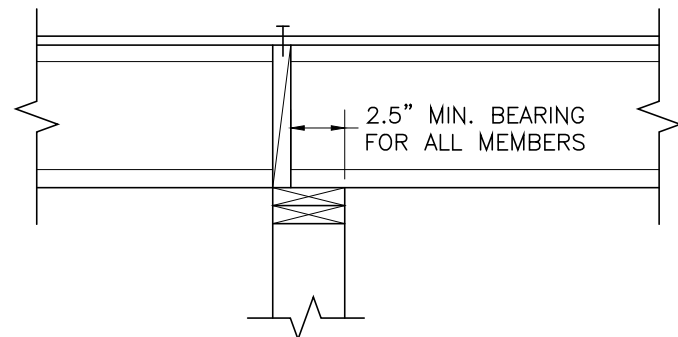
NOTES:

1. UNLESS OTHERWISE NOTED, USE 6x8 DF#2 IN 6x WALLS & 4x8 DF#2 IN 4x WALLS FOR HEADERS AS MINIMUM SIZE.
2. ALL BEAMS AND HEADERS TO BE SUPPORTED BY POST OR SOLID STUDS TO FOUNDATION.
3. UNLESS OTHERWISE NOTED, USE ABU FOR POST BASES AND PCZ FOR POST-TO-BEAM CONNECTION.



3 LEDGER DETAIL

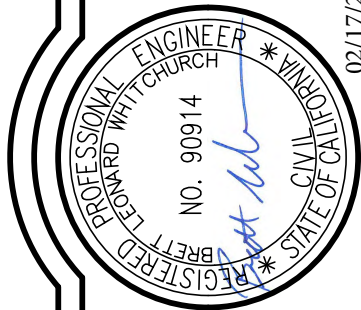
NO SCALE



4 BLOCKING DETAIL

NO SCALE

REVISIONS	BY



WHITCHURCH ENGINEERING, INC.

610 9th Street Fortuna, California 95540

Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS

APN: 180-070-19

Site Address: 1350 Hastings Ave, Ukiah, CA.

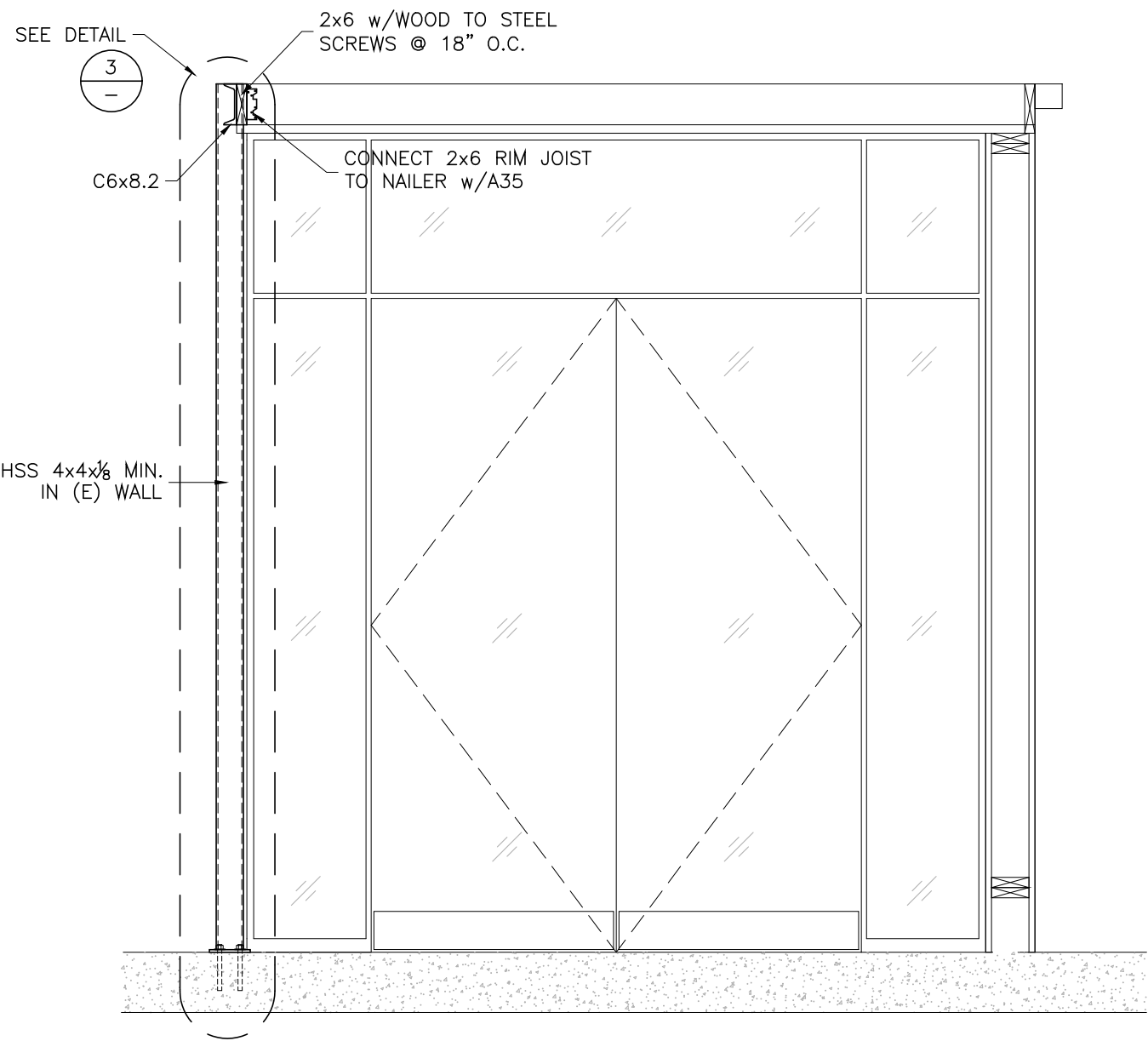
CEILING/MEZZANINE PLAN/DETAILS

For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

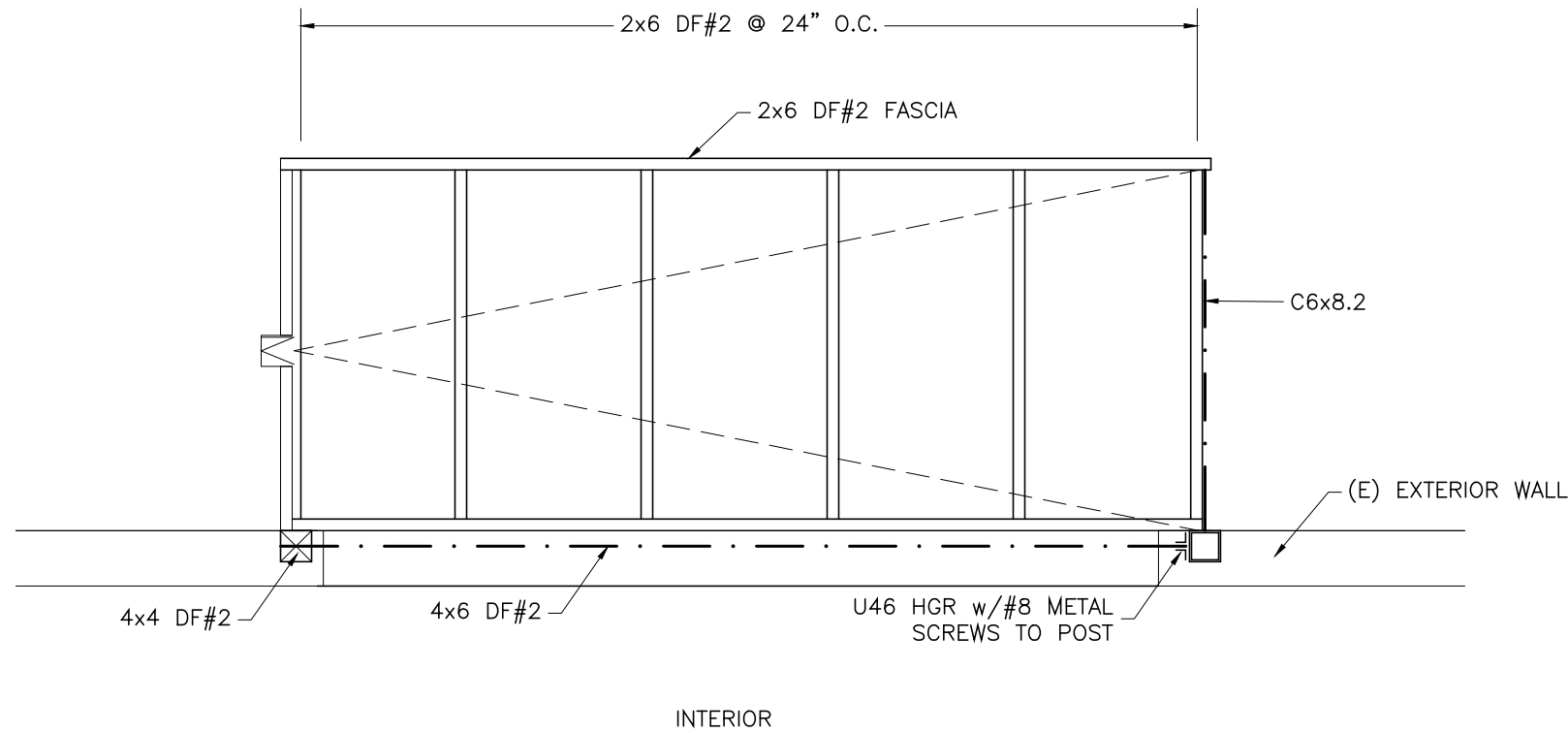
Date	DEC 19 '22
Scale	AS NOTED
Design	BLW
Drawn	GKK
Job	COU2201
Sheet	

S2

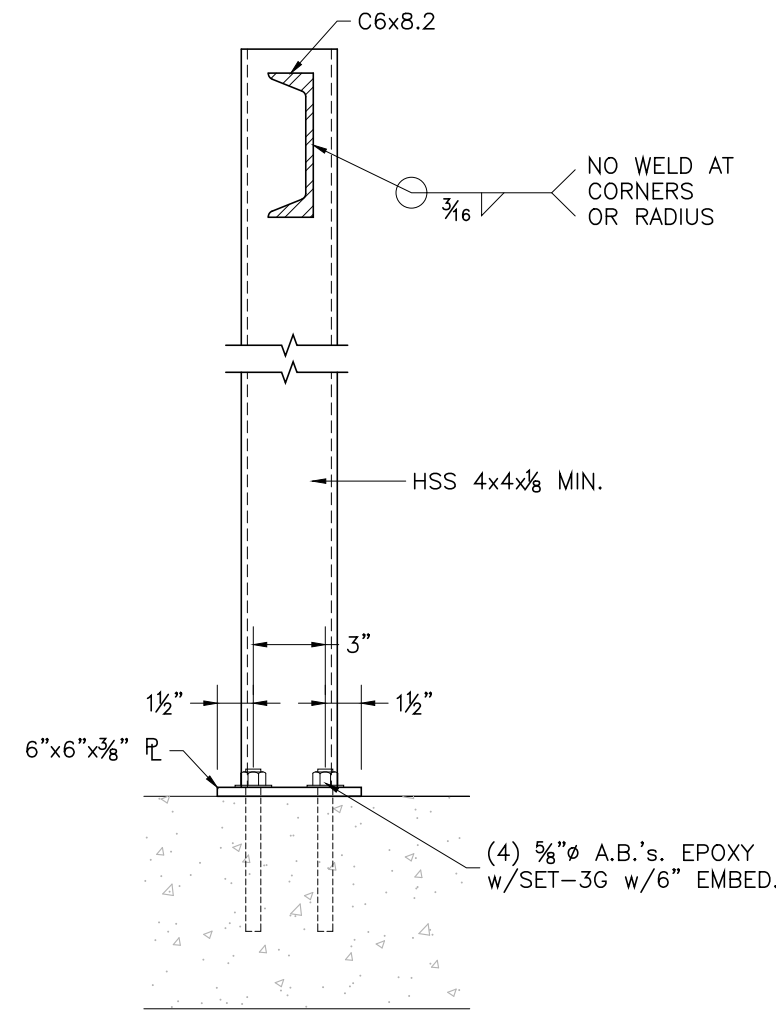
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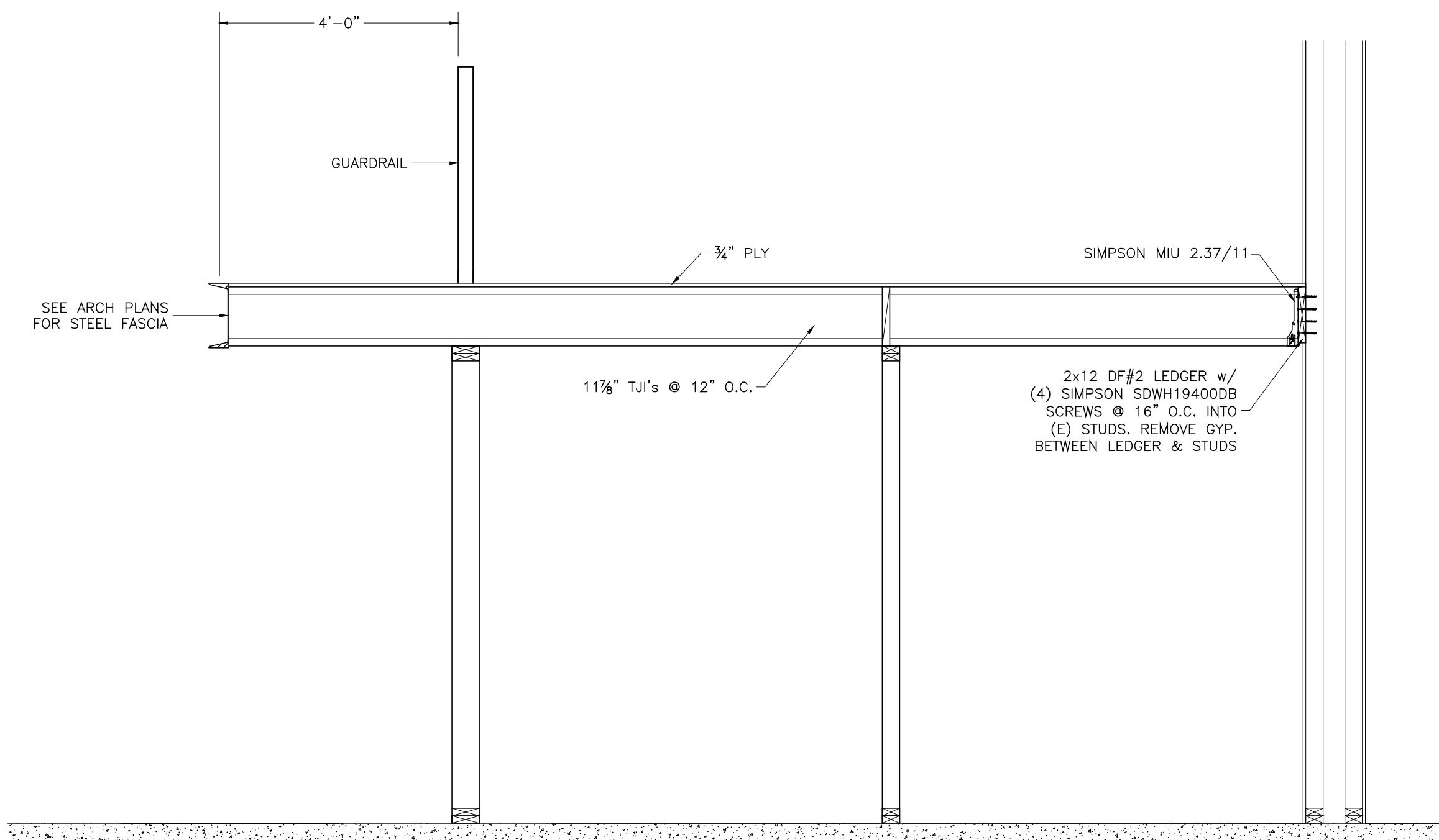
1 ENTRY AWNING DETAIL
SCALE: 1/2"=1'-0"



2 AWNING ROOF FRAMING PLAN
SCALE: 1/2"=1'-0"



3 HSS COLUMN DETAIL
SCALE: 1 1/2"=1'-0"



4 DETAIL @ BREAK ROOM
SCALE: 1/2"=1'-0"

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REVISIONS		BY
2-17-23	GKK	

PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
NO. 99914
WHITCHURCH
02/17/23

WHITCHURCH ENGINEERING, INC.
610 9th Street Fortuna, California 95540
Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS
Site Address: 1350 Hastings Ave, Ukiah, CA.
APN: 180-070-19

MISCELLANEOUS DETAILS
For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

Date	DEC 19 '22
Scale	AS NOTED
Design	BLW
Drawn	GKK
Job	COU2201
Sheet	S3

GENERAL NOTES

- ALL CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORMED TO THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE, 2022 EDITIONS OF THE CALIFORNIA ELECTRICAL AND FIRE CODES, AND ALL APPENDICES THERETO, CALTRANS STANDARD PLANS & SPECIFICATIONS, LATEST EDITION.
- THE CONTRACTOR SHALL PROVIDE WORKMANS COMPENSATION INSURANCE & LIABILITY INSURANCE.
- THE CONTRACTOR SHALL GUARANTEE ALL LABOR AND MATERIAL FOR A MINIMUM OF ONE YEAR.
- THE GENERAL CONTRACTOR SHALL VERIFY ALL THE SITE CONDITIONS AND DIMENSIONS BEFORE STARTING WORK. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
- FEATURES OF CONSTRUCTION SHOWN ARE TYPICAL AND SHALL APPLY GENERALLY THROUGHOUT SIMILAR CONDITIONS.
- DETAILS SHOWN ON TYPICAL DETAIL SHEETS SHALL BE USED WHENEVER APPLICABLE, UNLESS OTHERWISE SHOWN. SPECIFIC DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER TYPICAL DETAILS. SPECIFIC NOTES SHOWN ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER SPECIFICATIONS.
- ALL CONDITIONS SHOWN OR NOTED AS EXISTING ARE BASED ON BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE DRAWINGS, NO WARRANTY IS IMPLIED AS TO THEIR ACCURACY.
- ALL BUILDING MATERIAL SHALL BE NEW MATERIAL, UNLESS OTHERWISE APPROVED OR SPECIFIED BY ENGINEER.
- CONTRACTORS SHALL VERIFY EASEMENTS (PUBLIC OR PRIVATE) FOR SEWER, WATER, ELECTRICAL, TELEPHONE, CABLE T.V., AND GAS PRIOR TO STARTING CONSTRUCTION.
- VERIFY ALL UTILITY DATA AND LOCATIONS PRIOR TO ANY WORK. ONSITE UTILITIES SHALL BE COORDINATED WITH THE APPROPRIATE AGENCY OR UTILITY COMPANY.
- THE DESIGN CONSULTANTS ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF PRODUCTS OR MATERIALS NOT SPECIFIED IN THESE DRAWINGS.
- ACCEPT NO INK OR PENCIL CORRECTIONS TO THESE DRAWINGS WITHOUT THE OWNER'S REPRESENTATIVE INITIAL OR SIGNATURE. THE DESIGN CONSULTANTS SHALL BE HELD HARMLESS FOR ALL CHANGES NOT IN CONFORMANCE WITH THIS PROVISION.
- ALL USERS OF THESE DRAWINGS AGREE BY USING THESE DRAWINGS TO HOLD THE DESIGN CONSULTANTS HARMLESS FOR ANY AND ALL WORK THAT DOES NOT CONFORMED TO THE REQUIREMENTS AND MINIMUM STANDARDS OF THE C.B.C., ORDINANCES, AND ACCEPTABLE STANDARDS.
- THESE DRAWINGS ARE THE PROPERTY OF THE DESIGN CONSULTANTS AND ARE NOT TO BE USED IN PART FOR ANY WORK OTHER THAN THE LOCATION SHOWN HEREON.
- THE DESIGN CONSULTANTS AND THE OWNER SHALL HAVE NO CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES FOR ANY SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
- THE CONTRACTOR SHALL COMPLY WITH ALL OF THE APPLICABLE REQUIREMENTS OF THE FEDERAL WILLIAMS – STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) OF 1970' AND ANY AMENDMENTS THERETO. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE ENGINEER OR THE GOVERNING JURISDICTIONAL BUILDING DEPARTMENT.
- WHERE DIMENSIONS ARE SHOWN ON THE PLANS, THEY SHALL GOVERN OVER SCALE, DO NOT SCALE DRAWINGS. IN THE EVENT OF CONTRADICTION, USE THE MOST STRINGENT SPECIFICATION AND NOTIFY THE ENGINEER.
- THE CONTRACTOR SHALL COMPARE ALL PAGES OF THE PLANS; ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- UPON COMPLETION OF THE PROJECT, THE CONTRACTOR AND SUBCONTRACTORS SHALL REMOVE SURPLUS MATERIALS AND DEBRIS FROM THE SITE. CONTRACTOR SHALL REMOVE ALL DELETERIOUS MATERIAL FROM SITE INCLUDING BUT NOT LIMITED TO; BROKEN CONCRETE, STUMPS, ROCKS, DEBRIS, ASPHALT RUBBLE, GARBAGE, ETC. AND LEGALLY DISPOSE OF ABOVE.
- LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE FROM RECORD INFORMATION ONLY AND ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION AND CONSTRUCTION IN ANY AREA. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT (USA) AT 1-800-642-2444 A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION. CONTRACTORS SHALL IMMEDIATELY REPORT ANY DISCREPANCIES IN RECORD INFORMATION TO ENGINEER AND DEVELOPER PRIOR TO CONSTRUCTING ANY WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE SAFETY REQUIREMENTS.
- CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS ON OR ADJACENT TO PROJECT SITE. CONTRACTOR SHALL REPAIR OR REPLACE ALL DAMAGE TO EXISTING IMPROVEMENTS TO THE SATISFACTION OF THE GOVERNING JURISDICTIONAL BUILDING DEPARTMENT OR PRIVATE PROPERTY OWNER INVOLVED.
- BEAMS, JOISTS AND OTHER STRUCTURAL ELEMENTS SHALL NOT BE CUT OR PENETRATED EXCEPT AS SHOWN ON STRUCTURAL DETAILS OR SPECIFICALLY APPROVED BY THE ENGINEER. NO OVER CUTTING IS ALLOWED FOR CUTS OR PENETRATIONS OF STRUCTURAL ELEMENTS.
- STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, BRACING OR SHORING SHALL SUPPORT STRUCTURES WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. BRACING AND SHORING REQUIREMENTS SHALL BE ACCEPTABLE TO THE ENGINEER OF RECORD.

SUBMITTALS

CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ENGINEER THE FOLLOWING:

- ROOF TRUSS DESIGN & CALCULATIONS

SUBMIT TWO COPIES FOR REVIEW. ORDERING OF MATERIALS, FABRICATION, OR ANY RELATED WORK SHALL NOT PROCEED UNTIL SUBMITTALS HAVE BEEN STAMPED APPROVED BY THE ENGINEER AND BUILDING DEPARTMENT APPROVAL HAS BEEN OBTAINED.

BRACING & SHORING

- THE STABILITY AND INTEGRITY OF THE STRUCTURE, DURING CONSTRUCTION SHALL BE MAINTAINED AT LEVELS GENERALLY ACCEPTABLE WITHIN THE CONSTRUCTION INDUSTRY BY THE USE OF BRACING, SHORING AND UNDERPINNING UNTIL THE PROPOSED STRUCTURE IS COMPLETED. IN NO CASE SHALL THE STRUCTURE, OR ANY PORTION OF IT, BE ALLOWED TO BECOME UNSAFE DURING CONSTRUCTION.
- THE BRACING AND SHORING SYSTEMS REQUIRED TO PROVIDE TEMPORARY SUPPORT OF THE STRUCTURE DURING CONSTRUCTION SHALL BE DESIGNED TO SUPPORT THE DEAD, LIVE, SOILS, EARTHQUAKE AND WIND LOADS THAT MAY BE IMPOSED ON THE STRUCTURE DURING CONSTRUCTION IN ACCORDANCE WITH INDUSTRY STANDARDS AND GENERALLY ACCEPTED ENGINEERING PRINCIPLES.
- THE CONTRACTOR SHALL SUBMIT PROPOSED SHORING, BRACING AND UNDERPINNING SYSTEMS TO THE ENGINEER FOR REVIEW. THE SUBMITTAL WILL BE REVIEWED ONLY IN SO FAR AS THE DETAILS AFFECT THE CHARACTER OF THE FINISHED WORK, BUT THE DETAILS OF THE DESIGN WILL BE LEFT TO THE CONTRACTOR WHO SHALL BE RESPONSIBLE FOR THE SUCCESSFUL COMPLETION OF THE WORK.
- NO CONSTRUCTION OF THE BRACING, SHORING OR THE UNDERPINNING SYSTEM, OR ORDERING MATERIALS SHALL TAKE PLACE UNTIL THE CONTRACTOR HAS RECEIVED REVIEWED SUBMITTALS BY THE ENGINEER.
- THE SUBMITTALS SHALL SHOW LAYOUT, SIZE OF MEMBERS, CONNECTION DETAILS AND CONSTRUCTION SEQUENCE FOR ALL BRACING AND SHORING SYSTEMS. THE SUBMITTALS SHALL BE ACCOMPANIED BY STRUCTURAL CALCULATIONS SIGNED BY A REGISTERED CIVIL ENGINEER OF THE STATE OF CALIFORNIA.
- FOLLOWING COMPLETION OF REVIEW BY THE ENGINEER OF RECORD AND INCORPORATION OF REVIEW COMMENTS INTO THE SUBMITTALS. THE PLANS AND CALCULATION SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDED IN THIS SUBMITTAL SHALL BE A LETTER FROM THE ENGINEER OF RECORD INDICATING THAT THE SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN PLANS AND SPECIFICATIONS.

CARPENTRY

- CARPENTRY SHALL CONFORM TO THE PROVISIONS OF THE CURRENT CALIFORNIA BUILDING CODE & AMERICAN SOFTWOOD LUMBER STANDARD PS20 OR EQUIVALENT.

2. FRAMING LUMBER SHALL BE DOUGLAS FIR, GRADES AS FOLLOWS UNLESS OTHERWISE NOTED ON DRAWINGS:

- | | |
|--------------|---------------------------|
| A. MUD SILLS | PRESSURE TREATED HEM FIR. |
| B. PLATES | NO. 2 OR BETTER |
| C. STUDS | 2x4 OR 3x4 CONSTRUCTION |
| | 2x6 AND LARGER NO. 2 |
| D. JOISTS | NO. 2 |
| E. BEAMS | NO. 2 |
| F. POSTS | NO. 2 |

- TOP PLATES OF EXTERIOR WALLS SHALL NOT BE CUT TO LAP THE TOP PLATES OF INTERSECTING WALLS EXCEPT AT EXTERIOR WALL CORNERS OR AS OTHERWISE NOTED ON DRAWINGS.
- BOLTS IN WOOD SHALL BE MACHINE BOLTS UNLESS OTHERWISE NOTED.
- BOLT HOLES IN WOOD AND STEEL SHALL BE THE DIAMETER OF THE BOLT PLUS 1/16".
- WHERE REQUIRED FOR INSULATION, HEADER WIDTH MAY BE REDUCED BY 2".
- FOR DOUBLE TOP PLATES LAP SPLICE, USE (8) 16d.
- REFER TO FASTENING SCHEDULE TABLE 2304.10.1 IN CBC FOR MINIMUM NAILING REQUIREMENTS.
- ALL SHEAR WALL PANEL EDGES SHALL BE BLOCKED.

PLYWOOD SHEATHING

- WHERE NOTED ON STRUCTURAL DRAWINGS, EXTERIOR AND INTERIOR SHEAR WALLS, FLOORS AND ROOFS SHALL BE SHEATHED WITH DOUGLAS FIR PLYWOOD, STRUCTURAL II, C-D OR BETTER, WITH EXTERIOR GLUE. STRUCTURAL ORIENTED STRAND BOARD (OSB) MAY BE SUBSTITUTED FOR PLYWOOD FOR SHEAR WALLS.
- ALL PLYWOOD SHEATHING USED STRUCTURALLY SHALL EXTEND CONTINUOUSLY BEHIND ALL FINISHES. WHERE PLYWOOD SHEATHING IS TO BE PLASTERED, IT SHALL BE PROTECTED BY AN UNBROKEN LAYER OF MOISTURE-TIGHT PAPER UNDER LATHING.
- IN GENERAL, PLYWOOD SHEETS SHALL BE 4' x 8' or 4'x10'. THE LONG DIMENSION MAY BE HORIZONTAL OR VERTICAL AT WALLS. ROOF AND FLOOR SHEETS SHALL HAVE FACE PLIES ACROSS JOISTS OR FRAMING MEMBERS WITH THE END JOINTS STAGGERED 4'-0". ALL PLYWOOD JOINTS SHALL BE ACCURATELY CENTERED ON SUPPORTING ELEMENTS INCLUDING BLOCKING.
- SHEAR WALLS WITH PLYWOOD ON BOTH SIDES SHALL HAVE VERTICAL JOINTS STAGGERED.
- WOOD STRUCTURAL PANELS SHALL MEET THE PROVISIONS OF PS1 OR PS2 OR ANSI/APA PRP120.

BOISE CASCADE JOISTS & BEAMS GENERAL NOTES

- THIS WORK INCLUDES THE COMPLETE FURNISHING AND INSTALLATION OF ALL BCI JOISTS AND VERSA LAM® LVL BEAMS AS SHOWN ON THE DRAWINGS, HEREIN SPECIFIED AND NECESSARY TO COMPLETE THE WORK. ALL SPECIFIED ENGINEERED WOOD PRODUCTS SHALL BE MANUFACTURED AND LABELED AS SPECIFIED. ICC-ES CODE EVALUATION REPORTS SHALL BE THE FOLLOWING:
ESR-1040 FOR VERSA-LAM LAMINATED VENEER LUMBER
ESR-1336 FOR BCI PREFABRICATED WOOD I-JOISTS

2. MATERIALS:

BCI® JOISTS SHALL BE MANUFACTURED BY BOISE CASCADE ENGINEERED WOOD PRODUCTS WITH ORIENTED STRAND BOARD WEBS, VERSALAM® LAMINATED VENEER LUMBER FLANGES AND WATERPROOF, STRUCTURAL ADHESIVES. JOIST WEBS SHALL BE GRADED STRUCTURAL I EXPOSURE 1 BY AN AGENCY LISTED BY A MODEL CODE EVALUATION SERVICE. STRANDS ON THE FACE LAYERS OF THE WEB PANELS SHALL BE ORIENTED VERTICALLY IN THE JOIST. THE WEB PANELS SHALL BE GLUED TOGETHER TO FORM A CONTINUOUS WEB MEMBER. THE WEB PANELS SHALL BE MACHINED TO FIT INTO A GROOVE IN THE CENTER OF THE WIDE FACE OF THE FLANGE MEMBERS SO AS TO FORM A PRESSED GLUE JOINT AT THAT JUNCTION.

VERSA LAM® LVL BEAMS: DOUGLAS FIR VENEERS, LAMINATED IN A PRESS WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. GLUES USED IN LAMINATION ARE PHENOL FORMALDEHYDE AND ISOCYANATE EXTERIOR TYPE ADHESIVES WHICH COMPLY WITH ASTM D2269.

- DESIGN: THE BCI JOISTS & VERSA LAM® LVL BEAMS SHALL BE SIZED AND DETAILED TO FIT THE DIMENSIONS AND LOADS INDICATED ON THE PLANS. ALL DESIGNS SHALL BE IN ACCORDANCE WITH ALLOWABLE VALUES AND SECTION PROPERTIES DEVELOPED IN ACCORDANCE WITH ASTM D5456 & D5055 AND LISTED IN THE GOVERNING CODE EVALUATION SERVICE'S REPORT.
- DRAWING: ADDITIONAL DRAWINGS SHOWING LAYOUT AND DETAIL NECESSARY FOR DETERMINING FIT AND PLACEMENT IN THE BUILDING ARE TO BE PROVIDED BY THE SUPPLIER.
- FABRICATION: BCI JOISTS & VERSA LAM® LVL BEAMS SHALL BE MANUFACTURED IN A PLANT EVALUATED FOR FABRICATION BY THE GOVERNING CODE EVALUATION SERVICE AND UNDER THE SUPERVISION OF A THIRD-PARTY INSPECTION AGENCY LISTED BY THE CORRESPONDING EVALUATION SERVICE.
- STORAGE AND INSTALLATION: BCI JOISTS & VERSA LAM LVL BEAMS, IF STORED PRIOR TO ERECTION, SHALL BE STORED ON STICKERS SPACED A MAXIMUM OF 15 FT. APART. BEAMS SHALL BE STORED ON A DRY, LEVEL SURFACE AND PROTECTED FROM THE WEATHER. THEY SHALL BE HANDLED WITH CARE SO THEY ARE NOT DAMAGED. VERSA LAM LVL BEAMS ARE TO BE INSTALLED IN ACCORDANCE WITH THE PLANS AND BOISE CASCADE EWP'S INSTALLATION GUIDE. TEMPORARY CONSTRUCTION LOADS WHICH CAUSE STRESSES BEYOND DESIGN LIMITS ARE NOT PERMITTED. ERECTION BRACING SHALL BE PROVIDED TO ASSURE ADEQUATE LATERAL SUPPORT FOR THE INDIVIDUAL JOISTS & BEAMS AND THE ENTIRE SYSTEM UNTIL THE SHEATING MATERIAL HAS BEEN APPLIED.

TYPICAL ROOF TRUSS NOTES (PLATED TRUSS)

ROOF DESIGN LOADS

- | | |
|-----------|--|
| TOP CHORD | DL = 15 psf |
| | LL = 16 psf for pitch greater than 4:12 |
| | LL = 20 psf for pitch less than 4:12 |
| | DL = 10 psf |
| | LL = 10 psf (noncurrent w/ top chord LL) |

- 2X4 MINIMUM TOP AND BOTTOM CHORD TYP-2X4 MINIMUM ALL OTHER MEMBERS.
- TOP AND BOTTOM CHORDS SHALL BE DOUGLAS FIR NO. 2 OR BETTER. WEB MEMBERS SHALL BE DOUGLAS FIR OR BETTER. MOISTURE CONTENT TO BE 19% MAXIMUM.
- ALLOWABLE STRESS INCREASE FOR LOAD DURATION SHALL BE ALLOWED.
- INCREASE FOR ALLOWABLE STRESSES FOR REPETITIVE MEMBERS, SECTION 2304.1 OF THE CBC IS PERMISSIBLE.
- TRUSS DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
- DESIGN AND FABRICATION SHALL CONFORM TO CALIFORNIA BUILDING CODE (CBC) 2019 EDITION.
- EFFECTS OF ECCENTRIC LOADING SHALL BE CONSIDERED IN THE DESIGN OF ALL JOINTS.
- CALCULATIONS SHALL BE SIGNED BY A CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
- GENERAL CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING AND WEB BRACING AS REQUIRED BY MANUFACTURER'S DESIGN.
- BUILT UP GIRDER TRUSSES 3 PLY OR GREATER SHALL HAVE 1/2 INCH BOLTS AT 24 INCHES ON CENTER MAXIMUM THROUGH ALL MEMBERS OR CONNECTED BY TRUSS MANUFACTURERS SPECIFICATIONS. 2 PLY GIRDER TRUSSES MAY BE STITCH NAILED PER TRUSS MANUFACTURER'S RECOMMENDATIONS.

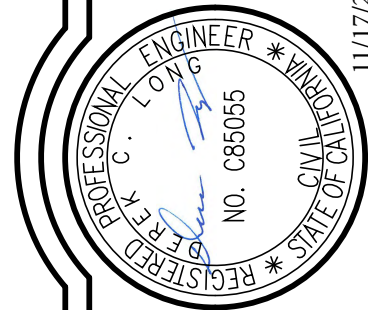
- ALL HARDWARE REQUIRED FOR CONNECTING TRUSSES (JACK TO HIP, HIP TO GIRDER, OR GIRDER TO GIRDER, ETC.) SHALL BE DESIGNED AND DETAILED BY TRUSS FABRICATOR, JOISTS HANGERS SHALL BE ICC APPROVED.

- GENERAL CONTRACTOR TO VERIFY ALL DIMENSIONS SHOWN ON TRUSS PROFILES WITH ARCHITECTURAL DRAWINGS AND IN FIELD WITH WALL LAYOUT PRIOR TO FABRICATION.

- EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE FOLLOWING INFORMATION LOCATED WITHIN 2 FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD:
 - IDENTITY OF THE COMPANY MANUFACTURING THE

- DESIGN LOAD
- SPACING OF THE TRUSSES

REVISIONS	BY
11-17-23	GKK



WHITCHURCH ENGINEERING, INC.
610 9th Street, Fortuna, California 95540
Phone (707) 725-6926

**HASTINGS ELECTRIC SERVICE CENTER
FIRE DAMAGE REPAIR**
Site Address: 1350 Hastings Ave., Ukiah, Ca.
For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

NOTES

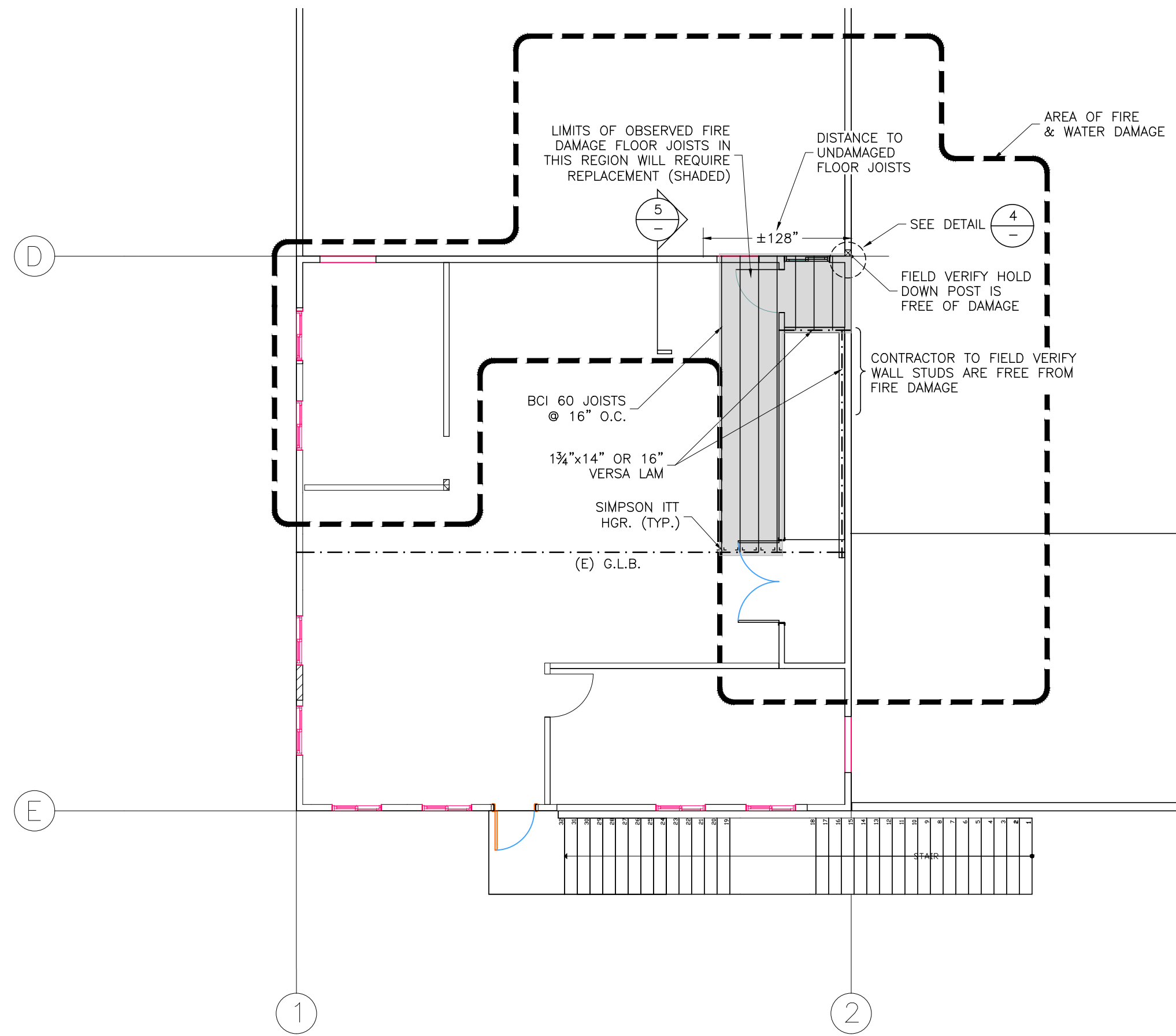
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Drawn	GKK
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S4

THESE PLANS ARE ORIGINALLY
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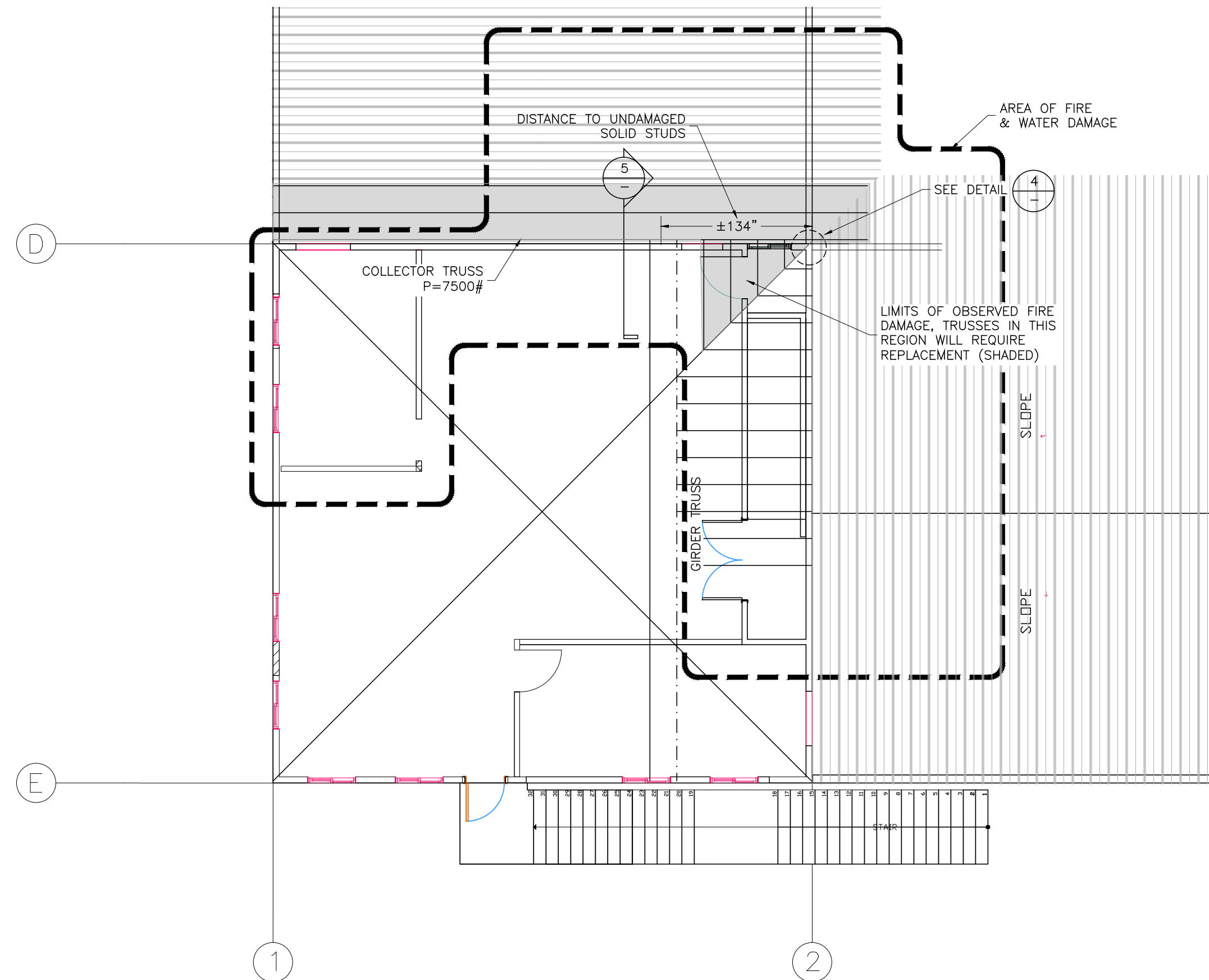
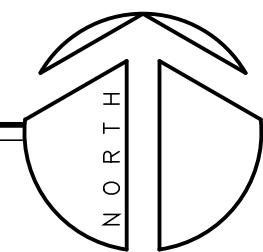


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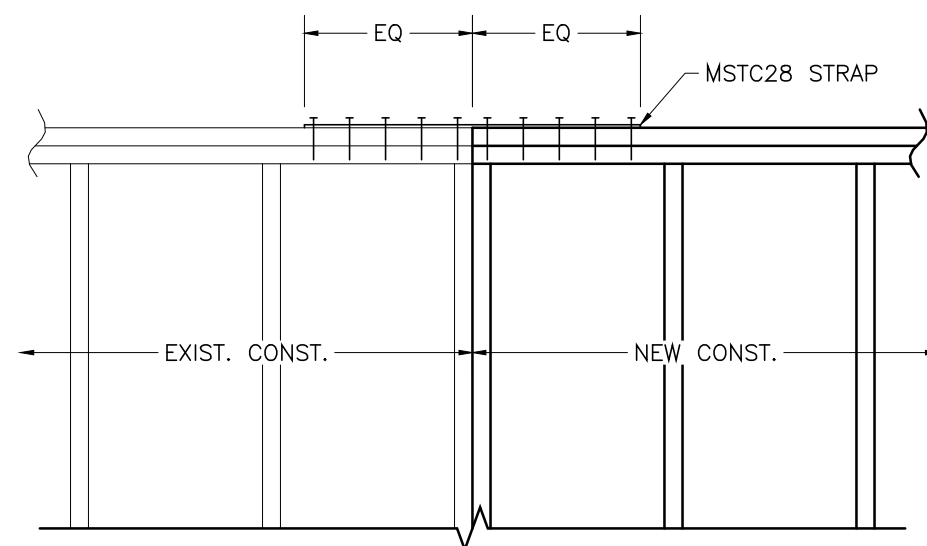
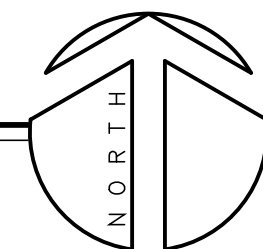
2nd FLOOR FRAMING REPAIR

SCALE: 3/32"=1'-0"

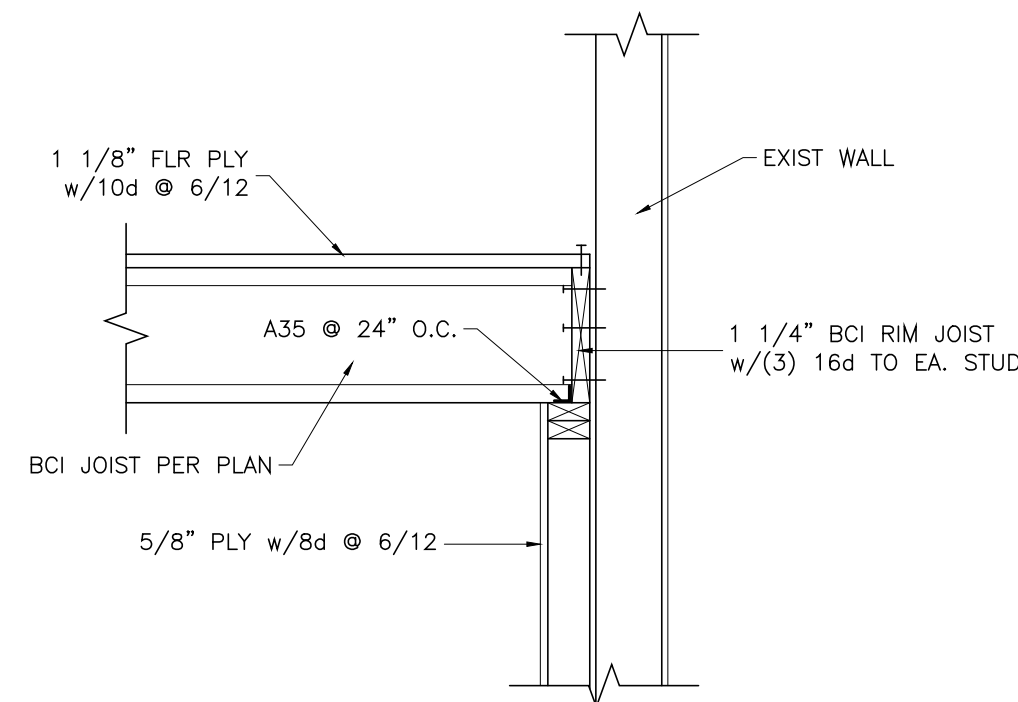


ROOF FRAMING REPAIR

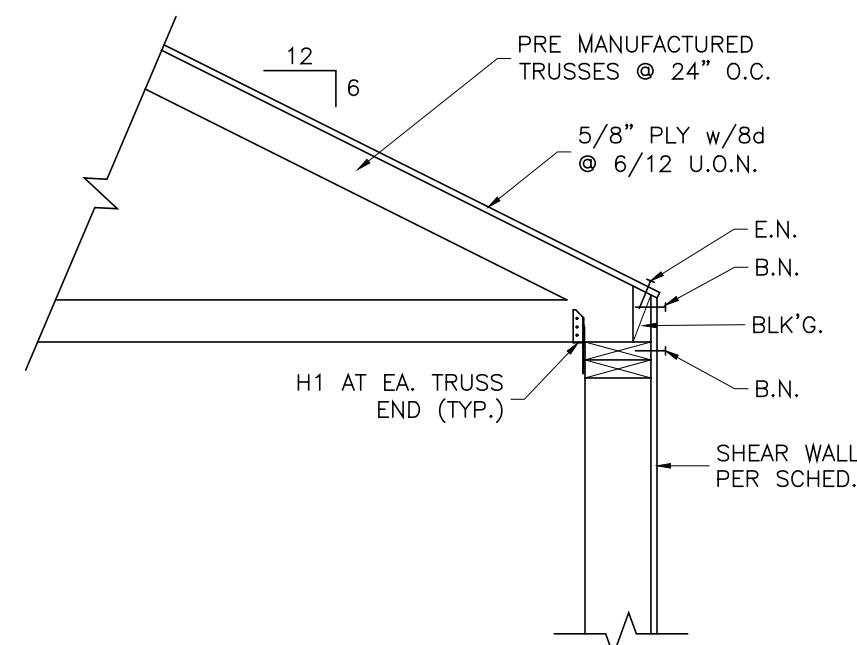
SCALE: 3/32"=1'-0"



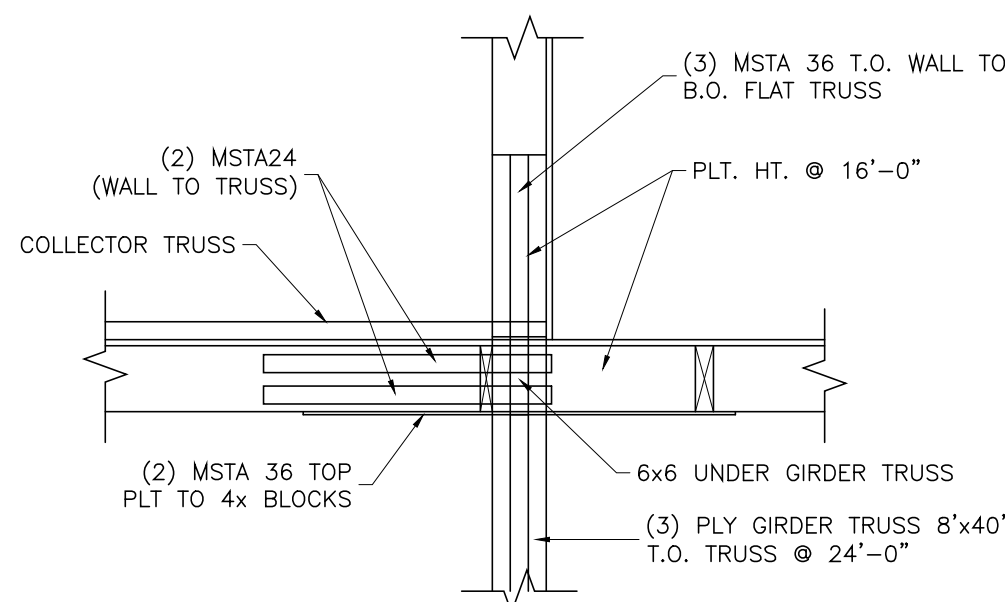
1 TYP. TOP PLATE BREAK STRAP
NO SCALE



2 FLOOR FRAMING DETAIL
NO SCALE



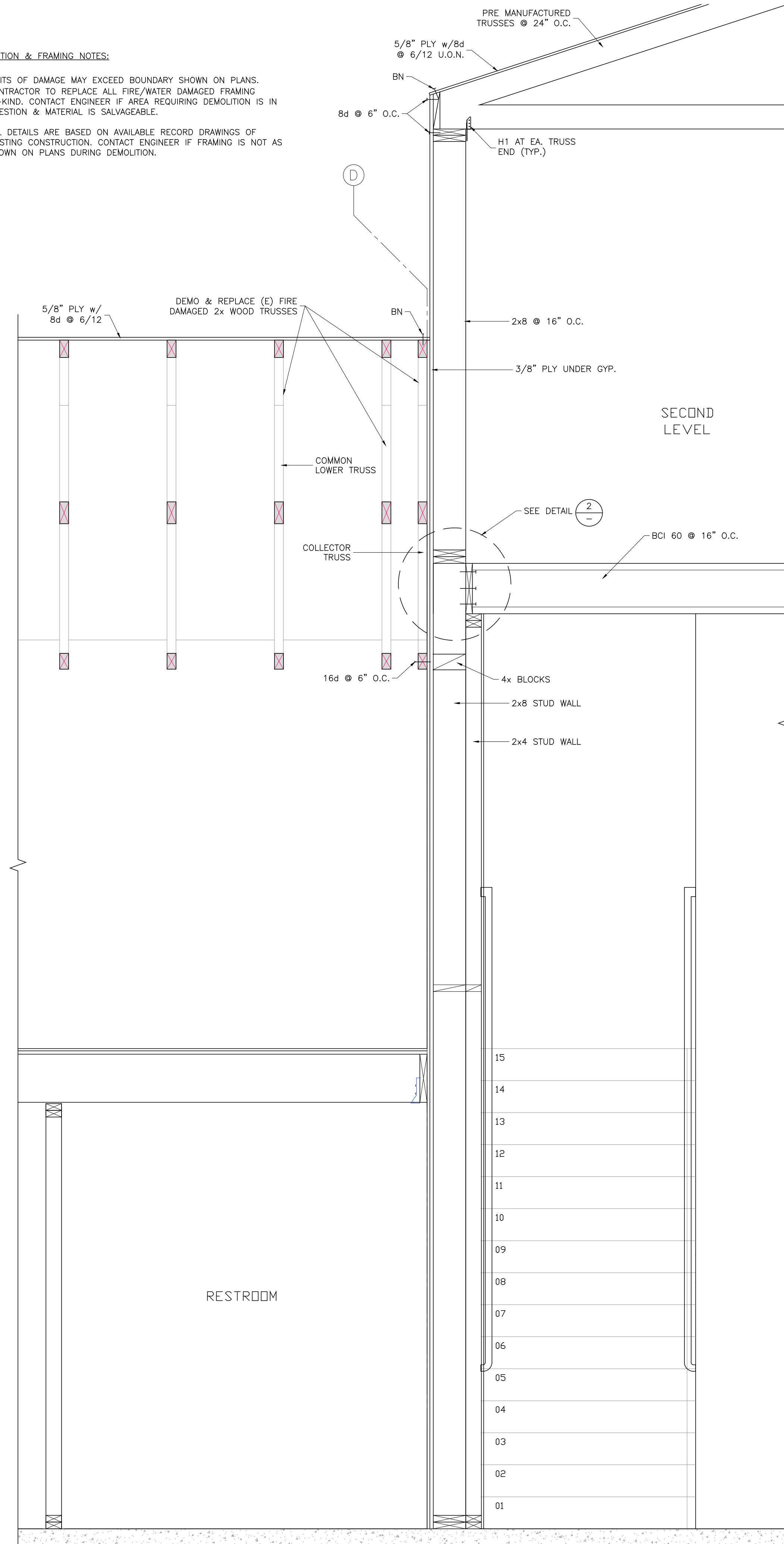
3 TYP EAVE DETAIL
NO SCALE



4 INSIDE CORNER DETAIL
NO SCALE

DEMOLITION & FRAMING NOTES:

1. LIMITS OF DAMAGE MAY EXCEED BOUNDARY SHOWN ON PLANS. CONTRACTOR TO REPLACE ALL FIRE/WATER DAMAGED FRAMING IN-KIND. CONTACT ENGINEER IF AREA REQUIRING DEMOLITION IS IN QUESTION & MATERIAL IS SALVAGEABLE.
2. ALL DETAILS ARE BASED ON AVAILABLE RECORD DRAWINGS OF EXISTING CONSTRUCTION. CONTACT ENGINEER IF FRAMING IS NOT AS SHOWN ON PLANS DURING DEMOLITION.



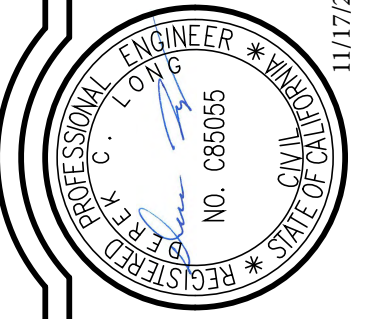
5 PARTIAL BUILDING SECTION
NO SCALE

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REVISIONS	BY
11-17-23	GKK



WHITCHURCH ENGINEERING, INC.
610 9th Street Fortuna, California 95540
Phone (707) 725-6926

**HASTINGS ELECTRIC SERVICE CENTER
FIRE DAMAGE REPAIR**
Site Address: 1350 Hastings Ave., Ukiah, Ca.
APN: 180-070-19
FLOOR FRAMING & ROOF FRAMING REPAIR
For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

Date NOV 17 '23
Scale AS NOTED
Design RAO
Drawn GKK
Job COU2201.2
Sheet

S5

GENERAL MECHANICAL NOTES

1. FIELD VERIFY AND COORDINATE LOCATION OF ALL NEW AND EXISTING EQUIPMENT, DUCTWORK, PIPING, ETC. PRIOR TO COMMENCING WORK.
2. COORDINATE LOCATIONS OF NEW ROOF PENETRATIONS WITH EXISTING STRUCTURE.
3. MAINTAIN 10 FOOT MINIMUM CLEARANCE BETWEEN FRESH AIR INLETS AND EXHAUST OUTLETS (NEW AND EXISTING).
4. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL HVAC SYSTEM FOR THE ENTIRE PROJECT AS SHOWN ON THESE DRAWINGS, INCLUDING ALL NECESSARY FEES AND PERMITS.
5. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENTLY ADOPTED BUILDING CODE, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY COUNTY, STATE AND FEDERAL CODES AND REGULATIONS IN EFFECT AT THE DATE OF THE BID.
6. IT SHALL BE THE WORK OF THE CONTRACTOR TO MAKE SUCH ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES OR MATERIAL.
7. THE WORKING DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THEY DO NOT SHOW EVERY OFFSET, BEND ORT ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR HVAC EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.
8. ALL DUCTWORK SHALL BE GALVANIZED STEEL, ROUND OR RECTANGULAR. GAUGE, REINFORCEMENT AND SUPPORT SHALL BE PER SMACNA DUCT CONSTRUCTION STANDARDS.
9. AT THE TIME OF ROUGH INSTALLATION, OR DURING STORAGE ON THE CONSTRUCTION SITE AND THE FINAL STARTUP OF THE HEAT AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS WHICH MAY COLLECT IN THE SYSTEM.
10. A 30 FOOT SETBACK MUST BE MAINTAINED FROM PROPERTY LINE FOR CONTINUOUS BUILDING EXHAUST.
11. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, VALVES, DAMPERS, AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.
12. ALL MECHANICAL EQUIPMENT, DUCTWORK AND PIPING MUST BE SEISMICALLY BRACED FOR THE SITE SPECIFIC SEISMIC DESIGN CATEGORY AND SEISMIC USE GROUP, IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF TITLE 24,M ASHRAE, AND SMACNA. COORDINATE SITE SPECIFIC SEISMIC REQUIREMENTS WITH STRUCTURAL ENGINEER.
13. EXISTING INTERIOR PIPING, EQUIPMENT, AND DUCTWORK HAS BEEN LOCATED IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL VERIFY LOCATIONS AND POINTS OF CONNECTION AND PIPE ROUTING THROUGH EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
14. DO NOT ROUTE DUCTS AND PIPES ABOVE ELECTRICAL PANELS. PANELS MUST HAVE CLEAR ACCESS SPACE IN FRONT OF PANEL 4'-0" DEEP AND 6'-6" HIGH, DO NOT ROUTE DUCT AND PIPES IN ELECTRICAL ROOMS, EXCEPT DUCTS AND PIPES SERVING THE ROOM.
15. UPON COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS AND RUBBISH, REQUIRED PATCHING AND REPAIRS OF OTHER TRADES' WORK DAMAGED BY THE MECHANICAL CONTRACTOR, AND LEAVE THE PREMISES IN A CLEAN, ORDERLY CONDITION.
16. THE MECHANICAL CONTRACTOR SHALL OPERATE THE SYSTEM AND DEMONSTRATE ALL ASPECTS TO THE ENGINEER AND/OR OWNER, TO PROVE ITS OPERATION. ALL FILTERS USED DURING CONSTRUCTION SHALL BE REPLACED PRIOR TO THE TEST RUN PERIOD.
17. EQUIVALENT MECHANICAL COMPONENTS MAY BE USED BY CONTRACTOR AS LONG AT MAKE AND MODEL OF THE SUBSTITUTION IS APPROVED BY THE ENGINEER OF DESIGN.

COU 2201
COMMERCIAL / OFFICE

Mechanical Loads	
Ventilation Loads	
Breathing Zone Outdoor Airflow (cfm) , CMC 403.2.1	
Vbz=Rp · Pz+Ra · Az	
Breathing Zone specs CMC Table 402.1	
Rp = People outdoor air rate (cfm/person)	
Ra = Area outdoor air rate (cfm/sq ft)	
Pz = Population in breathing zone (# of people)	
Az =Area breathing zone (sq ft)	
Do = Default Occupant Density (# of people/1000 ft sq)	

RETAIL	
ASHRAE TABLE 6.2.2.1: GENERAL MANF. (Rp, Ra), Office (Do)	
Rp	7.50
RA	0.12
Pz	4.00
Do	-
Az	800.00
Vbz	126.00

Conditioning Load (Ton)	
Area per ton (sq ft/Ton)	400.00
Display lights Heat load (BTUH)	431
Display lights Heat load (TON)	0
Cooling Load (Ton)	2.04

Heat Load, Ht (BTU/Hour)	
Change in air temperature, ΔT (F)	30.00
Density of air, δ (lb/cu ft)	0.07970
Constant volume specific heat capacity of air, Cp (BTU/(lb F)	0.24028
Minutes per Hour	60.00
Ht = Vbz · Cp · δ · ΔT · 60	
Heat Load, Ht (BTU/Hour) Air movement	4343
Hv = V · Cp · δ · ΔT	
Heat Load, Volume	5515

WORKSHOP	
ASHRAE TABLE 6.2.2.1: WAREHOUSE (Rp, Ra)	
Rp	10.00
RA	0.06
Pz	5.00
Do	-
Az	1600.00
Vbz	146.00

Conditioning Load (Ton)	
Area per ton (sq ft/Ton)	600.00
Cooling Load (Ton)	2.67

Heat Load, Ht (BTU/Hour)	
Change in air temperature, ΔT (F)	30.00
Density of air, δ (lb/cu ft)	0.07970
Constant volume specific heat capacity of air, Cp (BTU/(lb F)	0.24028
Minutes per Hour	60.00
Ht = Vbz · Cp · δ · ΔT · 60	
Heat Load, Ht (BTU/Hour) Ventilation	5032.70
Hv = V · Cp · δ · ΔT	
Heat Load, Volume	7353.72

Total Building cooling load	27.34
Total ventilation CFM	1310.00
	7667

OFFICE/HALL/BATH/ENTRY	
ASHRAE TABLE 6.2.2.1: Office. (Rp, Ra)	
Rp	5.00
RA	0.06
Pz	9.00
Do	-
Az	1900.00
Vbz	159.00

Conditioning Load (Ton)	
Area per ton (sq ft/Ton)	500.00
13 People load (BTUH)	5720.00
People load (TON)	0.48
Cooling Load (Ton)	3.80

Heat Load, Ht (BTU/Hour)	
Change in air temperature, ΔT (F)	30.00
Density of air, δ (lb/cu ft)	0.07970
Constant volume specific heat capacity of air, Cp (BTU/(lb F)	0.24028
Minutes per Hour	60.00
Ht = Vbz · Cp · δ · ΔT · 60	
Heat Load, Ht (BTU/Hour) Ventilation	5480.82
Hv = V · Cp · δ · ΔT	
Heat Load, Volume	8732.54

WAREHOUSE	
ASHRAE TABLE 6.2.2.1: Office. (Rp, Ra)	
Rp	5.00
RA	0.06
Pz	7.00
Do	-
Az	6120.00
Vbz	402.20

Conditioning Load (Ton)	
Area per ton (sq ft/Ton)	600.00
Cooling Load (Ton)	10.20

Heat Load, Ht (BTU/Hour)	
Change in air temperature, ΔT (F)	30.00
Density of air, δ (lb/cu ft)	0.07970
Constant volume specific heat capacity of air, Cp (BTU/(lb F)	0.24028
Minutes per Hour	60.00
Ht = Vbz · Cp · δ · ΔT · 60	
Heat Load, Ht (BTU/Hour) Ventilation	13864.06
Hv = V · Cp · δ · ΔT	
Heat Load, Volume	28127.98

OFFICE1/BREAK/PASSAGE/UTILITY/BATH	
ASHRAE TABLE 6.2.2.1: GENERAL MANF. (Rp, Ra)	
Rp	5.00
RA	0.12
Pz	10.00
Do	-
Az	2680.00
Vbz	371.60

Conditioning Load (Ton)	
Area per ton (sq ft/Ton)	400.00
12 People load (BTUH)	5280.00
People load (TON)	0.44
Cooling Load (Ton)	6.70

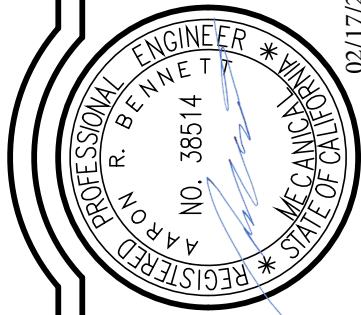
Heat Load, Ht (BTU/Hour)	
Change in air temperature, ΔT (F)	30.00
Density of air, δ (lb/cu ft)	0.07970
Constant volume specific heat capacity of air, Cp (BTU/(lb F)	0.24028
Minutes per Hour	60.00
Ht = Vbz · Cp · δ · ΔT · 60	
Heat Load, Ht (BTU/Hour) Ventilation	12809.26
Hv = V · Cp · δ · ΔT	
Heat Load, Volume	12317.48

BULL ROOM	
ASHRAE TABLE 6.2.2.1: Office. (Rp, Ra)	
Rp	5.00
RA	0.06
Pz	10.00
Do	-
Az	920.00
Vbz	105.20

Conditioning Load (Ton)	
Area per ton (sq ft/Ton)	600.00
11 People load (BTUH)	4840.00
People load (TON)	0.40
Cooling Load (Ton)	1.94

Heat Load, Ht (BTU/Hour)	
Change in air temperature, ΔT (F)	30.00
Density of air, δ (lb/cu ft)	0.07970
Constant volume specific heat capacity of air, Cp (BTU/(lb F)	0.24028
Minutes per Hour	60.00
Ht = Vbz · Cp · δ · ΔT · 60	
Heat Load, Ht (BTU/Hour) Ventilation	3626.30
Hv = V · Cp · δ · ΔT	
Heat Load, Volume	4228.39

REVISIONS	BY
△ 2-17-23	GKK



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610 9th Street Fortuna, California 95540
Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS
Site Address: 1350 Hastings Ave, Ukiah, CA, APN: 180-070-19

MECHANICAL CALCULATIONS/NOTES
For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

Date	DEC 19 '22
Scale	AS NOTED
Design	ETA
Drawn	GKK
Job	COU2201
Sheet	

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EQUIPMENT SCHEDULE COU 2201								
UNIT TAG	DESCRIPTION, LOCATION	MAKE/MODEL	COOLING/HEATING CAPACITY	REFRIGERANT TYPE	AIR FLOW (CFM)	ELECTRICAL (v-ph-hz)	MCA/MOP	OPERATING WEIGHT (LB)
RCU-1	Roof Top Unit, over Mech room	Trane/ WHJ300S0Rx85	272 MBH/ 242 MBH	R-410s	7,667	240 - 3 - 60	297/300	2,109
EF-1	Standard basic fan	Broan / NuTone AE80B	-	-	80	120-1-60	.25/15	9
EF-2	Combined bathroom fan	Vortex/ VT600L	-	-	249	120-1-60	.75/15	17
EF-3	Shop Exhaust Fan	NAKS/ 20D-DBFF-1582	-	-	1582	115-1-60	6.0/20	87

EQUIPMENT SCHEDULE

MECHANICAL LEGEND

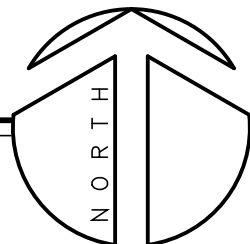
- ☒ ☒ - SUPPLY AIR
- ☐ - RETURN AIR
- - ROOF PENETRATION
- ■ - ROOF MOUNTED COMBINE UNIT (CURB), RA 22"x77", SA 28"x69"
- EF-1 - BASIC (BATHROOM) FAN
- B.D. - BACK DRAFT DAMPER ON ALL E.F.'s
- ☒ - LOUVERED VENT 8" X 12"
- T.C. - THERMOSTAT CONTROL
- ▨ - RETURN AIR
- ▨▨ - SUPPLY AIR
- - DUCTING RUN OUTS, ☒-6", ☒-10", ☒-8"
- ☒ - VAV CONTROL BOX

SEQUENCE OF OPERATION

- EF-1,2 TO BE CONTROLLED BY COUNTDOWN TIMERS IN RESPECTIVE BATHROOM.
- RCU-1 TO BE CONTROLLED BY T.C.-1
- VAV-1 TO BE CONTROLLED BY T.C.-2

GROUND FLOOR MECHANICAL LAYOUT

SCALE: 3/32"=1'-0"



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BY

2-17-23

GKK

02/17/23

PROFESSIONAL ENGINEER - MECHANICAL

MAKOR P. BENNETT

NO. 38514

WHITCHURCH ENGINEERING, INC.

610 9th Street Fortuna, California 95540

Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS

Site Address: 1350 Hastings Ave, Ukiah, CA

APN: 180-070-19

MECHANICAL LAYOUT/EQUIPMENT SCHEDULES

For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

Date

DEC 19 '22

Scale

AS NOTED

Design

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Drawn

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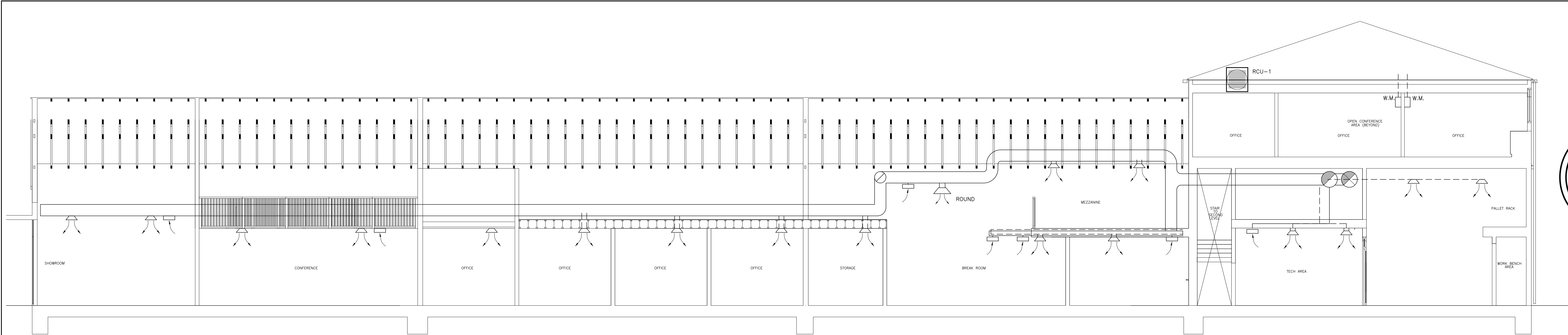
Job

COU2201

Sheet

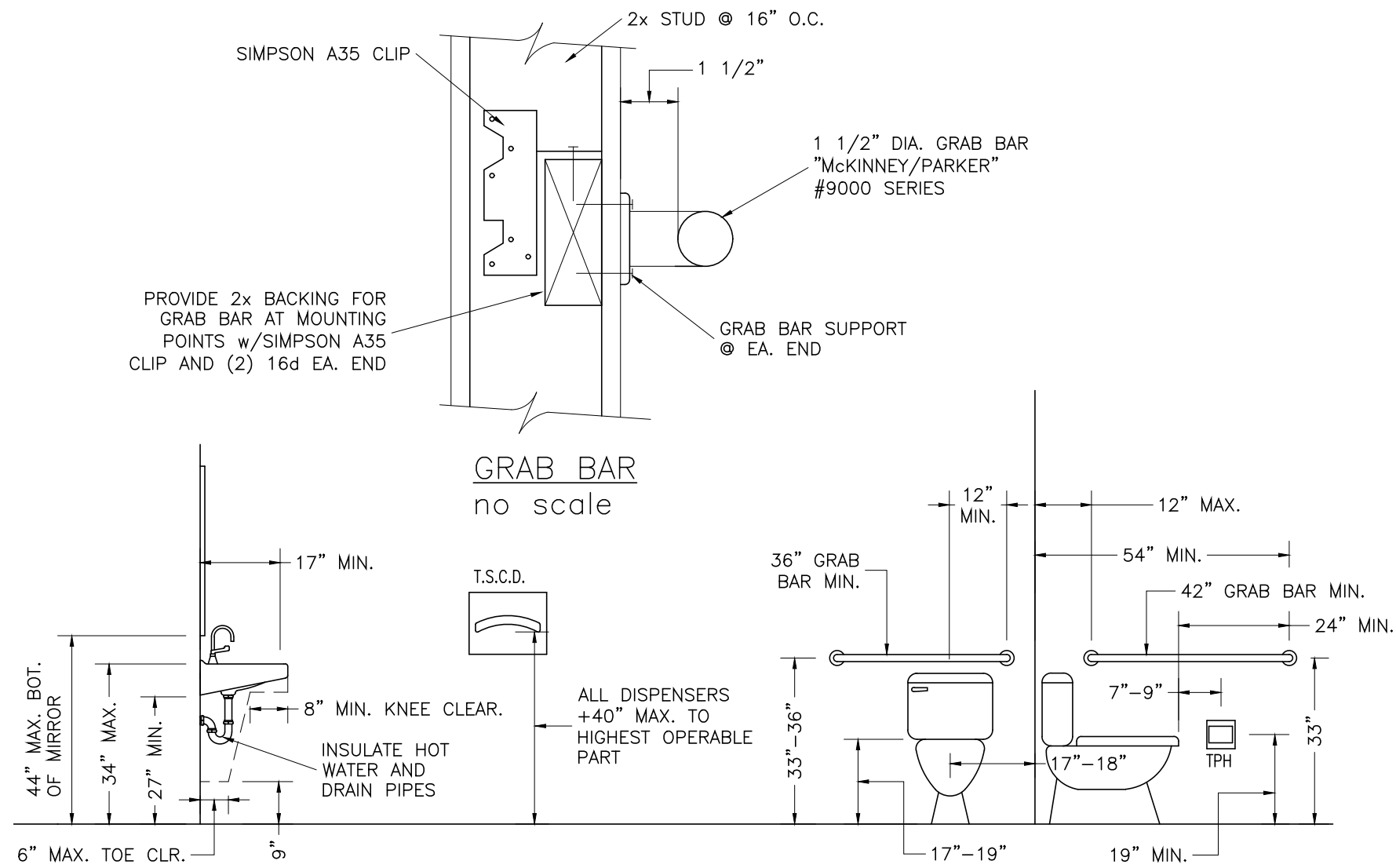
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MECHANICAL LONG SECTION DETAIL

NO SCALE

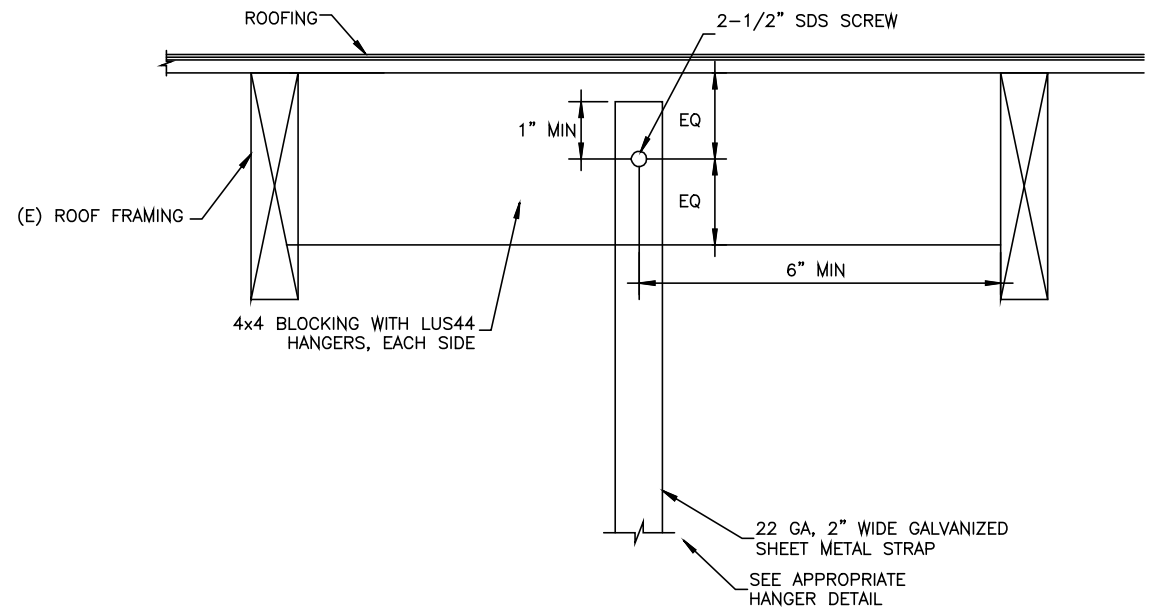


SANITARY FACILITIES

- CONTROLS SHALL ALL OPERATE WITH ONE HAND WITHOUT REQUIRING TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE TO OPERATE ALL CONTROLS SHALL BE NO GREATER THAN 5LBS.
- THE MAXIMUM HEIGHT OF CONTROLS OR OPERABLE PARTS SHALL BE 40" ABOVE THE FLOOR.
- THE FLUSH VALVE FOR THE TOILET SHALL BE ON THE OPEN SIDE OF THE TOILET AREA.
- THE TOILET PAPER DISPENSER SHALL ALLOW CONTINUOUS PAPER FLOW AND SHALL NOT CONTROL DELIVERY.
- THE DOORS TO THE SANITARY FACILITIES SHALL BE SIGNED. UNISEX SANITARY FACILITIES SHALL HAVE THE TRIANGLE SUPERIMPOSED UPON THE CIRCLE. THE THICKNESS OF THESE SIGNS SHALL BE 1/4". THESE SIGNS SHALL BE 58" MIN. 60" MAX. TO THE CENTER LINE OF THE SYMBOL ABOVE THE FLOOR, AND WITHIN 1" OF THE VERTICAL CENTERLINE OF THE DOOR. THE CHARACTERS AND BACKGROUND OF THE SIGNS SHALL BE EGGSHELL MATTE OR OTHER NONGLARE FINISH AND THEIR CONTRAST AND COLOR SHALL BE DISTINCTLY DIFFERENT FROM CONTRAST AND COLOR OF THE DOOR. AN ACCOMPANYING SIGN SHALL BE MOUNTED ON THE LATCH SIDE OF THE DOOR.
- PROVIDE BLOCKING FOR GRAB BARS. BLOCKING SHALL BE ABLE TO SUPPORT A 250LB POINT LOAD.
- TOILET ROOM FLOOR SURFACES ARE TO BE SMOOTH HARD AND NONABSORBENT EXTENDING UPWARD A MINIMUM OF 4" ONTO THE WALLS.
- WALL SURFACES WITHIN WATER CLOSET COMPARTMENTS AND WALLS WITHIN 24" OF THE FRONT OR SIDES OR TOILETS OR URINALS SHALL BE SMOOTH HARD AND NONABSORBANT TO A HEIGHT OF 48" ABOVE THE FLOOR.
- EXCEPT FOR THE STRUCTURAL ELEMENTS THE MATERIALS USED IN THESE WALLS SHALL BE OF A TYPE THAT IS NOT ADVERSELY AFFECTED BY MOISTURE.
- HOT WATER SHALL BE LIMITED TO A MAXIMUM TEMPERATURE OF 120 DEG. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A CONTROL FOR MEETING THIS PROVISION. CPC413.1

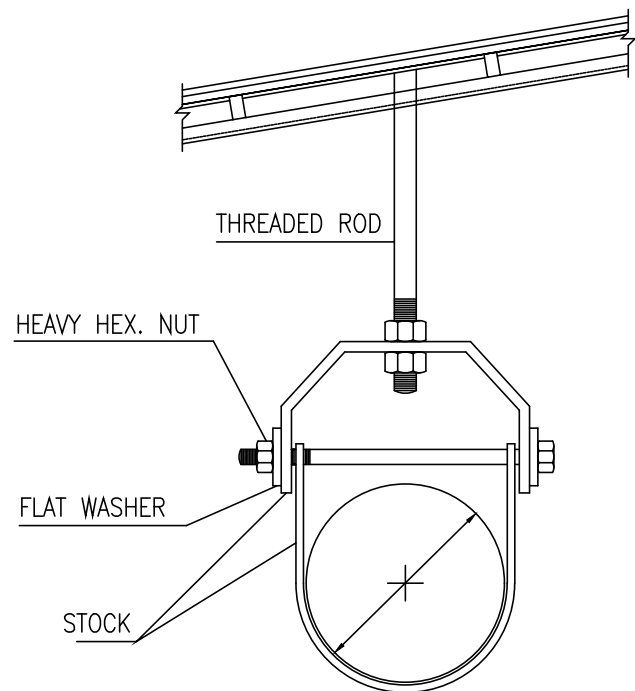
TYPICAL ADA RESTROOM

NO SCALE



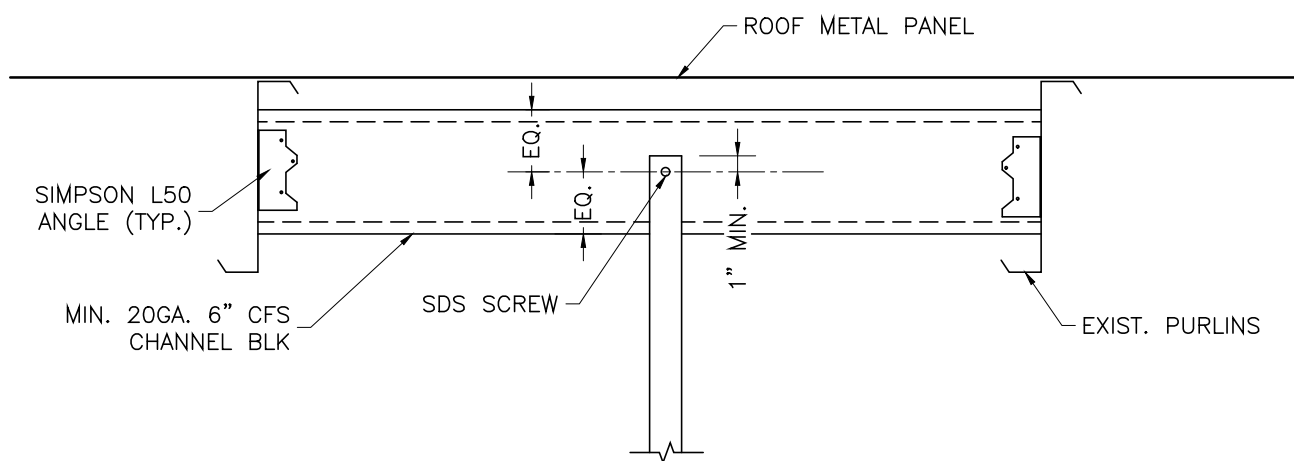
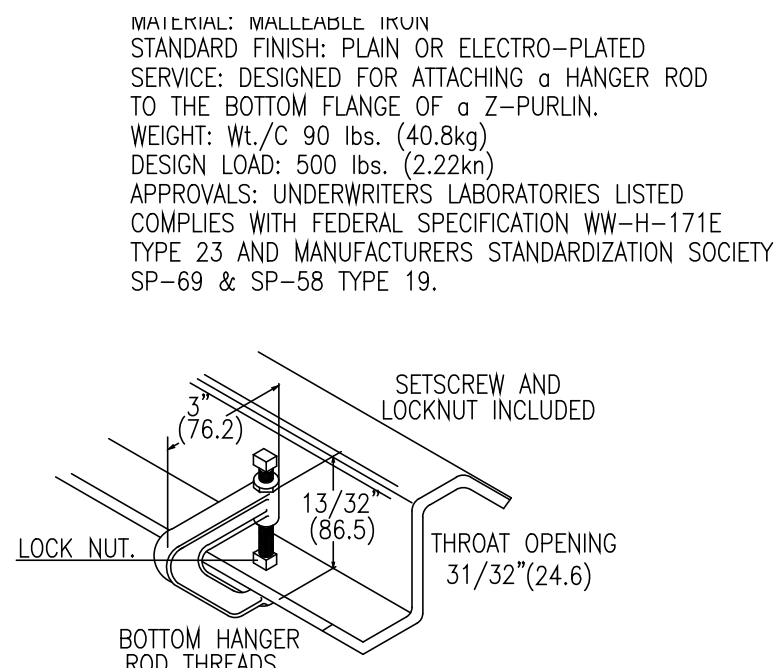
TYP. EQUIPMENT WOOD CONNECTION DETAIL

NO SCALE



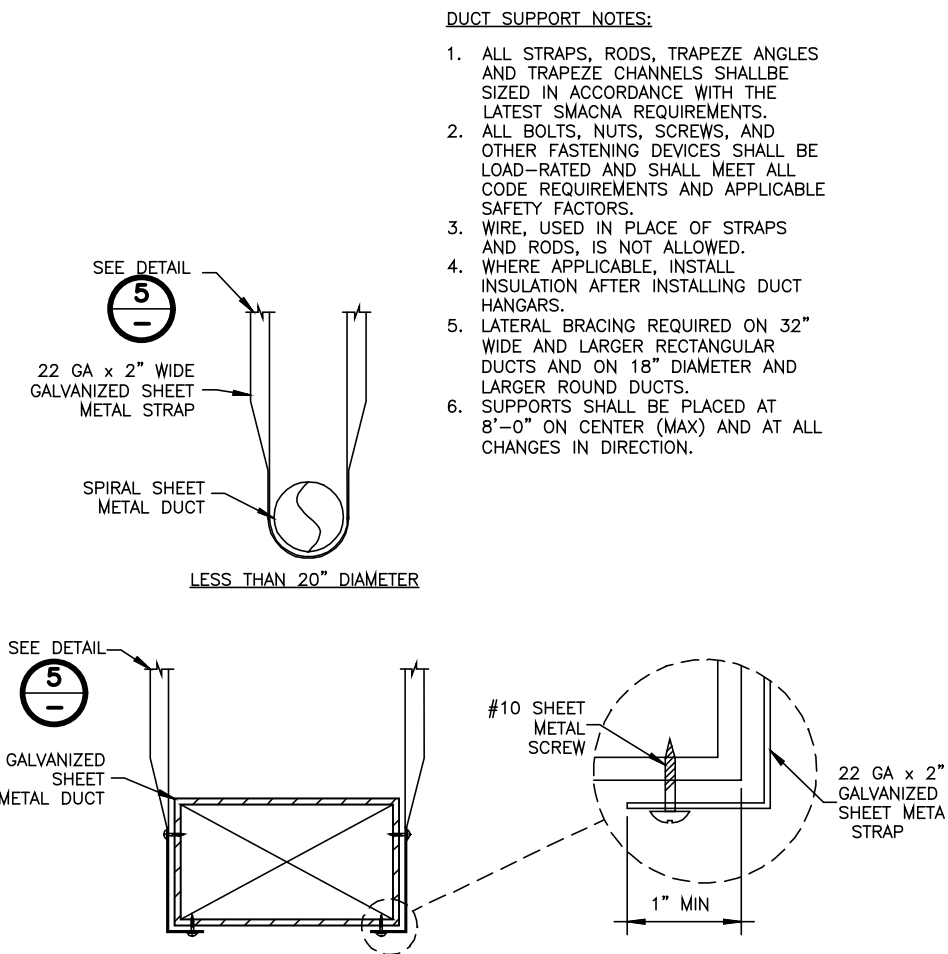
PIPE HANGAR DETAIL

NO SCALE



TYP. EQUIPMENT CFS CONNECTION DETAIL

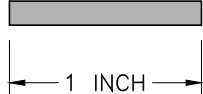
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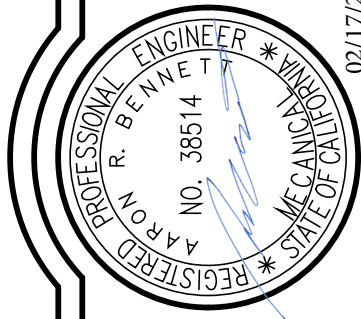
TYP. DUCT HANGER DETAIL

NO SCALE

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2-17-23	GKK



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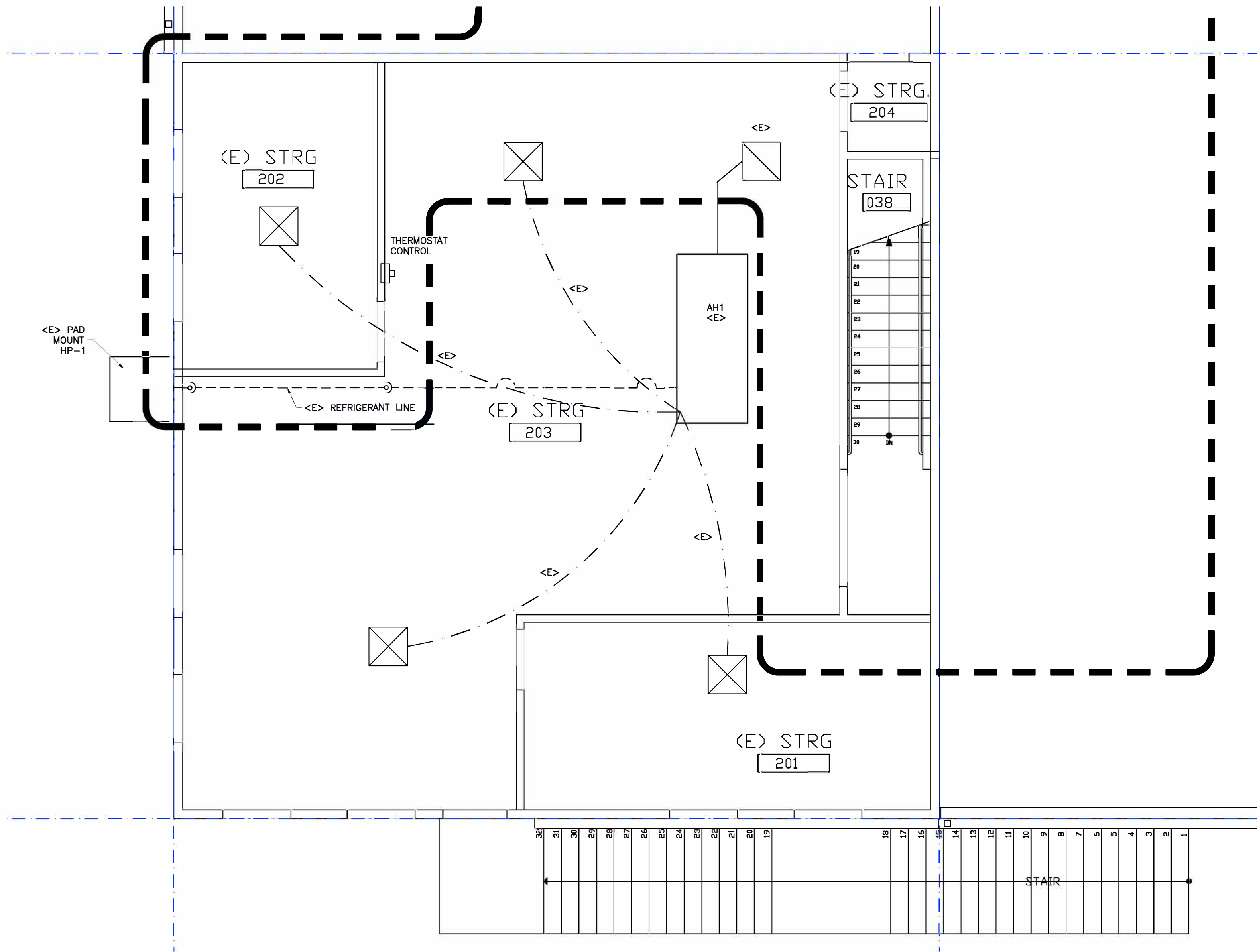
MECHANICAL DETAILS

For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

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CONSTRUCTION NOTES

TEST EXISTING MECHANICAL EQUIPMENT & REPAIR IF NECESSARY & FEASIBLE.
REPLACE HVAC EQUIPMENT IF NOT IN GOOD WORKING ORDER WITH
AH-1: GOODMAN AMST 36CU14
EQUIVALENT: HP-1: GOODMAN GSZB4 03610A

2nd FLOOR MECHANICAL LAYOUT

SCALE: 1/4"=1'-0"

	AMST 24BU14*	AMST 30BU14*	AMST 36BU14*	AMST 36CU14*	AMST 42CU14*	AMST 48CU14*	AMST 48DU14*	AMST 60DU14*
NOMINAL RATINGS								
Cooling (Btu/h)	24,000	36,000	36,000	36,000	42,000	48,000	48,000	60,000
BLOWER								
Diameter	10"	10"	10"	10"	10"	10"	10"	11"
Width	6"	6"	6"	8"	8"	10"	10"	10"
COIL CONNECTIONS								
Liquid	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Suction	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	7/8"	7/8"
Coil Drain Connect (FPT)	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
ELECTRICAL DATA								
Voltage	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
Minimum Circuit Ampacity	5.8/5.8	5.6/5.6	5.6/5.6	7.1/7.1	5.9/5.9	7.1/7.1	8.6/8.6	8.6/8.6
Max. Overcurrent Device (Amps)	15/15	15/15	15/15	15/15	15/15	15/15	15/15	15/15
Minimum VAC	197	197	197	197	197	197	197	197
Maximum VAC	253	253	253	253	253	253	253	253
Blower Motor								
Full Load Amps (FLA)	4.6	4.5	4.5	5.7	4.7	6.9	6.9	6.9
Horsepower (HP)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
SHIP WEIGHT (LBS.)	112	129	129	153	153	153	155	167

*Airflow rate @ 3 static
Note: Assumes dry coil; SCFM correction for wet coil = 4% (208V / 240V)

HEATER KIT MODEL	CIRCUIT 1 HEATER AMPS	MCA ¹	CIRCUIT 2 HEATER AMPS	MCA ¹	TWDP ²	SINGLE-POINT KIT MCA ¹	MCP ³
AMST24BU1400AA	0/0	5.8/5.8	15/15				
HWST03NC*	10.8/12.5	19/21.4	20/25				
HWST05NC*	17.3/20	27/30.6	30/35				
HWST06NC*	21.7/25	32.7/37	35/40				
HWST08NC*	28.9/33.3	41.9/47	45/50				
HWST10NC*	34.7/40	49.1/56	50/60				
HWSC15XA 208	34.7	49.1	50	17.3	21.7	25	70.8
HWSC15XB 240	40	55.9	60	20	25	25	80.8
90							
AMST30BU1400AA	0/0	5.6/5.6	15/15				
HWST03NC*	10.8/12.5	19/21.3	20/25				
HWST05NC*	17.3/20	27/30.6	30/35				
HWST06NC*	21.7/25	32.7/37	35/40				
HWST08NC*	28.9/33.3	42/47.3	45/50				
HWST10NC*	34.7/40	49/55.6	50/60				
HWSC15XA 208	34.7	49	50	17.3	21.7	25	70.8
HWSC15XB 240	40	55.6	60	20	25	25	80.8
90							
AMST36CU1400AA	0/0	5.6/5.6	15/15				
HWST03NC*	10.8/12.5	19/21.3	20/25				
HWST05NC*	17.3/20	27/30.6	30/35				
HWST06NC*	21.7/25	32.7/37	35/40				
HWST08NC*	28.9/33.3	42/47.3	45/50				
HWST10NC*	34.7/40	49/55.6	50/60				
HWSC15XA 208	34.7	49	50	17.3	21.7	25	70.8
HWSC15XB 240	40	55.6	60	20	25	25	80.8
90							
AMST36CU1400AA	0/0	7.1/7.1	15/15				
HWST03NC*	10.8/12.5	20.7/23	25/25				
HWST05NC*	17.3/20	29/32.1	30/35				
HWST06NC*	21.7/25	34/38.4	35/40				
HWST08NC*	28.9/33.3	43/48.8	45/50				
HWST10NC*	34.7/40	50.5/57	60/60				
HWST15X*	0/0	7.1/7.1	15/15	30/34.6	30/34.6	40/45	
HWSC15XA 208	34.7	50.5	60	17.3	17.3	25	72.1
HWSC15XB 240	40	57.1	60	20	20	25	82.1
HWSC19CH 208	34.7	50.5	60	34.7	34.7	45	93.9
HWSC19CB 240	40	57.1	60	40	40	50	107
110							
AMST42CU1400AA	0/0	5.9/5.9	15/15				
HWST03NC*	10.8/12.5	19/21.5	20/25				
HWST05NC*	17.3/20	28/30.9	30/35				
HWST06NC*	21.7/25	33/37.1	35/40				
HWST08NC*	28.9/33.3	42/47.5	45/50				
HWST10NC*	34.7/40	49/55.9	50/60				
HWST15X*	0/0	5.9/5.9	15/15	30/34.6	38/43	40/45	
HWSC15XA 208	34.7	49.2	50	17.3	21.7	25	70.9
HWSC15XB 240	40	55.9	60	20	25	25	80.9
HWSC19CA 208	34.7	49.2	50	34.7	43.3	45	92.5
HWSC19CB 240	40	55.9	60	40	50	50	106
110							

See notes on page 8.

AIR HANDLER w/HEAT SPECIFICATIONS

	GSZB4 01810A*	GSZB4 02410A*	GSZB4 03010A*	GSZB4 03610A*	GSZB4 04210A*	GSZB4 04810A*	GSZB4 06010A*
NOMINAL CAPACITIES							
Cooling (BTU/h)	18,000	24,000	30,000	36,000	42,000	48,000	60,000
Heating (BTU/h)	18,000	24,000	30,000	36,000	42,000	48,000	60,000
Decibels	70	74	75	72	75	74	75
COMPRESSOR							
RLA	6.1	8.4	14.1	16.0	17.7	19.9	25.6
LRA	35.1	41.2	67.9	91.9	110.2	110.0	150.0
Stage	Single	Single	Single	Single	Single	Single	Single
Type	Rotary	Rotary	Scroll	Scroll	Scroll	Scroll	Scroll
CONDENSER FAN MOTOR							
Motor Type	PSC	PSC	PSC	PSC	PSC	PSC	PSC
Motor Power	1/6	1/6	1/6	1/4	1/4	1/4	1/4
FLA	0.95	0.95	0.95	0.97	1.3	1.3	1.3
REFRIGERATION SYSTEM							
Refrigerant Line Size ¹							
Liquid Line Size ("O.D.)	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Suction Line Size ("O.D.)	3/8"	3/8"	3/8"	3/8"	1 1/4"	1 1/4"	1 1/4"
Refrigerant Connection Size							
Liquid Valve Size ("O.D.)	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Suction Valve Size ("O.D.)	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Valve Connection Type	Sweat	Sweat	Sweat	Sweat	Sweat	Sweat	Sweat
Refrigerant Charge (oz.)	94	92	94	114	167	222	269
ELECTRICAL DATA							
Volt/Phase (F/H)	208/230	208/230	208/230	208/230	208/230	208/230	208/230
Minimum Circuit Ampacity ²	8.6	11.5	18.6	21	23.4	26.2	33.3
Max. Overcurrent Protection ³	15	15	30	35	40	45	50
Min / Max Volts	197/253	197/253	197/253	197/253	197/253	197/253	197/253
Electrical Conduit Size	1/2" or 3/4"	1/2" or 3/4"	1/2" or 3/4"	1/2" or 3/4"	1/2" or 3/4"	1/2" or 3/4"	1/2" or 3/4"
UNIT WEIGHTS							
Equipment Weight (lbs.)	161	160	175	214	264	272	305
Ship Weight (lbs.)	176	175	190	234	284	292	325

¹ Tested and rated in accordance with ARI Standard 220/240
² Wire size should be determined in accordance with National Electrical Codes; extensive wire runs will require larger wire sizes
³ Must use time-delay fuses or HACR-type circuit breakers of the same size as noted

NOTES

- Always check the S&A plate for electrical data on the unit being installed.
- Installer will need to supply 1/4" to 1/2" adapters for suction line connections.
- Unit is charged with refrigerant at 15" of Hg. Liquid line. System charge must be adjusted per Installation Instructions Final Charge Procedure.
- Installation of these units requires the specified TXV kit to be installed on the indoor coil. THE SPECIFIED TXV IS DETERMINED BY THE OUTDOOR UNIT NOT THE INDOOR COIL.

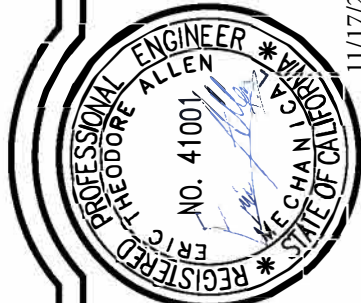
HEAT PUMP SPECIFICATIONS

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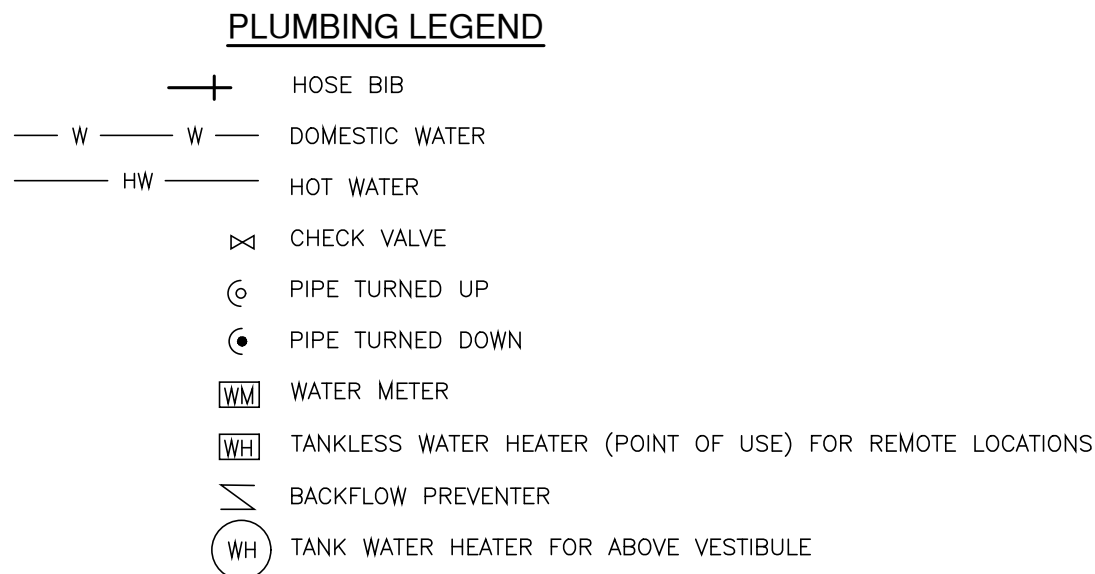
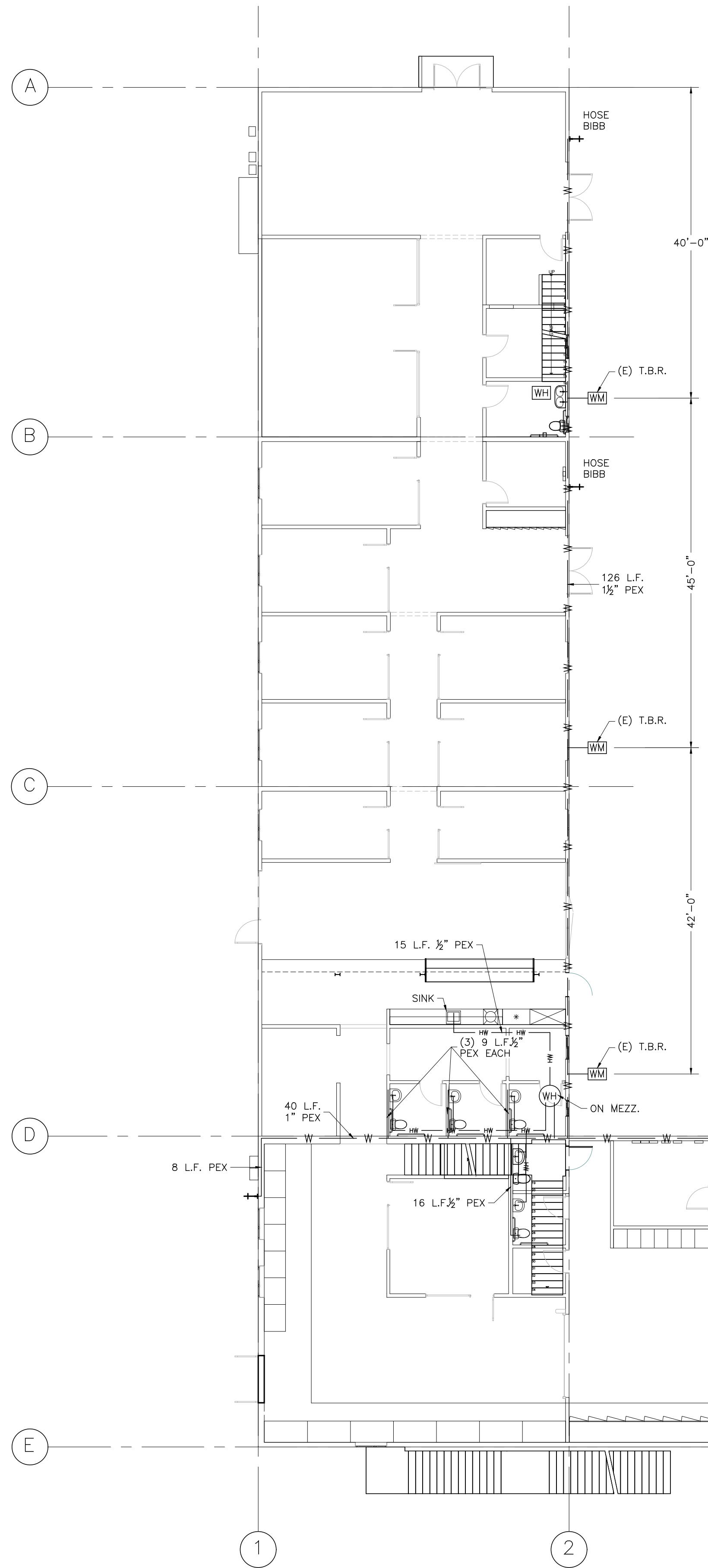
Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER
FIRE DAMAGE REPAIR
Site Address: 1350 Hastings Ave., Ukiah, CA
APN: 180-070-19

MECHANICAL LAYOUT/SPECIFICATIONS
For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

Date	NOV 17 '23
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M4



- NOTES:**
- WATER CLOSETS SHALL NOT EXCEED A MAXIMUM FLOW RATE OF 1.28 GALLONS PER FLUSH.
 - LAVATORY FAUCETS SHALL NOT EXCEED A MAXIMUM FLOW RATE OF 0.5 GALLONS PER MINUTE.
 - HOT WATER DELIVERED TO PUBLIC USE LAVATORIES SHALL NOT EXCEED A MAXIMUM TEMPERATURE OF 120F. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED AN ACCEPTABLE CONTROL FOR MEETING THIS PROVISION.
 - POTABLE WATER OUTLETS WITH HOSE ATTACHMENTS SHALL BE PROTECTED BY A NON-REMOVABLE HOSE BIBB TYPE BACKFLOW PREVENTER, A NON-REMOVABLE HOSE-BIBB VACUUM BREAKER, OR BY AN ATMOSPHERIC VACUUM BREAKER INSTALLED NOT LESS THAN 6 INCHES ABOVE THE HIGHEST POINT OF USAGE ON THE DISCHARGE SIDE OF THE LAST VALVE.
 - 0.5 INCH CW SHUTOFFS TO BE INSTALLED ON ALL FIXTURES
 - GIVEN OCCUPANCY SCHEDULE, PROJECT COMPLIES WITH MINIMUM NUMBER AND TYPE OF PLUMBING FACILITIES FOR B, M, AND S-1 OCCUPANCIES (CPC 422.1).
 - CONTRACTOR TO VERIFY H2O P.O.C. PRIOR TO STARTING. CONTACT RESPONSIBLE ENGINEER FOR RESOLUTION IF LOCATION DIFFERS FROM THAT SHOWN.
 - CONTRACTOR SHALL INSTALL ALL PLUMBING AND DRAINAGE FIXTURES AND PIPING IN ACCORDANCE WITH THE 2019 CA CBC, CPC, CMP AND OTHER APPLICABLE CODES.
 - CONTRACTOR SHALL CONTACT THE RESPONSIBLE ENGINEER IF DISCREPANCIES ARE FOUND ON THESE PLANS.

Description	# of units	FU factor CPC TABLE 702.1	DFU	Min Trap Size (in)
Floor 1				
Water Closet	7	2.5	17.5	0.5
Kitchen Sink	1	1.5	1.5	0.5
Wash Sink	8	2	16	0.5
Mop Wash Sink	2	1.5	3	0.5
Hose bib	3	2.5	4.5	0.5
Total FU			43	
Total GPM	chart A103.1(2)		25	
Velocity fps	chart A105.1(5)		6	
Pipe Size	chart A105.1(5)		1-1/2"	
Friction Loss	chart A105.1(5)		4.5psi/100ft	

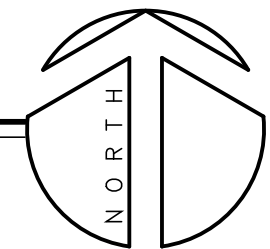
PIPE SIZING CALCULATIONS

Pressure Drop Calculations	
Fixture	Pressure Drop (PSI)
Water Meter	2
(2) Check Valve	6
Pipe Length Friction Loss	12
90° Elbow	4
Incoming Pressure (PSI)	100
Total Pressure Loss (PSI)	24
Pressure at most Remote Fixture (PSI)	76
Calculated using CPC A 105.1(5), A 104.4 (1), and A 102.2	

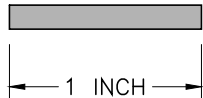
PRESSURE LOSS CALCULATIONS

GROUND FLOOR PLUMBING PLAN

SCALE: 3/32"=1'-0"



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For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

PLUMBING PLAN

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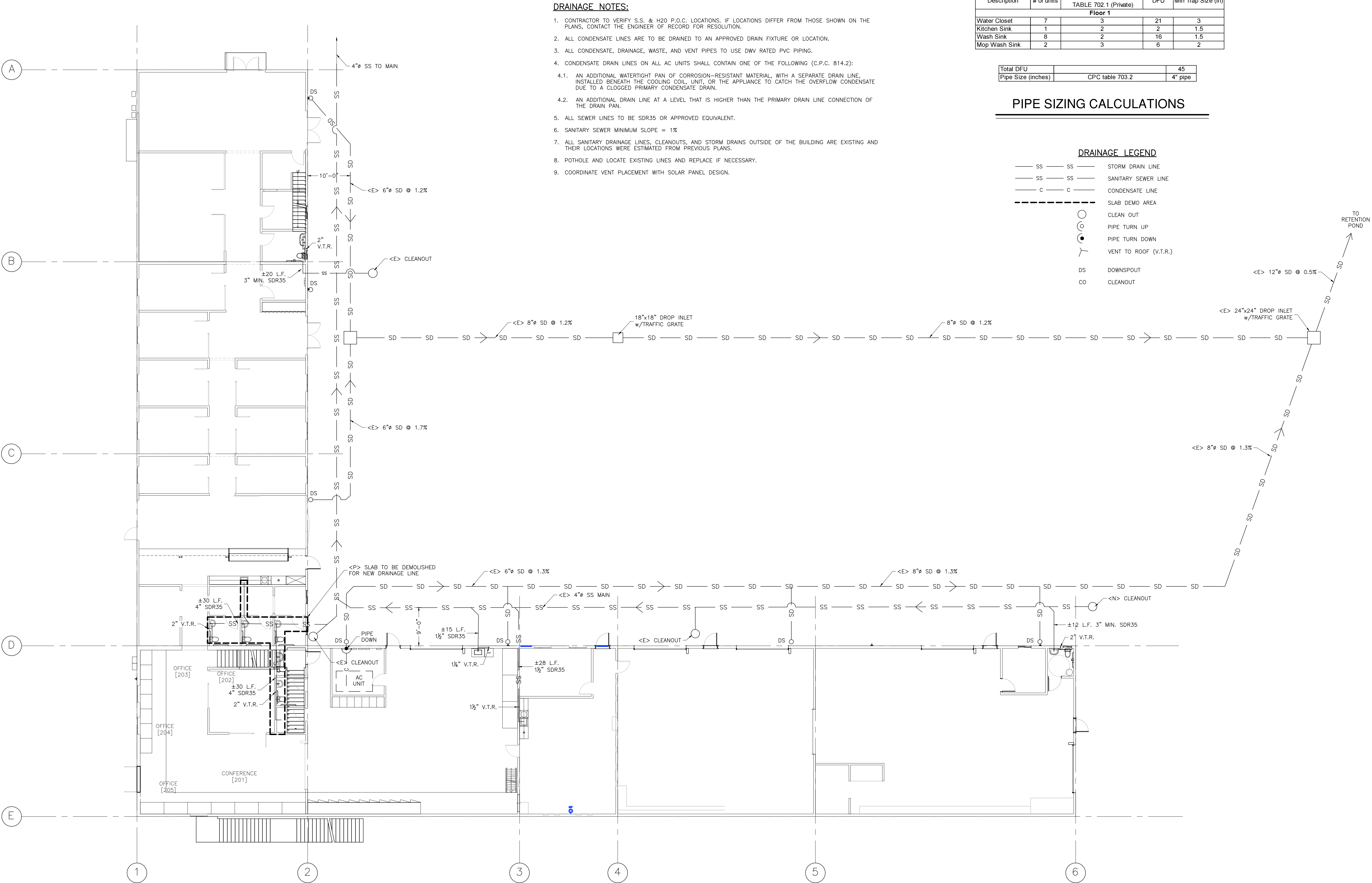
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11/7/2023



DRAINAGE NOTES:

- CONTRACTOR TO VERIFY S.S. & H2O P.O.C. LOCATIONS. IF LOCATIONS DIFFER FROM THOSE SHOWN ON THE PLANS, CONTACT THE ENGINEER OF RECORD FOR RESOLUTION.
- ALL CONDENSATE LINES ARE TO BE DRAINED TO AN APPROVED DRAIN FIXTURE OR LOCATION.
- ALL CONDENSATE, DRAINAGE, WASTE, AND VENT PIPES TO USE DWV RATED PVC PIPING.
- CONDENSATE DRAIN LINES ON ALL AC UNITS SHALL CONTAIN ONE OF THE FOLLOWING (C.P.C. 814.2):
 - AN ADDITIONAL WATERTIGHT PAN OF CORROSION-RESISTANT MATERIAL, WITH A SEPARATE DRAIN LINE, INSTALLED BENEATH THE COOLING COIL, UNIT, OR THE APPLIANCE TO CATCH THE OVERFLOW CONDENSATE DUE TO A CLOGGED PRIMARY CONDENSATE DRAIN.
 - AN ADDITIONAL DRAIN LINE AT A LEVEL THAT IS HIGHER THAN THE PRIMARY DRAIN LINE CONNECTION OF THE DRAIN PAN.
- ALL SEWER LINES TO BE SDR35 OR APPROVED EQUIVALENT.
- SANITARY SEWER MINIMUM SLOPE = 1%
- ALL SANITARY DRAINAGE LINES, CLEANOUTS, AND STORM DRAINS OUTSIDE OF THE BUILDING ARE EXISTING AND THEIR LOCATIONS WERE ESTIMATED FROM PREVIOUS PLANS.
- POTHOLE AND LOCATE EXISTING LINES AND REPLACE IF NECESSARY.
- COORDINATE VENT PLACEMENT WITH SOLAR PANEL DESIGN.

Description	# of units	DFU factor CPC TABLE 702.1 (Private)	DFU	Min Trap Size (in)
Floor 1				
Water Closet	7	3	21	3
Kitchen Sink	1	2	2	1.5
Wash Sink	8	2	16	1.5
Mop Wash Sink	2	3	6	2

Total DFU	45
Pipe Size (inches)	CPC table 703.2 4" pipe

PIPE SIZING CALCULATIONS

DRAINAGE LEGEND

- SS STORM DRAIN LINE
- SS SANITARY SEWER LINE
- C CONDENSATE LINE
- SLAB DEMO AREA
- CLEAN OUT
- PIPE TURN UP
- PIPE TURN DOWN
- VENT TO ROOF (V.T.R.)
- DS DOWNSPOUT
- CO CLEANOUT

REVISIONS

BY

2-17-23

GKK

PROFESSIONAL ENGINEER - MECHANICAL

MAJOR R. BEVETT

NO. 38514

02/17/23

WHITCHURCH ENGINEERING, INC.

610 9th Street Fortuna, California 95540

Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS

Site Address: 1350 Hastings Ave, Ukiah, CA.

APN: 180-070-19

DRAINAGE PLAN

For: City of Ukiah-Electric Service Center 400 West Clay, Ukiah, Ca. 95482

Date

DEC 19 '22

Scale

AS NOTED

Design

ETA

Drawn

GKK

Job

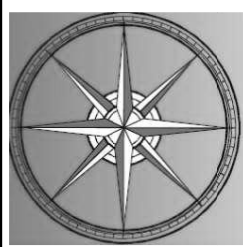
COU2201

Sheet

P2



Abbay Technical Services
Building Energy Consultants
1125 16th St., Ste. 216 Arcata, CA 95521
707.826.1433
anthony@abbaytechnicalservices.com



TITLE 24 BUILDING ENERGY REPORT
City of Ukiah TI Hastings Electrical Service
1350 Hastings Rd., APN 180-070-19-00 Ukiah 95482
Ukiah, CA 95482

T24.2

Project Name:	23268 City of Ukiah TI Hastings Electrical Service	NRCC-PRF-01-E	Page 12 of 24					
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Input File Name:	23268 EPB.3 City of Ukiah TI Hastings Electrical Service.cbd15h							
K3. INDOOR CONDITIONED LIGHTING CONTROL CREDITS								
Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A)								
1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-1-001 Showroom	Retail Sales Area (Retail Merchandise Sales)	NA	0.00 0.00 0.00 0.00	001Showroom	1200.0	5	1200	0
S-2-002 Supply	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	002Supply	38.0	1	38	0
S-3-003 Conference	Convention, Conference, Multipurpose and Meeting Area	NA	0.00 0.00 0.00 0.00	003Conference	80.0	8	80	0
S-4-005 Print	Office Area (<250 square feet)	NA	0.00 0.00 0.00 0.00	005Print	38.0	1	38	0
S-5-006 Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	006Toilet	38.0	1	38	0
S-6-037 Stairs 1stflr	Stairwell	NA	0.00 0.00 0.00 0.00	037Stairs1stflr	38.0	1	38	0
S-7-037 Stairs 2ndflr	Stairwell	NA	0.00 0.00 0.00 0.00	037Stairs2ndflr	1.0	1	1	0

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1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-8-007 Lactation	Office Area (<250 square feet)	NA	0.00	007Lactation	38.0	1	38	0
			0.00					
			0.00					
			0.00					
			0.00					
S-9-010 Office	Office Area (<250 square feet)	NA	0.00	010Office	40.0	4	40	0
			0.00					
			0.00					
			0.00					
			0.00					
S-10-011 Office	Office Area (<250 square feet)	NA	0.00	011Office	40.0	4	40	0
			0.00					
			0.00					
			0.00					
			0.00					
S-11-012 Shared Office	Office Area (<250 square feet)	NA	0.00	012SharedOffice	40.0	4	40	0
			0.00					
			0.00					
			0.00					
			0.00					
S-12-013 Office	Office Area (<250 square feet)	NA	0.00	013Office	40.0	4	40	0
			0.00					
			0.00					
			0.00					
			0.00					
S-13-014 Shared Office	Office Area (<250 square feet)	NA	0.00	014SharedOffice	40.0	4	40	0
			0.00					
			0.00					
			0.00					
			0.00					

CA Building Energy Efficiency Standards- 2019 Nonresidential Compliance

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1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-14-015 Office	Office Area (<250 square feet)	NA	0.00 0.00 0.00 0.00	015Office	40.0	4	40	0
S-15-016 Plot	Office Area (<250 square feet)	NA	0.00 0.00 0.00 0.00	016Plot	30.0	3	30	0
S-16-017 Storage	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	017Storage	30.0	3	30	0
S-17-018 Breakroom	Lounge, Breakroom, or Waiting Area	NA	0.00 0.00 0.00 0.00	018Breakroom	60.0	6	60	0
S-17-018 Breakroom	Lounge, Breakroom, or Waiting Area	NA	0.00 0.00 0.00 0.00	018Breakroom	152.0	4	152	0
S-17-018 Breakroom	Lounge, Breakroom, or Waiting Area	NA	0.00 0.00 0.00 0.00	018Breakroom	114.0	3	114	0
S-18-019 Hall	Corridor Area	NA	0.00 0.00 0.00 0.00	019Hall	20.0	2	20	0

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1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-19-020 Meter Testing	Office Area (<250 square feet)	NA	0.00	020MeterTesting	76.0	2	76	0
			0.00					
			0.00					
			0.00					
			0.00					
S-20-021 Vestibule	Corridor Area	NA	0.00	021Vestibule	10.0	1	10	0
			0.00					
			0.00					
			0.00					
			0.00					
S-20-021 Vestibule	Corridor Area	NA	0.00	021Vestibule	240.0	1	240	0
			0.00					
			0.00					
			0.00					
			0.00					
S-21-022 U Toilet	Restrooms	NA	0.00	022UToilet	10.0	1	10	0
			0.00					
			0.00					
			0.00					
			0.00					
S-21-022 U Toilet	Restrooms	NA	0.00	022UToilet	27.0	1	27	0
			0.00					
			0.00					
			0.00					
			0.00					
S-22-023 M Toilet	Restrooms	NA	0.00	023MToilet	10.0	1	10	0
			0.00					
			0.00					
			0.00					
			0.00					

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Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A)								
1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-22-023 M Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	023MToilet	27.0	1	27	0
S-23-024 W Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	024WToilet	10.0	1	10	0
S-23-024 W Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	024WToilet	27.0	1	27	0
S-24-004 Hall	Corridor Area	NA	0.00 0.00 0.00 0.00	004Hall	114.0	3	114	0
S-25-008/009 Foyer/Hall	Corridor Area	NA	0.00 0.00 0.00 0.00	008Foyer	76.0	2	76	0
S-25-008/009 Foyer/Hall	Corridor Area	NA	0.00 0.00 0.00 0.00	008Foyer	240.0	1	240	0

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1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-25-008/009 Foyer/Hall	Corridor Area	NA	0.00 0.00 0.00 0.00	009Hall	76.0	2	76	0
S-25-008/009 Foyer/Hall	Corridor Area	NA	0.00 0.00 0.00 0.00	009Hall	38.0	1	38	0
S-29-025 Workshop	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	025Workshop	228.0	6	228	0
S-29-025 Workshop	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	025Workshop	190.0	5	190	0
S-30-026 Office	Office Area (<250 square feet)	NA	0.00 0.00 0.00 0.00	026Office	60.0	6	60	0
S-31-028 Custodian	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	028Custodian	38.0	1	38	0
S-32-029 U Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	029UToilet	10.0	1	10	0

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Lighting Control Credits Schedule (includes all lighting controls installed in conditioned space for compliance credit per §140.6(a)(2) and Table 140.6-A)								
1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-32-029 U Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	029UToilet.	27.0	1	27	0
S-33-030 Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	030Toilet	10.0	1	10	0
S-33-030 Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	030Toilet.	27.0	1	27	0
S-34-038 Stairs 1stflr	Stairwell	NA	0.00 0.00 0.00 0.00	038Stairs1stflr	38.0	1	38	0
S-35-038 Stairs 2ndflr	Stairwell	NA	0.00 0.00 0.00 0.00	038Stairs2ndflr	38.0	1	38	0
S-36-027 Ready Room	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	027ReadyRoom	114.0	3	114	0

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Project Address:	1350 Hastings Rd., APN 180-070-19-00 Ukiah 95482	Calculation Date/Time:	15:09, Tue, Nov 21, 2023					
Input File Name:	23268 EPB.3 City of Ukiah TI Hastings Electrical Service.cbd29v							
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1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-36-027 Ready Room	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	027ReadyRoom	114.0	3	114	0
S-37-031 Mechanical	Electrical, Mechanical, Telephone Rooms	NA	0.00 0.00 0.00 0.00	031Mechanical	38.0	1	38	0
S-38-032 Bull Room	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	032BullRoom	120.0	12	120	0
S-38-032 Bull Room	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	032BullRoom	120.0	12	120	0
S-38-032 Bull Room	General/Commercial & Industrial Work Area (Low Bay)	NA	0.00 0.00 0.00 0.00	032BullRoom	10.0	1	10	0
S-39-033 Shared Office	Office Area (<250 square feet)	NA	0.00 0.00 0.00 0.00	033SharedOffice	60.0	6	60	0

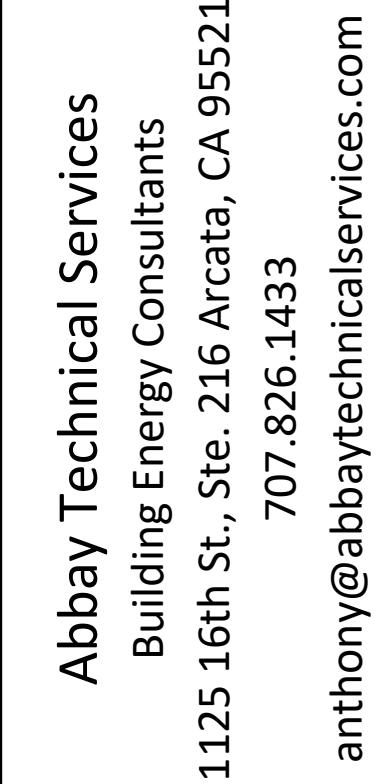
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1	2	3	4	5	6	7	8	9
Area Description	Primary Function Area (must meet requirements of Table 140.6-A)	Type of Lighting Control	Power Adjustment Factor (PAF)	Luminaire Name or Item Tag	Watts per Luminaires	# of Luminaires	Lighting Controlled (Watts)	Control Credit (Watts)
S-40-033 Warehouse	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	033Warehouse	266.0	7	266	0
S-41-034 Warehouse	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	034Warehouse	266.0	7	266	0
S-42-035 Office	Office Area (<250 square feet)	NA	0.00 0.00 0.00 0.00	035Office	40.0	4	40	0
S-43-036 Toilet	Restrooms	NA	0.00 0.00 0.00 0.00	036Toilet	38.0	1	38	0
S-44-201/202/203/204 Storage	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	Storage Areas	170.0	17	170	0
S-44-201/202/203/204 Storage	Commercial/Industrial Storage (Warehouse)	NA	0.00 0.00 0.00 0.00	Storage Area	720.0	3	720	0

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K4. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROLS						
Building Level Controls						
1		2				
Mandatory Demand Response §110.12(c)		Shut-Off Controls §130.1(c)				
NA		NA				
Area Level Controls (includes all lighting controls installed in conditioned space to meet mandatory requirements per §130.1)						
4	5	6	7	8	9	10
Area Description	Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary Daylighting §130.1(d)	Secondary Daylighting §140.5(f)
001 Showroom	Retail Sales Area (Retail Merchandise Sales)	Required	Exempt	Required	Required	Required
002 Supply	Commercial/Industrial Storage (Warehouse)	Required	Exempt	Required	NA	NA
003 Conference	Convention, Conference, Multipurpose and Meeting Area	Required	Exempt	Required	NA	NA
004 Hall	Corridor Area	Required	Required	Required	NA	NA
005 Print	Office Area (<250 square feet)	Required	Exempt	Required	NA	NA
006 Toilet	Restrooms	Required	Exempt	Required	Exempt	NA
007 Location	Office Area (<250 square feet)	Required	Exempt	Required	NA	NA
008 Foyer	Corridor Area	Required	Required	Required	Exempt	NA
009 Hall	Corridor Area	Required	Required	Required	NA	Exempt

CA Building Energy Efficiency Standard – 2019 Nonresidential Compliance	Report Version: NRCC-PRF-01-E-12092021-6844	Report Generated at: 2023-11-21 15:10:44
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City of Ukiah TI Hastings Electrical Service
1350 Hastings Rd., APN 180-070-19-00
Ukiah CA 95482

annuity@abbaytechnicalservices.com

INDOOR LIGHTING		SCHEDULE	
F. INDOOR LIGHTING FIXTURE SCHEDULE			
00Supply	B1-Linear Surface Mnt LED 38W	No	No
003Conference	A1-4in Recessed Can 10W	No	No
00Mail	B1-Linear Surface Mnt 38W	No	No
005Print	B1-Linear Surface Mnt LED 38W	No	No
006Toilet	B1-Linear Surface Mnt LED 38W	No	No
007Lactation	B1-Linear Surface Mnt LED 38W	No	No
008Foyer	B1-Linear Surface Mnt 38W	No	No
008Foyer	T1-LED Track 60W	Yes	No
009Hall	B1-Linear Surface Mnt 38W	No	No
009Hall	B2-Linear Surface Mnt 38W	No	No
010Office	A1-4in Recessed Can 10W	No	No
010Office	A1-4in Recessed Can 10W	No	No
012ShareOffi	A1-4in Recessed Can 10W	No	No
013Office	A1-4in Recessed Can 10W	No	No
014ShareOffi	A1-4in Recessed Can 10W	No	No
015Office	A1-4in Recessed Can 10W	No	No
015Office	A1-4in Recessed Can 10W	No	No
017Storage	A1-4in Recessed Can 10W	No	No
018Breakroo	A1-4in Recessed Can 10W	No	No
018Breakroo	D2-Pendant 38W	No	No

SOUTH OF CALIFORNIA		CALIFORNIA ENERGY COMMISSION									
Indoor Lighting		NBCE-EL-14									
NBCE-EL-14		Page 7 of 23									
CERTIFICATE OF COMPLIANCE											
Project Name:	City of Ukiah TI Hastings Electrical Service Report Page:										
Project Address:	1350 Hastings Rd., APN 180-070-19-00 Date Prepared:		11/21/2023								
G. MODULAR LIGHTING SYSTEMS											
Number of luminaires in system	x	Rated Watts per luminaire	=	Total Watts	OR	Line ft of track or busway	x	Default W/ft 30	=	Total Watts	240
						8				240	
<i>*FOOTNOTE: For power-over-Ethernet lighting systems, power provided to installed non-lighting devices may be subtracted from the total power rating of the power-over-Ethernet system.</i>											
H. INDOOR LIGHTING CONTROLS (Not including PAFs)											
This table includes lighting controls for conditioned and unconditioned spaces. When a control having "A" is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.											
Building Level Controls											
01		02					03				
Mandatory Demand Response §130.12(c)		Shut-off controls §130.1(c)					Field Inspector				
Not Required <= 10,000 Sf		See Area/Space Level Controls					Pass ☐ Fail ☐				

Registration Number:	Registration Date/Time:	Registration Provider: Energysoft
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STATE OF CALIFORNIA

Indoor Lighting

AMCC LTR

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE

Project Name:

City of Ukiah TI Heating Electrical Services

Report Paper:

1350 Hastings Rd., APN 180-070-19-00

NRCC-LA-4

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Project Address:

Date Prepared:

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

Storage Areas 201,202,203,204	Warehouse	Manual ON/OFF	Dimmer	Occupancy Sensor	Included	Included	No	☐	☐
	All Other Space Types	Manual ON/OFF	Dimmer	Occupancy Sensor	Included	Included	No	☐	☐

Registration Number:

Registration Date/Time:

Registration Provider: Energysoft

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STATE OF CALIFORNIA
Indoor Lighting
NRC-171-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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H. INDOOR LIGHTING CONTROLS (Not including PAFs)

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STATE OF CALIFORNIA
Indoor Lighting
NRC-171-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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H. INDOOR LIGHTING CONTROLS (Not including PAFs)

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STATE OF CALIFORNIA
Indoor Lighting
NRC-171-E
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CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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H. INDOOR LIGHTING CONTROLS (Not including PAFs)

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STATE OF CALIFORNIA
Indoor Lighting
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CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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H. INDOOR LIGHTING CONTROLS (Not including PAFs)

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STATE OF CALIFORNIA
Indoor Lighting
NRC-171-E
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CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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H. INDOOR LIGHTING CONTROLS (Not including PAFs)

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Indoor Lighting
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CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

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Registration Provider: Energysoft
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STATE OF CALIFORNIA
Indoor Lighting
NRC-171-E
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CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

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Indoor Lighting
NRC-171-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
Project Address: 1350 Hastings Rd., APN 180-070-19-00
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K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
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STATE OF CALIFORNIA
Indoor Lighting
NRC-171-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
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T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

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Indoor Lighting
NRC-171-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
Project Address: 1350 Hastings Rd., APN 180-070-19-00
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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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STATE OF CALIFORNIA
Outdoor Lighting
NRC-170-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
Project Address: 1350 Hastings Rd., APN 180-070-19-00
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A. GENERAL INFORMATION

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Registration Provider: Energysoft
Report Generated: 2023-11-21 15:12:22

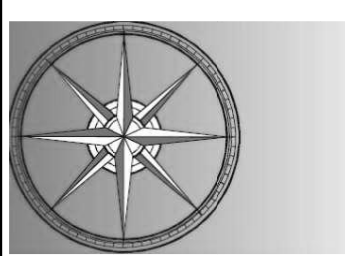
STATE OF CALIFORNIA
Outdoor Lighting
NRC-170-E
CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE
Project Name: City of Ukiah TI Hastings Electrical Service
Project Address: 1350 Hastings Rd., APN 180-070-19-00
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C. COMPLIANCE RESULTS

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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Registration Provider: Energysoft
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Abbay Technical Services
Building Energy Consultants
1125 16th St., Ste. 216 Arcata, CA 95521
707-826-1433
anthony@abbaytechnicalservices.com



TITLE 24 BUILDING ENERGY REPORT
City of Ukiah TI Hastings Electrical Service
1350 Hastings Rd., APN 180-070-19-00
Ukiah, CA 95482

T24.4

STATE OF CALIFORNIA

Outdoor Lighting

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

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CALIFORNIA ENERGY COMMISSION

NRCC-LO-E

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description	Watts per luminaire ^{1,2}	How is Wattage determined	Total number luminaires ³	Luminaire Status ⁴	Excluded per §150.2(a)	Design Watts	Cutoff Req. 6,200 initial lumens output §130.2(b)(3) ⁴	Field Inspector Pass Fail
East	A1-4in Recessed Can 10W	Linear	10	Mfr. Spec	3	New	30	NA: < 6200 lumens	
North	A1-4in Recessed Can 10W	Linear	10	Mfr. Spec	3	New	30	NA: < 6200 lumens	
North	A1-4in Recessed Can 10W	Linear	10	Mfr. Spec	4	New	40	NA: < 6200 lumens	
South	A1-4in Recessed Can 10W	Linear	10	Mfr. Spec	4	New	40	NA: < 6200 lumens	
West	A1-4in Recessed Can 10W	Linear	10	Mfr. Spec	5	New	50	NA: < 6200 lumens	
Total Design Watts:							190		

¹ NOTES: Selections with a "1" require a note in the space below explaining how compliance is achieved.

² EX: Luminaire is lighting a statue; EXCEPTION 2 to §130.2(b).

³ FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.2(a).

⁴ For three luminaires, wattage should be indicated as W/3 instead of Watts/Luminaire. Total lineer feet should be indicated in column 05 instead of number of luminaires.

⁵ Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.

⁶ Compliance with mandatory cutoff requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by §130.2(b).

G. CUTOFF REQUIREMENTS (BUG)

This section does not apply to this project.

Registration Number:

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Outdoor Lighting

CERTIFICATE OF COMPLIANCE

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NRCC-LO-E

H. OUTDOOR LIGHTING CONTROLS

01	02	03	04	05
Area Description	Shut-Off §130.2(c)(1)	Auto-Schedule §130.2(c)(2)	Motion Sensor §130.2(c)(3)	Field Inspector
Outdoor Lighting	Photocontrol	Yes	Yes	Pass Fail

¹ NOTES: Controls with a "1" require a note in the space below explaining how compliance is achieved.

² EX: Not permitted by health & safety to be turned OFF; EXCEPTION 1 to §130.2(c).

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Registration Provider: Energysoft

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Outdoor Lighting

CERTIFICATE OF COMPLIANCE

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NRCC-LO-E

I. LIGHTING POWER ALLOWANCE (per §140.7)

01	02	03	04	05	06	07	08	09	10
Area Description	Surface Type	Area Wattage Allowance (AWA)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (ft)	Area Wattage Allowance (AWA)	Allowed Density (W/ft²)	Linear Allowance (Watts)	Total General AWA + LWA (Watts)
General Site Lighting - Automotive	Concrete	4050	0.03	121.5	830	0.4	332	454	
Initial Wattage Allowance for Entire Site (Watts):							350		
Total General Hardscape Allowance (Watts):							804		

L. LIGHTING ALLOWANCE: PER APPLICATION

This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This section does not apply to this project.

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

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Registration Provider: Energysoft

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STATE OF CALIFORNIA

Outdoor Lighting

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

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CALIFORNIA ENERGY COMMISSION

NRCC-LO-E

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

Form/Title	Pass	Fail
NRCC-LTO-01-E - Must be submitted for all buildings	☐	☐
NRCC-LTO-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks: These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/titles/24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCC/

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks: These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/titles/24/atttcp/providers.html>

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003
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Registration Provider: Energysoft

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STATE OF CALIFORNIA

Outdoor Lighting

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

Report Page: (Page 1 of 7)

Date Prepared: 11/21/2023

CALIFORNIA ENERGY COMMISSION

NRCC-LO-E

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Anthony K. McQuinnery

Signature Date: 2023-11-21

Address: 1125 16th St., Ste. 216 Ukiah, CA 95521

Phone: 707.826.1433

Responsible Person's Declaration Statement

I certify the following under penalty of perjury under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am a registered professional engineer or architect under the laws of the State of California.
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of the California Building Energy Efficiency Standards.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the building owner at occupancy.

Responsible Designer Name: Whitchurch Engineering, Inc.

Signature Date: 2023-11-21

Address: 610 5th Street Ukiah, CA 95540

Phone: 707-367-8020

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

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STATE OF CALIFORNIA

Mechanical Systems

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

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CALIFORNIA ENERGY COMMISSION

NRCC-MCH-E

A. GENERAL INFORMATION

01	02	03	04	05
Project Location (city)	Ukiah	Total Conditioned Floor Area	19111	
01 Complete Date	2	02 Total Unconditioned Floor Area	0	
03 Occupancy Types Within Project:		04 # of Storerooms (Habitable Above Grade)	1	
05 Office (B)	06 Retail (M)	07 Non-refrigerated Warehouse (S)		
08 Hotel/Motel Guest Rooms (R-1)	09 School (E)	10 Healthcare Facility (H)		
11 High-Rise Residential (R-2/R-3)	12 Relocatable Class Bldg (E)	13 Other (write in)		See Table J

B. PROJECT SCOPE

This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.4 or §141.0(b)(2) for alterations.

01	02	03
04 Heating Air System	05 Water Economizer	06 Air Economizer
07 Cooling Air System	08 Pumps	09 Electric Resistance Heat
10 Mechanical Controls	11 System Piping	12 Fan Systems
13 Mechanical Controls (existing to remain, altered or new)	14 Cooling Towers	15 Ductwork (existing to remain, altered or new)
16 Chillers	17 Ventilation	18 Zonal Systems/ Terminal Boxes
19 Boilers		

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Mechanical Systems

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

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C. COMPLIANCE RESULTS

01	02	03	04	05	06	07	08	09
System Summary §110.1, §110.2, §140.4	Pumps §140.4(a)(3)	Fans/Economizers §140.4(a)(4), §140.4(a)(5)	System Controls §110.2, §140.4(a)(6)	Ventilation §110.1	Terminal Box Controls §140.4(d)	Distribution §110.2, §140.4(a)(7)	Cooling Towers §110.2(a)(2)	Compliance Results
Yes AND	Yes AND	Yes AND	Yes AND	Yes AND	Yes AND	Yes AND	Yes AND	COMPLIES
Mandatory Measures Compliance (See Table Q for Details)								

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

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STATE OF CALIFORNIA

Mechanical Systems

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2	Equipment Type per Tables 110.2 / Title 20	Smallest Size Available ¹ §140.4(a)(8)	Heating Output ^{1,2}	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
25T Heat Pump	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Load Controls	265.8	36	245.74	15.75	25.2	523.88	467.3

¹ FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per §140.4(a)(8) and §140.4(a)(9) or §141.0(b)(2) for alterations.

² It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.

³ If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.

⁴ Authority Having Jurisdiction may ask for load calculations used for compliance per §140.4(a)(8).

Registration Number:

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STATE OF CALIFORNIA

Mechanical Systems

CERTIFICATE OF COMPLIANCE

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CALIFORNIA ENERGY COMMISSION

NRCC-MCH-E

G. PUMPS

This section does not apply to this project.

H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in §140.4(c), §140.4(d), and §140.4(m) for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	25T Heat Pump	Economizer ¹	NA: <=54 kBtu/h cooling	Economizer Controls	Designed per §140.4(a) and (m)	System Fan Type:	Constant Volume
01 Fan Name or Item Tag	02 Fan Function	03 Qty	04 Maximum Design Supply Airflow (CFM)	05 HP Unit ²	06 Design HP	07 Fan Power Pressure Drop Adjustment- Table 140.4-8	08 Device
SF	Supply	1	15810	BHP	2		
EF	Exhaust	6	0	BHP	0.06		
Total System Design Supply Airflow (CFM):			15810	Total System Design (BHP):		2.38	Maximum System Fan Power (BHP):

¹ FOOTNOTES: Computer room economizers must meet requirements of §140.3(a) and will be documented on the NRCC-PRC-E document.

² The unit used for HP must be consistent for all fans within a system.

I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in §110.2 and §120.2, and prescriptive controls in §140.4(d) and (n) or requirements in §141.0(b)(2), for altered space conditioning systems.

01	02	03	04	05	06	07	08	09
System Name	System Zoning	Conditioned Floor Area Being Served (ft²)	Thermostats §110.2(b)(3) & (f), §120.2(a)(3) or §141.0(b)(2)	Shut-Off Controls §120.2(a)(3)	Isolation Zone Controls §120.2(a)(3)	Demand Response §110.12 and §120.2(b)(3)	Supply Air Temp. Reset §140.4(f)	Window Interlocks per §140.4(f)(1)
25T Heat Pump	Single zone	<= 25,000 ft²	Setback	Occ. Sensor	Occ. Sensor	NA: Serves temp. sensitive process	NA: Alteration	NA: Alteration Project

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

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STATE OF CALIFORNIA

Mechanical Systems

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

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CALIFORNIA ENERGY COMMISSION

NRCC-MCH-E

I. SYSTEM CONTROLS

¹ FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

² Notes: Controls with a "1" require a note in the space below explaining how compliance is achieved. EX: system 1: SA Temp Reset: Exempt because zones compliant with §140.4(d)(1) EXCEPTION 1 to §140.4(d)(1)

J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in §120.2 and §120.2(a)(38) for all nonresidential, high-rise residential and hotel/motel occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflow may be shown on the plans or the calculations can be presented in a spreadsheet.

01	02	03	04	05	06	07	08	09
01 Check this box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.	02 Check this box if the project included Nonresidential or Hotel/Motel spaces	03 Check this box if the project included new or altered high-rise residential dwelling units.	04 Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per §120.1(c)(2).	05 System Design Airflow ¹ CFM	06 System Design Transfer Air CFM	07 Air Filtration per §120.1(c)(1) and §141.0(b)(2) ¹	08 Provided per §120.1(c)(1) (NR and Hotel/Motel)	09 DCV or Sensor Controls per §120.1(c)(3), §120.1(c)(4), and §120.1(c)(5) ¹
01 Occupancy Type ¹	02 Conditioned Floor Area (ft²)	03 # of people ²	04 Required Min CFM	05 Required Min CFM	06 Provided per Design CFM	07 DCV or Sensor Controls per §120.1(c)(3), §120.1(c)(4), and §120.1(c)(5) ¹	08 DCV or Sensor Controls per §120.1(c)(3), §120.1(c)(4), and §120.1(c)(5) ¹	09 NA: Not required per §120.1(c)(3)
001 Showroom	Retail sales	750	187.5	0	480	DCV	NA: Not required per §120.1(c)(3)	NA: Not required per §120.1(c)(3)

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2023-11-21 15:12:22

STATE OF CALIFORNIA

Mechanical Systems

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

Report Page: (Page 6 of 15)

Date Prepared: 11/21/2023

CALIFORNIA ENERGY COMMISSION

NRCC-MCH-E

J. VENTILATION AND INDOOR AIR QUALITY

002 Supply	All others	85	12.8	0	0	DCV	NA: Not required per §120.1(c)(3)
003 Conference <td>Conference/ meeting</td> <td>543</td> <td>271.5</td> <td>0</td> <td>0</td> <td>DCV<th>NA: Not required per §120.1(c)(3)</th></td>	Conference/ meeting	543	271.5	0	0	DCV <th>NA: Not required per §120.1(c)(3)</th>	NA: Not required per §120.1(c)(3)
005 Print <td>Office space</td> <td>66</td> <td>9.9</td> <td>0</td> <td>0</td> <td>DCV<th>NA: Not required per §120.1(c)(3)</th></td>	Office space	66	9.9	0	0	DCV <th>NA: Not required per §120.1(c)(3)</th>	NA: Not required per §120.1(c)(3)
006 Toilet <td>Toilet, public</td> <td>99</td> <td>1</td> <td>0</td> <td>70</td> <td>DCV<th>NA: Not required per §120.1(c)(3)</th></td>	Toilet, public	99	1	0	70	DCV <th>NA: Not required per §120.1(c)(3)</th>	NA: Not required per §120.1(c)(3)
037 Stairs 1stFlr <td>Corridor</td> <td>47</td> <td>7</td> <td>0</td> <td>0</td> <td>DCV<th>NA: Not required per §120.1(c)(3)</th></td>	Corridor	47	7	0	0	DCV <th>NA: Not required per §120.1(c)(3)</th>	NA: Not required per §120.1(c)(3)
037 Stairs 2ndFlr <td>Corridor</td> <td>47</td> <td>7</td> <td>0</td> <td>0</td> <td>DCV<th>NA: Not required per §120.1(c)(3)</th></td>	Corridor	47	7	0	0	DCV <th>NA: Not required per §120.1(c)(3)</th>	NA: Not required per §120.1(c)(3)
007 Location <td>Office space</td> <td>108</td> <td>16.2</td> <td>0</td> <td>0</td> <td>DCV<th>NA: Not required per §120.1(c)(3)</th></td>	Office space	108	16.2	0	0	DCV <th>NA: Not required per §120.1(c)(3)</th>	NA: Not required per §120.1(c)(3)

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2023-11-21 15:12:22

STATE OF CALIFORNIA

Mechanical Systems

CERTIFICATE OF COMPLIANCE

Project Name: City of Ukiah TI Hastings Electrical Service

Project Address: 1350 Hastings Rd., APN 180-070-19-00

Report Page: (Page 7 of 15)

Date Prepared: 11/21/2023

CALIFORNIA ENERGY COMMISSION

NRCC-MCH-E

J. VENTILATION AND INDOOR AIR QUALITY

010 Office	Office space	233	34.9	0	0	DCV	NA: Not required per §120.1(c)(3)
011 Office <td>Office space</td> <td>191</td> <td>28.6</td> <td>0</td> <td>0</td> <th>DCV</th> <th>NA: Not required per §120.1(c)(3)</th>	Office space	191	28.6	0	0	DCV	NA: Not required per §120.1(c)(3)
012 Shared Office <td>Office space</td> <td>191</td> <td>28.6</td> <td>0</td> <td>0</td> <th>DCV</th> <th>NA: Not required per §120.1(c)(3)</th>	Office space	191	28.6	0	0	DCV	NA: Not required per §120.1(c)(3)
013 Office <td>Office space</td> <td>191</td> <td>28.6</td> <td>0</td> <td>0</td> <th>DCV</th> <th>NA: Not required per §120.1(c)(3)</th>	Office space	191	28.6	0	0	DCV	NA: Not required per §120.1(c)(3)
014 Shared Office <td>Office space</td> <td>191</td> <td>28.6</td> <td>0</td> <td>0</td> <th>DCV</th> <th>NA: Not required per §120.1(c)(3)</th>	Office space	191	28.6	0	0	DCV	NA: Not required per §120.1(c)(3)
015 Office <td>Office space</td> <td>191</td> <td>28.6</td> <td>0</td> <td>0</td> <th>DCV</th> <th>NA: Not required per §120.1(c)(3)</th>	Office space	191	28.6	0	0	DCV	NA: Not required per §120.1(c)(3)
016 Plot <td>Office space</td> <td>159</td> <td>23.8</td> <td>0</td> <td>0</td> <th>DCV</th> <th>NA: Not required per §120.1(c)(3)</th>	Office space	159	23.8	0	0	DCV	NA: Not required per §120.1(c)(3)

Registration Number:

CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance

Registration Date/Time:

Report Version: 2019.1.003
Schema Version: rev 20200601

Registration Provider: Energysoft

Report Generated: 2023-11-21 15:12:22

TITLE 24 BUILDING ENERGY REPORT

City of Ukiah TI Hastings Electrical Service

1350 Hastings Rd., APN 180-070-19-00

Ukiah, CA 95482

Abbey Technical Services
Building Energy Consultants
1125 16th St., Ste. 216 Arcata, CA 95521
707.826.1433
anthony@abbeytechnicalservices.com

T24.5

Page 196 of 1236

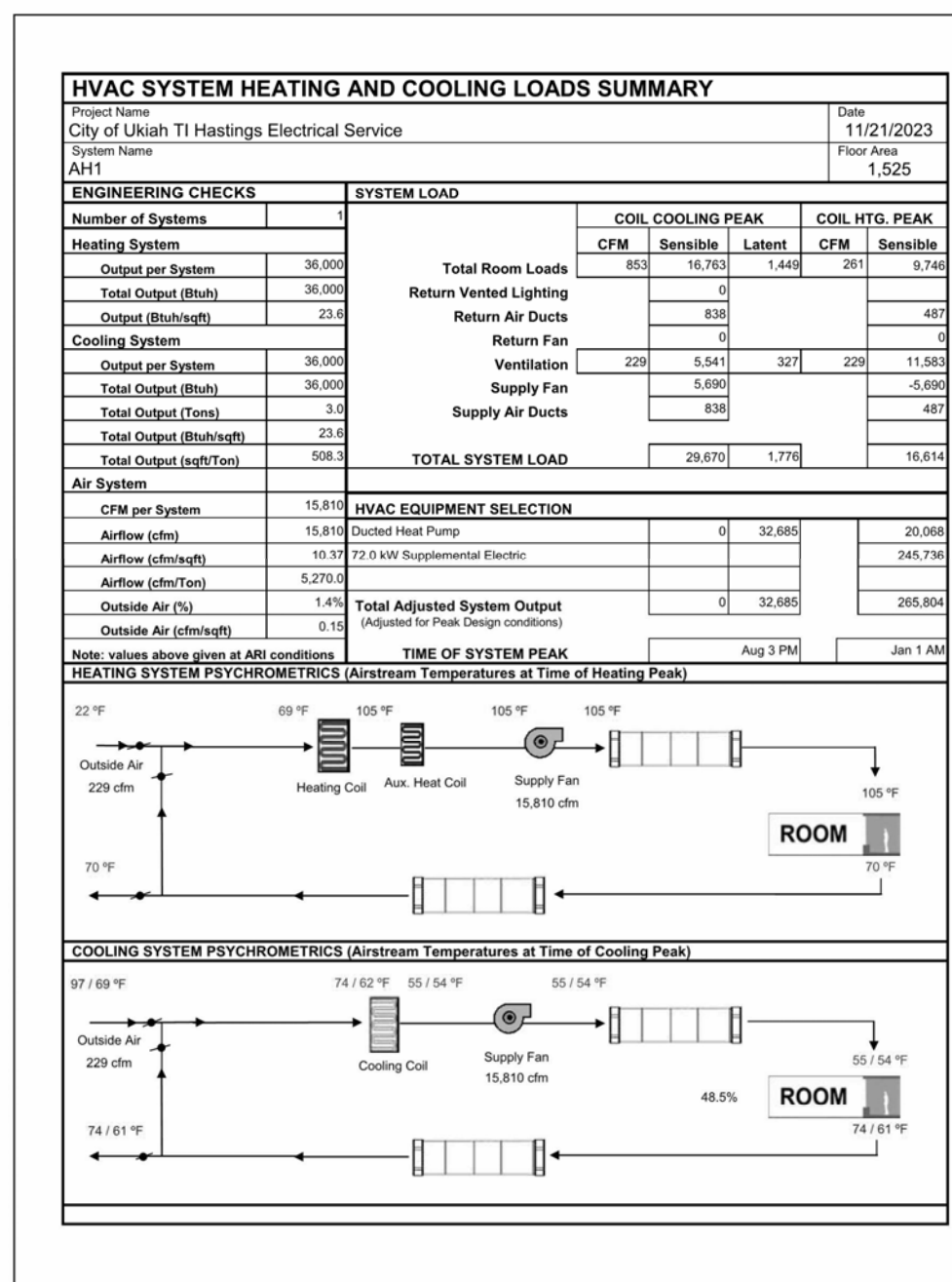
STATE OF CALIFORNIA										Mechanical Systems									
NRCC-MCH-E										CALIFORNIA ENERGY COMMISSION									
CERTIFICATE OF COMPLIANCE										NRCC-MCH-4									
Project Name:										City of Ukiah TI Heating: Electrical Service Report Page: [Page 11 of 15]									
Project Address:										1300 Hastings Rd., APN 180-070-19-00 Date Prepared: 11/7/2023									
1. VENTILATION AND INDOOR AIR QUALITY																			
ID#	Description	Area	Volume	Supply Air Flow (CFM)	Exhaust Air Flow (CFM)	Supply Air Temperature (°F)	Exhaust Air Temperature (°F)	Supply Air Humidity Ratio (lb/lb)	Exhaust Air Humidity Ratio (lb/lb)	DCV	NA: Not required per §1702.16(i)(3)								
031 Mechanical	All others	150		0	0	0				Occ Sensor	NA: Not required space type								
032 Bull Room	General Manufacturing, non chemical	704		105.6	0	0				DCV	NA: Not required per §1702.16(i)(3)								
										Occ Sensor	NA: Not required space type								
033 Shared Office	Office space	216		32.4	0	0				DCV	NA: Not required per §1702.16(i)(3)								
										Occ Sensor	Provided per §1702.16(i)(5)								
033 Warehouse	All others	1853		278	0	0				DCV	NA: Not required per §1702.16(i)(3)								
										Occ Sensor	NA: Not required space type								
034 Warehouse	All others	2276		341.4	0	0				DCV	NA: Not required per §1702.16(i)(3)								
										Occ Sensor	NA: Not required space type								
035 Office	Office space	113		17	0	0				DCV	NA: Not required per §1702.16(i)(3)								
										Occ Sensor	Provided per §1702.16(i)(5)								
036 Toilet	Toilet, public	51	1	0	70	0				DCV	NA: Not required per §1702.16(i)(3)								
										Occ Sensor	NA: Not required space type								
17	Total System Required Min OA CFM			2790	18	Ventilation for this System Comples?		Yes											

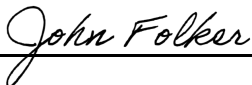
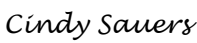
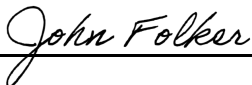
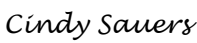
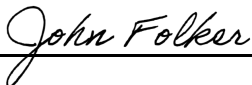
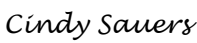
STATE OF CALIFORNIA Mechanical Systems NBCC-MCH-4		CALIFORNIA ENERGY COMMISSION	
CERTIFICATE OF COMPLIANCE		NBCC-MCH-4 (Page 15 of 15) 11/27/2023	
Project Name: City of Ukiah 11/27/ Electrical Services		Report Page:	
Project Address: 1350 Hastings Rd., Apt 100-070-19		Date Prepared:	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Anthony E. McQuinnery Company: ABBAY TECHNICAL SERVICES Address: 11225 16th St., Ste. 216 Chittenden Arcata CA 95521	Documentation Author Signature:   Signature Date: 2023-11-21 SEA (certification identification if applicable): R19-21-30083 / NR19-23-30043 Phone: 707.826.1433

RESPONSIBLE PERSON'S DECLARATION STATEMENT I certify the following under penalty of perjury, under the law of the State of California: 1. The information provided on this Certificate of Compliance is true and correct. 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer). 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations. 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. 5. I will ensure that a completed signed copy of this Certificate of Compliance that is made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable permit(s). I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the building provides to the building owner at occupancy.	
Responsible Designer Name: Whitchurch Engineering, Inc. Company: Whitchurch Engineering, Inc. Address: 610 9th Street Eureka Fortuna CA 95540	Responsible Designer Signature:   (REN / ALEXANDER ARCHITECTS) Date Signed: 2023-11-21 License: C-39696 Phone: 707-367-8020

Registration Number:	Registration Date/Time:	Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance	Report Version: 2019.1.003 Schema Version: 202006001	Report Generated: 2023-11-21 15:22:23



	CHANGE ORDER <u>001</u> June 25, 2024	Job Name: Hastings TI Job #: 2010-2										
The construction contract dated 04/09/24 between Kirby Construction Company, Inc. and City of Ukiah is hereby modified and amended by the following deviations from the original plans and specifications: Furnish additional labor and materials based upon ASI 002: 1. Flor 19.7"x19.7" CPT Tile, style Rush Street, color Grey 2. Additional framing/insulation 3. Additional drywall/tape/paint Furnish additional labor and materials based upon ASI 007: 1. Demo existing drywall to 9' AFF to expose and safe-off all in-wall electrical 2. Demo ALL existing wall lights and infill with framing and interior finish to match existing. 3. Demo owner constructed "fake fire place". 4. Demo existing exhaust fans (x2). Owner to dispose. 5. Demo existing exterior wall vent grills on either side of (E) roll up door and infill with framing, exterior siding, and interior finish to match existing. 6. Install approximately 900 sq.ft. drywall. Tape, finish, and paint new drywall. It is mutually agreed that for such change the contract price is increased by \$ 18,306.12 payable with the payment becoming due under the original construction agreement. Time for completion of the above cited subcontract work is hereby extended <u>NO</u> days beyond any completion date set forth in the original Contract for such work. All other work provisions of the original Contract and agreement shall remain in full force and effect, without change because of above deviations.												
<table style="width: 100%;"> <tr> <td style="width: 70%;">Contract Summary</td> <td style="text-align: right;">Change No. 1</td> </tr> <tr> <td>Original Contract Value</td> <td style="text-align: right;">\$ 2,446,340.00</td> </tr> <tr> <td>Previously Approved Change Orders</td> <td style="text-align: right;">\$ -</td> </tr> <tr> <td>This Change Order</td> <td style="text-align: right;">\$ 18,306.12</td> </tr> <tr> <td>Total Revised Contract Value</td> <td style="text-align: right;">\$ 2,464,646.12</td> </tr> </table>			Contract Summary	Change No. 1	Original Contract Value	\$ 2,446,340.00	Previously Approved Change Orders	\$ -	This Change Order	\$ 18,306.12	Total Revised Contract Value	\$ 2,464,646.12
Contract Summary	Change No. 1											
Original Contract Value	\$ 2,446,340.00											
Previously Approved Change Orders	\$ -											
This Change Order	\$ 18,306.12											
Total Revised Contract Value	\$ 2,464,646.12											
<table style="width: 100%;"> <tr> <td style="width: 40%;">Kirby Construction</td> <td style="width: 30%; text-align: center;">  Signature </td> <td style="width: 30%; text-align: center;"> <u>06-25-2024</u> Date </td> </tr> <tr> <td>Client/Owner</td> <td style="text-align: center;">  Signature </td> <td style="text-align: center;"> <u>06/25/24</u> Date </td> </tr> <tr> <td>Architect</td> <td style="text-align: center;">  Signature </td> <td style="text-align: center;"> <u>06-25-24</u> Date </td> </tr> </table>			Kirby Construction	 Signature	<u>06-25-2024</u> Date	Client/Owner	 Signature	<u>06/25/24</u> Date	Architect	 Signature	<u>06-25-24</u> Date	
Kirby Construction	 Signature	<u>06-25-2024</u> Date										
Client/Owner	 Signature	<u>06/25/24</u> Date										
Architect	 Signature	<u>06-25-24</u> Date										

CITY OF UKIAH
CONTRACT CHANGE ORDER

ORDER NO. 1-Rev. 1

DATE: 06/25/24

Contract for (Description of Facility): Electric Service Center Tenant Improvements & Fire Damage Repair, Spec. No. 24-01

Owner: City of Ukiah, 300 Seminary Avenue, Ukiah, California, 95482-5400

To (Contractor): Kirby Construction Company, Inc., 625 Ware Ave., Santa Rosa, CA 95404

You are hereby directed to make the herein described changes from the contract plans and specifications or do the following described work not included in the contract plans and specifications: Office and Custodian Room Size Change; Demolition of Bull Room

Change requested by: City of Ukiah and Kirby Construction

Description of Changes - Itemized Breakdown	ESTIMATED DECREASE to Contract Amount	ESTIMATED INCREASE to Contract Amount
1. Furnish additional labor and materials for Office & Custodian Room size change per Change Order Request #002, (Attached).		\$1,622.41
2 All labor and material to demo Bull Room per Change Order Request #003, (Attached). This work was excluded from the drawings.		\$16,683.71
ESTIMATED NET CHANGE IN CONTRACT PRICE		\$18,306.12

Justification (Detailed and Concise): Demolition of Bull Room was excluded from the construction drawings and extension of the Custodian Room is required to house 3 personnel.

The amount of the Contract will be (~~decreased~~/~~increased~~/~~unchanged~~) by the estimated sum of: Eighteen Thousand Three Hundred Six Dollars and Twelve Cents (\$18,306.12.)

The contract total including this, and previous Change Orders will be: Two Million, Four Hundred Sixty-Four Thousand, Six Hundred Forty-Six Dollars and Twelve Cents (\$2,464,646.12).

The contract period provided for completion will be (~~increased~~/~~decreased~~/~~unchanged~~): 0 day.

This document will become a supplement to the contract and all provisions will apply hereto.

Approved By: 
Cindy Sauers, Electric Utility Director
City of Ukiah

6/25/24
Date

Accepted: 
Kirby Construction Co., Inc.

06-25-2024
Date

This information will be issued as a record of any changes to the original construction contract.

CITY OF UKIAH
CONTRACT CHANGE ORDER

ORDER NO. 1

DATE: 06/18/24

Contract for (Description of Facility): Electric Service Center Tenant Improvements & Fire Damage Repair, Spec. No. 24-01

Owner: City of Ukiah, 300 Seminary Avenue, Ukiah, California, 95482-5400

To (Contractor): Kirby Construction Company, Inc., 625 Ware Ave., Santa Rosa, CA 95404

You are hereby directed to make the herein described changes from the contract plans and specifications or do the following described work not included in the contract plans and specifications: Office and Custodian Room Size Change; Demolition of Bull Room
Change requested by: City of Ukiah and Kirby Construction

Description of Changes - Itemized Breakdown	ESTIMATED DECREASE to Contract Amount	ESTIMATED INCREASE to Contract Amount
1. Furnish additional labor and materials for Office & Custodian Room size change per Change Order Request #002, (Attached).		\$1,622.41
2. All labor and material to demo Bull Room per Change Order Request #003, (Attached). This work was excluded from the drawings.		\$16,683.71
ESTIMATED NET CHANGE IN CONTRACT PRICE		\$18,306.12

Justification (Detailed and Concise): Demolition of Bull Room was excluded from the construction drawings and extension of the Custodian Room is required to house 3 personnel.

The amount of the Contract will be (~~decreased~~/~~increased~~/~~unchanged~~) by the estimated sum of: Eighteen Thousand Three Hundred Six Dollars and Twelve Cents (\$18,306.12.)

The contract total including this, and previous Change Orders will be: Two Million, Seven Hundred Nine Thousand, Two Hundred Eighty Dollars and Twelve Cents (\$2,709,280.12). \$2,464,646.12

The contract period provided for completion will be (~~increased~~/~~decreased~~/~~unchanged~~): 0 day.

This document will become a supplement to the contract and all provisions will apply hereto.

Approved By: Cindy S.
Cindy Sauers, Electric Utility Director
City of Ukiah

6/19/24
Date

Accepted: John Folker
Kirby Construction Co., Inc.

06-20-2024
Date

This information will be issued as a record of any changes to the original construction contract.



Change Order Request #002

Client: City of Ukiah
Attention: Kati Gordon
Project: CO #002 - Office and Custodian Room Size Change

Date: 06/10/24
Job Number: 2010-2

Description: Furnish additional labor and materials based upon ASI 002
1. Flor 18.7"x18.7" CPT Tile, style Rush Street, color Grey
2. Additional framing/insulation
3. Additional drywall/tape/paint

Clarifications: Per ASI/ASK - 002 issued 5/10/24.

Standard Exclusions: Testing, Special Inspections Hazardous Materials Testing or Removal Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	280.00
06010	Carpentry	350.00
09680	Flooring	541.00
09900	Painting	275.00

	Subtotal	1,446.00
Fee @	10.0%	144.60
Bonding & Insurance @	2.0%	31.81
Total		<u>1,622.41</u>

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By:

John Folker

Approved By

Steven Ratley 06/14/24
Architect Date

Approved By

Owner Date

Approved By

Date

Project: Ukiah Electric Service Center

Date: 05/10/24

To:
Joe Pycz
Kirby Construction
Job- 2010-2
jpycz@kirbycon.com

From:
Steven Ratley
Ren / Alexander Design
301 Scott Street
Ukiah, CA 95482
415 859-8196
steven@renalexander.com

Architect Supplemental Instructions

1. Please move window #108 approx. 2' towards West wall of Warehouse #025 to avoid looking out onto exterior stair column. Please verify in field exact location.
2. Per RFI #011 - To maximize the space in Office 026 please move South wall approx. 2' South - V.I.F that the OH door R08 is installed as close as possible to storage platform to maximize Office space. Please also move Custodian 028 wall to align, location of mop sink to remain.
3. This will result in 31 sq ft +/- additional carpet tile in Office 026 and +/- 8 linear feet of resilient wall base.
4. Please Note - (6) A1 lights to be centered in Office 026. Single B1 light to be centered in Custodian 028.

Attachments

1. ASK_02 - Office 026, Cust 026 + Window 108

Reference

1. RFI 011

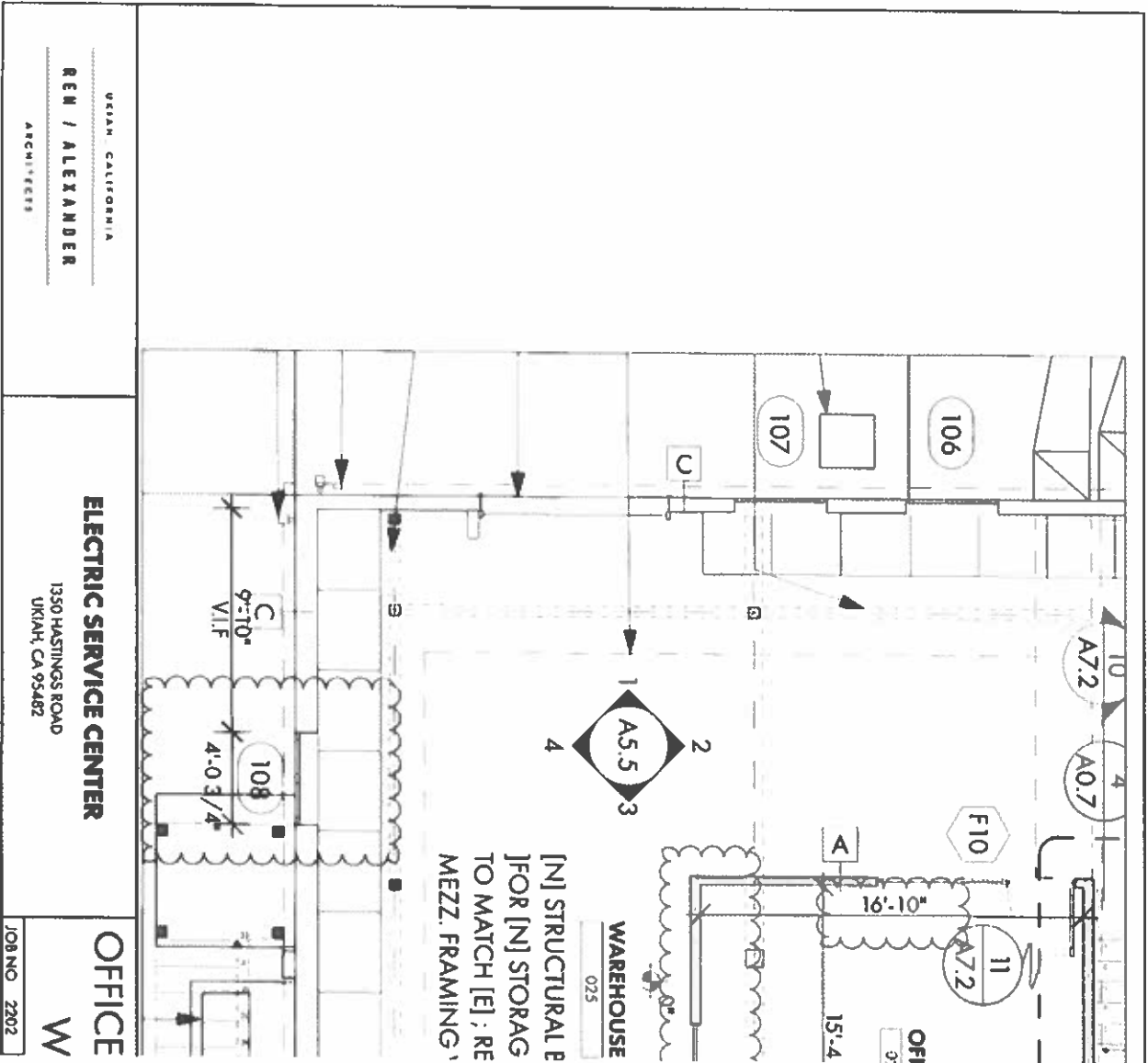
Sincerely,



Steven

Ratley
Principal
Ren / Alexander Design

Page 1 of 1





Change Order Request #003

Client: City of Ukiah
Attention: Kali Gordon
Project: CO #003 - Demo Plan Bull Room

Date: 06/12/24
Job Number: 2010-2

Description: Furnish additional labor and materials based upon ASI 007:
1 Demo existing drywall to 9' AFF to expose and safe-off all in-wall electrical
2 Demo ALL existing wall lights and infill with framing and interior finish to match existing
3 Demo owner constructed "fake fire place"
4 Demo existing exhaust fans (x2) Owner to dispose.
5 Demo existing exterior wall vent grills on either side of (E) roll up door and infill with framing, exterior siding, and interior finish to match existing.
6 Install approximately 900 sq.ft. drywall Tape, finish, and paint new drywall.

Clarifications: Per ASI/ASK - 007 issued 6/6/24

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

CSI CODE	DESCRIPTION	COSTS
10100	Project Management	800.00
10121	General Conditions/On Site Supervision	325.00
10141	Equipment	1,087.50
02070	Soft Demolition	2,200.00
08010	Carpentry	3,700.00
07210	Insulation	1,500.00
09250	Drywall	3,010.00
09900	Painting	800.00
16000	Electrical	1,284.44

Subtotal	14,506.94
Fee @ 10.0%	1,450.69
Bonding & Insurance @ 2.0%	728.07
Total	16,683.71

This bid is valid for 30 days unless accepted in writing by owner

Respectfully Submitted By

John Folker

Approved By

Steven Ratley
Architect

06/19/2024

Date

Approved By

Owner

Date

Approved By

Date

Project: Ukiah Electric Service Center

Date: 06/06/24

To:
Joe Pycz
Kirby Construction
Job- 2010-2
jpycz@kirbycon.com

From:
Steven Ratley
Ren / Alexander Design
301 Scott Street
Ukiah, CA 95482
415-859-8196
steven@renalexander.com

Architect Supplemental Instructions

1. Please Demo ALL existing wall lights and infill with framing and interior finish to match existing
2. Please Demo owner constructed "fake fire place"
3. Please Demo existing exterior wall vent grills on either side of (E) roll up door and infill with framing, exterior siding, and interior finish to match existing.

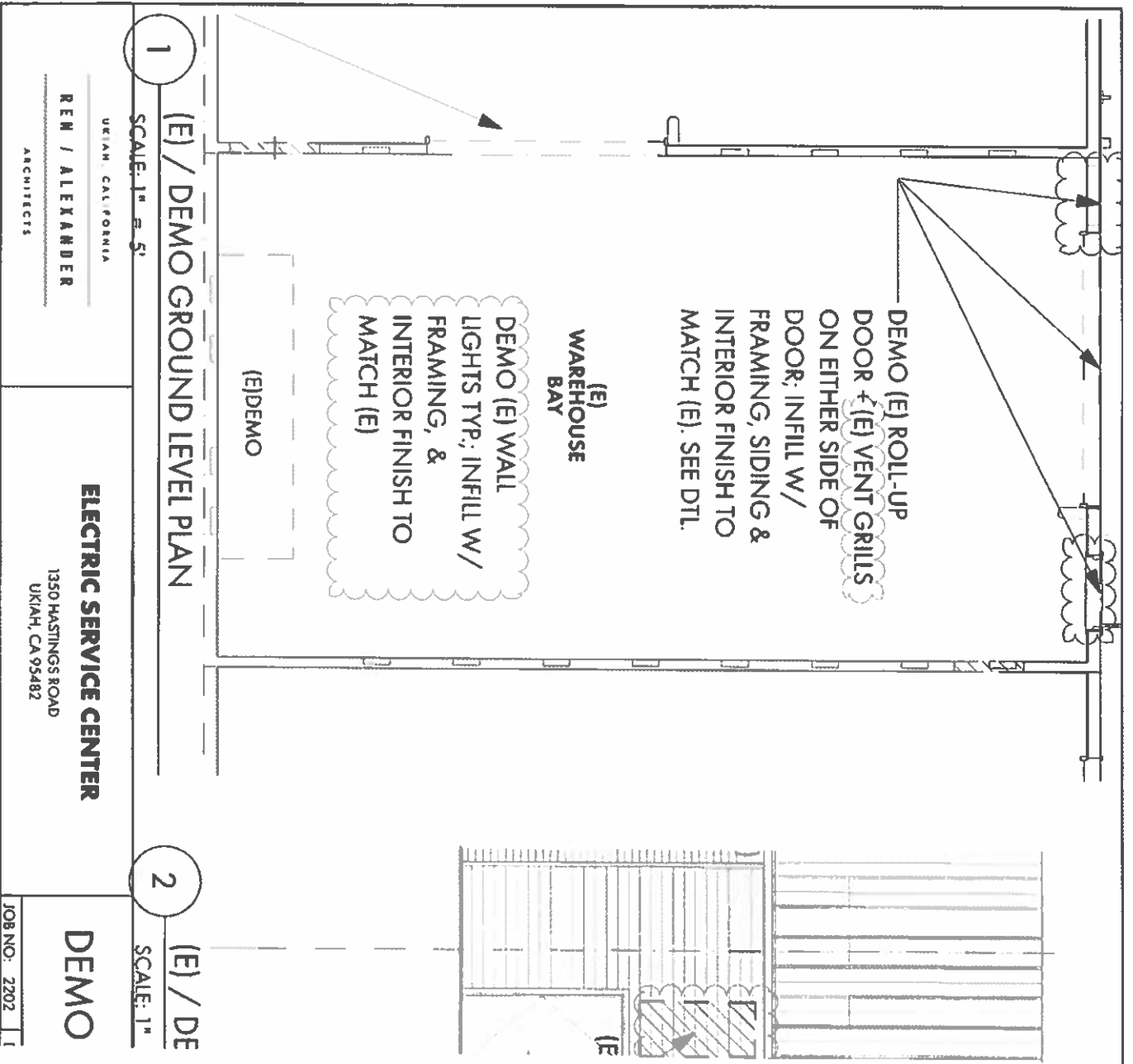
Attachments:

1. ASK-007: Demo Plan: Bull Rm

Sincerely,



Steven Ratley
Principal
Ren / Alexander Design



	CHANGE ORDER <u>002</u> July 19, 2024	Job Name: Hastings TI Job #: 2010-2										
The construction contract dated 04/09/24 between Kirby Construction Company, Inc. and City of Ukiah is hereby modified and amended by the following deviations from the original plans and specifications: Change Order Request #005 captures the Additional Fire Damage Repairs from drawings dated 7/17/24. It is mutually agreed that for such change the contract price is increased by \$ 10,602.02 payable with the payment becoming due under the original construction agreement. Time for completion of the above cited subcontract work is hereby extended <u>0</u> days beyond any completion date set forth in the original Contract for such work. All other work provisions of the original Contract and agreement shall remain in full force and effect, without change because of above deviations.												
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Contract Summary</td> <td style="width: 30%; text-align: right;">Change No. 1</td> </tr> <tr> <td>Original Contract Value</td> <td style="text-align: right;">\$ 2,446,340.00</td> </tr> <tr> <td>Previously Approved Change Orders</td> <td style="text-align: right;">\$ 18,306.12</td> </tr> <tr> <td>This Change Order</td> <td style="text-align: right;">\$ 10,602.02</td> </tr> <tr> <td>Total Revised Contract Value</td> <td style="text-align: right;">\$ 2,475,248.14</td> </tr> </table>			Contract Summary	Change No. 1	Original Contract Value	\$ 2,446,340.00	Previously Approved Change Orders	\$ 18,306.12	This Change Order	\$ 10,602.02	Total Revised Contract Value	\$ 2,475,248.14
Contract Summary	Change No. 1											
Original Contract Value	\$ 2,446,340.00											
Previously Approved Change Orders	\$ 18,306.12											
This Change Order	\$ 10,602.02											
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Kirby Construction	<u>John Folker</u> Signature	<u>07-19-2024</u> Date										
Client/Owner	_____ Signature	_____ Date										
Architect	_____ Signature	_____ Date										

CITY OF UKIAH
CONTRACT CHANGE ORDER

ORDER NO. 2

DATE: 07/18/24

Contract for (Description of Facility): Electric Service Center Tenant Improvements & Fire Damage Repair, Spec. No. 24-01

Owner: City of Ukiah, 300 Seminary Avenue, Ukiah, California, 95482-5400

To (Contractor): Kirby Construction Company, Inc., 625 Ware Ave., Santa Rosa, CA 95404

You are hereby directed to make the herein described changes from the contract plans and specifications or do the following described work not included in the contract plans and specifications: Office and Custodian Room Size Change; Demolition of Bull Room

Change requested by: City of Ukiah and Kirby Construction

Description of Changes - Itemized Breakdown	ESTIMATED DECREASE to Contract Amount	ESTIMATED INCREASE to Contract Amount
1. Furnish additional labor and materials for additional fire damage repairs. See attached for drawing and breakdown of costs.		\$10,602.02
2		
ESTIMATED NET CHANGE IN CONTRACT PRICE		\$10,602.02

Justification (Detailed and Concise): Additional fire damage to truss, requiring splicing for structural loading.

The amount of the Contract will be (~~decreased~~/**increased**/~~unchanged~~) by the estimated sum of: Ten thousand, six hundred two dollars and two cents (\$10,602.02.)

The contract total including this, and previous Change Orders will be: Two Million, Four Hundred Seventy-Five Thousand, Two Hundred Forty-Eight Dollars and Fourteen Cents (\$2,475,248.14).

The contract period provided for completion will be (~~increased~~/~~decreased~~/**unchanged**): 0 day.

This document will become a supplement to the contract and all provisions will apply hereto.

Approved By: Cindy Sauers
Cindy Sauers, Electric Utility Director
City of Ukiah

07/18/24

Date

Accepted: John Folker
Kirby Construction Co., Inc.

07-19-2024

Date

This information will be issued as a record of any changes to the original construction contract.



Change Order Request #005

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #005 - Additional Fire Damage Repairs

Date: 07/17/24
Job Number: 2010-2

Description: Change Order Request #005 captures the Additional Fire Damage Repairs from drawings dated 7/17/24.

Clarifications: 0

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	400.00
10104	Supervision	500.00
10121	General Conditions/On Site Supervision	550.00
10141	Equipment	768.75
02070	Soft Demolition	2,000.00
06010	Carpentry	5,000.00

	Subtotal	9,218.75
Fee @ 10.0%		921.88
Bond @ 2.5%		253.52
Insurance @ 2.0%		207.88
Total		10,602.02

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: Steven Ratley 07/18/24
Architect Date

Approved By: Cindy Sauers 07/18/24
Owner Date

Approved By: _____
Date

WHITCHURCH ENGINEERING

Building Design • Civil & Structural Engineering

610 9th STREET
FORTUNA, CA 95540
(707) 725-6926

716 HARRIS STREET
EUREKA, CA 95503
(707) 444-1420

JOB CITY OF UKIAH ELECTRICAL SERVICE BLDG.
ELEMENT TRUSS REPAIR DETAIL
SHEET NO. 1 OF 1
CALCULATED BY RAD DATE 7-17-21
CHECKED BY BLW JN CDU 2201.2

<E> 3-PLY TRUSS PROFILE w/ SPLICE DETAIL

DRAWING NOT TO SCALE

PRELIMINARY
NOT FOR CONSTRUCTION

<E> 2x6
DF #2
WEB

NEW 2x6 DF #2
(EA. PLY)

30"

SPLICE LOCATION
USE SIMPSON HST3
ON EA. SIDE w/
3/4" THROUGH BOLTS

<E> 2x8 DF #1
BOTTOM CHORD

24"

NEW 2x8 DF #1
(EA. PLY)

SIMPSON LTP4
ON EA. SIDE

CUT <E> FIRE DAMAGED
LUMBER TO LENGTH OF
DIMENSIONS SHOWN

NOTES:

1. FASTEN PLY LAYERS TOGETHER
w/ 16d COMMON NAILS @ 4" O.C.
AS EA. LAYER IS APPLIED
2. MATCH <E> LUMBER AS
SHOWN FOR SPLICE LOCATIONS
3. CONTRACTOR TO PROVIDE TEMPORARY
SHORING AS NECESSARY

	CHANGE ORDER	Job Name: Hastings TI
	003	Job #: 2010-2
	August 8, 2024	

The construction contract dated **04/09/24** between Kirby Construction Company, Inc. and **City of Ukiah** is hereby modified and amended by the following deviations from the original plans and specifications:

Change Order Request #004 captures the Revision 1 plan changes dated 6/14/24:

1. Window Revisions: Supply & install the following exterior nail on fin windows: Dark bronze, Standard hardware, 1" OA insulated units
Windows 115, 116, 117, 118, 119, 120.
2. Door Revisions: Supply & install the following exterior storefront: Dark bronze, Panic hardware, Offset pull handles, 1" OA insulated units Door E05. Increase E04 door height to 10' and remove transom from scope.
3. Plumbing Revisions: Fixture Cost Change for Drinking Fountains (X2), Breakroom Sink (1), Bull Room Sink (1), and Ready Room Sink (1).
4. Roof Revisions: Large box gutter at 2nd level fire damage.
5. Drywall Revisions: Added gypsum board in various locations due to additional required demolition for MEP.
6. Security Revisions: Per ASK / ASI 013 - 'Add an alarm key pad at the (E) Warehouse 034 door as shown...'
7. Fire Alarm Permit: Added fees to pull permit at cost. Excluded in bid proposal.
8. Ramp at Mezzanine: Install new ramp and handrail per plans.
9. Additional carpentry and material for structural changes.
10. Drywall Deduct: Per ASK 12 dated 7/17/24.
11. Drywall Deduct: Area between Ready Room and Bull Room

Change Order Request #006 captures the Fire Extinguisher Cabinets in ASK 017 issued 7/31/24.

1. Install 3 (N) fire extinguisher cabinets to match existing per plans.
2. Replace glass in 3 (E) fire extinguisher cabinets.
3. Re-locate 1 (E) fire extinguisher cabinet.

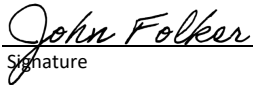
Change Order Request #007 captures Electrical and Data per plan markup dated 7/30/24.
5 data and 2 outlets previously installed have been deducted from this proposal.

It is mutually agreed that for such change the contract price is increased by **\$ 115,158.13** payable with the payment becoming due under the original construction agreement.

Time for completion of the above cited subcontract work is hereby extended 5 days beyond any completion date set forth in the original Contract for such work.

All other work provisions of the original Contract and agreement shall remain in full force and effect, without change because of above deviations.

Contract Summary	Change No. 3
Original Contract Value	\$ 2,446,340.00
Previously Approved Change Orders	\$ 28,908.14
This Change Order	\$ 115,158.13
Total Revised Contract Value	\$ 2,590,406.27

Kirby Construction	 _____ Signature	<u>08-08-2024</u> _____ Date
Client/Owner	_____ Signature	_____ Date

CITY OF UKIAH
CONTRACT CHANGE ORDER

ORDER NO. 3

DATE: 8/7/2024

Contract for (Description of Facility): Electric Service Center Tenant Improvements & Fire Damage Repair, Spec. No. 24-01

Owner: City of Ukiah, 300 Seminary Ave., Ukiah, California, 95482-5400

To (Contractor): Kirby Construction Company, Inc., 625 Ware Ave., Santa Rosa, CA 95404

You are hereby directed to make the herein described changes from the contract plans and specifications or do the following described work not included in the contract plans and specifications:

Change requested by: UEUD.

Description of Changes - Itemized Breakdown	ESTIMATED DECREASE To Contract Amount	ESTIMATED INCREASE To Contract Amount
1. COR #004 – Rev 1 Plan Changes 1. Window 2. Door 3. Plumbing 4. Roof 5. Drywall 6. Security 7. Fire alarm 8. Ramp 9. Additional Carpentry		71,214.32
2. COR #006 - Fire Extinguisher Cabinets, install 3, replace glass in 3 & re-locate 1		2,673.87
3. COR #007 – Additional electrical outlets and new Data Ports		41,269.94
4.		
5.		
6.		
7.		
ESTIMATED NET CHANGE IN CONTRACT PRICE		115,158.13
TOTAL CHANGE OF CONTRACT PRICE		\$115,158.13

Justification (Detailed and Concise): These are three different CO requests, COR#004 is for Contract Revision changes. COR#006 is For new required Fire Extinguishers and to repair existing and relocating existing Fire Extinguishers. COR#007 is for Data Ports that have to be installed that were not included in original scope

The amount of the Contract will be (~~decreased~~/**increased**/~~unchanged~~) by the estimated sum of: One Hundred Fifteen Thousand One Hundred Fifty-Eight Dollars Thirteen Cents (\$115,158.13).

The contract total including this and previous Change Orders will be: Two Million Five Hundred Ninety Thousand Four Hundred Six Dollars Twenty-Seven Cents (\$2,590,406.27).

The contract period provided for completion will be (**increased**/~~decreased~~/~~unchanged~~): 5 days.

This document will become a supplement to the contract and all provisions will apply hereto.

Approved By: Scott Bozzoli
(City)
Accepted: John Folker
(Contractor)

8/8/2024

Date
08-08-2024

Date

This information will be issued as a record of any changes to the original construction contract.



Change Order Request #004 r.4

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #004 r.3 - Revision 1 Changes

Date: 08/02/24
Job Number: 2010-2

Description: Change Order Request #004 captures the Revision 1 plan changes dated 6/14/24:

1. Window Revisions: Supply & install the following exterior nail on fin windows: Dark bronze, Standard hardware, 1" OA insulated units Windows 115, 116, 117, 118, 119, 120.
2. Door Revisions: Supply & install the following exterior storefront: Dark bronze, Panic hardware, Offset pull handles, 1" OA insulated units Door E05. Increase E04 door height to 10' and remove transom from scope.
3. Plumbing Revisions: Fixture Cost Change for Drinking Fountains (X2), Breakroom Sink (1), Bull Room Sink (1), and Ready Room Sink (1).
4. Roof Revisions: Large box gutter at 2nd level fire damage.
5. Drywall Revisions: Added gypsum board in various locations due to additional required demolition for MEP.
6. Security Revisions: Per ASK / ASI 013 - 'Add an alarm key pad at the (E) Warehouse 034 door as shown...'
7. Fire Alarm Permit: Added fees to pull permit at cost. Excluded in bid proposal.
8. Ramp at Mezzanine: Install new ramp and handrail per plans.
9. Additional carpentry and material for structural changes.
10. Drywall Deduct: Per ASK 12 dated 7/17/24.
11. Drywall Deduct: Area between Ready Room and Bull Room

Clarifications: Data revisions not included.

Standard Exclusions Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	800.00
10104	Supervision	1,000.00
10121	General Conditions/On Site Supervision	1,725.00
10141	Equipment	2,416.25
02070	Soft Demolition	2,600.00
06010	Carpentry	10,100.00
07510	Roofing & Flashing	2,935.00
08000	Doors & Windows	17,055.00
09250	Drywall	24,119.00
09250	Drywall Deduct	-8,233.96
09900	Painting	1,350.00
15300	Fire Protection	645.00
15400	Plumbing & Piping	4,290.00
16000	Electrical & Data	1,121.51

Subtotal	61,922.80
Fee @ 10.0%	6,192.28
Bond @ 2.5%	1,702.88
Insurance @ 2.0%	1,396.36
Total	71,214.32

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By:

John Folker

Approved By:

Steven Ratley
Architect

08/02/24

Date

Approved By:

Scott Bozzoli
Owner

8/5/2024

Date

Approved By:

Date

NOR CAL GLASS PRODUCTS, INC.
PO BOX 1301
ROHNERT PARK, CA 94927-1301
707-206-9660
office@norcalglassproducts.com



ADDRESS

Kirby Construction
625 Ware Ave
Santa Rosa, CA 95404

Change Order 6526 CO1

DATE 07/03/2024

JOB NAME

Ukiah Electric Service Center

ACTIVITY

AMOUNT

Labor & Installation Fees

17,055.00

Supply & install the following exterior nail on fin windows:
Dark bronze
Standard hardware
1" OA insulated units
Windows 115, 116, 117, 118, 119, 120

Supply & install the following exterior storefront:
Dark bronze
Panic hardware
Offset pull handles
1" OA insulated units
Door E05

Increase E04 door height to 10' and remove transom from scope.

Decrease width of windows 106 and 107 to 3'.

Clarifications

Install only, excludes removal of existing windows.
Rough openings to be prepared to accept windows by others.

Terms:

Signed estimate & 25% deposit to place order.
Balance due upon completion.

TOTAL

\$17,055.00

Price includes all labor, materials, freight and tax.
Payable by check, cash or credit card.
There is a 3% processing fee for all card payments.

Lic #949519



A UNION SHOP -SBE- DVBE

Bid Proposal & Scope Letter

Date: 06/27/24

707-583-3163

To: estimating

job name: UKIAH ELECTRIC CENTER

Specification Sections/Scope:

CO1

092900-Gyp board

1. ADDED GYPSUM BOARD AT THE FOLLOWING LOCATIONS:

SEE THE ATTACHED MARKED-UP DRAWING LINED IN BLUE-NEW PROSED FLOOR PLAN AND MEZZANINE

COST -\$24,119.00

Section Markup

Ukiah Electric Service

CO # 1

Bid No. 92

Selected Sections: 09260 Drywall

Selected Typical Areas:

Selected Areas: Ground Floor, Mezz Level

Estimator:

Job Class:

Wage Type: **Union**

Job Status: **Awarded**

Bid Date/Time: **6/24/2024 8:38:59 AM**

Plans Date: **6/26/2024**

		Material		Labor		Subs		Equipment		Other		Total
Net Totals		2,387.45		10,460.18		0.00		0.00		0.00		12,847.64
Stock		0.00		0.00		--		--		--		0.00
Cleanup		0.00		0.00		--		--		--		0.00
Supervision		--		0.00		--		--		--		0.00
Sub Totals		2,387.45		10,460.18		0.00		0.00		0.00		12,847.64
Escalation	0.00%	0.00		0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00
Tax/Burden	8.75%	208.90		0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	1.63%	208.90
PerDiem		--		0.00		--		--		--		0.00
Sub Total		2,596.35		10,460.18		0.00		0.00		0.00		13,056.54
Overhead	10.00%	259.64		10.00%	1,046.02	0.00%	0.00	0.00%	0.00	0.00%	0.00	1,305.65
Profit	5.00%	142.80		5.00%	575.31	0.00%	0.00	0.00%	0.00	0.00%	0.00	718.11
Bid total		2,998.79		12,081.51		0.00		0.00		0.00		15,080.30

Grand Total: **15,080.30**

Section Markup

*Ukiah Electric Service***CO # 1**

Bid No. 92

Selected Sections: 09261 Taping

Selected Typical Areas:

Selected Areas: Ground Floor, Mezz Level

Estimator:

Job Class:

Wage Type: **Union**Job Status: **Awarded**Bid Date/Time: **6/24/2024 8:38:59 AM**Plans Date: **6/26/2024**

		Material		Labor		Subs		Equipment		Other		Total
Net Totals		310.61		7,488.03		0.00		0.00		0.00		7,798.64
Stock		0.00		0.00		--		--		--		0.00
Cleanup		0.00		0.00		--		--		--		0.00
Supervision		--		0.00		--		--		--		0.00
Sub Totals		310.61		7,488.03		0.00		0.00		0.00		7,798.64
Escalation	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00
Tax/Burden	8.75%	27.18	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.35%	27.18
PerDiem		--		0.00		--		--		--		0.00
Sub Total		337.79		7,488.03		0.00		0.00		0.00		7,825.82
Overhead	10.00%	33.78	10.00%	748.80	0.00%	0.00	0.00%	0.00	0.00%	0.00	10.00%	782.58
Profit	5.00%	18.58	5.00%	411.84	0.00%	0.00	0.00%	0.00	0.00%	0.00	5.00%	430.42
Bid total		390.15		8,648.68		0.00		0.00		0.00		9,038.83

Grand Total: 9,038.83

Section Markup

Ukiah Electric Service

CO # 1

Bid No. 92

Selected Sections: 09260 Drywall, 09261 Taping

Selected Typical Areas:

Selected Areas: Ground Floor, Mezz Level

Estimator:
Job Class:
Wage Type: **Union**

Job Status: **Awarded**
Bid Date/Time: **6/24/2024 8:38:59 AM**
Plans Date: **6/26/2024**

		Material		Labor		Subs		Equipment		Other		Total
Net Totals		2,698.07		17,948.21		0.00		0.00		0.00		20,646.28
Stock		0.00		0.00		--		--		--		0.00
Cleanup		0.00		0.00		--		--		--		0.00
Supervision		--		0.00		--		--		--		0.00
Sub Totals		2,698.07		17,948.21		0.00		0.00		0.00		20,646.28
Escalation	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00
Tax/Burden	8.75%	236.08	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	1.14%	236.08
PerDiem		--		0.00		--		--		--		0.00
Sub Total		2,934.15		17,948.21		0.00		0.00		0.00		20,882.36
Overhead	10.00%	293.41	10.00%	1,794.82	0.00%	0.00	0.00%	0.00	0.00%	0.00	10.00%	2,088.24
Profit	5.00%	161.38	5.00%	987.15	0.00%	0.00	0.00%	0.00	0.00%	0.00	5.00%	1,148.53
Bid total		3,388.94		20,730.19		0.00		0.00		0.00		24,119.13

Grand Total: 24,119.13

Job Cost Summary

*Ukiah Electric Service***CO # 1**

Bid No. 92

Selected Sections: 09260 Drywall, 09261 Taping

Selected Typical Areas:

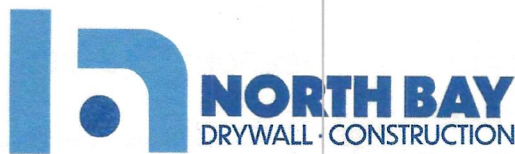
Selected Areas: (unassigned), Ground Floor, Mezz Level

Estimator:

Job Class:

Wage Type: **Union**Job Status: **Awarded**Bid Date/Time: **6/24/2024 8:38:59 AM**Plans Date: **6/26/2024**

Material Acct. Code	Description	Quantity	Unit Cost	Amount			
FASTNER-SCREW	Metal Screw	10,573.21 EA	0.02	172.48			
FINISH-TAPING	Taping Finish	6,066.69 SF	0.06	337.79			
WALLBOARD	Gypsum Board	6,633.49 SF	0.37	2,423.88			
Material Totals				2,934.15			
Labor Acct. Code	Description	Quantity	Unit Cost	Amount	Crew Days	Man Days	Prod/Day
3004	Hang Drywall	5,070.00 SF	1.30	6,579.73	5.63	5.63	900.00
3006	Hang Drywall > 10'	996.69 SF	3.89	3,880.45	3.32	3.32	300.00
4002	Finish Tape	6,066.69 SF	1.23	7,488.03	8.67	8.67	700.00
Labor Totals				17,948.21	17.62	17.62	
Grand Total				20,882.36			



METAL STUD FRAMING • DRYWALL • TAPING
707-583-3163 • P.O. Box 7340, Cotati, CA 94931-9991 • CSLB #1035251

CREDIT

ASK-012

☒ **FIELD AUTHORIZATION TO PERFORM WORK**

JOB NAME UKIAH ELECTRIC SERVICE FLOOR WRITTEN BY Tim DATE 7/22/24
LOCATION 300 Se 1850 Hastings Rd Ukiah JOB # 2411
CUSTOMER ("CUSTOMER") KIRBY CONTACT _____ PHONE _____
ADDRESS _____

DESCRIPTION OF WORK: DELETE 1059 SQ FT 5/8 TYPE X AT CEILING OVER
WOOD FRAMING: LEVEL 4 FINISH.

P.O. # / C.O. # _____

☐ NORTH BAY DRYWALL IS HEREBY AUTHORIZED TO FURNISH ALL MATERIALS AND/OR LABOR TO COMPLETE THE ABOVE WORK FOR THE SUM OF \$ _____ SUBJECT TO THE TERMS AND CONDITIONS THERE SET FORTH ON THE REVERSE SIDE.

☐ NORTH BAY DRYWALL IS HEREBY AUTHORIZED TO PERFORM THE ABOVE WORK ON A TIME AND MATERIAL BASIS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON THE REVERSE SIDE.

HOUR LABOR RATE _____

SIGNATURE OF CUSTOMER'S AUTHORIZED REPRESENTATIVE _____

DATE _____

MATERIAL	QTY	UNIT PRICE	TOTAL
5/8 TYPE X INCLUDES SCREWS	1059'	.37	388.82
Taping Compound	1059'	.20	50
WOOD SCREWS.			

NAME	CRAFT	DAY DATE	M	T	W	TH	F	S/S	REG.TOTAL	PREM.TOTAL
CARPENTER						10				
CARPENTER						10				
TAPER						21				

☐ WORK COMPLETED ☐ WORK NOT COMPLETED

SIGNATURE OF FOREMAN _____

DATE 7/22/24

SIGNATURE OF CUSTOMER'S AUTHORIZED REPRESENTATIVE _____

DATE _____

OFFICE USE ONLY

Labor: 5986

Material: 438.82

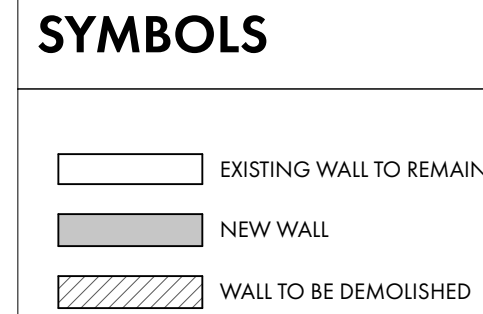
Tax: 39.50

Misc: 15% MARKUP 969.64

TOTAL: 7433.96

SEE TERMS AND CONDITIONS ON REVERSE SIDE

CUSTOMER COPY - WHITE OFFICE COPY - CANARY



UKIAH, CALIFORNIA

REN / ALEXANDER

ARCHITECTS

PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:		BY:
1	REVISION - 2/17/2023	SR
2	REVISION - 11/17/2023	SR

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:



SHEET TITLE:

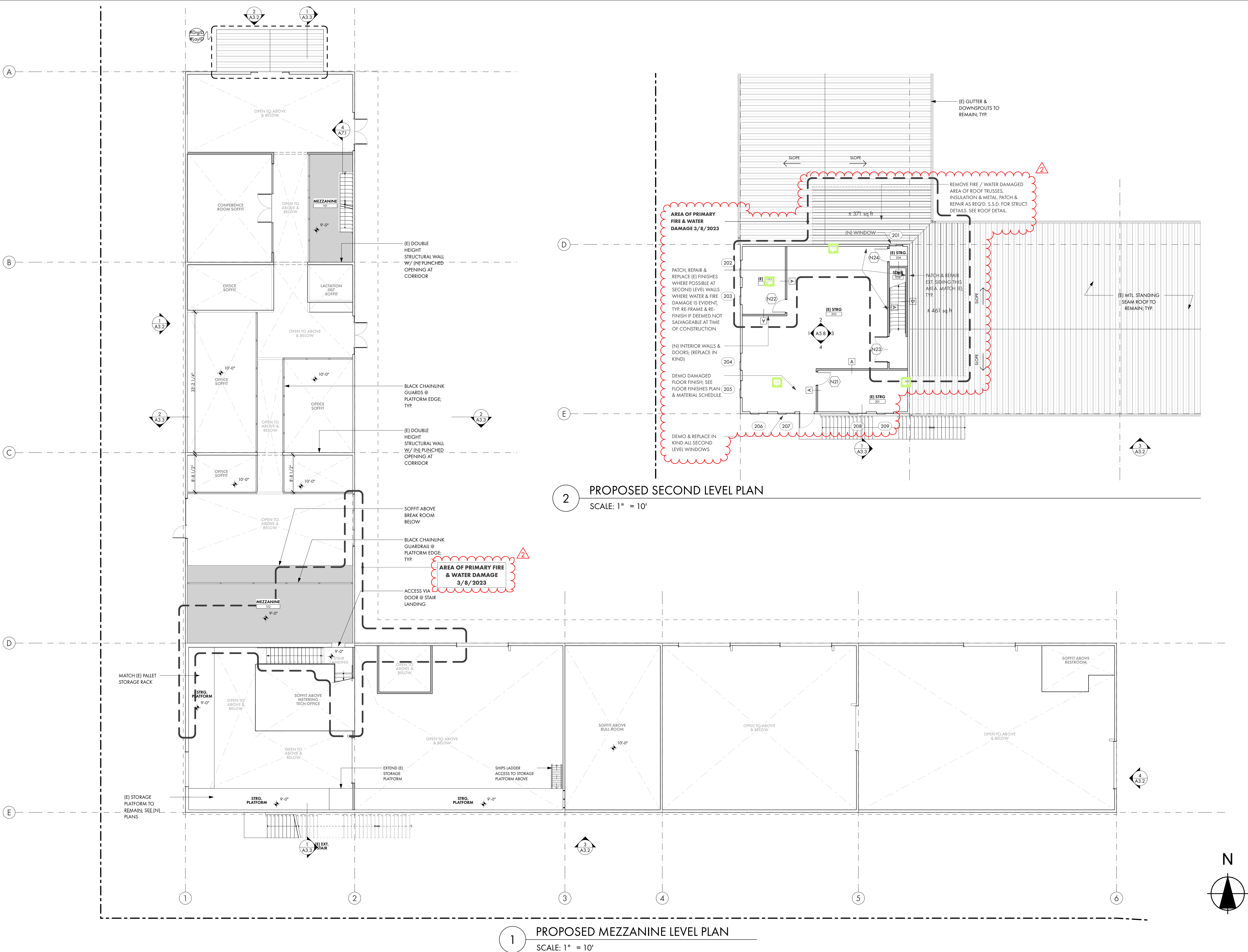
PROPOSED GROUND FLOOR PLAN

SHEET NO.:

A2.1

1 PROPOSED GROUND FLOOR PLAN
SCALE: 1" = 10'

PRINTED: 11/22/23 11:31 AM
/Users/awendley/Documents/Projects/Ren_Alexander/Projects/2202_Ukiah Electric/06_ArchCAD/2202_20117_UkiahElectric_BuildingForm_82.dwg



PROJECT/CLIENT:



ELECTRIC SERVICE CENTER
1350 HASTINGS ROAD
UKIAH CA 95482 USA

APPROVALS:

BUILDING PERMIT

REVISIONS:	BY:

JOB NO.:	2202
DATE:	12/19/2022
DRAWN:	SR
CHECKED:	KG
SCALE:	AS NOTED ON 24" X 36"

STAMP:



SHEET TITLE:

**PROPOSED MEZZ. LEVEL
& SECOND LEVEL PLAN**

SHEET NO.:

A2.2

Bay Cities Fire Protection, Inc.

CHANGE ORDER #1

Date: July 8, 2024

To: Kirby Construction

Email: jfolker@kirbycon.com

Regarding: Ukiah Electric Service Center
1350 Hastings Road
Ukiah, Ca. 95482

Added fees to pull permit at cost – excluded in bid proposal – see attached rcpt.

Total: \$645.00

No work will be performed without approval of this change order & if delays in approval create extra costs in labor or materials these will be passed along

If you have any questions or concerns regarding this matter, please contact Leon Kresheck at (707) 579-8694.

Signature: _____ Title: _____

Date: _____

JOB COPY

Fire Permit

Ukiah Valley Fire Authority
300 Seminary Avenue
Ukiah, CA 95482

Permit Number: F24-000082
Issue Date: 07/08/2024
Expiration Date: 07/08/2025

Permit Type: Fire Construction Permit - Automatic Fire-Extinguishing Systems 105.6.1	Permit #: F24-000082												
Site Address: 1350 HASTINGS RD	Use of Building:												
APN: 18007019	Value of Work:												
Property Owner: CITY OF UKIAH 300 SEMINARY AVE UKIAH, CA 95482	Applicant: BAY CITIES FIRE PROTECTION INC 51 FOLEY STREET SANTA ROSA CA 95401 (707) 579-8694 (B) General Building Contractor, State License #: 731222 (09/30/2024), City License #: () C-16 - Fire Protection Contractor, State License #: 731222 (09/30/2024), City License #: ()												
Description of Work: INSTALL FIRE SPRINKLERS IN BUILDING AFTER DAMAGE FROM FIRE	<table border="0"> <tr> <th colspan="2">Fees</th> </tr> <tr> <th>Description</th> <th>Total Cost</th> </tr> <tr> <td>Plan Review Fee</td> <td>330.00</td> </tr> <tr> <td>Auto Sprinkler Permit fee</td> <td>0.00</td> </tr> <tr> <td>Auto Sprinkler Permit fee</td> <td>315.00</td> </tr> <tr> <td colspan="2">Total: 645.00</td> </tr> </table>	Fees		Description	Total Cost	Plan Review Fee	330.00	Auto Sprinkler Permit fee	0.00	Auto Sprinkler Permit fee	315.00	Total: 645.00	
Fees													
Description	Total Cost												
Plan Review Fee	330.00												
Auto Sprinkler Permit fee	0.00												
Auto Sprinkler Permit fee	315.00												
Total: 645.00													

Inspection requests require 24 hour notice. To request your inspection online, go to www.citizenserve.com/ukiah. After logging in, click on View My Requests, select your permit, then click on Request Inspection. To request your inspection by phone, please call (707) 463-6739.

Any permit issued expires six (6) months after the date of the issuance if no inspections have been made or six (6) months from the date of the last inspection and sign off. Permits may be extended with a written request.

COLEMAN PLUMBING

License #989129

PO Box 754
Redwood Valley, CA 95470
Phone: 707-485-2854
Email: pgcbnc@gmail.com

CHANGE ORDER #2

DATE July 8, 2024

TO
Kirby Construction Company, Inc
625 Ware Avenue
Santa Rosa, CA 95404
Phone: 707-526-0880

DESCRIPTION OF CHANGES TO CONTRACT:

Project: Hastings Electrical

- 1. Fixture Cost Change
 - a. Drinking Fountains (X2) = \$3,248.00 Price Increase
 - b. Breakroom Sink (1) = \$245.00 Price Increase
 - c. Bull Room Sink (1) = \$162.00 Price Increase
 - d. Ready Room Sink (1) = \$75.00 Price Increase

2. P&O = \$560.00

TOTAL PRICE INCREASE = \$4,290.00

TOTAL: \$4,290.00

THIS IS NOT AN INVOICE

If you have any questions concerning this change order, contact COLEMAN PLUMBING at 707-485-2854



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 7/2/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 7/2/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO #3
Per ASK / ASI 013 - 'Add an alarm key pad at the (E) Warehouse 034 door as shown...'			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
	Deep Valley Security	Install Keypad and Infrastructure	\$975.23
Subcontractor SubTotal			\$975.23
15% Markup			\$146.28
Total Subcontractor			\$1,121.51

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
	\$124.10	0.00	Journeyman	\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$0.00
15% Markup				\$0.00
Labor Total				\$0.00

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
				\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
			Material Subtotal		\$0.00
			Tax on Material 9.25%		\$0.00
			15% Markup Material Subtotal		\$0.00
			Material Total		\$0.00

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$1,121.51		\$1,121.51
Labor	\$0.00		\$0.00
Equip	\$0.00		\$0.00
Material	\$0.00		\$0.00
Total			\$1,121.51

We hereby agree to make the changes specified at this price. ➡		Total PCO Amount	\$1,121.51
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



PROPOSAL

S.R IRON, INC.
P.O. Box# 1086
Healdsburg, CA 95448
707-473-9740
DIR# 1000060474
CA License # 576171

Thursday, June 27, 2024

This Proposal and the Price set forth herein is subject to the following qualifications/assumptions and also subject to the Specific and Standard Exclusions that appear below.

Qualifications/Assumptions:

1. The Scope of Work of S.R IRON, Inc. ("Subcontractor") includes only the Scope of Work specifically described below and shall be executed consistent with the AISC Code of Standard Practices (14th Edition) applicable to Subcontractor's trade;
2. The Proposal and Price is based only upon the drawings and specifications specifically described and listed below and no other drawings or documents;
3. The Proposal and Price assume that the general contractor and all trades shall perform the roles and responsibilities set forth for each of them in AISC Code of Standard Practices (14th Edition);
4. The Proposal and Price are subject to execution of a mutually agreeable Subcontract. If a Subcontract is not executed within 30 days of this Proposal, the Price is subject to change;
5. The Proposal and Price assume that all the materials will be ordered and purchased within 60 days of the date of this Proposal. If material are ordered and purchased more than 60 days after the date of this Proposal, the Price is subject to adjustment if the cost of the required materials increases;
6. This Proposal and Price assume All work to be laid out per provided grid lines and plans provided by others.
7. This Proposal and Price assume all Work assumed to be F.O.B to be offloaded by others.
8. This Proposal and Price assume Subcontractor will have timely, free and clear access in order to perform its Scope of Work;
9. This Proposal and Price assume all steel to only be shop primed unless specifically noted otherwise in the Scope of Work;
10. This Proposal and Price assume the General Contractor or others shall set all bolts and nuts at the correct and proper elevation;
11. This Proposal and Price assume the General Contractor shall protect all areas where Subcontractor's work is to be performed and protect Subcontractor's work after it is in place;
12. This Proposal and Price assume standard General Commercial Liability insurance with coverage limits of \$1,000,000 per occurrence and \$1,000,000 in the aggregate;
13. This Proposal and Price assume any required indemnification can be insured by Subcontractor's existing insurance; and
14. This Proposal and Price assume payment shall be due on the tenth of the month following the date of invoice."
15. Per AISC section 16.3-61, Subcontractor shall be paid for all milled materials that are stored off the jobsite.
16. Mutually agreeable terms of payment shall be included in the executed Subcontract. These terms shall include such items as progress payments for material, fabrication, erection, retainage, performance and payment bonds and final payment. If a performance or payment bond, paid by the Owner, is required by contract, no retainage shall be required.
17. The delivery schedule for steel and any other materials required by the Subcontract depends upon availability of the steel and other materials when the Subcontract is signed. Mill orders take and a minimum of twelve weeks from the placement of an order until shipment.
18. Subcontractor shall be paid for all steel and other materials ordered pursuant to the Subcontract when the orders are placed.
19. The prices of materials contained in this Subcontract are those in effect as of Thursday, June 27, 2024 ; Subcontractor shall be reimbursed for all increases in the cost of material as of the date of purchase plus overhead and profit.

Subject to the qualifications and Assumptions, the price is

\$ 1,000.00 DOLLARS INCLUDING ALL TAXES NOW IN EFFECT. +

Name of Job: Electric Service Center
1350 Hastings Road
Ukiah, CA 95482

Architect: REN / ALEXANDER DESIGN
Architectural set dated:
Structural Engineer WHITCHURCH ENGINEERING
Structural set dated:

Specifications: Per plan set revision dated 6/14/24

Alternates: *Alternates are in addition to original pricing Allowance

1)

*Assumed all alternates to be installed in 1 mobilization. Additional mobilizations will include an additional fee

SCOPE OF WORK:		
FABRICATION AND INSTALLATION		
1)		
2)		
F.O.B.		
1)	Guard railing for Mezzanine 102 ramp (x11 If total) x1 location)	
	Per 9/A7.2, 7/A06.1	
	One coat of shop primer	
	Assumed 3.500x3.500x0.188 base plates with 5/16 holes for SDS screws	
2)		
SPECIAL EXCLUSIONS:		
1)	Any work not specified in our scope	
2)	Engineering and design are specifically excluded	
3)	Primer and/or paint touchup	
4)	Special inspections	
5)	Removal of fireproofing for welding to existing steel	
6)	Base plate covers	
	IF AN ITEM IS NOT LISTED ABOVE, IT IS NOT CONSIDERED PART OF OUR SCOPE AND NOT INCLUDED IN PRICE MENTIONED ABOVE	
STANDARD EXCLUSIONS: THIS PROPOSAL DOES NOT INCLUDE THE FOLLOWING ITEMS, UNLESS SPECIFICALLY NOTED ABOVE.		
BOLTS ENTERING WOOD	BUILDING PERMITS	PERMITS, INSPECTION, ENGINEERING AND CALCS.
COSTS OF BONDS	DEMOLITION	COSTS OF INSPECTION, TESTING & PREPARATION
PERFORM BONDS	BOLTS ENTERING WOOD	CUTTING OR DRILLING OF OUR WORK TO ACCOMMODATE OTHER TRADES
GRATING & FRAMES	GRATINGS STOPS	FIELD PAINTING
GROUTING OR DRY PACKING	SHEAR STUDS	FIELD WELDING OF CONCRETE REINFORCING STEEL TO STRUCTURAL STEEL
METAL 10 GAUGE & LIGHTER	METAL SASH	REINFORCING STEEL OR FIELD WELDING OF REBAR
CARPENTRY HARDWARE	METAL STUDS	JOIST HANGERS NOT WELDED TO STEEL
NON-FERROUS METALS AND STAINLESS STEEL	SPECIAL INSURANCE	PIPE SLEEVES & BACK-UP PLATES FOR OTHERS TRADES
FURRING CHANNELS OR ANGLES	SURVEYS	CONCRETE WORK OF ANY KIND
SANDBLASTING OR FLAME-CLEANING OF STEEL BEFORE PAINTING		FIELD MEASURING FOR STRUCTURAL STEEL
PARTICIPATING IN PENALTIES OR LIQUIDATED DAMAGES APPLIED TO BUYER		TEMPORARY BRACING OR SHORING
ACCEPTED:		S.R. IRON, INC.
BY: _____		BY: _____
DATE: _____		DATE: _____

Kirby Carpentry & Material:				Unit Price	Labor	Material	Total
Demo windows (x6)	2	Day	Prevailing Wage	125	2000	0	2000
Additional office demo	0.5	Day	Prevailing Wage	125	500	100	600
Framing - Blocking - Lumber	2	Day	Prevailing Wage	125	2000	1500	3500
Build ramp at mezzanine	2	Day	2 Prevailing Wage	250	4000	400	4400
Install guardrail	1	Day	Prevailing Wage	125	1000	1200	2200
Paint	1	Day	Prevailing Wage	125	1000	350	1350
Total:					10500	3550	\$ 14,050.00

Kirby PM/Supervision/GC:			Unit Price	Total
Project Manager	1.00	Day	100	800.00
Safety	0.25	mo	1000	250.00
Reprographics	1.50	mo	483.33	725.00
Trucks	0.50	mo	625	312.50
Cell Phones	0.50	mo	125	62.50
Gas/Oil/Travel	0.50	mo	750	375.00
Superintendent	1.00	Day	125	1,000.00
Total:				\$ 3,525.00



Change Order Request #006

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #006 - Fire Extinguisher Cabinets

Date: 08/02/24
Job Number: 2010-2

Description: Change Order Request #006 captures the Fire Extinguisher Cabinets in ASK 017 issued 7/31/24.
- Install 3 (N) fire extinguisher cabinets to match existing per plans.
- Replace glass in 3 (E) fire extinguisher cabinets.
- Re-locate 1 (E) fire extinguisher cabinet.

Clarifications: Fire extinguishers to be provided and maintained by owner.

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10104	Supervision	280.00
10000	Fire Extinguisher Cabinets	2,045.00

	Subtotal	2,325.00
Fee @	10.0%	232.50
Bond @	2.5%	63.94
Insurance @	2.0%	52.43
Total		2,673.87

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: Steven Ratley 08/05/24
Architect Date
Approved By: Scott Bozzoli 08/05/2024
Owner Date
Approved By: _____
Date

Job Information	
Date	8/2/2024
Client	City of Ukiah
Attention	Kali Gordon
Project Description	COR #006 - Fire Extinguisher Cabinets
Job #	2010-2

						Labor	Material	Equipment	Total
Fire Extinguisher Cabinets	1.45	Day	Prevailing Wage	125		1450.00	595.00	0.00	2045.00
Superintendent	0.28	Day	Prevailing Wage	125		280.00		0.00	280.00
						Total			2,325.00

Project: Ukiah Electric Service Center

Date: 07/31/24

To:

Joe Pycz
Kirby Construction
Job- 2010-2
jpycz@kirbycon.com

From:

Steven Ratley
Ren / Alexander Design
301 Scott Street
Ukiah, CA 95482
415-859-8196
steven@renalexander.com

Architect Supplemental Instructions

1. Please Install (3) New Semi-Recessed Fire Extinguisher Cabinets and re-locate (1) per ASK #17 .
Use attached specification of Semi-Recessed Cabinet to match (E).
2. Please replace Glass if possible in (E) cabinets, if not possible, replace full cabinet.
3. Please include (E) Cabinets in Warehouse Bay 033, and 034.

Note: The city of Ukiah will furnish the (N) Fire extinguishers.

Reference:

ASK 017

Sincerely,



Steven Ratley
Principal
Ren / Alexander Design



Change Order Request #007

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #007 - Data

Date: 08/02/24
Job Number: 2010-2

Description: Electrical and Data per plan markup dated 7/30/24.

Clarifications: 5 data and 2 outlets previously installed have been deducted from this proposal.

Standard Exclusions Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
16000	Electrical & Data	35,885.34

Subtotal	35,885.34
Fee @ 10.0%	3,588.53
Bond @ 2.5%	986.85
Insurance @ 2.0%	809.21
Total	41,269.94

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By:

John Folker

Approved By:

Steven Ratley

08/05/24

Architect

Date

Approved By:

Scott Bozzoli

08/05/2024

Owner

Date

Approved By:

Date



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 8/2/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 8/2/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO #4B
Per ASK / ASI 011 - Install new Data infrastructure - Reduced Scope sent 7/31 - x17 Data locations removed - (See TelCon quote below and scope description). Install wall chases for data runs. Install power to x11) new receptacles (x8 of these for ceiling WAPS), plus receptacles. Install x11) new breakers for WAPs and Fire Alarm System. \$1,500 removed from original cost due to unauthorized data install, see bottom.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
	TelCon	Install Data Cabling and Devices	\$19,850.00
Subcontractor SubTotal			\$19,850.00
15% Markup			\$2,977.50
Total Subcontractor			\$22,827.50

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
90	\$124.10	11,169.00	Journeyman	\$11,169.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$11,169.00
15% Markup				\$1,675.35
Labor Total				\$12,844.35

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
				\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE	
	\$635.09	1	1" ENT for Data Chases, Boxes and Associated Parts		\$635.09	
	\$559.20	1	Romex and Associated Parts (830 ft romex total, x4 250-ft rolls)		\$559.20	
	\$59.73	1	15-Amp Duplex Recs x11		\$59.73	
	\$125.05	1	GE Breakers (x9 - 20-Amp single pole, x2 - 20-Amp 2 pole)		\$125.05	
					\$0.00	
					\$0.00	
					\$0.00	
					\$0.00	
					\$0.00	
					\$0.00	
					Material Subtotal	\$1,379.07
					Tax on Material 9.25%	\$127.56
					15% Markup Material Subtotal	\$206.86
					Material Total	\$1,713.49

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$22,827.50		\$22,827.50
Labor	\$12,844.35		\$12,844.35
Subtract	-\$1,500.00		-\$1,500.00
Material	\$1,713.49		\$1,713.49

We hereby agree to make the changes specified at this price. 		Total PCO Amount	\$35,885.34
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			

Chris Perez
Core Electric
1633 Cunningham Way
Santa Rosa, CA 94403

August 2, 2024

RE: Ukiah Service Center

- **ASI 011 – R1**

We propose to perform the low voltage communications cabling work based on provided drawings provided 8/1/24.

Total: \$19,850.00

Scope of Work

- Provide & install Thirty-Four (34) Category 6 plenum rated data cables from all new locations to new IDF per provided plan.
- Provide & install One (1) new 12U wall mounted data rack. (24"X24"X24")
- Provide & install new patch panels at new IDF data rack as needed.
- Provide & install new wire management at new IDF data rack per provided plan.
- Provide & install all necessary termination hardware for normal copper cables per provided plan.
- Terminate, test, and label all new copper cables.
- Certification sheets delivered upon completion of project.

*This bid assumes any & all conduits, building penetrations & core drilling to be completed by others. All roof jacks, conduit & pull boxes to be supplied & installed by others. Any & all fiber or copper cross connections to be made by the district IT department.

Chris Perez
Core Electric
1633 Cunningham Way
Santa Rosa, CA 94403

RE: Ukiah Service Center

- **ASI 011 – R1**

Clarifications:

- Standard work to commence Monday-Friday between the hours of 7:00 AM & 3:30 PM. Any work completed outside of those hours will be considered overtime & billed separately.
- No specification for existing IDF layout/design or data cabinet size or elevation.
- Bid assumes new wall mounted data cabinet. (24"X24"X24")
- Provide & install J-Hooks & D-Rings as necessary for normal cable installation above ceiling grid.
- Bid assumes all data cable locations to be One (1) Category 6 CMP to each location.
- All interior cabling shall be plenum rated per job specifications.

Exclusions:

- Any & all Wiremold to be supplied & installed by others.
- Any & all threaded rods & support strut to be supplied & installed by others.
- Any & all firestop or firewall penetrations to be supplied & installed by others.
- All grounding &/or bonding to be completed by others.
- Any additional material or labor will be quoted & billed separately at normal rates.
- Any & all repairs of necessary cuts, removal or damage to any finished walls or ceilings.
- Any & all network equipment to be supplied & installed by others.
- Any & all cameras & intrusion alarm hardware to be supplied & installed by others.
- Any & all A/V cabling & hardware to be supplied & installed by others.

Bid price is valid for 90 days beyond stated bid due date of 7/2/2024.

	CHANGE ORDER 004 October 15, 2024	Job Name: Hastings TI Job #: 2010-2
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The construction contract dated **04/09/24** between Kirby Construction Company, Inc. and **City of Ukiah** is hereby modified and amended by the following deviations from the original plans and specifications:

Change Order Request #008 captures the latest Electrical Revisions:

Water Heaters:
 Per RFI 44 Response for Water Heaters - furnish and install power to x4 Water Heaters from panels 3, 5, 6 and 8. Panels 3, 5 and 8 to use 30 Amp 1 pole breakers - 160 total feet of 12/2 MC. Panel 6 to feed Mezzanine WH with greater load - 30 Amp 2 pole - 60 total feet of 10/3 MC. A Disconnect will be installed for each Water Heater.

HVAC:
 Per RFI 43 Response for HVAC - Supply power to HVAC (RCU-1) from MSB (7,9,11) 350 Amp 3 Pole Breaker (this will have to be 400 Amp - see cost difference between original 225 Amp callout and 400 Amp change) and - x2) parallel runs of x3) 250 MCM THHW and #3 Ground in 2-1/2" EMT (150 ft each run). All pricing is a cost difference.

Compressor:
 Per RFI 49 - Replace like-for-like branch circuit to existing air compressor in kind at new location. Connect to Panel 1 available spaces. Furnish and install 130 ft 3/4" EMT and assoc wire, new 100 Amp Disconnect with HOA Switch. Includes 4 hrs demo.

Change Order Request #009 captures the latest Mechanical Revisions:

1. Additional VAV at Break Room.
2. Additional ducting at Supply/Print/Restroom.
3. Added Cost Change of EF3 to a Cook Side Wall Fan.
4. Mechanical changes at Mezzanine.

It is mutually agreed that for such change the contract price is increased by **\$ 53,616.03** payable with the payment becoming due under the original construction agreement.

Time for completion of the above cited subcontract work is hereby extended 7 days beyond any completion date set forth in the original Contract for such work.

All other work provisions of the original Contract and agreement shall remain in full force and effect, without change because of above deviations.

Contract Summary	Change No. 4
Original Contract Value	\$ 2,446,340.00
Previously Approved Change Orders	\$ 144,066.27
This Change Order	\$ 53,616.03
Total Revised Contract Value	\$ 2,644,022.30

Kirby Construction John Folker
Signature

Client/Owner Scott Bozzoli
Signature

10-15-2024
Date

10/16/2024
Date

SIGN HERE



Change Order Request #008

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #008 - Electrical Revisions

Date: 09/17/24
Job Number: 2010-2

Description: Electrical revisions per plan markup dated 09/06/24:

Water Heaters:

Per RFI 44 Response for Water Heaters - furnish and install power to x4 Water Heaters from panels 3, 5, 6 and 8. Panels 3, 5 and 8 to use 30 Amp 1 pole breakers - 160 total feet of 12/2 MC. Panel 6 to feed Mezzanine WH with greater load - 30 Amp 2 pole - 60 total feet of 10/3 MC. A Disconnect will be installed for each Water Heater.

HVAC:

Per RFI 43 Response for HVAC - Supply power to HVAC (RCU-1) from MSB (7,9,11) 350 Amp 3 Pole Breaker (this will have to be 400 Amp - see cost difference between original 225 Amp callout and 400 Amp change) and - x2) parallel runs of x3) 250 MCM THHW and #3 Ground in 2-1/2" EMT (150 ft each run). All pricing is a cost difference.

Compressor:

Per RFI 49 - Replace like-for-like branch circuit to existing air compressor in kind at new location. Connect to Panel 1 available spaces. Furnish and install 130 ft 3/4" EMT and assoc wire, new 100 Amp Disconnect with HOA Switch. Includes 4 hrs demo.

Clarifications: Stamped revised electrical plans pending. Does not include any revisions that may be included in stamped plan set.

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	800.00
10104	Supervision	1,000.00
10121	General Conditions	423.25
16000	Electrical & Data	28,098.28

Subtotal	30,321.53
Fee @ 10.0%	3,032.15
Bond @ 2.5%	833.84
Insurance @ 2.0%	683.75
Total	34,871.28

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By:

John Folker

Approved By:

Steven Ratley 09/30/24
Architect Date

Approved By:

Scott Bozzoli 10/16/2024
Owner Date

Approved By:

Eric Allen
Engineer

Date

SIGN HERE



Request For Information

Job #: 2010-2 RFI #: 044

Date of Request: 09/03/2024

Type: Electrical Clarification

Answer Required By: 09/05/2024

Ukiah Electric

Attention: REN / Alexander Architects

CC: Mary Horger

Company: _____

Company: _____

Fax: _____

Fax: _____

Information Required:

The approved electrical plans do NOT show power to the following water heaters:

1. Water Heater located on Mezzanine
2. Water Heater located in Room # 006 Restroom

Please provide electrical plans to reflect the above water heaters.

Information Supplied:

1. Connect 4500 w 30 Gall WH in MEZ To PNL "6" (8,10) with #10 AWG, THHW, #10 GND, 1/2" EMT or MC where Exposed
2. Connect Remote tankless w.H., 3,500w, To Respective Panels. [006] - PNL "8" (4), [027] - PNL "3" (6), [025] - PNL "5" (6) with #10 AWG, THHW, #10 GND, 1/2" EMT or MC where Exposed

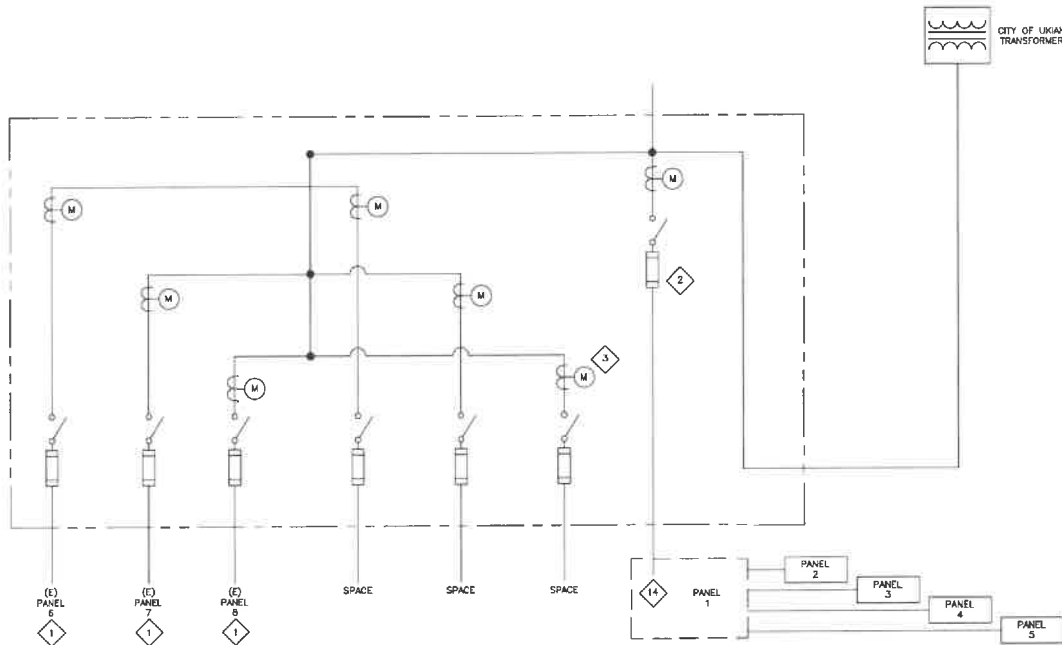
Answered By: Eric Allen

Date: 9/6/2024

See Attached WH Elec RL For more detail.

ENCLOSURE: NEMA 4 WALL MOUNT									
PANEL "7" - NORTH CENTRAL SECTION									
MANUFACTURER: EXISTING									
VOLTS: 240V									
PHASE: 3									
WIRE: 4									
MAIN: 200A									
CKT	LOAD DESCRIPTION	A	B	C	BREAKER	A	B	C	LOAD DESCRIPTION
1	1/3 009, 013 RECEPT	9.0	7.5		20				
3	012 RECEPT				20				
5	015, 1/3 009 RECEPT			9	20				
7	014 RECEPT	7.5			20				
9	017, 1/3 EXTERIOR RECEPT		9		20				
11	016, 1/3 009 RECEPT			9	20				
13	006, 009, 011, 012, 013, 014, 015, 016, 017 LIGHTING	2.0			20				
15					20				
17									
19									
21									
23									
25									
27									
29									
31									
33									
35									
37									
39									
41									
SUBTOTAL AMPS		18.5	16.5	18		0	0	0	SUBTOTAL AMPS
TOTAL AMPS		19	17	18					

ENCLOSURE: NEMA 4 WALL MOUNT									
PANEL "8" - NORTH SECTION									
MANUFACTURER: EXISTING									
VOLTS: 240V									
PHASE: 3									
WIRE: 4									
MAIN: 200A									
CKT	LOAD DESCRIPTION	A	B	C	BREAKER	A	B	C	LOAD DESCRIPTION
1	001, 002, 1/3 004 RECEPT	9			20				
3	003 RECEPT		9		20				
5	1/3 004, 005, 006, 007 RECEPT			9	20				
7	1/3 004, 010 RECEPT	9			20				
9	008, 011 RECEPT		9		20				
11	001, 002, 003, 004, 005, 006, 007, 010 LIGHTING		2.8		20				
13					20				
15									
17									
19									
21									
23									
25									
27									
29									
31									
33									
35									
37									
39									
41									
SUBTOTAL AMPS		18	18	11.8		10	29	0	SUBTOTAL AMPS
TOTAL AMPS		28	17	12					

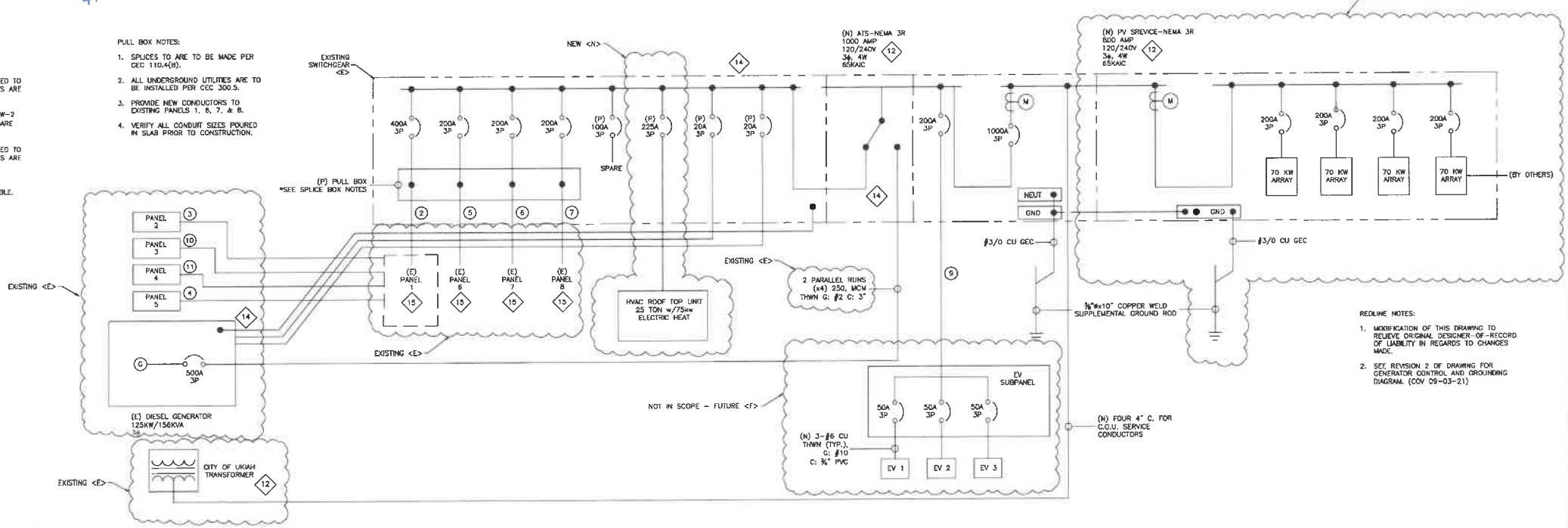


SINGLE LINE DIAGRAM-(E) 1000A SERVICE-TO BE REPLACED

- 1 (E) PANELS IN BUILDING, DISCONNECT FROM SERVICE, TO BE RECONNECTED TO NEW SERVICE EQUIPMENT.
- 2 CONTRACT TO VERIFY CIRCUIT FUSE PROTECTION.
- 3 ASSUMED METER LOCATION, AS SERVICE IS SHOWN AS UN-METERED.
- 11 SPACE FOR FUTURE SOLAR PROJECT.
- 12 VERIFY 120/240V 3PH SPLIT "Y".
- 13 PROVIDE POWER FOR GENERATOR BATTERY CHARGER AND ENGINE BLOCK HEATER.
- 14 PROVIDE ENGINE START CIRCUIT TO GENERATOR CONTROLS, 2#12, 1" C.
- 15 CONTRACTOR TO VERIFY CB SIZE IS APPROPRIATE FOR EXISTING PANEL CIRCUIT.

- WATER HEATER REVISION NOTES**
- PANEL 8 WILL HAVE A 6kw INSTANT WATER HEATER ADDED TO AVAILABLE 240V CIRCUITS. LOAD & SPACE REQUIREMENTS ARE NOT SIGNIFICANT ADDITIONS.
 - 6kw WATER HEATER CONDUCTORS: #10 AWG, CU, THW-2 G#12 AWG, CU, BARE C: 1/2" EMT
 - PANEL 5 WILL HAVE A 6kw INSTANT WATER HEATER ADDED TO AVAILABLE 240V CIRCUITS. LOAD & SPACE REQUIREMENTS ARE NOT SIGNIFICANT ADDITIONS.
 - PANEL 6 WATER HEATER IS ACCOUNTED FOR IN "SMALL APPLIANCE" LOADS @ 1,500W A DIFFERENCE IS NEGLIGIBLE.

- PULL BOX NOTES:**
- SPLICES TO ARE TO BE MADE PER GEC 110.4(D).
 - ALL UNDERGROUND UTILITIES ARE TO BE INSTALLED PER CCC 300.5.
 - PROVIDE NEW CONDUCTORS TO EXISTING PANELS 1, 6, 7, & 8.
 - VERIFY ALL CONDUIT SIZES POURED IN SLAB PRIOR TO CONSTRUCTION.



SINGLE LINE DIAGRAM-(N) 1000A SERVICE/GENERATOR

THESE PLANS ARE ORIGINALLY PRINTED ON 24"x36" PAPER.

1 INCH

This drawing or drawing set shall not be used for construction unless a jurisdictional stamp (County, City, State, Federal) has been issued on the drawing, stating "FOR PERMIT" or similar verbiage, a wet signed professional engineer's stamp, and permit documents have been issued for the project.

REVISIONS	BY

WHITCHURCH ENGINEERING, INC.
810 9th Street Ferndale, California 95840
Phone (707) 725-6926

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS
APN: 180-070-19
1350 Hastings Ave., Utah, CA
Site Address: 1350 Hastings Ave., Utah, CA
For: City of Utah-Electric Service Center 400 West Clay, Utah, Co. 95482

ELECTRICAL PANEL SCHEDULES 2

Date	MAR 13 '24
Scale	AS NOTED
Design	ETA
Drawn	GKK
Job	COU2201
Sheet	E3

Commercial Office Load Calculations		
Main Switch Board		
Service Voltage 120/240, 3Ph 4W		
House Loads		
HVAC		
RCU-1	123314.4	
(x3) EV chargers at 40A each	49824	
Total Connected Load: 173138.4 VA		
Building total single phase	649 Amps	
Service Equipment Rating:	1000 Amps	

Panel 1 Loads Fed From M.S.B.			Feeds Panels 2,3,4,5			Panel 2 Loads Fed From Panel 1			Panel 3 Loads Fed From Panel 1			Panel 4 Loads Fed From Panel 1		
4 Wire 3 Phase, 120/240			4 Wire 3 Phase, 120/240			4 Wire 3 Phase, 120/240			3 Wire, 1 phase 120/240			3 Wire, 1 phase 120/240		
0 General Receptacles : 12780 VA CEC 220.14(I)			0 General Receptacles : 13151 VA CEC 1220.12			0 General Receptacles : 0 VA CEC 220.14(I)			21 General Receptacles : 3780 VA CEC 220.14(I)			26 General Receptacles : 4680 VA CEC 220.14(I)		
125% Lighting @ 0.75VA/SQFT: 12151 VA			125% Lighting @ 0.75VA/SQFT: 12151 VA			125% Lighting @ 0.75VA/SQFT: 2697 VA CEC 1220.12			125% Lighting @ 0.75VA/SQFT: 2697 VA CEC 1220.12			125% Lighting @ 0.75VA/SQFT: 2697 VA CEC 1220.12		
Subtotal General loads: 24931 VA			Subtotal General loads: 25291 VA			Subtotal General loads: 2697 VA			Subtotal General loads: 6477 VA			Subtotal General loads: 7377 VA		
									Appliance Loads					
									Dedicated Small Appliance 13A@120V: 780 VA			Dedicated Small Appliance 13A@120V: 780 VA		
									Dedicated Small Appliance 13A@120V: 780 VA			Dedicated Small Appliance 13A@120V: 780 VA		
									Subtotal Appliance Loads: 1560 VA			Subtotal Appliance Loads: 1560 VA		
									Demand Rated appliance loads @65%: 1014 VA CEC 1220.56			Demand Rated appliance loads @65%: 1014 VA CEC 1220.56		
									Tankless WH 3500					



CORE Electrical Services, INC.

3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 9/16/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 9/16/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 5
Per RFI 44 Response for Water Heaters - furnish and install power to x4 Water Heaters from panels 3, 5, 6 and 8. Panels 3, 5 and 8 to use 30 Amp 1 pole breakers - 160 total feet of 12/2 MC. Panel 6 to feed Mezzanine WH with greater load - 30 Amp 2 pole - 60 total feet of 10/3 MC. A Disconnect will be installed for each Water Heater.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
12	\$124.10	1,489.20	Journeyman	\$1,489.20
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$1,489.20
15% Markup				\$223.38
Labor Total				\$1,712.58

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$219.00	4	30 Amp 2 Pole Disc - TH3221	\$876.00
	\$144.82	1	12/2 MC - 250 ft (minimum roll)	\$144.82
	\$495.34	1	10/3 MC - 250 ft (minimum roll)	\$495.34
	\$13.87	1	MC Supports / Associated Parts	\$13.87
	\$19.39	1	Breaker - THQL2130	\$19.39
	\$9.24	3	Breaker - THQL1130	\$27.72
				\$0.00
				\$0.00
				\$0.00
Material Subtotal				\$1,577.14
Tax on Material 9.25%				\$145.89
15% Markup Material Subtotal				\$236.57
Material Total				\$1,959.60

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$0.00		\$0.00
Labor	\$1,712.58		\$1,712.58
Equip	\$0.00		\$0.00
Material	\$1,959.60		\$1,959.60
Total			\$3,672.18

We hereby agree to make the changes specified at this price. 		Total PCO Amount	\$3,672.18
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



Request For Information

Job #: 2010-2 RFI #: 043

Date of Request: 08/30/2024

Type: Electrical Clarification

Answer Required By: 09/05/2024

Ukiah Electric

Attention: REN / Alexander Architects

CC: Mary Horger

Company: _____

Company: _____

Fax: _____

Fax: _____

Information Required:

The approved electrical plans show power to a roof-top HVAC unit. The new HVAC unit is to be installed on new concrete pad. Please provide updated electrical drawings to specify those changes.

Information Supplied:

Supply Power to HVAC (RCU-1) From MSB (7,9,11) 350A, 3P.

(X3) 500 MCM THHW, G: #3 CU, C: 3" EMT

* or (X2) parallel (X3) 250 MCM THHW, G: #3 CU, C: 2 1/2" EMT

400 A Rated Disconnect.

Follow Manufacturer's specification & installation instructions.
Install per 2022 CEC.

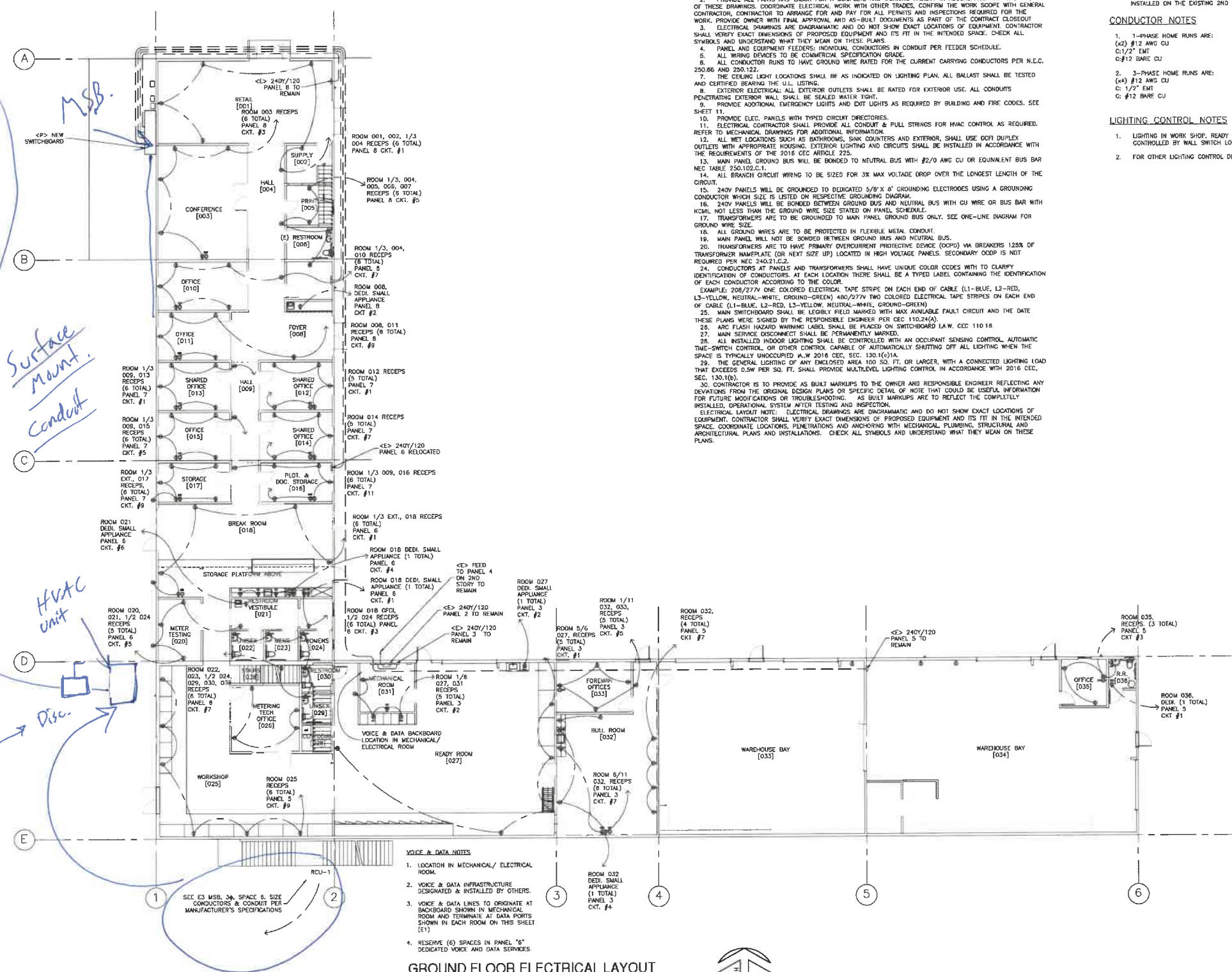
Answered By:

Erik Allen

Date:

9/6/2024

BKR 350A, 3P
"MSB" 7, 9, 11
(x3) 500 MCM
G: #3 CU
C: 3" EMT
TAHW



GENERAL ELECTRICAL NOTES:

1. ALL WORK TO CONFORM TO CALIFORNIA ELECTRIC AND CALIFORNIA ENERGY CODE, LATEST EDITIONS, AND APPLICABLE LOCAL CODES. ANY DEVIATION FROM APPROVED ELECTRICAL PLANS WILL REQUIRE APPROVAL FROM THE ELECTRICAL DESIGNER OF RECORD, PER CALIFORNIA BUSINESS AND PROFESSION CODE.
2. PROVIDE ALL PARTS AND LABOR FOR A COMPLETE AND WORKING FACILITY IN ACCORDANCE WITH THE INTENT OF THESE DRAWINGS. COORDINATE ELECTRICAL WORK WITH OTHER TRADES. CONFIRM THE WORK SCOPE WITH GENERAL CONTRACTOR. CONTRACTOR TO ARRANGE FOR AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED FOR THE WORK. PROVIDE OWNER WITH FINAL APPROVAL AND AS-BUILT DOCUMENTS AS PART OF THE CONTRACT CLOSEOUT.
3. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EXACT LOCATIONS OF EQUIPMENT. CONTRACTOR SHALL VERIFY EXACT DIMENSIONS OF PROPOSED EQUIPMENT AND ITS FIT IN THE INTENDED SPACE. CHECK ALL SYMBOLS AND UNDERSTAND WHAT THEY MEAN ON THESE PLANS.
4. PANEL AND EQUIPMENT FEEDERS, INDIVIDUAL CONDUCTORS IN CONDUIT PER FEEDER SCHEDULE.
5. ALL WIRING DEVICES TO BE CONFORM TO SPECIFICATION GRADE.
6. ALL CONDUCTOR RUNS TO HAVE GROUND WIRE RATED FOR THE CURRENT CARRYING CONDUCTORS PER N.E.C. 250.110 AND 250.122.
7. THE CEILING LIGHT LOCATIONS SHALL BE AS INDICATED ON LIGHTING PLAN. ALL BALLAST SHALL BE TESTED AND CERTIFIED BEARING THE U.L. LISTING.
8. EXTERIOR ELECTRICAL: ALL EXTERIOR OUTLETS SHALL BE RATED FOR EXTERIOR USE. ALL CONDUITS PENETRATING EXTERIOR WALL SHALL BE SEALED WATER TIGHT.
9. PROVIDE ADDITIONAL EMERGENCY LIGHTS AND EXIT LIGHTS AS REQUIRED BY BUILDING AND FIRE CODES. SEE SHEET 11.
10. PROVIDE ELEC. PANELS WITH TYPED CIRCUIT DIRECTORIES.
11. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUIT & PULL STRINGS FOR HVAC CONTROL AS REQUIRED. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
12. ALL WET LOCATIONS SUCH AS BATHROOMS, SINK COUNTERS AND EXTERIOR, SHALL USE GFCI DUPLEX OUTLETS WITH APPROPRIATE HOUSING. EXTERIOR LIGHTING AND CIRCUITS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2016 CEC ARTICLE 225.
13. MAIN PANEL GROUND BUS WILL BE BONDED TO NEUTRAL BUS WITH #2/0 AWG CU OR EQUIVALENT BUS BAR PER NEC TABLE 250.102.C.1.
14. ALL BRANCH CIRCUIT WIRING TO BE SIZED FOR 3% MAX VOLTAGE DROP OVER THE LONGEST LENGTH OF THE CIRCUIT.
15. 240V PANELS WILL BE GROUNDING TO DEDICATED 5/8" X 8' GROUNDING ELECTRODES USING A GROUNDING CONDUCTOR WHICH SIZE IS LISTED ON RESPECTIVE GROUNDING DIAGRAM.
16. 240V PANELS WILL BE BONDED BETWEEN GROUND BUS AND NEUTRAL BUS WITH CU WIRE OR BUS BAR WITH KCMIL NOT LESS THAN THE GROUND WIRE SIZE STATED ON PANEL SCHEDULE.
17. TRANSFORMERS ARE TO BE GROUNDING TO MAIN PANEL GROUND BUS ONLY. SEE ONE-LINE DIAGRAM FOR GROUND WIRE SIZE.
18. ALL GROUND WIRES ARE TO BE PROTECTED IN FLEXIBLE METAL CONDUIT.
19. MAIN PANEL WILL NOT BE BONDED BETWEEN GROUND BUS AND NEUTRAL BUS.
20. TRANSFORMERS ARE TO HAVE PRIMARY OVERCURRENT PROTECTIVE DEVICE (OCPD) VIA BREAKERS 125% OF TRANSFORMER NAMEPLATE (OR NEXT SIZE UP) LOCATED IN HIGH VOLTAGE PANELS. SECONDARY OCPD IS NOT REQUIRED PER NEC 240.21.C.2.
21. CONDUCTORS AT PANELS AND TRANSFORMERS SHALL HAVE UNIQUE COLOR CODES WITH TO CLARIFY IDENTIFICATION OF CONDUCTORS. AT EACH LOCATION THERE SHALL BE A TYPED LABEL CONTAINING THE IDENTIFICATION OF EACH CONDUCTOR ACCORDING TO THE COLOR.
22. EXAMPLE: 208/277V ONE COLORED ELECTRICAL TAPE STRIPE ON EACH END OF CABLE (L1-BLUE, L2-RED, L3-YELLOW, NEUTRAL-WHITE, GROUND-GREEN) 480/277V TWO COLORED ELECTRICAL TAPE STRIPES ON EACH END OF CABLE (L1-BLUE, L2-RED, L3-YELLOW, NEUTRAL-WHITE, GROUND-GREEN).
23. MAIN SWITCHBOARD SHALL BE LEGIBLY FIELD MARKED WITH MAX AVAILABLE FAULT CIRCUIT AND THE DATE THESE PLANS WERE SIGNED BY THE RESPONSIBLE ENGINEER PER CEC 110.24(A).
24. ARC FLASH HAZARD WARNING LABEL SHALL BE PLACED ON SWITCHBOARD I.A.W. CEC 110.16.
25. MAIN SERVICE DISCONNECT SHALL BE PERMANENTLY MARKED.
26. ALL INSTALLED INDOOR LIGHTING SHALL BE CONTROLLED WITH AN OCCUPANT SENSING CONTROL, AUTOMATIC TIME-SWITCH CONTROL, OR OTHER CONTROL, CAPABLE OF AUTOMATICALLY SHUTTING OFF ALL LIGHTING WHEN THE SPACE IS TYPICALLY UNOCCUPIED I.A.W. 2016 CEC, SEC. 130.16(C)(1A).
27. THE GENERAL LIGHTING OF ANY ENCLOSED AREA 100 SQ. FT. OR LARGER, WITH A CONNECTED LIGHTING LOAD THAT EXCEEDS 0.5W PER SQ. FT. SHALL PROVIDE MULTILEVEL LIGHTING CONTROL IN ACCORDANCE WITH 2016 CEC, SEC. 130.16(B).
28. CONTRACTOR IS TO PROVIDE AS BUILT MARKUPS TO THE OWNER AND RESPONSIBLE ENGINEER REFLECTING ANY DEVIATIONS FROM THE ORIGINAL DESIGN PLANS OR SPECIFIC DETAIL OF NOTE THAT COULD BE USEFUL INFORMATION FOR FUTURE MODIFICATIONS OR TROUBLESHOOTING. AS BUILT MARKUPS ARE TO REFLECT THE COMPLETELY INSTALLED, OPERATIONAL SYSTEM AFTER TESTING AND INSPECTION.
29. ELECTRICAL LAYOUT NOTE: ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EXACT LOCATIONS OF EQUIPMENT. CONTRACTOR SHALL VERIFY EXACT DIMENSIONS OF PROPOSED EQUIPMENT AND ITS FIT IN THE INTENDED SPACE. COORDINATE LOCATIONS, PENETRATIONS AND ANCHORING WITH MECHANICAL, PLUMBING, STRUCTURAL AND ARCHITECTURAL PLANS AND INSTALLATIONS. CHECK ALL SYMBOLS AND UNDERSTAND WHAT THEY MEAN ON THESE PLANS.

- ELECTRICAL NOTES**
1. SEE PANEL SCHEDULE FOR CIRCUIT HOME RUNS (SHEETS E2-E3)
 2. NO ADDITIONAL RECEPTACLES, LIGHTING, SWITCHES, OR IMPROVEMENTS TO BE INSTALLED ON THE EXISTING 2ND FLOOR.
- CONDUCTOR NOTES**
1. 1-PHASE HOME RUNS ARE:
(x2) #12 AWG CU
C: 1/2" EMT
C: #12 BARE CU
 2. 3-PHASE HOME RUNS ARE:
(x4) #12 AWG CU
C: 1/2" EMT
C: #12 BARE CU
- LIGHTING CONTROL NOTES**
1. LIGHTING IN WORK SHOP, READY ROOM, BULL ROOM, & MECHANICAL ROOM TO BE CONTROLLED BY WALL SWITCH LOCATION SHOWN ON A6.1.
 2. FOR OTHER LIGHTING CONTROL DESIGN, SEE A6.1.

VOICE & DATA NOTES

1. LOCATION IN MECHANICAL/ ELECTRICAL ROOM.
2. VOICE & DATA INFRASTRUCTURE DESIGNATED & INSTALLED BY OTHERS.
3. VOICE & DATA LINES TO ORIGINATE AT BACKBOARD SHOWN IN MECHANICAL ROOM AND TERMINATE AT DATA PORTS SHOWN IN EACH ROOM ON THIS SHEET (E1).
4. RESERVE (6) SPACES IN PANEL "6" DEDICATED VOICE AND DATA SERVICES.

GROUND FLOOR ELECTRICAL LAYOUT

SCALE: 3/32"=1'-0"

THESE PLANS ARE ORIGINALLY PRINTED ON 24"x36" PAPER.

1"=1' INCH

REVISIONS		BY

WHITCHURCH ENGINEERING, INC.
810 9th Street Torrance, California 90540
Phone (707) 725-8928

HASTINGS ELECTRIC SERVICE CENTER TENANT IMPROVEMENTS
Site Address: 1350 Hastings Ave, Ukiah, CA
APN: 180-070-19

ELECTRICAL LAYOUT/NOTES
For: City of Ukiah-Electric Service Center 400 West City, Ukiah, Co. 95482

Date	MAR 13 '24
Scale	AS NOTED
Design	ETA
Drawn	GKK
Job	COU2201
Sheet	E1

This drawing or drawing set shall not be used for construction unless a jurisdictional stamp (County, City, State, Federal) has been issued on the drawing, stating "FOR PERMIT" or similar verbiage, a wet signed professional engineer's stamp, and permit documents have been issued for the project.



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 9/18/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 9/18/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 6
Per RFI 43 Response for HVAC - Supply power to HVAC (RCU-1) from MSB (7,9,11) 350 Amp 3 Pole Breaker (this will have to be 400 Amp - see cost difference between original 225 Amp callout and 400 Amp change) and - x2) parallel runs of x3) 250 MCM THHW and #3 Ground in 2-1/2" EMT (150 ft each run). All pricing is a cost difference.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
32	\$124.10	3,971.20	Journeyman ST	\$3,971.20
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$3,971.20
15% Markup				\$595.68
Labor Total				\$4,566.88

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE
	\$5,949.64	1	Cost difference for Conduit and Wire change		\$5,949.64
	\$2,075.00	1	Cost difference for change from 225 Amp to 400 Amp Breaker		\$2,075.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
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Project Cost Change Proposal

ITEM	COST	DESCRIPTION		Price
Sub	\$0.00			\$0.00
Labor	\$4,566.88			\$4,566.88
Equip	\$0.00			\$0.00
Material	\$9,970.62			\$9,970.62
			Total	\$14,537.50

We hereby agree to make the changes specified at this price. ➡		Total PCO Amount	\$14,537.50
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



Request For Information

Job #: 2010-2 RFI #: 049

Date of Request: 09/16/2024

Type: Electrical Clarification

Answer Required By: 09/17/2024

Ukiah Electric

Attention: REN / Alexander Architects

CC: Mary Horger

Company:

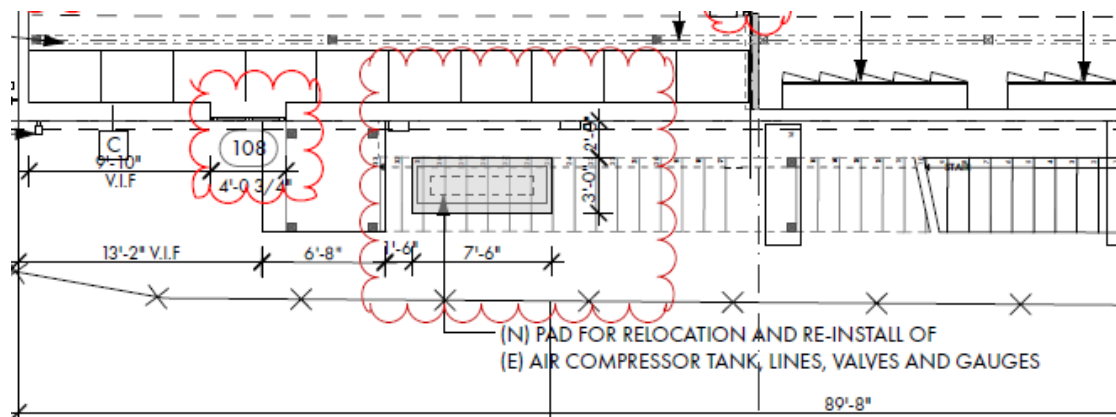
Company:

Fax:

Fax:

Information Required:

Provide electrical drawings to include the (E) Air Compressor.



Information Supplied:

Replace like-for-like branch circuit to existing air compressor in kind at new location.
Connect to Panel 1 available spaces.

Document as-is conditions and update to current 2022 CEC standard if found to be deficient.

Answered By:
Eric Allen, ME
RCE# 41001

Date: 09/17/2024



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 9/19/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 9/19/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 7
Per RFI 49 - Replace like-for-like branch circuit to existing air compressor in kind at new location. Connect to Panel 1 available spaces. Furnish and install 130 ft 3/4" EMT and assoc wire, new 100 Amp Disconnect with HOA Switch. Includes 4 hrs demo.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
42	\$124.10	5,212.20	Journeyman ST	\$5,212.20
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$5,212.20
15% Markup				\$781.83
Labor Total				\$5,994.03

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE	
	\$1,115.19	1	130 ft 3/4" EMT Conduit and Fittings		\$1,115.19	
	\$1,481.95	1	100 Amp Disconnect - Nema 3R - HOA Switch		\$1,481.95	
	\$121.86	3	#10 THHN Wire (3 Rolls - 500 ft each)		\$365.58	
	\$79.68	1	#12 THHN Wire (500 ft)		\$79.68	
	\$92.06	1	10 ft Unistrut (x2) and attachment hardware		\$92.06	
					\$0.00	
					\$0.00	
					\$0.00	
					\$0.00	
					Material Subtotal	\$3,134.46
					Tax on Material 9.25%	\$289.94
					15% Markup Material Subtotal	\$470.17
					Material Total	\$3,894.57

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$0.00		\$0.00
Labor	\$5,994.03		\$5,994.03
Equip	\$0.00		\$0.00
Material	\$3,894.57		\$3,894.57

We hereby agree to make the changes specified at this price. 		Total PCO Amount	\$9,888.60
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



Change Order Request #009

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #009 - Mechanical Revisions

Date: 10/04/24
Job Number: 2010-2

Description: Mechanical revisions per plan markup dated 09/16/24:

1. Additional VAV at Break Room.
2. Additional ducting at Supply/Print/Restroom.
3. Added Cost Change of EF3 to a Cook Side Wall Fan.
4. Mechanical changes at Mezzanine.

Clarifications: Stamped revised mechanical plans pending. Does not include any revisions that may be included in stamped plan set.

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	800.00
10104	Supervision	950.00
10121	General Conditions	321.00
15500	HVAC	14,228.07

	Subtotal	16,299.07
Fee @	10.0%	1,629.91
Bond @	2.5%	448.22
Insurance @	2.0%	367.54
Total		18,744.75

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: Steven Ratley 10/11/24
Architect Date

Approved By: Scott Bozzoli 10/16/2024 **SIGN HERE**
Owner Date

Approved By: _____
Date

PRICING #1 Q4 Mechanical Corp PROJECT: Hastings Electric Service Ctr Ukaih
 CHANGE ORDER DESCRIPTION PROJECT #: Modify SA/RA/VAV-3 ducts per N plan
 From: Eman 8/30/2024

Joe @ Kirby Construction

Added ducts and VAV per new plans

LBR. RATE

LBR. HRS.

LABOR EXTENSION

1	LABOR / EQUIPMENT					
2A	Lab Jrnman (Lab) Install ducting			\$154.90	24	\$3,717.60
2A	Labor JOURNEYMAN (Cordinations)			\$154.90	8	\$1,239.20
2A	Labor JOURNEYMAN (Instal)			\$154.90	0	\$0.00
2B	Shop Labor:			\$110.00	10	\$1,100.00
2C	Shop Labor: Credit for shop work			\$110.00	0	\$0.00
2D	Labor GEN. FOREMAN			\$180.00	0	\$0.00
3	LABOR SUBTOTAL					\$6,056.80
4	LABOR FACTOR					
5	MATERIAL HANDLING		0.00%			\$0.00
6	CLEAN UP		0.00%			\$0.00
7	SAFETY		0.00%			\$0.00
8	BUILDING HEIGHT/COMPLEXITY		0.00%			\$0.00
9	OTHER IMPACT*		Overtime	0%	\$0.00	
10			Over manni	0%	\$0.00	
11			Stacking	0%	\$0.00	
12			Shift	0%	\$0.00	
13			Others	0%	\$0.00	
14	LABOR FACTOR SUBTOTAL					\$0.00
15	DIRECT LABOR TOTAL					\$6,056.80
17	ESTABLISHED LABOR RATES		S.T.	O.T.	D.T.	
18	General Foreman Premium		\$ 115.00	\$ 126.38	\$ 155.67	
19	Foreman Premium		\$ 110.00	\$ 122.00	\$ 149.84	
20	Journeyman Premium		\$ 110.00	\$ 108.92	\$ 132.39	
21	DIRECT FIELD EXPENSE					
25	SPECIAL TOOLS (Above \$500.ea)		0.00%			\$0.00
26	Ref Piping etc		\$ -			\$0.00
27	EQUIPMENT RENTAL (GLG / FORKLIFT)		0.00%			\$0.00
28	JOBSITE TRAILER & STORAGE RENTAL		\$ -			\$0.00
29	DIRECT FIELD EXPENSE TOTAL					\$0.00
30	TOTAL LABOR / EQPT. COST					\$6,056.80
31	MATERIAL / EQUIPMENT					
32	FREIGHT& DELIVERY		\$450.00			\$400.00
33	MATERIAL (A): Sprial ducts and flat metal materilas etc and trims					\$1,250.00
34	MATERIAL (B): VAV termnal and accessores etc					\$950.00
35	MATERIAL TOTAL					\$2,600.00
36	SUBCONTRACTOR(S): SEE ATTACHED BACK-UP:					\$0.00
37	COST SUBTOTAL A (LABOR / MATERIAL / SUBCONTRACTOR(S)					\$8,656.80
38	5% MARK-UP ON SUBCONTRACTORS					
39	15% OH&P (DIRECT LABOR/EQUIPMENT/MATERIAL)					\$ 1,298.52
40	Issue formal add to Contract to proceed with CO wk TOTAL:					\$9,955.32

***WE FULLY RESERVE OUR RIGHT TO ASSESS THE CUMULATIVE IMPACT OF
 CHANGE ORDER**



Request For Information

Job #: 2010-2 RFI #: 041

Date of Request: 08/29/2024

Type: Mechanical Clarification

Answer Required By: 09/03/2024

Ukiah Electric

Attention: REN / Alexander Architects

CC: Mary Horgner

Company:

Company:

Fax:

Fax:

Information Required:

EF-3 Shop Exhaust Fan required make/model is a roof mounted unit. This does not work in desired location as the second floor prevents access to the roof. Please advise how to proceed.

Information Supplied:

- ① USE GLOBAL - 294498, 30" FAN w/ SHUTTER MOUNTED IN WALL BELOW 2ND STORY S.W. WINDOW ABOVE MEZ.
- ② MAINTAIN 3' CLEARANCE FROM ANY BUILDING OPENING.
- ③ CONTROL WITH WALL SWITCH ADJACENT TO ROLL UP DOOR
- ④ ADD SWITCH LABEL: EXHAUST FAN, EF-3.

Answered By: Eric Allen

Date: 8/29/2024

Pricing #2 Q4 Mechanical Corp
CHANGE ORDER DESCRIPTION

PROJECT: Hasting Electrical Project Ukaih

PROJECT #: 2023-04C EF-3 Cook Side Wall Fan

REF: #041 From: Eman 9/16/2024

John @ Kirby Construction

Cost to replace EF--3 to Side wall Fan

			LBR. RATE	LBR. HRS.	LABOR EXTENSION
1	LABOR / EQUIPMENT				
2A	Lab Jrnman (Lab) Cordination		\$154.00	1	\$154.00
2A	Labor Jrnman (Lab)		\$154.00	0	\$0.00
2A	Labor JOURNEYMAN (Instal)		\$154.00	0	\$0.00
2B	Shop Labor:		\$98.00	1	\$98.00
2C	Shop Labor: shop work			0	\$0.00
2D	Labor GEN. FOREMAN		\$160.00	0	\$0.00
3	LABOR SUBTOTAL				\$252.00
4	LABOR FACTOR				
5	MATERIAL HANDLING	0.00%			\$0.00
6	CLEAN UP	0.00%			\$0.00
7	SAFETY	0.00%			
8	BUILDING HEIGHT/COMPLEXITY	0.00%			\$0.00
9	OTHER IMPACT*	Overtime	0%		\$0.00
10		Over manning	0%		\$0.00
11		Stacking	0%		\$0.00
12		Shift	0%		\$0.00
13		Others	0%		\$0.00
14	LABOR FACTOR SUBTOTAL				\$0.00
15	DIRECT LABOR TOTAL				\$252.00
17	ESTABLISHED LABOR RATES	S.T.	O.T.	D.T.	
20	Journeyman Premium	\$ 154.00	183,56	\$ 238.78	
21	DIRECT FIELD EXPENSE				
25	SPECIAL TOOLS (Above \$500.ea)	0.00%			\$0.00
26	Ref Piping etc	\$ -			\$0.00
27	EQUIPMENT RENTAL (GLG / FORKLIFT)	0.00%			\$0.00
28	JOBSITE TRAILER & STORAGE RENTAL	\$ -			\$0.00
29	DIRECT FIELD EXPENSE TOTAL				\$0.00
30	TOTAL LABOR / EQPT. COST				\$252.00
31	MATERIAL / EQUIPMENT				
32	FREIGHT& DELIVERY	\$150.00			\$150.00
33	MATERIAL: (A) ATC Cook fan quote \$375.00 + sales tax \$33.75				\$408.75
34	MATERIAL (B):				\$0.00
35					\$558.25
36	0				\$0.00
37	COST SUBTOTAL A (LABOR / MATERIAL / SUBCONTRACTOR(S))				\$810.25
38	5.0 % MARK-UP ON SUBCONTRACTORS				\$ -
39	15% OH&P (DIRECT LABOR/EQUIPMENT/MATERIAL)				\$ 121.54
40	Issue formal add to Contract to proceed with CO wk TOTAL:				\$932.00

***WE FULLY RESERVE OUR RIGHT TO ASSESS THE CUMULATIVE IMPACT OF
CHANGE ORDER**

Pricing #3 Q4 Mechanical Corp
CHANGE ORDER DESCRIPTION

PROJECT: Hasting Electrical Project Ukaih
PROJECT #: 2023-04C Cost to mod dw
REF: From: Eman 10/2/2024

John @ Kirby Construction

Added cost to add elbows at SA/RA and Exh dw

LBR. RATE LBR. HRS. LABOR EXTENSION

1	LABOR / EQUIPMENT						
2A	Lab Jrnman (Lab) Cordination			\$154.00	1	\$154.00	
2A	Labor Jrnman (Lab)			\$154.00	0	\$0.00	
2A	Labor JOURNEYMAN (Instal)			\$154.00	8	\$1,232.00	
2B	Shop Labor:			\$98.00	1	\$98.00	
2C	Shop Labor: shop work				0	\$0.00	
2D	Labor GEN. FOREMAN			\$160.00	0	\$0.00	
3	LABOR SUBTOTAL					\$1,484.00	
4	LABOR FACTOR						
5	MATERIAL HANDLING	0.00%				\$0.00	
6	CLEAN UP	0.00%				\$0.00	
7	SAFETY	0.00%					
8	BUILDING HEIGHT/COMPLEXITY	25.00%				\$371.00	
9	OTHER IMPACT*	Overtime	0%				\$0.00
10		Over manning	0%				\$0.00
11		Stacking	0%				\$0.00
12		Shift	0%				\$0.00
13		Others	0%				\$0.00
14	LABOR FACTOR SUBTOTAL					\$371.00	
15	DIRECT LABOR TOTAL					\$1,855.00	
17	ESTABLISHED LABOR RATES		S.T.	O.T.	D.T.		
20	Journeyman Premium		\$ 154.00	183,56	\$ 238.78		
21	DIRECT FIELD EXPENSE						
25	SPECIAL TOOLS (Above \$500.ea)	0.00%				\$0.00	
26	Ref Piping etc	\$ -				\$0.00	
27	EQUIPMENT RENTAL (GLG / FORKLIFT)	0.00%				\$0.00	
28	JOBSITE TRAILER & STORAGE RENTAL	\$ -				\$0.00	
29	DIRECT FIELD EXPENSE TOTAL					\$0.00	
30	TOTAL LABOR / EQPT. COST					\$1,855.00	
31	MATERIAL / EQUIPMENT						
32	FREIGHT& DELIVERY		\$250.00				\$250.00
33	MATERIAL: (A) 4ea 22/20 inches elbow and exh ducts					\$800.00	
35						\$0.00	
36						0 \$1,050.00	
37	COST SUBTOTAL A (LABOR / MATERIAL / SUBCONTRACTOR(S)					\$2,905.00	
38	5.0 % MARK-UP ON SUBCONTRACTORS					\$ -	
39	15% OH&P (DIRECT LABOR/EQUIPMENT/MATERIAL)					\$ 435.75	
40	Issue formal add to Contract to proceed with CO wk TOTAL:					\$3,340.75	

***WE FULLY RESERVE OUR RIGHT TO ASSESS THE CUMULATIVE IMPACT OF
CHANGE ORDER**

	CHANGE ORDER	Job Name: Hastings TI										
	005	Job #: 2010-2										
October 31, 2024												
The construction contract dated 04/09/24 between Kirby Construction Company, Inc. and City of Ukiah is hereby modified and amended by the following deviations from the original plans and specifications: Per Instruction to remove Security Cameras and associated hardware from scope (this does not include wiring), see credit.												
It is mutually agreed that for such change the contract price is decreased by \$ (4,712.00) deductible from the payment becoming due under the original construction agreement. Time for completion of the above cited subcontract work is hereby extended <u>N/A</u> days beyond any completion date set forth in the original Contract for such work. All other work provisions of the original Contract and agreement shall remain in full force and effect, without change because of above deviations.												
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Contract Summary</th> <th style="text-align: right;">Change No. 5</th> </tr> </thead> <tbody> <tr> <td>Original Contract Value</td> <td style="text-align: right;">\$ 2,446,340.00</td> </tr> <tr> <td>Previously Approved Change Orders</td> <td style="text-align: right;">\$ 197,682.30</td> </tr> <tr> <td>This Change Order</td> <td style="text-align: right;">\$ (4,712.00)</td> </tr> <tr> <td>Total Revised Contract Value</td> <td style="text-align: right;">\$ 2,639,310.30</td> </tr> </tbody> </table>			Contract Summary	Change No. 5	Original Contract Value	\$ 2,446,340.00	Previously Approved Change Orders	\$ 197,682.30	This Change Order	\$ (4,712.00)	Total Revised Contract Value	\$ 2,639,310.30
Contract Summary	Change No. 5											
Original Contract Value	\$ 2,446,340.00											
Previously Approved Change Orders	\$ 197,682.30											
This Change Order	\$ (4,712.00)											
Total Revised Contract Value	\$ 2,639,310.30											
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Kirby Construction</td> <td style="width: 30%; text-align: center;"> <u>John Folker</u> Signature </td> <td style="width: 40%; text-align: center;"> <u>10-31-2024</u> Date </td> </tr> <tr> <td>Client/Owner</td> <td style="text-align: center;"> <u>Scott Bozzoli</u> Signature </td> <td style="text-align: center;"> <u>11/12/2024</u> Date </td> </tr> </table>			Kirby Construction	<u>John Folker</u> Signature	<u>10-31-2024</u> Date	Client/Owner	<u>Scott Bozzoli</u> Signature	<u>11/12/2024</u> Date				
Kirby Construction	<u>John Folker</u> Signature	<u>10-31-2024</u> Date										
Client/Owner	<u>Scott Bozzoli</u> Signature	<u>11/12/2024</u> Date										

CITY OF UKIAH
CONTRACT CHANGE ORDER

ORDER NO. 5

DATE: 11/12/2024

Contract for (Description of Facility): Electric Service Center Tenant Improvements & Fire Damage Repair, Spec. No. 24-01

Owner: City of Ukiah, 300 Seminary Ave., Ukiah, California, 95482-5400

To (Contractor): Kirby Construction Company, Inc., 625 Ware Ave., Santa Rosa, CA 95404

You are hereby directed to make the herein described changes from the contract plans and specifications or do the following described work not included in the contract plans and specifications:

Change requested by: UEUD.

Description of Changes - Itemized Breakdown	ESTIMATED DECREASE To Contract Amount	ESTIMATED INCREASE To Contract Amount
1. Per Instruction to remove Security Cameras and associated hardware from scope (this does not include wiring) credit.	(\$4,712.00)	
TOTAL WITH BONDS,FEES and INS.		
ESTIMATED NET CHANGE IN CONTRACT PRICE		
TOTAL CHANGE OF CONTRACT PRICE	-\$4,712.00	

Justification (Detailed and Concise): These are three different CO requests, COR#008 is for Electrical Clarification. COR#009 is For new Mechanical changes that were missed in the design and brought to our attention during construction.

The amount of the Contract will be (decreased/~~increased~~/unchanged) by the estimated sum of: Four Thousand Seven Hundred Twelve Dollars Zero Cents (\$4,712.00).

The contract total including this and previous Change Orders will be: Two Million Six Hundred Forty-Four Thousand Twenty-Two Dollars Thirty Cents (\$2,644,022.30).

The contract period provided for completion will be (~~increased~~/~~decreased~~/unchanged): 0 days.

This document will become a supplement to the contract and all provisions will apply hereto.

Approved By: Scott Bozzoli
(City)

11/12/2024

Date

Accepted: John Folker
(Contractor)

11-14-2024

Date

This information will be issued as a record of any changes to the original construction contract.



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form - Credit
Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 10/10/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 10/10/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: Credit #1
Per Instruction to <u>remove</u> Security Cameras and associated hardware from scope (this does not include wiring), see credit.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
	Deep Valley Security	Security Camera Deduct	-\$4,712.20

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$0.00
15% Markup				\$0.00
Labor Total				\$0.00

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

[illegible]

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	-\$4,712.20		-\$4,712.20
Labor	\$0.00		\$0.00
Equip	\$0.00		\$0.00
Material	\$0.00		\$0.00
Total			-\$4,712.20

We hereby agree to make the changes specified at this price. ➡		Total Amount	-\$4,712.20
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



Change Order Request #010 r.2

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #010 - Electrical Scope Changes

Date: 11/19/24
Job Number: 2010-2

Description: Electrical scope changes as follows:

1. Per RFI 61 response (circled on drawings), install x5 new electrical outlets (2 ckts to nearby panel) on 2nd floor. Data scope already covered - part of ASI 11.
2. Per changes in scope - Change-2) Fans being moved in restrooms 6, 22, 23 and 24, Change-3) Meter testing, add fan infrastructure to restroom 20.
3. Per recommendation to replace existing Fire Alarm Bell, which is nonfunctional.
4. Per direction in GC RFI# 067, install infrastructure / connect exhaust fan EF-3 to existing panel PP via wall switch etc - basic CS120-2W 20 Amp Single Pole Switch priced.

Clarifications:

0

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

CSI CODE
16000

DESCRIPTION
Electrical & Data

COSTS
6,196.77

Subtotal	6,196.77
Fee @ 10.0%	619.68
Bond @ 2.5%	170.41
Insurance @ 2.0%	139.74
Total	7,126.60

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By:

John Folker

Approved By:

Architect

Date

Approved By:

Owner

Date

Approved By:

Date



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 10/30/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 10/30/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 8
Per RFI 61 response (circled on drawings), install x5 new electrical outlets (2 ckts to nearby panel) on 2nd floor. Data scope already covered - part of ASI 11.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
9.5	\$124.10	1,178.95	Journeyman ST	\$1,178.95
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$1,178.95
15% Markup				\$176.84
Labor Total				\$1,355.79

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE
	\$146.35	1	12/2 MC Cable 250 ft roll (minimum)		\$146.35
	\$17.10	1	BR15-W Receptacles (x5)		\$17.10
	\$57.58	1	Boxes, Fasteners, Hardware		\$57.58
	\$12.22	2	GE Breakers		\$24.44
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$0.00		\$0.00
Labor	\$1,355.79		\$1,355.79
Equip	\$0.00		\$0.00
Material	\$305.00		\$305.00
			</

We hereby agree to make the changes specified at this price. 		Total PCO Amount	\$1,660.79
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 11/19/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 11/19/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 9
Per changes in scope - Change-1) New instruction to reroute data to exterior walls and up to rafters (this was a change to original instruction on change order, new material and labor only), Change-2) Fans being moved in restrooms 6, 22, 23 and 24, Change-3) Meter testing, add fan infrastructure to restroom 20.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
6	\$124.10	744.60	Journeyman ST - Change 1	\$744.60
8	\$124.10	992.80	Journeyman ST - Change 2	\$992.80
2	\$124.10	248.20	Journeyman ST - Change 3	\$248.20
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$1,985.60
15% Markup				\$297.84
Labor Total				\$2,283.44

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$198.51	1	Change 1 - 1" ENT 100 ft roll (minimum) x 1	\$198.51
	\$36.14	1	Change 1 - 1" ENT Couplings, Connectors, Straps, Fasteners	\$36.14
	\$146.35	1	Change 2 - 12/2 MC Cable 250 ft roll (minimum)	\$146.35
	\$9.48	1	Change 2 - MC Straps, Connectors	\$9.48
	\$146.35	1	Change 3 - 12/2 MC Cable 250 ft roll (minimum)	\$146.35
	\$2.37	1	Change 3 - MC Straps, Connectors	\$2.37
				\$0.00
				\$0.00
				\$0.00
Material Subtotal				\$539.20
Tax on Material 9.25%				\$49.88
15% Markup Material Subtotal				\$80.88
Material Total				\$669.96

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$0.00		\$0.00
Labor	\$2,283.44		\$2,283.44
Equip	\$0.00		\$0.00
Material	\$669.96		\$669.96
Total			\$2,953.40

We hereby agree to make the changes specified at this price. 		Total PCO Amount	\$2,953.40
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			

Change Breakout

Change-1) New instruction to reroute data to exterior walls and up to rafters. This was a change compared to instruction on original change order.

Change-2) Fans being moved in restrooms 6, 22, 23 and 24 - fans were moved by HVAC/Carpenters to make room for ducting. Legs had to be redone.

Change-3) Meter testing, add fan infrastructure to restroom 20 - original drawings showed no fan, but a fan was added to the location.



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 11/01/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 11/1/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 11
Per recommendation to replace existing Fire Alarm Bell, which is nonfunctional.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
	Deep Valley Security	Fire Alarm Bell, Back Box, Labor	\$254.36
Subcontractor SubTotal			\$254.36
15% Markup			\$38.15
Total Subcontractor			\$292.51

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
	\$124.10	0.00	Journeyman ST	\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$0.00
15% Markup				\$0.00
Labor Total				\$0.00

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

[illegible]

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$292.51		\$292.51
Labor	\$0.00		\$0.00
Equip	\$0.00		\$0.00
Material	\$0.00		\$0.00
Total			\$292.51

We hereby agree to make the changes specified at this price. ➡		Total PCO Amount	\$292.51
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



CUSTOMER QUOTATION NO. 520

Core Electrical Services Inc
1350 Hastings Rd
Ukiah CA 95482

Site: Electric Service Center (Fire)
Site Address: 1350 Hastings Rd
Ukiah CA 95482
Salesperson: Javier Moreno
Valid Until: 11/30/2024

Description

This quote is hereby submitted for the purchase and installation of a new outdoor 120VAC 10" fire bell with an outdoor weatherproof back box. If clients agree with terms please print, sign, and date where applicable. Thank you for continuing to use Deep Valley Security for all your security needs.

Commercial Fire

Item	Quantity
120VAC 10" Fire Bell	1.00
Weatherproof Back Box	1.00
Commercial Labor	
Sub-Total ex Tax	\$244.63
Tax	\$9.73
Total inc Tax	\$254.36

Print: _____	Date: _____	Sub-Total ex Tax	\$244.63
		Tax	\$9.73
		Total inc Tax	\$254.36



CORE Electrical Services, INC.

3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 11/15/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 11/15/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 12
Per direction in GC RFI# 067, install infrastructure / connect exhaust fan EF-3 to existing panel PP via wall switch etc - basic CS120-2W 20 Amp Single Pole Switch priced.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
5	\$124.10	620.50	Journeyman ST	\$620.50
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$620.50
15% Markup				\$93.08
Labor Total				\$713.58

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE
	\$81.88	3	#12 Wire 500 ft minimum - x3 rolls		\$245.64
	\$143.36	1	12/2 MC 250 ft minimum		\$143.36
	\$70.93	1	3/4" EMT 20 ft, Fittings, Attachment hardware		\$70.93
	\$4.05	1	CS120-2W Switch		\$4.05
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00

Project Cost Change Proposal

ITEM	COST	DESCRIPTION	Price
Sub	\$0.00		\$0.00
Labor	\$713.58		\$713.58
Equip	\$0.00		\$0.00
Material	\$576.50		\$576.50
			</

We hereby agree to make the changes specified at this price. 		Total PCO Amount	\$1,290.07
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



COR #011 r.1 - Fire Sprinkler Additions/Drywall Trim

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #011 - Fire Sprinkler Additions/Drywall Trim

Date: 11/19/24
Job Number: 2010-2

Description: Required fire sprinkler changes as follows:

1. Add (4) additional sprinkler heads as required per inspection.
2. Fire Sprinkler coverage at entry awning.

Additional drywall changes as follows:

1. Provide additional labor and material to install drywall trim and finish at the Mezzanine Level.

Clarifications: No changes are required to the original fire permit per City of Ukiah Building Department.

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	910.00
10104	Supervision	760.00
10121	General Conditions/On Site Supervision	412.50
10141	Equipment	195.00
02070	Soft Demolition	1,085.00
09250	Drywall	1,435.01
15300	Fire Protection	10,572.43

Subtotal	15,369.94
Fee @ 10.0%	1,536.99
Bonding & Insurance @ 2.0%	338.14
Total	17,245.07

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: _____
Date

Bay Cities Fire Protection, Inc.

CHANGE ORDER #4

Date: November 6, 2024

To: Kirby Construction

Email: jfolker@kirbycon.com

Regarding: Ukiah Electric Service Center
1350 Hastings Road
Ukiah, Ca. 95482

Add (4) additional sprinkler heads as required per inspection.

Labor: Foreman fire sprinkler fitter 12 hrs. @ \$188.27/hr. = \$2,259.24
Journeyman fire sprinkler fitter 8 hrs. @ \$173.53/hr. = \$1,388.24

Material: \$415.31 See quote attached.

Total for (4) Added Sprinklers: \$4,062.79

~~Perform 5 yr inspection as required.~~

~~5-yr Inspection: \$2,400.00~~

Total: \$6,462.79

No work will be performed without approval of this change order & if delays in approval create extra costs in labor or materials these will be passed along

If you have any questions or concerns regarding this matter, please contact Sandra Murphy at (707) 579-8694.

Signature: _____

Title: _____

Date: _____



3120 W Central Ave.
 Santa Ana, CA 92704
 Phone (714) 754-7100
 Fax (714) 754-7090
 E-Mail

Quote 0125867



Quoted 11/4/2024

Bill To

Bay Cities Fire Protection, Inc.
 51 Foley St.
 Santa Rosa, CA 95401

Ship To

Bay Cities Fire Protection, Inc.
 51 Foley St.
 Santa Rosa, CA 95401

Purchase Order	Ship Via	Reference	Entered By	Sales rep	Terms
Ukiah Material	Our Truck	Beto	OP 11/4/2024		Net 30
Product	Description	Ordered	Price	Amount	
CB60922YE0	Style 922 FireLock™ Outlet Tee 2" x 1"; Painted Female Thread	4 Ea	8.63 Ea	34.52	
005721000	1 X 21 DOM BLK SCH 40	84 FT	1.37 FT	115.08	
0840000004	DI 1 90 SCREWED BEND Package Quantity: 35 / 70	70 Ea	1.48 Ea	103.60	
0840001036	DI 1X1/2 90 SCREWED BEND Package Quantity: 55	4 Ea	2.27 Ea	9.08	
0500301692	69 1/2-1 ZP LT/DTY W/NFPA TAP HGR Package Quantity: 100	4 Ea	0.47 Ea	1.88	
3/8X10'	3/8" X 10' PLTD ATR	40 Ea	0.55 Ea	22.00	
SWG20	ITW SWG 20 2" SIDE WOOD SAMMY	25 Ea	1.50 Ea	37.50	
S271AFQ410	K5.6 V2704 - Quick Response Upright Sprinkler 200°F / 93°C; Plain Brass	4 Ea	5.48 Ea	21.92	

Sub-total \$345.58

Tax 31.97

Total \$377.55

Handwritten:
 x10% 9/p
 37.74
 415.31

8/1/2024		PLUMBER - FIRE SPRINKLER FITTER														
			journeyman	foreman 1	2nd period	9th period	5th period	10th per.	OT/jrnm	OT	OT	OT	OT	DBL TIME	FOREMAN	JRNMAN
BASE WAGE			\$79.13	\$88.13	\$33.80	\$62.65	\$42.04	\$70.90	\$118.70	\$50.70	\$63.06	\$132.20	\$106.35	\$84.08	\$176.26	\$158.26
WAGE TO EMPLOYEE			\$79.13	\$88.13	\$33.80	\$62.65	\$42.04	\$70.90	\$118.70	\$50.70	\$63.06	\$132.20	\$106.35	\$84.08	\$176.26	\$158.26
LABOR BURDEN	FICA	6.20%	\$4.91	\$5.46	\$2.10	\$3.88	\$2.61	\$4.40	\$7.36	\$3.14	\$3.91	\$8.20	\$6.59	\$5.21	\$10.93	\$9.81
	FICA MEDICARE	1.45%	\$1.15	\$1.28	\$0.49	\$0.91	\$0.61	\$1.03	\$1.72	\$0.74	\$0.91	\$1.92	\$1.54	\$1.22	\$2.56	\$2.29
	FUTA	0.80%	\$0.63	\$0.71	\$0.27	\$0.50	\$0.34	\$0.57	\$0.95	\$0.41	\$0.50	\$1.06	\$0.85	\$0.67	\$1.41	\$1.27
	SUI/SDI	7.40%	\$5.86	\$6.52	\$2.50	\$4.64	\$3.11	\$5.25	\$8.78	\$3.75	\$4.67	\$9.78	\$7.87	\$6.22	\$13.04	\$11.71
	INS. GEN. LIABILITY	15%	\$11.87	\$13.22	\$5.07	\$9.40	\$6.31	\$10.64	\$17.80	\$7.61	\$9.46	\$19.83	\$15.95	\$12.61	\$26.44	\$23.74
	INS. WORKER COMP	9%	\$7.12	\$7.93	\$3.04	\$5.64	\$3.78	\$6.38	\$10.68	\$4.56	\$5.68	\$11.90	\$9.57	\$7.57	\$15.86	\$14.24
	INS. UMBRELLA	3%	\$2.37	\$2.64	\$1.01	\$1.88	\$1.26	\$2.13	\$3.56	\$1.52	\$1.89	\$3.97	\$3.19	\$2.52	\$5.29	\$4.75
	TOTAL LABOR BURDEN		\$33.91	\$37.76	\$14.48	\$26.85	\$18.01	\$30.38	\$50.86	\$21.72	\$27.02	\$56.65	\$45.57	\$36.03	\$75.53	\$67.81
BENEFITS																
	PENSION		\$23.30	\$23.30	\$11.97	\$18.90	\$12.42	\$19.94	\$23.30	\$11.97	\$12.42	\$23.30	\$19.94	\$12.42	\$23.30	\$23.30
	HEALTH		\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86
	TRAINING		\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85
	INDUSTRY PROMOTION		\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41
	LOCAL UNION DUES		\$4.75	\$5.29	\$2.03	\$3.76	\$2.52	\$4.25	\$7.12	\$3.04	\$3.78	\$7.93	\$6.38	\$5.04	\$10.58	\$9.50
	SPECIAL FUND		\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05
	HRA		\$1.50	\$1.50	\$1.17	\$1.40	\$0.88	\$1.45	\$1.50	\$1.17	\$0.88	\$1.50	\$1.45	\$0.88	\$1.50	\$1.50
	TOTAL BENEFITS		\$44.72	\$45.26	\$30.34	\$39.23	\$30.99	\$40.81	\$47.09	\$31.35	\$32.25	\$47.90	\$42.94	\$33.51	\$50.55	\$49.47
TOTAL LABOR COST			\$157.76	\$171.15	\$78.62	\$128.72	\$91.05	\$142.09	\$216.65	\$103.78	\$122.33	\$236.74	\$194.86	\$153.62	\$302.33	\$275.54
	10% MU		\$15.78	\$17.12	\$7.86	\$12.87	\$9.10	\$14.21	\$21.66	\$10.38	\$12.23	\$23.67	\$19.49	\$15.36	\$30.23	\$27.55
			\$173.53	\$188.27	\$86.48	\$141.60	\$100.15	\$156.30	\$238.31	\$114.15	\$134.57	\$260.42	\$214.35	\$168.99	\$332.57	\$303.09

51 Foley St.
Santa Rosa, CA 95401
Ph. 707.579.8694
Fx. 707.579.8920

Bay Cities Fire Protection, Inc.

CHANGE ORDER #5

Date: November 14, 2024

To: Kirby Construction

Email: jfolker@kirbycon.com

Regarding: Ukiah Electric Service Center
1350 Hastings Road
Ukiah, Ca. 95482

Fire Sprinkler coverage at entry awning.

Labor: Foreman fire sprinkler fitter 16 hrs. @ \$188.27/hr. = \$3,012.32
Journeyman fire sprinkler fitter 16 hrs. @ \$173.53/hr. = \$2,776.48

Total Labor: \$5,788.80

Material: \$720.84 See quote attached.

otal: \$6,509.64

No work will be performed without approval of this change order & if delays in approval create extra costs in labor or materials these will be passed along

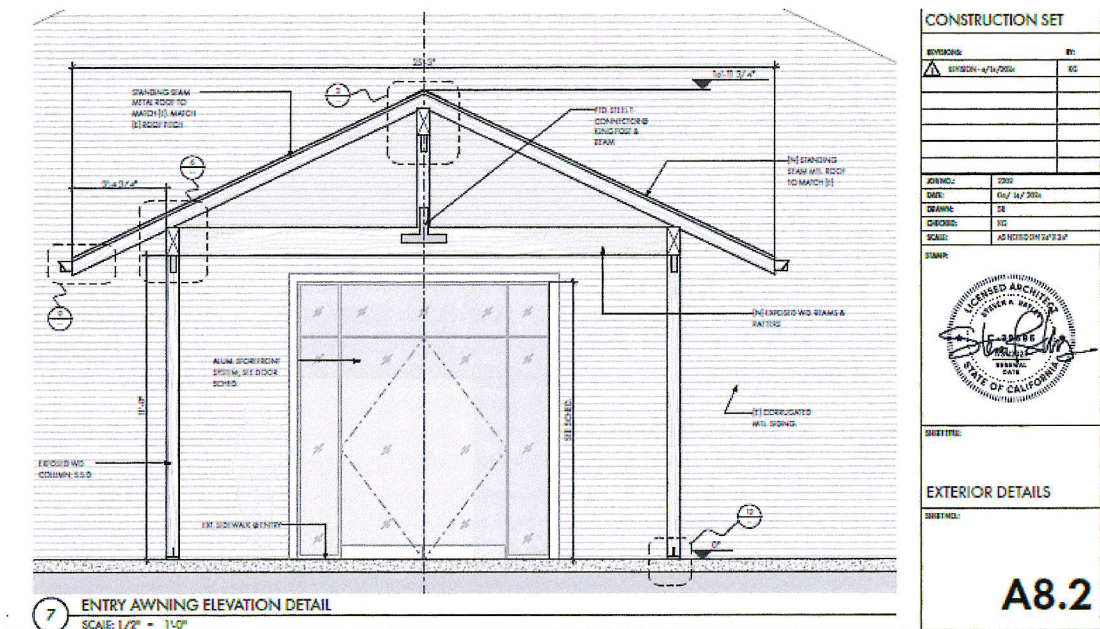
If you have any questions or concerns regarding this matter, please contact Sandra Murphy at (707) 579-8694.

Signature: _____
Title: _____

Date: _____

From: John Folker (jfolker@kirbycon.com)
To: bcfp@sbcglobal.net; ammurillo81@gmail.com
Cc: chriss@kirbycon.com
Date: Wednesday, November 13, 2024 at 01:02 PM PST

Please provide a quote for fire sprinkler coverage at entry awning indicated below:



Cheers,

KIRBY
CONSTRUCTION, INC.
Cell: (707) 889-0703
Phone: (707) 526-0880
Fax: (707) 526-1878
625 Ware Ave
Santa Rosa, CA 95404

2 guys 2 days.

1 Foreman @ 16 hrs. 188.27 x 16
3,012.32
1 Journeyman @ 16 hrs 173.53 x 16
2776.48



3120 W Central Ave.
 Santa Ana, CA 92704
 Phone (714) 754-7100
 Fax (714) 754-7090
 E-Mail

Quote 0126663



Quoted 11/13/2024

Bill To

Bay Cities Fire Protection, Inc.
 51 Foley St.
 Santa Rosa, CA 95401

Ship To

Bay Cities Fire Protection, Inc.
 51 Foley St.
 Santa Rosa, CA 95401

Purchase Order	Ship Via	Reference	Entered By	Sales rep	Terms
Ukiah Overhead	Our Truck	Beto	OP 11/13/2024		Net 30

Product	Description	Ordered	Price	Amount
F014010G00	No. 10 90° Elbow 1 1/2"; Galvanized; Original Groove	2 Ea	81.51 Ea	163.02
L01409NGE0	Style 009N FireLock Coupling 1 1/2"; Galvanized; E Type A	8 Ea	8.28 Ea	66.24
0831025408	Vic-Plus; Oval Neck Track B/N - Plated			
0811008606	1X6 IMP GAL STEEL NIPPLE	4 Ea	2.90 Ea	11.60
	1X1/2 GALV IMI 90 ELL	4 Ea	4.19 Ea	16.76
	Package Quantity: 25			
S271AFQ410	K5.6 V2704 - Quick Response Upright Sprinkler 200°F / 93°C; Plain Brass	4 Ea	5.48 Ea	21.92
Y065014	1-1/2" FIG#200 TOLCO RING HNGR	10 Ea	0.58 Ea	5.80
3/8X10'	3/8" X 10' PLTD ATR	40 Ea	0.55 Ea	22.00
F014006G00	No. 006 FireLock™ Cap 1 1/2"; Galvanized	2 Ea	6.38 Ea	12.76
0840003180	DI 1 1/2 SCREWED TEE	1 Ea	6.13 Ea	6.13
	Package Quantity: 25			
SWG20	ITW SWG 20 2" SIDE WOOD SAMMY	25 Ea	1.50 Ea	37.50
Fabrication Labor Costs - Tracy	Fabrication Labor Costs - Tracy	1 Ea	50.00 Ea	50.00
1.5X21G10	1-1/2"X21' IMP GALV SCH 10	42 FT	4.27 FT	179.34
4360000680	OUTLET THRD 1 X 1-1/2 ONLY	4 Ea	1.69 Ea	6.76

Sub-total

\$599.83

Tax

55.48

Total

\$655.31

*100% O.P.
 65.53
 720.84*

8/1/2024		PLUMBER - FIRE SPRINKLER FITTER														
			journeyman	foreman 1	2nd period	9th period	5th period	10th per.	OT/jrnm	OT 2nd period	OT 5th period	OT/frman	OT 10th per.	DBL TIME 5th period	FOREMAN	JRNMAN
BASE WAGE			\$79.13	\$88.13	\$33.80	\$62.65	\$42.04	\$70.90	\$118.70	\$50.70	\$63.06	\$132.20	\$106.35	\$84.08	\$176.26	\$158.26
WAGE TO EMPLOYEE			\$79.13	\$88.13	\$33.80	\$62.65	\$42.04	\$70.90	\$118.70	\$50.70	\$63.06	\$132.20	\$106.35	\$84.08	\$176.26	\$158.26
LABOR BURDEN	FICA	6.20%	\$4.91	\$5.46	\$2.10	\$3.88	\$2.61	\$4.40	\$7.36	\$3.14	\$3.91	\$8.20	\$6.59	\$5.21	\$10.93	\$9.81
	FICA MEDICARE	1.45%	\$1.15	\$1.28	\$0.49	\$0.91	\$0.61	\$1.03	\$1.72	\$0.74	\$0.91	\$1.92	\$1.54	\$1.22	\$2.56	\$2.29
	FUTA	0.80%	\$0.63	\$0.71	\$0.27	\$0.50	\$0.34	\$0.57	\$0.95	\$0.41	\$0.50	\$1.06	\$0.85	\$0.67	\$1.41	\$1.27
	SUI/SDI	7.40%	\$5.86	\$6.52	\$2.50	\$4.64	\$3.11	\$5.25	\$8.78	\$3.75	\$4.67	\$9.78	\$7.87	\$6.22	\$13.04	\$11.71
	INS. GEN. LIABILITY	15%	\$11.87	\$13.22	\$5.07	\$9.40	\$6.31	\$10.64	\$17.80	\$7.61	\$9.46	\$19.83	\$15.95	\$12.61	\$26.44	\$23.74
	INS. WORKER COMP	9%	\$7.12	\$7.93	\$3.04	\$5.64	\$3.78	\$6.38	\$10.68	\$4.56	\$5.68	\$11.90	\$9.57	\$7.57	\$15.86	\$14.24
	INS. UMBRELLA	3%	\$2.37	\$2.64	\$1.01	\$1.88	\$1.26	\$2.13	\$3.56	\$1.52	\$1.89	\$3.97	\$3.19	\$2.52	\$5.29	\$4.75
	TOTAL LABOR BURDEN		\$33.91	\$37.76	\$14.48	\$26.85	\$18.01	\$30.38	\$50.86	\$21.72	\$27.02	\$56.65	\$45.57	\$36.03	\$75.53	\$67.81
BENEFITS																
	PENSION		\$23.30	\$23.30	\$11.97	\$18.90	\$12.42	\$19.94	\$23.30	\$11.97	\$12.42	\$23.30	\$19.94	\$12.42	\$23.30	\$23.30
	HEALTH		\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86
	TRAINING		\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85	\$1.85
	INDUSTRY PROMOTION		\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41	\$0.41
	LOCAL UNION DUES		\$4.75	\$5.29	\$2.03	\$3.76	\$2.52	\$4.25	\$7.12	\$3.04	\$3.78	\$7.93	\$6.38	\$5.04	\$10.58	\$9.50
	SPECIAL FUND		\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05
	HRA		\$1.50	\$1.50	\$1.17	\$1.40	\$0.88	\$1.45	\$1.50	\$1.17	\$0.88	\$1.50	\$1.45	\$0.88	\$1.50	\$1.50
	TOTAL BENEFITS		\$44.72	\$45.26	\$30.34	\$39.23	\$30.99	\$40.81	\$47.09	\$31.35	\$32.25	\$47.90	\$42.94	\$33.51	\$50.55	\$49.47
TOTAL LABOR COST			\$157.76	\$171.15	\$78.62	\$128.72	\$91.05	\$142.09	\$216.65	\$103.78	\$122.33	\$236.74	\$194.86	\$153.62	\$302.33	\$275.54
		10% MU	\$15.78	\$17.12	\$7.86	\$12.87	\$9.10	\$14.21	\$21.66	\$10.38	\$12.23	\$23.67	\$19.49	\$15.36	\$30.23	\$27.55
			\$173.53	\$188.27	\$86.48	\$141.60	\$100.15	\$156.30	\$238.31	\$114.15	\$134.57	\$260.42	\$214.35	\$168.99	\$332.57	\$303.09

Section Markup

Ukiah Electic Service

CO # 3R / Additional Drywall Trim

Bid No. 92

Selected Sections: 09261 Taping

Selected Typical Areas:

Selected Areas: (unassigned), Ground Floor, Mezz Level

Estimator:	Job Status: Awarded
Job Class:	Bid Date/Time: 6/24/2024 8:38:59 AM
Wage Type: Union	Plans Date: 6/26/2024

Provide additional labor and material to install drywall trim and finish at the Mezzanine Level.

		Material		Labor		Subs		Equipment		Other		Total
Net Totals		101.58		1,131.96		0.00		0.00		0.00		1,233.54
Stock		0.00		0.00		--		--		--		0.00
Cleanup		0.00		0.00		--		--		--		0.00
Supervision		--		0.00		--		--		--		0.00
Sub Totals		101.58		1,131.96		0.00		0.00		0.00		1,233.54
Escalation	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00
Tax/Burden	8.75%	8.89	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.72%	8.89
PerDiem		--		0.00		--		--		--		0.00
Sub Total		110.47		1,131.96		0.00		0.00		0.00		1,242.43
Overhead	10.00%	11.05	10.00%	113.20	0.00%	0.00	0.00%	0.00	0.00%	0.00	10.00%	124.24
Profit	5.00%	6.08	5.00%	62.26	0.00%	0.00	0.00%	0.00	0.00%	0.00	5.00%	68.33
Bid total		127.60		1,307.41		0.00		0.00		0.00		1,435.01

Grand Total: 1,435.01



COR #012r.1 - Level 2 HVAC

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #011 - Fire Sprinkler Additions/Drywall Trim

Date: 12/03/24
Job Number: 2010-2

Description: Mechanical changes to Level 2 as follows:

1. Connect to the new unit on level 1 and use floor registers/vent - To take advantage of the brand new 25 Ton unit. Tap in 4ea 10 round ducts SA and 1ea 14 inches from new ducts below level 2. Tap in ducts below and feed the 4 room spaces at level 2 with 10 inches ducts to floor registers and 1ea RA register. We can Add 5 manual damper plus one main SA manual damper to control the 4ea SA. This will isolate the leave 2 as a zone. New ducts, new trims. No controls needed as it can be balanced as space CFM requires.
2. Abandon Existing units and ducts in place as is.

Clarifications: Approved by Whitchurch Engineering in response to RFI #065 11/14/24.

Standard Exclusions: Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	920.00
10104	Supervision	1,140.00
10121	General Conditions	774.50
06010	Carpentry	1,075.00
15500	HVAC	9,000.00

	Subtotal	12,909.50
Fee @	10.0%	1,290.95
Bonding & Insurance @	2.0%	646.12
Total		14,846.57

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: _____
Date

Pricing #4 Q4 Mechanical Corp
CHANGE ORDER DESCRIPTION

PROJECT: Hasting Electrical Project Ukaih

PROJECT #: 2023-04C

Cost Level 2

REF: C-1

LEVEL #2

From: Eman

10/2/2024

John @ Kirby Construction

Cost to add SA/RA ducts to level 2 per C-1 option

LBR. RATE

LBR. HRS.

LABOR EXTENSION

1	LABOR / EQUIPMENT						
2A	Lab Jrnman (Lab) Cordination			\$154.00	1	\$154.00	
2A	Labor Jrnman (Lab)			\$154.00	20	\$3,080.00	
2A	Labor JOURNEYMAN (Instal)			\$154.00	8	\$1,232.00	
2B	Shop Labor:			\$98.00	0	\$0.00	
2C	Shop Labor: shop work			\$98.00	8	\$784.00	
2D	Labor GEN. FOREMAN			\$160.00	0	\$0.00	
3	LABOR SUBTOTAL					\$5,250.00	
4	LABOR FACTOR						
5	MATERIAL HANDLING	0.00%				\$0.00	
6	CLEAN UP	0.00%				\$0.00	
7	SAFETY	0.00%					
8	BUILDING HEIGHT/COMPLEXITY	0.00%				\$0.00	
9	OTHER IMPACT*	Overtime	0%				\$0.00
10		Over manning	0%				\$0.00
11		Stacking	0%				\$0.00
12		Shift	0%				\$0.00
13		Others	0%				\$0.00
14	LABOR FACTOR SUBTOTAL					\$0.00	
15	DIRECT LABOR TOTAL					\$5,250.00	
17	ESTABLISHED LABOR RATES		S.T.	O.T.	D.T.		
20	Journeyman Premium		\$ 154.00	183,56	\$ 238.78		
21	DIRECT FIELD EXPENSE						
25	SPECIAL TOOLS (Above \$500.ea)	0.00%				\$0.00	
26	Ref Piping etc	\$ -				\$0.00	
27	EQUIPMENT RENTAL (GLG / FORKLIFT)	0.00%				\$0.00	
28	JOBSITE TRAILER & STORAGE RENTAL	\$ -				\$0.00	
29	DIRECT FIELD EXPENSE TOTAL					\$0.00	
30	TOTAL LABOR / EQPT. COST					\$5,250.00	
31	MATERIAL / EQUIPMENT						
32	FREIGHT& DELIVERY		\$250.00				\$402.00
33	MATERIAL: (A) Duct materials, 5 trims, sealants, MVD etc.					\$2,174.00	
35						\$0.00	
36	Total Material and delivery cost					\$2,424.00	
37	COST SUBTOTAL A (LABOR / MATERIAL / SUBCONTRACTOR(S)					\$7,826.00	
38	5.0 % MARK-UP ON SUBCONTRACTORS					\$ -	
39	15% OH&P (DIRECT LABOR/EQUIPMENT/MATERIAL)					\$ 1,173.90	
40	Issue formal add to Contract to proceed with CO wk TOTAL:					\$9,000.00	

***WE FULLY RESERVE OUR RIGHT TO ASSESS THE CUMULATIVE IMPACT OF
CHANGE ORDER**



COR #014 - Door Closers

Client: City of Ukiah
Attention: Kali Gordon
Project: COR #014 - Door Closers

Date: 12/03/24
Job Number: 2010-2

Description: Supply & install (8) Calibre 4000 door closers.

Clarifications: 0

Standard Exclusions Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	200.00
08000	Doors & Windows	4,600.00

	Subtotal	4,800.00
Fee @	10.0%	480.00
Bonding & Insurance @	2.0%	240.24
Total		5,520.24

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: _____
Date

NOR CAL GLASS PRODUCTS, INC.
PO BOX 1301
ROHNERT PARK, CA 94927-1301
707-206-9660
office@nocalglassproducts.com



ADDRESS

Kirby Construction
625 Ware Ave
Santa Rosa, CA 95404

Change Order 6526 CO3

DATE 12/03/2024

JOB NAME

Ukiah Electric Service Center

ACTIVITY

AMOUNT

Labor & Installation Fees

4,600.00

Supply & install (8) Calibre 4000 door closers.

Terms:

Signed estimate & 25% deposit to place order.
Balance due upon completion.

TOTAL

\$4,600.00

Accepted By

Accepted Date

Price includes all labor, materials, freight and tax.
Payable by check, cash or credit card.
There is a 3% processing fee for all card payments.

Lic #949519



COR #015 r.1 - Design Changes

Client: City of Ukiah
 Attention: Kali Gordon
 Project: COR #015 - Design Changes

Date: 12/19/24
 Job Number: 2010-2

Description: Electrical:
 1. Install track lighting using allthread. x7) fixtures, x3) 3/8" 10 ft sticks of allthread per fixture, x1) stick of shallow strut per fixture, and all associated mounting hardware.
 2. Remove x2) exit lights and install x3) at new locations. Includes x1) exit light fixture in material. Labor includes fishing down walls.
 Fencing:
 Fabricate and Install 6ea additional terminal posts to install chain link fence around duct work. Installing these 6 new terminal posts add 12 additional chain link terminations/make ups. Need to trim down chain link fence to fit under ducts. Includes all necessary hardware for fence make ups.
 Access Hatch:
 Install mechanical access hatch to attic on level 2.
 Level 2:
 1. Repair existing exterior door to eliminate water penetration.
 2. Re-Install existing cabinetry.

Clarifications: Electrical plan changes not issued by engineer.

Standard Exclusions Testing, Special Inspections, Hazardous Materials Testing or Removal, Utility Connection Fees, Permits, Design, Engineering, Miscellaneous Fees, and Overtime.

<u>CSI CODE</u>	<u>DESCRIPTION</u>	<u>COSTS</u>
10100	Project Management	600.00
10104	Supervision	950.00
05010	Fencing	2,670.00
06010	Carpentry	3,180.00
16000	Electrical	6,053.56

	Subtotal	13,453.56
Fee @	10.0%	1,345.36
Bonding & Insurance @	2.0%	673.35
Total		15,472.27

This bid is valid for 30 days unless accepted in writing by owner.

Respectfully Submitted By: John Folker

Approved By: _____
 Date



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 12/18/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 12/18/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 13
Per request regarding RFI 7.1 proposal, install track lighting using allthread. x7) fixtures, x3) 3/8" 10 ft sticks of allthread per fixture, x1) stick of shallow strut per fixture, and all associated mounting hardware.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
20	\$124.10	2,482.00	Journeyman ST	\$2,482.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$2,482.00
15% Markup				\$372.30
Labor Total				\$2,854.30

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE
	\$506.42	1	All thread, shallow strut, fasteners, and associated hardware		\$506.42
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
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Project Cost Change Proposal

ITEM	COST	DESCRIPTION		Price
Sub	\$0.00			\$0.00
Labor	\$2,854.30			\$2,854.30
Equip	\$0.00			\$0.00
Material	\$629.23			\$629.23
			Total	\$3,483.53

We hereby agree to make the changes specified at this price. ➡			Total PCO Amount	\$3,483.53
Date				
Contractor Signature				
Subcontractor Signature				
Owner Signature				



CORE Electrical Services, INC.
3250 Dutton Ave Suite #B
Santa Rosa CA 95403
CA License: 1041970

Proposed Project Cost Change Form

Name: TT6015 Ukiah Elec Serv Center Fire Repair
Date: 12/23/2024

This is not a new agreement. The items below enumerate changes order necessary for the completion of the subject project All Provisions of the original Contract Documents shall remain unchanged except as specifically modified by the Change Order. This document is made with the reservation of a claim for attendant field costs, general administration costs, and ripple effect costs for extension of time. Unless written objection to this change order is received within ten days, acceptance of this change order shall be effective by all parties.

YOUR AGREEMENT NO:	PROJECT THE CONSTRUCTION OF: TT6015 Ukiah Elec Serv Center Fire Repair	DATE 12/23/2024	SPEC. NO:
ORIGINAL AGREEMENT DATE: 4/4/2024	PROJECT LOCATION Ukiah	PAGES:	CHANGE NO: PCO 14
Per 12/19/24 request, remove x2) exit lights and install x3) at new locations. Includes x1) exit light fixture in material. Labor includes fishing down walls.			

SUBCONTRACTORS:

ITEM	NAME	DESCRIPTION	Price
Subcontractor SubTotal			\$0.00
15% Markup			\$0.00
Total Subcontractor			\$0.00

LABOR

Hours	Rate	Cost	DESCRIPTION	PRICE
15	\$124.10	1,861.50	Journeyman ST	\$1,861.50
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
		0.00		\$0.00
Labor SubTotal				\$1,861.50
15% Markup				\$279.23
Labor Total				\$2,140.73

EQUIPMENT

ITEM	COST	QUAN.	DESCRIPTION	PRICE
	\$0.00			\$0.00
				\$0.00
				\$0.00
Equipment Subtotal				\$0.00
15% Markup				\$0.00
Equipment Total				\$0.00

Materials and Startup / Programming

ITEM	COST	QUAN.	DESCRIPTION		PRICE
	\$225.52	1	12/2 MC (250 ft roll minimum), Boxes, and associated hardware		\$225.52
	\$120.00	1	CCGHOSQ Exit Fixture - Includes Freight		\$120.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
					\$0.00
			Material Subtotal		\$345.52
			Tax on Material 9.25%		\$31.96
			15% Markup Material Subtotal		\$51.83
			Material Total		\$429.31

Project Cost Change Proposal

ITEM	COST	DESCRIPTION		Price
Sub	\$0.00			\$0.00
Labor	\$2,140.73			\$2,140.73
Equip	\$0.00			\$0.00
Material	\$429.31			\$429.31
			Total	\$2,570.03

We hereby agree to make the changes specified at this price. ➡		Total PCO Amount	\$2,570.03
Date			
Contractor Signature			
Subcontractor Signature			
Owner Signature			



Change Order Request

Ahlborn COR #:	2
GC #:	
Date:	12/05/24
Proposal #:	13493
Type:	Public
Ahlborn Project #:	33-24-007

Ahlborn Project Name:	Hasting TI
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To:	Kirby Construction
Atten:	John Folker
Phone:	707-889-0703
Fax:	
Email:	jfolker@kirbycon.com

From:	Ahlborn Fence & Steel, Inc.
	1230 Century Ct.
	Santa Rosa, CA 95403
Contact:	Jordan Gambetta
Phone:	707-396-4054
Fax:	
Email:	j.gambetta@ahlbornco.com

We hereby propose the following changes:

Fabricate and Install 6ea additional terminal posts to install chain link fence around duct work. Installing these 6 new terminal posts add 12 additional chain link terminations/make ups. Need to trim down chain link fence to fit under ducts. Includes all necessary hardware for fence make ups

Change Order Value = **\$2,670.00**

This price is good for 30 days. If conditions change, this price is void. We are requesting a time extension of 0 day(s) in conjunction with this change order request.

Jordan Gambetta
Ahlborn Representative

12/05/24
Date Sent

The above prices and specifications of this Change Order Request are satisfactory and are hereby accepted. All work to be performed under the same terms and conditions as specified in original contract and bid proposal including specific and standard exclusions and clarifications, unless otherwise specified in this Change Order Request.

Authorized Signature

Date of Acceptance



AGENDA SUMMARY REPORT

SUBJECT: Adoption of an Ordinance Modifying Ukiah City Code to Add a New Chapter 13, Entitled "Vacant and Abandoned Property Registration and Maintenance," to More Effectively Regulate Vacant and Abandoned Properties.

DEPARTMENT: Community Development

PREPARED BY: Craig Schlatter, Community Development Director

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Vacant and Abandoned Property Ordinance DRAFT

Summary: Council will consider adoption of an ordinance modifying Ukiah City Code to add a new chapter 13, entitled "Vacant and Abandoned Property Registration and Maintenance," to more effectively regulate vacant and abandoned properties.

Background: During the FY 2024-25 budget and budget objectives development process, City Council requested the Community Development Department explore a policy to address the growing blight and safety concerns related to vacant and abandoned buildings in Ukiah. In response, the Department added the following objective within the Code Compliance Division, to be completed by June 30, 2025:

Collaborate with the Planning Division to assess current policies and regulations, and develop recommendations to address and prevent abandoned, neglected, and blighted buildings, and underutilized properties.

This objective is consistent with the Ukiah General Plan and furthers a Goal and Policy within the Land Use (LU) Element:

Goal LU-14: To develop, implement, and enforce policies to ensure access to safe and sanitary housing throughout the community.

Policy LU-14.1 Code Enforcement: The City shall prioritize code enforcement for rental housing in disadvantaged communities to assure safe, sanitary housing.

On December 18, 2024, Staff presented a summary of research into similar ordinances and a proposed ordinance (Attachment 1) to Council. Council then conducted a public hearing, discussed the proposed ordinance, and by a unanimous vote, approved the introduction of the Ordinance. No changes to the Ordinance were suggested by Council.

Discussion: Staff recommends Council adopt the Ordinance in Attachment 1, which would modify Ukiah City Code to add a new Chapter 13, entitled "Vacant and Abandoned Property Registration and Maintenance." If adopted, the Ordinance would become effective February 14, 2025.

Recommended Action: Adopt ordinance modifying Ukiah City Code to add a new Chapter 13, entitled "Vacant and Abandoned Property Registration and Maintenance."

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

REVENUE: Yes / No **GRANT:** Yes / No N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Darcy Vaughn, Assistant City Attorney; Matt Keizer, Chief Code Enforcement Officer

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): P-A1 - Land Use Element, Policy LU-14.1 Code Enforcement

Approved:


Sage Sangiacomo, City Manager

ORDINANCE NO. 2024 - __**ORDINANCE OF THE CITY COUNCIL OF THE CITY OF UKIAH ADDING CHAPTER 13 TO DIVISION 3 OF THE CITY CODE, ENTITLED "VACANT AND ABANDONED PROPERTY REGISTRATION AND MAINTENANCE".**

The City Council of the City of Ukiah hereby ordains as follows:

SECTION ONE. FINDINGS

1. Neglected vacant or abandoned properties are a major source of blight in the City of Ukiah and pose serious threats to public health, safety, and welfare. They attract criminal and unsafe activities, and as such, are vulnerable to fire, theft, and other illegal activities. The presence of neglected vacant or abandoned buildings and storefronts can lead to neighborhood decline, create nuisance conditions, lower property values, and discourage investment.
2. It is the responsibility of property owners, lenders, trustees, or others with possessory, equitable, or legal interests in the neglected vacant or abandoned lots, buildings including without limitation historic buildings or structures, to maintain, secure, and prevent these buildings and lots from becoming a burden to the neighborhood and community or a threat to public health, safety and welfare.

SECTION TWO.

A new Chapter 13, entitled "VACANT AND ABANDONED PROPERTY REGISTRATION AND MAINTENANCE," shall be added to Division 3 of the Ukiah City Code and shall read as follows:

CHAPTER 13 VACANT AND ABANDONED PROPERTY REGISTRATION AND MAINTENANCE**§3480 PURPOSE**

It is hereby declared to be in the public interest to promote the health, safety and welfare of the residents of the City of Ukiah through the adoption of this Chapter, to establish an abandoned or vacant property registration program for residential and commercial properties as a mechanism to protect neighborhoods and commercial areas from becoming blighted through the lack of adequate maintenance and security of abandoned and vacated properties, which program and procedures shall be in addition to all other proceedings authorized by this Code or otherwise by law.

§3481 DEFINITIONS

For the purposes of this Chapter, the following words and phrases are defined as set forth below:

Abandoned Property: Real property that is vacant and either:

1. Under a current notice of default;
2. Under a current notice of trustee's sale;
3. Pending a tax assessor's lien sale;

4. The subject of a foreclosure sale where the title was retained by the beneficiary of a deed of trust involved in the foreclosure; or

5. Transferred under a deed in lieu of a foreclosure sale.

Beneficiary: A lender or holder of a note secured by a deed of trust. When any act is required of the beneficiary and/or the trustee by this Chapter, both are responsible for performing such act and may be charged with a violation of this Code for failure to act.

Deed of Trust: An instrument by which title to real estate is transferred to a third-party trustee as security for a real estate loan and often used in California instead of a mortgage. This term shall include any and all subsequent deeds of trust, i.e., second trust deed, third trust deed, etc.

Distressed: A property that is legally occupied, and either:

1. Under a current notice of default;
2. Under a current notice of trustee's sale;
3. Pending a tax assessor's lien sale;
4. The subject of a foreclosure sale where the title was retained by the beneficiary of a deed of trust involved in the foreclosure; or
5. Transferred under a deed in lieu of a foreclosure sale.

Evidence of vacancy: Any condition that, on its own or combined with other existing conditions, would lead a reasonable person to believe that a property is vacant and not occupied by authorized persons. Such conditions include, but are not limited to, overgrown and/or dead vegetation, accumulation of newspapers, circulars, flyers and/or mail, past due utility notices or disconnected utilities, accumulation of trash, junk and/or debris, the absence of window coverings such as curtains, blinds and/or shutters, the absence of furnishings and/or personal items consistent with residential habitation, and statements by neighbors, passersby, delivery agents, government employees that the property is vacant.

Legal owner: An owner of residential property purchased by that owner at a foreclosure sale or acquired by that owner through foreclosure under a mortgage or deed of trust, as the term is used in California Civil Code § 2929.3.

Local: Within the City of Ukiah city limits.

Notice of default: A recorded notice that a default has occurred under a deed of trust and that the beneficiary intends to proceed with a trustee's sale.

Out of area: outside the City of Ukiah city limits.

Owner: The person having recorded title to the property at any given point in time the record is provided by the Mendocino County recorder's office.

Property: Any unimproved or improved real property, or portion thereof, situated in the City, including the buildings or structures located thereon.

Responsible person: Any person, partnership, association, corporation or fiduciary having legal or equitable title to or any interest in any real property. This term includes trustees and beneficiaries of a deed of trust on the property and any other lien holder on the property.

Secure, Securing: Such measures as may be directed by the City Manager, Building Official, Code Enforcement Officer, Police Chief, Fire Chief, Fire Marshall, or their authorized agents, that assist in rendering the property inaccessible to unauthorized persons, including, but not limited to, the repairing of fences and walls, chaining or padlocking of gates, the repairing or boarding of doors, windows and/or other openings. If boarding of the property is required, such boarding shall be completed to a minimum of the current securing standards of the department of housing and urban development.

Trustee: The person, firm or corporation holding a deed of trust on a property. When any act is required of the beneficiary and/or the trustee by this Chapter, both are responsible for performing such act and may be charged with a violation of this Code for failure to act.

Trustor: A borrower under a deed of trust who deeds property to a trustee as security for the payment of a debt.

Vacant: A property that is not occupied by authorized persons.

§3482 REGISTRATION OF ABANDONED OR VACANT PROPERTIES

A. All abandoned or vacant properties shall be registered with the Business Services Division of the City of Ukiah Community Development Department in accordance with this Section. Any beneficiary and/or trustee who holds a deed of trust on a property located within the City shall, upon default by the trustor, perform an inspection of the property that is security for that deed of trust. This inspection shall be performed prior to recordation of a notice of default with the Mendocino County recorder's office. If the property is found to be vacant, or shows evidence of vacancy, such property shall be deemed abandoned for purposes of this Chapter, and the beneficiary and/or trustee shall, within ten days of the inspection, register the property with the Community Development Department, on a form provided by the Business Services Division. If the property is occupied by authorized persons at the time of inspection, the property shall be re-inspected on a monthly basis until:

1. The default is remedied by the trustor;
2. The foreclosure is completed and the ownership is transferred to a new owner who is not the former beneficiary and/or trustee; or
3. The property is found to be vacant, at which time it shall be registered with the Business Services Division of the Community Development Department within ten days of the inspection.

B. Registration under this Chapter shall include the following information for both the beneficiary and trustee:

1. The street address (not a P.O. box) of the corporation or individual, and if different, the mailing address.
2. A direct contact name and telephone number for the person handling the deed of trust and/or foreclosure.

3. The local property manager responsible for the security and maintenance of the property, if the beneficiary or trustee is located out of the area or if the beneficiary or trustee is unable to conduct regular inspections and maintenance of the registered property.

C. The registration shall also include the annual registration fee, as established and as may be adjusted from time to time by City Council resolution. The amount of the fee charges shall not exceed the reasonable estimated cost of administering the provisions of this Chapter.

D. Registration of a property shall be valid for one year from the date that the property is registered with the City. Registration with the City shall be annually renewed prior to the expiration of the current registration.

E. Any change in the information required by Subsection B of this Section must be reported to the Business Services Division of the Community Development Department within ten days of that change.

§3483 MAINTENANCE REQUIREMENTS

Responsible persons, including beneficiaries and/or trustees, shall maintain vacant, abandoned or distressed properties located within City limits, as set forth below:

A. The property shall be kept free of items that show evidence that the property is vacant or abandoned, including, but not limited to, weeds, dry brush, dead or overgrown vegetation, trash, junk, debris, building materials, accumulated newspapers, circulars, flyers, notices, discarded personal items, such as furniture, clothing, appliances, and printed material.

B. The property, or structures thereon, shall be maintained free of graffiti, tagging or similar markings by removal or painting over with an exterior grade of paint that matches the color of the exterior of the affected structure or property.

C. Visible front and side yards of such property shall be acceptably landscaped and maintained.

1. Acceptable landscaping includes, but is not limited to, grass or similar ground cover; bushes, shrubs, hedges or similar plantings; and decorative rock or bark. Unacceptable landscaping includes, but is not limited to, weeds, gravel, broken concrete, asphalt, decomposed granite, plastic sheeting, mulch, indoor-outdoor carpet or other similar materials.

2. Acceptable maintenance includes, but is not limited to, regular watering, irrigation, mowing, cutting, trimming or pruning of vegetation and removal thereof.

D. Pools, spas, and hot tubs shall either be:

1. Kept in working order so that the water remains clear and free of pollutants, debris, mosquitoes, mosquito larvae or other similar pests, or

2. Drained and kept dry.

All properties with pools, spas, or hot tubs must comply with security fencing requirements mandated by California law.

E. If any vacant or abandoned property is owned by an out of area beneficiary, trustee, or owner, such person or entity shall contract with a local property management company to perform maintenance required by this Section.

F. Compliance with this Chapter does not relieve any responsible person of any other obligations set forth in this Code or other state and federal laws, or covenants conditions and restrictions, or any homeowners' association rules that may apply to the property.

§3484 SECURITY REQUIREMENTS

A. Responsible persons shall secure all vacant and abandoned properties against unauthorized entry. This includes, but is not limited to, closing and locking all windows, doors (including sliding doors and garage doors), gates, and any other openings of such size that would allow a child to access the interior of the property and buildings or structures thereon. If doors or windows cannot be secured by other means, they may be boarded.

B. If any vacant or abandoned property is owned by an out of area beneficiary, trustee, or owner, and if such beneficiary, trustee, or owner cannot physically maintain and regularly inspect the property, such person or entity shall contract with a local property management company to perform weekly inspections to ensure that the requirements of this Chapter, and any other applicable laws, are being met.

C. All vacant and abandoned property shall be posted with the name and a 24-hour contact phone number for the trustee, beneficiary, owner or local property management company responsible for the maintenance and security of the property. The posting shall conform to the following requirements:

1. The posting shall be 18" x 24" and lettering on the posting shall be of a 1" font size.
2. The posting shall state "THIS PROPERTY MANAGED BY _____. TO REPORT PROBLEMS OR CONCERNS, CALL _____."
3. The posting may be placed in any of the following locations, so long as the posting is visible from the street facing the front of the property:
 - a. In the interior of a window;
 - b. Secured to the exterior of the building; or
 - c. On a stake of sufficient size to support the posting.

Any exterior posing shall be constructed of and printed with weather-resistant materials.

§3485 MONITORING PROGRAM AND PURPOSE

A, Vacant buildings are a major cause and source of blight in residential and nonresidential neighborhoods, especially when the owner of the building fails to maintain and manage the building to ensure that it does not become a liability to the neighborhood. Vacant buildings often attract transients and criminals, including drug users. Use of vacant buildings by transients and criminals, who may employ primitive cooking or heating methods, creates a risk of fire for the vacant buildings and adjacent properties. Vacant properties are often used as dumping grounds for junk and debris and are often overgrown with weeds and grass. Vacant buildings which are boarded up to prevent

entry by transients and other long-term vacancies discourage economic development and retard appreciation of property values.

B. Because of the potential economic and public health, welfare and safety problems caused by vacant buildings, the City needs to monitor vacant buildings, so that they do not become attractive nuisances, are not used by trespassers, are properly maintained both inside and out, and do not become a blighting influence in the neighborhood. City departments involved in such monitoring include Police, Community Development, and the Ukiah Valley Fire Authority. There is a substantial cost to the City for monitoring vacant buildings (whether or not those buildings are boarded up), which should be borne by the owners of the vacant buildings. The fees for a monitoring program pursuant to the provisions of this Chapter shall be separate from and in addition to any registration fees or administrative penalties required or otherwise assessed pursuant to the provisions of this Chapter.

§3486 MONITORING PROGRAM PROCEDURES

A. Authority. The Chief Code Enforcement Officer shall be responsible for administering a program for identifying and monitoring the maintenance of all vacant buildings in the City. The program shall be documented and regularly updated. The program shall be available for public review.

B. Purposes. The purposes of the monitoring program shall be:

1. To identify buildings that become vacant;
2. To order vacant buildings that are open and accessible to be secured against unlawful entry pursuant to City codes, including the building code, or other applicable law;
3. To initiate proceedings against the owner of any vacant building found to be substandard as defined in this Chapter or a nuisance under any other provision of this Code;
4. To maintain surveillance over vacant buildings so that timely enforcement proceedings are commenced in the event a building becomes substandard or a nuisance; and
5. To establish and enforce rules and regulations for the implementation and compliance with the provisions of Sections 3482-3484 of this Chapter.

C. Fee imposed. There is imposed upon every owner of a vacant building monitored pursuant to this Chapter, an annual vacant building monitoring fee in an initial amount as the City Council may establish by resolution, provided that the fee shall not exceed the estimated reasonable cost of monitoring the vacant building. The fee shall be applied as to any building, residential or nonresidential, which:

1. Is boarded up by voluntary action of the owner or as the result of enforcement activities by the City; or
2. Is vacant for more than 90 days for any reason.

D. Fee waiver. The vacant building monitoring fee shall be waived upon a showing by the owner that:

1. The owner has obtained a building permit and is progressing diligently to repair the premises for occupancy; or
2. The building meets all applicable codes and is actively being offered for sale, lease, or rent.

E. Procedure. The vacant building monitoring fee shall be billed to the owner of the property and mailed to the owner's address as set forth on the last equalized assessment roll of the Mendocino County assessor. Any owner billed may apply for a waiver on the grounds set forth in Subsection D of this Section by submitting a written statement of the grounds for the waiver, and the owner's daytime telephone number, to the Chief Code Enforcement Officer within 30 days after the billing is mailed to the owner. The owner shall provide substantial evidence in support of the owner's statement of the grounds for the waiver. The Chief Code Enforcement Officer shall review the written statement and all related evidence and may contact the owner to discuss the application for waiver. The Chief Code Enforcement Officer shall prepare a written decision which shall be mailed to the owner and shall set forth the reasons for the decision.

F. Any owner aggrieved by the decision of the Chief Code Enforcement Officer relating to an application for waiver may appeal the Chief Code Enforcement Officer's decision to the City's Hearing Officer by filing with the City Clerk a written notice of appeal within ten days of the decision. The Hearing Officer shall set a time and place for a hearing of such appeal, and notice of such hearing shall be mailed, postage prepaid, to the owner at his or her last known address at least ten days prior to the date set for the hearing. The decision and order of the Hearing Officer on such appeal shall be final and conclusive.

G. If the fee is not paid within 60 days after billing, or within 60 days after the decision of the Chief Code Enforcement Officer, the Chief Code Enforcement Officer may thereupon order that the fee be specially assessed against the property involved. If the Chief Code Enforcement Officer orders that the fee be specially assessed against the property, it shall confirm the assessment and thereafter said assessment may be collected at the same time and in the same manner as ordinary real property taxes are collected and shall be subject to the same penalties and the same procedure and sale in case of delinquency as provided for ordinary real property taxes. All laws applicable to the levy, collection, and enforcement of real property taxes are applicable to the special assessment.

H. The City is also authorized to record a notice of lien. The notice shall, at a minimum, identify the record owner or possessor of the property, set forth the last known address of the record owner or possessor, a description of the real property subject to the lien, and the amount of the fee.

§3487 ENFORCEMENT

A. Any violation of this Chapter shall constitute a public nuisance.

B. Any person, partnership, association, corporation, fiduciary or other legal entity, that owns, leases, occupies, controls or manages any property subject to this Chapter and that causes, permits, or maintains a violation of this Chapter, shall be guilty of a misdemeanor. Violations shall be treated as a strict liability offense; a violation shall be deemed to have occurred regardless of a violator's intent.

C. If the Chief Code Enforcement Officer determines a violation of this Chapter exists, the enforcement official may issue an administrative citation for each day a violation exists, containing fines up to \$1,000.00 per day, per violation, as provided in Chapter 12, Division 3 of this Code, or up to \$2,500 per day, per violation, as provided in Chapter 11, Division 3 of this Code, whichever is applicable. The table below provides guidance as to how these fines will be assessed. The Chief Code Enforcement Officer has discretion to charge the maximum daily penalties depending on the severity and danger to health and safety of the violation.

Days in Violation	Residential Units	Commercial Units
1 to 10	\$100.00 Per Day	\$250.00 Per Day
11 to 30	\$250.00 Per Day	\$500.00 Per Day
Over 30	\$1,000.00 Per Day	\$2,500.00 Per Day

D. This Section is intended to be cumulative to, and not in place of, other rights and remedies available to the City pursuant to this Code or state law, including any civil, criminal and/or administrative action.

E. Any and all costs, including attorney's fees, incurred by the City in enforcing this Chapter shall be recoverable, and shall constitute a lien and special assessment against the subject property, pursuant to the definitions and procedures in Chapters 11 and 12 of this Division, whichever is applicable, and as otherwise provided by this Code.

§3488 JOINT AND SEVERAL LIABILITY

The duties/obligations specified in this Chapter shall be joint and several among and between all trustees and beneficiaries and their respective agents.

SECTION THREE.

1. SEVERABILITY.

If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council of the City of Ukiah hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

2. EFFECTIVE DATE.

This Ordinance shall be published as required by law in a newspaper of general circulation in the City of Ukiah, and shall become effective thirty (30) days after its adoption.

Introduced by title only on December 18, 2024, by the following roll call vote:

AYES: Rodin, Criss, Orozco, Sher, and Mayor Crane.

NOES: None.

ABSENT: None.

ABSTAIN: None.

Adopted on , 2024, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Douglas F. Crane, Mayor

ATTEST:

Araceli Sandoval, Deputy City Clerk

DRAFT



AGENDA SUMMARY REPORT

SUBJECT: Authorize the City Manager to Execute a Municipal Lease Agreement with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance, to Finance the Acquisition of RIMS Computer-Aided Dispatch and Records Management Software and Approve Corresponding Resolution.

DEPARTMENT: Finance

PREPARED BY: Mary Horger, Financial Services Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Draft Resolution and Terms and Conditions

Summary: Council will consider authorizing the City Manager to execute a municipal lease agreement with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance, to finance the acquisition of RIMS Computer-Aided Dispatch and Records Management Software and approve corresponding resolution.

Background: At the December 18, 2024, meeting, the City Council approved a five-year agreement for the acquisition of the RIMS Computer-Aided Dispatch (CAD) and Records Management Software (RMS) from Sun Ridge Systems.

Sun Ridge Systems installation costs will be \$379,665. Annual fees will begin at \$33,282 for the first two years and then adjust by 5% every year thereafter, resulting in a 5-year overall cost of \$556,704.

Discussion: The staff report requesting the acquisition approval for the CAD and RMS systems included that the funding source for the installation costs of \$379,665 would be utilizing our existing line of credit with Umpqua. Presented here is a copy of the resolution that includes the proposed terms and conditions (Attachment 1).

If authorized, the agreement will be for five (5) years at an interest rate of 5.55%, with monthly payments of \$7,260.76. A documentation fee of \$500 per lease schedule/takedown will be payable by the City.

The resulting agreement will include a prepayment option as follows:

Months 1 thru 12: Pay the sum of the outstanding agreement balance plus 3% premium of the outstanding balance.

Months 13 thru 24: Pay the sum of the outstanding agreement balance plus 2% premium of the outstanding balance.

Months 25 thru 36: Pay the sum of the outstanding agreement balance plus 1% premium of the outstanding balance.

After 36 months, the City will have the option to prepay the agreement without a premium.

Staff recommends authorizing the City Manager to execute a municipal lease agreement with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance, to finance the acquisition of RIMS Computer-Aided Dispatch and Records Management Software and approve corresponding resolution.

Recommended Action: Authorize the City Manager to execute a Municipal Lease Agreement with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance, to finance the aquisition of RIMS Computer-Aided Dispatch and Records Management Software and approve corresponding resolution.

BUDGET AMENDMENT REQUIRED: No.

CURRENT BUDGET AMOUNT: 20620231.80100.18445 (CAD System): \$379,665; 20620231.90100.18445 (Loan Proceeds): \$379,665

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: Umpqua Line of Credit

REVENUE: No GRANT: No

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Dan Buffalo, Finance Director; Cedric Crook, Police Chief

DIVERSITY-EQUITY INITIATIVES (DEI):

CLIMATE INITIATIVES (CI):

GENERAL PLAN ELEMENTS (GP):

Approved: 
Sage Sangiacomo, City Manager

RESOLUTION 2024-**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF UKIAH APPROVING PURCHASE OF RIMS MULTI-AGENCY COMPUTER-AIDED DISPATCH AND RECORDS MANAGEMENT SOFTWARE AND AUTHORIZING CITY MANAGER TO NEGOTIATE AND EXECUTE LEASE PURCHASE AGREEMENT AND RELATED DOCUMENTS****WHEREAS:**

1. The City has determined to acquire RIMS Multi-Agency Computer-Aided Dispatch and Records Management Software ("the Equipment") as an essential component of the dispatch services provided by the City's Police Department for the City and the City of Fort Bragg, and to support the provision of life and safety protection in both cities; and

2. The City Council has determined that acquiring the Equipment under a Master Lease Agreement ("Lease") and accompanying Equipment Schedule ("Schedule") with Financial Pacific Leasing, Inc., DBA Umpqua Bank Equipment Leasing & Finance ("Umpqua") is in the best interests of the City; and

3. Under the Lease, the City will assign to Umpqua the City's rights, but not its obligations, to acquire the Equipment and Umpqua will lease the Equipment to the City pursuant to the terms set forth in the Term Sheet, attached hereto as Exhibit A; and

4. The City will be obligated under the Lease and accompanying Schedule with Umpqua to make sixty monthly lease payments which will total the purchase price of the Equipment plus interest, provided the City Council appropriates funds each year to make the lease payments.

NOW, THEREFORE, BE IT RESOLVED that:

1. The purchase of the Equipment from Sun Ridge Systems, Inc. for the total amount of \$379,665, including sales tax, is hereby approved.
2. The City Manager is hereby authorized and directed to negotiate and execute on behalf of the City a Lease, Schedule and related documents to finance the purchase of the Equipment in accordance with the Term Sheet, attached hereto as Exhibit A, subject to legal review by the City Attorney.

PASSED AND ADOPTED this day of _____, 2025, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Douglas F. Crane, Mayor

ATTEST:

Araceli Sandoval, Deputy City Clerk

Terms and Conditions:

Lessor:	Financial Pacific Leasing, Inc., d.b.a. Umpqua Bank Equipment Leasing & Finance, a subsidiary of Umpqua Bank or it's assigns ("Lessor")
Lessee(s):	City of Ukiah
Equipment Financing Vehicle:	Municipal Lease-Purchase Agreement
Equipment & Cost:	Anticipated equipment to be: RIMS Multi Agency Computer Aided Dispatch and Records Management Software. All Equipment shall be satisfactory to Lessor.
Lease Amount:	Not to exceed \$379,665 in the aggregate.
Lease Term:	Five (5) years
Payments:	Sixty (60) payments, payable monthly in arrears of \$7,260.76
Lease Rate:	5.55%.
Tax Benefits:	The lease shall be considered a municipal lease/purchase and qualifies for tax-exempt status. Lessee shall pay all fees, assessments, sales, use, property and other taxes imposed, except those levied on the net income of Lessor by the United States, the State of California, or other applicable jurisdiction.
Progress Payments:	Lessor will consider periodically disbursing funds to various Equipment vendors under a progress payment agreement (PPA) between Lessor and Lessee. Any funds outstanding under the PPA shall accrue interest from the date of funding to the lease funding date at the 30 day average SOFR rate + 110bp. Such interest shall be calculated 15 days prior to the 1 st day of each month and shall be fixed for each monthly period thereafter. Interest shall be payable on the 1 st day of each month after initial funding. No interest shall be capitalized into the Equipment cost.
End of Lease Options:	At the end of the initial lease term, Lessee will have the option to purchase all, but not less than all, of the Equipment for \$1.00.
Prepayment Option:	For months 1 through 12, Lessee shall have the option to prepay the outstanding Agreement by paying the sum of the outstanding Agreement balance plus a premium of 3% of the outstanding balance. For months 13 through 24, Lessee shall have the option to prepay the outstanding Agreement by paying the sum of the outstanding Agreement balance plus a premium of 2% of the outstanding balance. For months 25 through 36, Lessee shall have the option to prepay the outstanding Agreement by paying the sum of the outstanding Agreement balance plus a premium of 1% of the outstanding balance. After 36 months of the

Agreement term, Lessee shall have the option to prepay the Agreement without premium. Lessee shall have the right to exercise the Prepayment Option provided no event of Default shall have occurred and be continuing and any and all fees, taxes and all other charges are current.

Expiration of Facility: All takedowns shall occur prior to December 31, 2025 and without extension, the facility shall expire. Lessor shall have no obligation to lease any item of Equipment after said date.

Net Lease: All costs of operation, maintenance, taxes, insurance and other affiliated costs will be paid by Lessee as this transaction has been structured as a net lease.

Insurance: Lessee will provide evidence of all-risk physical damage and liability insurance coverage in such amounts and with deductibles all as may be required by Lessor. In addition, endorsements and assignments of such policies shall name Lessor (and its assigns) as loss payee and/or additional insured, as may be required by Lessor. All insurance coverage shall be from a carrier acceptable to Lessor.

Maintenance: Lessee shall, at its sole cost and expense, maintain the Equipment in compliance with all statutes, laws, ordinances, regulations, standards, and directives (including environmental) by any governmental agency and the Equipment must be maintained in accordance with all manufacturer's suggested and recommended maintenance procedures including preventive maintenance; and such other maintenance and return conditions as the Lessor may require.

Documentation: All legal matters and all documentation to be executed in connection with the contemplated lease shall be satisfactory in form and substance to Lessor and counsel to Lessor.

Costs & Expenses: Lessee shall be responsible for all fees, costs and disbursements incurred by Lessor in connection therewith, including without limitation, all fees and disbursements of counsel to Lessor (if any), appraisal costs (if any) and all filing and search fees. A documentation fee of \$500 per lease schedule/takedown will be payable by Lessee.

**Additional Terms
& Conditions:**

- 1) The non-appropriation clause in the lease shall be satisfactory to Lessor.
- 2) Tax-exempt borrowing for 2023 by Lessee is not reasonably expected to exceed \$10,000,000, so it is assumed that, and pricing is based on, the leases being "Bank Qualified" under section 265(b)(3) of the IRS Code.
- 3) Lessee is a state or political subdivision thereof, within the meaning of Section 103 of the Internal Revenue Code of 1986, as amended.
- 4) Lessor shall receive an Opinion from Lessee's counsel stating that the lease qualifies for tax-exempt financing under IRS guidelines and the Opinion must reference #2 and #3 above.
- 5) Lessee's counsel shall provide with respect to each lease (i) an opinion that such lease is duly executed and delivered by Lessee and is a legal, valid, and

binding obligation of Lessee enforceable in accordance with its terms, and (ii) such other customary opinions for such municipal leases.

6) Customary reporting requirements of Lessee.

7) Lessee shall prepare and file a Form 8028-G as a condition to funding for each lease.



AGENDA SUMMARY REPORT

SUBJECT: Consideration of Approval of the Freezing of the Grants Coordinator/Manager Position and the Unfreezing of the GIS Analyst/Cartographer Position in the Community Development Department; and Approval of Corresponding Budget Amendment.

DEPARTMENT: Community Development

PREPARED BY: Craig Schlatter, Community Development Director

PRESENTER: Consent Calendar

ATTACHMENTS:

1. CDD GIS Analyst-Cartographer Job Description 2025
2. Management-Unit-Salary-Schedule-Eff.-9.29.24-rev.-11.6.24

Summary: Council will consider approving the freezing of the Grants Coordinator/Manager position and the unfreezing of the GIS Analyst/Cartographer position in the Community Development Department, as well as consider approving a corresponding budget amendment.

Background: As part of the overall routine maintenance of the classification and compensation schedules for the City of Ukiah, the Human Resources Department is responsible for evaluating classifications, developing new classifications (including appropriate salary levels), examining salary grade adjustments, and making recommendations for additions, modifications, and/or corrections to classifications and Memoranda of Understanding.

On October 16, 2024, Council approved a minor reorganization of the Housing and Grants Management Divisions of the Community Development Department. The reorganization added a third position, a Project and Grants Administrator, to the two divisions of the Department, which had formerly been comprised of a Housing and Grants Manager and a Grants Manager. At the conclusion of the closed promotional recruitment for this new position, the former Grants Manager was promoted to the Project and Grants Administrator position. This left the Grants Manager position, which was originally recruited at a Grants Coordinator/Manager level, vacant.

At the same time, and especially related to recent grant applications, a clear need has emerged for GIS/mapping capabilities for the Housing and Grants Management Divisions. Additionally, the Planning Division has an immediate need for these services related to future annexation applications and support on current and long-range planning projects.

Discussion: To meet the current immediate and anticipated future needs related to GIS/mapping services, grant preparation, and current and long-term planning projects, the Department proposes to freeze the Grants Coordinator/Manager position and unfreeze the GIS Analyst/Cartographer position.

Staff is also proposing a revised job description for the GIS Analyst I/II position to reflect the current and anticipated priorities and workload expected of the position. The title of the revised job description would be Associate Planner (GIS Analyst)/Planning Manager (Cartographer) and is included in Attachment 1. The pay range for the Associate Planner (GIS Analyst) would be \$72,865.50 - \$88,568.22, and the pay range for the Planning Manager (Cartographer) would be \$95,033.50 - \$115,513.80. Both positions are in the Management Unit- please see Attachment 2 for a copy of the Management Unit Salary Schedule.

If Council approves this proposal, the total FTEs in the Housing and Grants Management Divisions would decrease by one (1) FTE to a total of two (2) FTEs, and the total FTEs in the Planning Division would increase by 1 FTE to a total of three (3) FTEs. FTE staffing in the Planning Division currently consists of a Chief Planning Manager and Planning Manager.

Although a budget amendment is required to freeze the Grants Coordinator/Manager position and unfreeze the GIS Analyst/Cartographer position, Staff expects at least 30% of the GIS Analyst/Cartographer position to be dedicated to support on grants, and as such, grant revenue is expected to cover at least this portion of the position's salary. Revenue from current planning efforts is also expected to offset the costs of this position. As noted in the October 16, 2024, Staff report, current "administration-staffing" revenue for the housing and grants management divisions is a total of approximately \$1,350,000 over the next three years, consisting of \$700,000 in implementation funding and \$650,000 in indirect cost revenue.

Staff requests Council approve the freezing of the Grants Coordinator/Manager position and the unfreezing of the GIS Analyst/Cartographer position, as well as approve the corresponding budget amendment.

Recommended Action: Approve the freezing of the Grants Coordinator/Manager position and the unfreezing of the GIS Analyst/Cartographer position in the Community Development Department; and approve a corresponding budget amendment.

BUDGET AMENDMENT REQUIRED: Yes

CURRENT BUDGET AMOUNT: 20023510.51110: \$321,206; 10023100.51110: \$240,827

PROPOSED BUDGET AMOUNT: 20023510.51110: \$280,860; 10023100.51110: \$321,687

FINANCING SOURCE: Various Grants and General Fund

REVENUE: Yes / No GRANT: Yes / No N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Sheri Mannion, Human Resources/Risk Management Director; Jesse Davis, Chief Planning Manager; Jim Robbins, Housing and Grants Manager

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager



COMMUNITY DEVELOPMENT DEPARTMENT
ASSOCIATE PLANNER (GIS ANALYST)/
PLANNING MANAGER (CARTOGRAPHER)
(Exempt, Management Position)

DEFINITION

Under general supervision of the Director of Community Development and Chief Planning Manager, performs professional current and long-range planning duties in addition to performing GIS analysis and data management duties.

DISTINGUISHING CHARACTERISTICS:

This position is allocated to the Community Development Department but works with a variety of City Departments, regional stakeholders, and agencies. Incumbents perform work of a technical nature, utilizing skills that require a thorough understanding of technical geographic information systems procedures and processes, as well as current and long-range planning.

Associate Planner (GIS Analyst): This is a journey-level class distinguished from the advanced journey level class by the performance of the more routine tasks and duties assigned to positions within the series. Employees at this level are not expected to perform with the same independence of direction and judgment of matters allocated to the advanced journey level. As knowledge and work becomes broader in scope, assignments are more varied and are performed under more general direction. This class is alternately staffed with the Planning Manager/Cartographer, and incumbents may advance to the higher-level class after gaining the knowledge, skills, and expertise that meet the qualifications for and demonstrating the ability to perform the work of the higher-level class.

Planning Manager (Cartographer): This is an advanced journey-level class responsible for performing a broad range of GIS and mapping-related activities and professional planning responsibilities. The duties performed require considerable discretion and latitude of judgment, and as such, incumbents may exercise lead direction to Departmental and other City staff on GIS and mapping-related activities, special projects, and planning projects.

DUTIES AND RESPONSIBILITIES

These examples are intended only as illustrations of the various types of work performed in positions allocated to this class. The examples of work performed are neither restricted to nor all-encompassing of the duties to be performed under this job title.

- Evaluates the GIS program needs of the Community Development Department and determines appropriate GIS architecture to meet those needs.

- Develops and applies quality control measures on citywide and departmental GIS datasets; and ensures spatial integrity, attribute consistency, and proper integration with other business systems.
- Designs, prepares and prints maps for use in analysis and to aid in making determinations.
- Designs, implements and maintains web-based mapping applications for use by Department staff and the public.
- In conjunction with senior Community Development staff, facilitates address assignment, address correction and address verification requests; zoning verification letters; lot line adjustments and other subdivision related activities, as needed.
- Collects and records land use data and prepares base maps, zoning maps, charts, and graphs.
- Coordinates work plan and supports special mapping and data analysis projects and services for other City departments, including but not limited to the Department of Community Development, Department of Community Services, Department of Public Works, Electrical and Water Utilities, Information Services, City Manager's Office, and Ukiah Valley Fire Authority, outside agencies, and the public.
- Facilitates technical dialogue with parties to determine product specifications and standards.
- Supports a variety of planning related applications by preparing maps for use in analysis and to aid in making determinations.
- Provides mapping and tracking of all types of data including, but not limited to public safety call responses, crime statistics, and maintenance service calls by location.
- Prepares and maintains GIS datasets using specialized mapping applications and hardware; creates, edits, and manipulates vector data and their associated attribute data; completes data conversions and performs technical quality analysis.
- Enters data into base layers; ensures the integrity, quality and accuracy of information and data; conducts on-site inspections to identify and verify locations, markers and monuments.
- Uses geographical positioning system (GPS) receivers to collect geographic data and complete post-processing to increase the accuracy of the data.
- Researches and recommends new tools, equipment, and methodologies to improve processes, in coordination with local, regional, and state stakeholders.
- Develops and provides user training for City staff to facilitate basic GIS functions, such as those utilized for address verifications, mailing lists, and the creation of basic maps.
- Assists with the preparation of grant applications and local, state, and federal reports.
- Reviews and processes various land use permit applications.
- Prepares written reports and may recommend actions on land use applications.
- Responds to inquiries from the public on planning and GIS/mapping questions and concerns.
- Staffs assigned commissions and advisory committees.
- Performs other related duties as assigned.

Knowledge of:

- Principles, methods, and techniques related to land use planning.
- Principles and practices of cartographic design and production.
- Applicable state, federal and local ordinances, laws, rules and regulations.
- Social, economic, and financial principles and practices associated with public planning projects.
- Computer hardware and software, particularly GIS and GPS.
- Principles of basic finance and mathematics.



Ability to:

- Read, analyze, and interpret maps, professional periodicals and journals; and digitize aerial photos.
- Organize work, setting priorities, meeting critical deadlines, and following up on assignments with a minimum of direction.
- Communicate clearly and effectively, both orally and in writing.
- Use GIS and other software and hardware, including ESRI ArcMap, ArcGIS Online and ArcGIS Pro.
- Design and prepare maps and mapping systems.
- Compose planning reports, technical studies, and other related documents.
- Identify and analyze problem situations, establish priorities of action based on analysis, and take appropriate action to resolve problems.
- Establish and maintain effective working relationships with public agencies, decision makers, state and federal staff, community groups, and City staff.
- Be an integral team player, which involves flexibility, cooperation, and communication.
- React to change productively and to handle other tasks as assigned.

Education and Experience:

Any combination of training and experience that would provide the required knowledge, skills, and abilities is qualifying. A typical way to obtain required qualification would be:

Associate Planner (GIS Analyst): At least a Bachelor's degree from an accredited college or university with coursework in cartography, planning, environmental science, geography, GIS, or a related field.

Planning Manager (Cartographer): At least a Bachelor's degree from a recognized college or university in cartography, planning, environmental science, geography, GIS, or a related field, and two (2) years of professional government or private sector experience in GIS, with at least one (1) year at the analyst level.

A master's degree in one of these fields or a related field and/or GISP certification from the GIS Certification Institute is desirable and may be substituted for one year of experience.

An equivalent combination of education and experience sufficient to provide the applicant with the knowledge, skills and ability to successfully perform the essential functions of the job will be considered.

Language Skills:

English (read, write, and the use of proper grammar)

Necessary Special Requirements:

Possession of a valid Class C California Driver's License.

**Management Unit
Salary Schedule**

Effective September 29, 2024

Grade	Classification		Step 0	Step 1	Step 2	Step 3	Step 4
2570	Assistant Electric Utility Director	Annual	\$ 180,810.84	\$ 189,851.40	\$ 199,344.00	\$ 209,311.20	\$ 219,776.76
		Monthly	\$ 15,067.57	\$ 15,820.95	\$ 16,612.00	\$ 17,442.60	\$ 18,314.73
		Hourly	\$ 86.93	\$ 91.27	\$ 95.84	\$ 100.63	\$ 105.66
2594	Electric Superintendent	Annual	\$ 168,657.64	\$ 177,090.48	\$ 185,945.04	\$ 195,242.28	\$ 205,004.40
		Monthly	\$ 14,054.80	\$ 14,757.54	\$ 15,495.42	\$ 16,270.19	\$ 17,083.70
		Hourly	\$ 81.09	\$ 85.14	\$ 89.40	\$ 93.87	\$ 98.56
2582	Assistant Finance Director	Annual	\$ 137,421.87	\$ 144,292.92	\$ 151,507.56	\$ 159,082.92	\$ 167,037.12
2571	Senior Power Engineer	Monthly	\$ 11,451.82	\$ 12,024.41	\$ 12,625.63	\$ 13,256.91	\$ 13,919.76
2573	Deputy Director of Public Works	Hourly	\$ 66.07	\$ 69.37	\$ 72.84	\$ 76.48	\$ 80.31
2574	Chief Building Official	Annual	\$ 115,560.78	\$ 121,338.84	\$ 127,405.80	\$ 133,776.12	\$ 140,464.92
2575	Chief Planning Manager	Monthly	\$ 9,630.07	\$ 10,111.57	\$ 10,617.15	\$ 11,148.01	\$ 11,705.41
2589	Senior Civil Engineer	Hourly	\$ 55.56	\$ 58.34	\$ 61.25	\$ 64.32	\$ 67.53
2595	Information Technology Manager						
2637	City Clerk						
2671	Airport Manager						
2674	Fleet & Facilities Maintenance Manager						
2580	Power Engineer	Annual	\$ 102,642.06	\$ 107,774.16	\$ 113,162.88	\$ 118,821.00	\$ 124,762.08
2593	Community Services Supervisor	Monthly	\$ 8,553.50	\$ 8,981.18	\$ 9,430.24	\$ 9,901.75	\$ 10,396.84
2601	Financial Services Manager	Hourly	\$ 49.35	\$ 51.81	\$ 54.41	\$ 57.13	\$ 59.98
2592	Controller						
2622	Housing & Grants Manager						
2572	Senior Electric Rate and Resource Analyst						
2591	Senior Management Analyst						
2620	Associate Engineer	Annual	\$ 95,033.50	\$ 99,785.16	\$ 104,774.40	\$ 110,013.12	\$ 115,513.80
2636	Building Official	Monthly	\$ 7,919.46	\$ 8,315.43	\$ 8,731.20	\$ 9,167.76	\$ 9,626.15
2689	Billing & Customer Services Manager	Hourly	\$ 45.69	\$ 47.97	\$ 50.37	\$ 52.89	\$ 55.54
2623	GIS Analyst II						
2731	Payroll Administrator						
2621	Planning Manager						
2624	Project and Grants Administrator						
2725	Purchasing Manager						
2588	Senior Information Technology Specialist						
2596	Wastewater Treatment Plant Supervisor						
2598	Water Treatment Plant Supervisor						
2600	Water/Sewer/Streets Maintenance Supervisor						
2680	Building Maintenance Supervisor	Annual	\$ 83,130.42	\$ 87,286.92	\$ 91,651.32	\$ 96,233.88	\$ 101,045.52
2602	Electric Rate and Resource Analyst II	Monthly	\$ 6,927.53	\$ 7,273.91	\$ 7,637.61	\$ 8,019.49	\$ 8,420.46
2659	Management Analyst II	Hourly	\$ 39.97	\$ 41.96	\$ 44.06	\$ 46.27	\$ 48.58
2684	Museum Director						
2686	Parks/Golf Superintendent						
2681	Recreation Supervisor						
2687	Senior Accountant						
2716	Senior Building Inspector						
2710	Associate Accountant	Annual	\$ 72,865.50	\$ 76,508.76	\$ 80,334.24	\$ 84,351.00	\$ 88,568.52
2735	Associate Planner	Monthly	\$ 6,072.13	\$ 6,375.73	\$ 6,694.52	\$ 7,029.25	\$ 7,380.71
2709	Assistant Billing & Collections Manager	Hourly	\$ 35.03	\$ 36.78	\$ 38.62	\$ 40.55	\$ 42.58
2711	Electric Rate and Resource Analyst I						
2708	GIS Analyst I						
2715	Management Analyst I						



AGENDA SUMMARY REPORT

SUBJECT: Introduction by Title Only of an Ordinance Modifying Ukiah City Code to Preserve and Strengthen Agricultural Uses In and Around Ukiah Consistent with the Ukiah 2040 General Plan.

DEPARTMENT: Community
Development

PREPARED BY: Katherine Schaefers, Planning Manager, Jesse
Davis, Chief Planning Manager

PRESENTER: Katherine Schaefers, Planning Manager

ATTACHMENTS:

1. City of Ukiah Agriculture Element
2. Mendocino County Zoning Regulations
3. Planning Commission - Draft Resolution
4. Proposed Ordinance Amendment - Clean
5. Ukiah Valley - Agriculture Maps
6. CEQA Guidelines Section 15183 Findings of Consistency

Summary: Council will consider introducing by title only an ordinance modifying Ukiah City Code to preserve and strengthen agricultural uses in and around Ukiah that impact the regional economy, consistent with the Ukiah 2040 General Plan.

Background: On December 7, 2022, the City Council adopted the Ukiah 2040 General Plan, which included an Agriculture Element (Attachment 1) highlighting the importance of collaborative approaches to agricultural resources and the need to align County and City policies regarding the preservation of regional working lands. Furthermore, the General Plan recognized that consistency across City and County standards reduces administrative complexity for property owners and operators, creating a shared and efficient regulatory framework.

As part of the 2040 General Plan, an implementation program, goals, and policies were specifically included to align Ukiah's agricultural standards with the regional standards of Mendocino County (Attachment 2), as outlined in the Discussion section of this report. This alignment aims to protect agricultural lands within Ukiah's Sphere of Influence from incompatible uses and ensures that zoning standards support existing agricultural practices if lands are "prezoned" and subsequently "annexed" into the City.

While originally scheduled for review by the Planning Commission on November 13, 2024, City Staff requested that the review and hearing be postponed to ensure feedback could be incorporated from entities such as the Mendocino County Farm Bureau (MCFB), Mendocino County Resource Conservation District (MCRCD), Mendocino County Department of Planning and Building Services (PBS), and the Mendocino County Agricultural Commissioner.

On December 11, 2024, the Ukiah Planning Commission evaluated the proposed amendments to the Ukiah City Code ("UCC") and unanimously recommended approval to the City Council. The Planning Commission adopted the resolution (Attachment 3) at the conclusion of the public hearing. Since the Commission's recommendation, Staff has revised the proposed to incorporate minor typographical edits, along with changes identified by stakeholders—particularly the Mendocino County Farm Bureau (MCFB)—that were discussed

with the Planning Commission, as well as recommendations from the City Attorney for consistency with state law. These changes are discussed further in the "Discussion" section of this report.

Discussion: The Agricultural Consistency Ordinance (hereafter referred to as the "Proposed Ordinance") (Attachment 4) is primarily intended to align the City's Agricultural Exclusive (A-E) district with the agricultural standards, allowances, and land use terminology adopted by Mendocino County. This alignment specifically pertains to Chapter 20.032 (Agriculture Use Types), Chapter 20.052 (Agricultural District), and Chapter 20.060 (Rangeland District) of the Mendocino County Code. The alignment would be implemented through an update to the City's Agricultural Exclusive (A-E) district.

These changes are designed to ensure that both current and future agricultural operations within the City's jurisdiction are regulated consistently and predictably. By adopting Mendocino County's agricultural standards, the City aims to provide clear guidelines and reduce uncertainty for property owners and active agricultural operations. Below are salient aspects of the Proposed Ordinance and its implications.

Standardizing Agricultural Regulations

Currently, there are no lands within the City limits zoned as A-E; therefore, these changes would apply to lands that are rezoned and subsequently annexed into the City's jurisdiction. Aligning the City's agricultural regulations with those of Mendocino County ensures confidence and consistency for parcels zoned as agricultural within the County, should annexation efforts be pursued. This alignment provides a clear and predictable regulatory framework, reducing uncertainty for property owners and active agricultural operations, as identified and visualized in Attachment 5. By harmonizing land-use terminology, setback requirements, and performance standards, the City demonstrates its commitment to maintaining the integrity of existing agricultural uses while promoting efficient integration between the City and surrounding areas in the event of annexation.

Additionally, the Proposed Ordinance would align the City's Agricultural Combining (-A) district, which is currently limited to approximately 39 acres adjacent to the City's Wastewater Treatment Plant (WWTP). This area has been owned and land-banked by the City of Ukiah since 2018 as part of the Norgard acquisition but was recently annexed into the City in 2023. The alignment of the Agricultural Combining (-A) district would reflect the changes and terminology adjustments made to the City's agricultural policies and regulations. Similar to the City's A-E district, the (-A) Combining District has not been updated since 1982. As a primary function, the Proposed Ordinance reflects the City's intent to implement the 2040 General Plan in a timely manner. Specifically, Implementation Program C of the Agriculture Element states:

"The City shall revise [its] agricultural standards and use terminology to be consistent with adjacent jurisdictions within the Ukiah Valley to support future annexation efforts."

The Proposed Ordinance seeks to establish a consistent regulatory framework for agricultural and ancillary uses by codifying recently updated Mendocino County regulations, such as minimum lot sizes, setbacks, development standards, and allowances, into the City's A-E zoning district. It also anticipates evolving land-use needs by incorporating certain Mendocino County provisions for outdoor commercial cannabis cultivation while maintaining alignment with the City of Ukiah's discretionary requirements for cannabis businesses. This ensures that discretionary review processes are required for outdoor commercial cannabis cultivation on A-E or (-A) lands only, allowing the City to apply conditions of approval as necessary. Although the Ordinance primarily focuses on agricultural alignment, it is critical for the City to refine commercial cannabis regulations to ensure compliance with state requirements, given California's dual regulatory system and evolving regulatory landscape. No other cannabis uses or cultivation standards are to be modified.

Minor Revisions to the Ordinance to Reflect Stakeholder Input

Since the Planning Commission's recommendation, several changes have been made to reflect stakeholder input, including from the Mendocino County Farm Bureau (MCFB) and the City Attorney. As suggested by MCFB, within UCC §9160 of the Agricultural Exclusive (A-E) District, the City revised the front, side, and rear setbacks to 50 feet for parcels over 40 acres and 25 feet for parcels less than 20 acres.

Additionally, regarding commercial cannabis cultivation, the redundant provision on generator usage in UCC

§9174.4 has been shortened, as generator use is already regulated by both the Department of Cannabis Control (DCC) and the California Air Resources Board (CARB). Further clarifications have been added to UCC §9174 to define ownership of cannabis businesses in alignment with Business and Professions Code § 26001.

Finally, a provision was added to UCC §9174.2(B)(5), stating that a cannabis business operation plan may not need to include all listed provisions, that Community Development Staff will determine whether these requirements are applicable, based on the location or nature of the business. This aligns with UCC §9174.2(A)(3)(u), which specifies that any provisions deemed necessary by the Community Development Department to demonstrate compliance must be included with the application.

Provisions for Discretionary Review for Commercial Cannabis

Similar to other 'Permitted' uses within the City's Agricultural Combining (-A) district, Staff recommends that the review and hearing body for outdoor commercial cannabis cultivation on associated lands be set at the level of a Zoning Administrator, ie this use will require a minor use permit. The Zoning Administrator generally has a specialized focus on zoning-related matters and can apply regulations efficiently without the need for the more in-depth policy discussions that typically occur at the level of the Planning Commission. As conveyed, "Permitted" uses in the Agricultural Combining (-A) district are often reviewed at the Zoning Administrator level. Maintaining consistency across the district helps create a more predictable regulatory environment for property owners, developers, and applicants. Treating commercial cannabis cultivation similarly to other agricultural uses avoids creating unnecessary discrepancies.

Analysis Pursuant to the California Environmental Quality Act

In accordance with the California Environmental Quality Act (CEQA), as evaluated in Attachment 6, there is no new information resulting from the proposed ordinance amendments that would result in more severe impacts than those considered in the Ukiah 2040 General Plan EIR. Section 15183 of the State CEQA Guidelines states that a project shall qualify for an exemption if the following findings can be made:

- 1) The project is consistent with the development density established by existing zoning, community plan or general plan policies for which an EIR was certified.
- 2) There are no project-specific effects which are peculiar to the project or its site, and which the Ukiah 2040 EIR failed to analyze as significant effects.
- 3) There are no project-specific impacts which the Ukiah 2040 EIR failed to analyze as significant effects.
- 4) There are no potentially significant offsite and/or cumulative impacts that the Ukiah 2040 EIR failed to evaluate.
- 5) There is no substantial new information that results in more severe impacts than anticipated by the Ukiah 2040 EIR.

Staff recommends Council introduce by title only an ordinance modifying Ukiah City Code to preserve and strengthen agricultural uses in and around Ukiah consistent with the Ukiah 2040 General Plan.

Recommended Action: Introduce by title only an Ordinance modifying Ukiah City Code to preserve and strengthen agricultural uses in and around Ukiah consistent with the Ukiah 2040 General Plan.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

REVENUE: No **GRANT:** No

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: City Attorney

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): CL 5A: Update the zoning ordinance

Approved: 
Sage Sangiacomo, City Manager



8 Agriculture Element





Agriculture Element

Section	Title	Page
8.1	Agriculture	8-3
8.2	Ukiah Valley Agricultural Stakeholders	8-4
8.3	Implementation Programs	8-6

8.1 Agriculture

Formalized agriculture within the Ukiah Valley began in the 1850s. Efforts included the raising of livestock and the growing of various grains, and hops. When the Northwestern Pacific Railroad was completed in 1889, prunes, potatoes, pears, and hops were sent from the Ukiah Valley to San Francisco and other regional markets. Hops, pears, prunes and grapes were the most widely planted crops in the 1950s, and today the Ukiah Valley is home to a number of productive agricultural activities, including organically produced crops and notable vineyards. The Valley's rich bottom-land, resourced by the Russian River, consists of prime, fertile soils and benchlands highly productive for grapes. Presently, agricultural land within the region is mostly comprised of vineyards and pear orchards but also includes row crops and pasturelands.

Agricultural production has been an important part of the regional economy for generations and will continue to be a foundational component for decades to come. In addition to the economic benefits, agricultural lands provide a pastoral quality that helps define the character of the Ukiah Valley. If undertaken appropriately by addressing issues related to health and, potential nuisances (e.g., noise, odor, aesthetics), urban agriculture can improve access to healthy food, promote community development, and create jobs.¹

While agricultural resources are addressed and protected by numerous State laws, this Agriculture Element is included here to implement new approaches to local agriculture and strengthen existing City policies regarding preservation and enhancement of regional working lands.

Goals and Policies

AG-1 *To preserve and strengthen agricultural uses in and around Ukiah that influence the regional economy.*

AG-1.1 Reduce Agricultural/Urban Conflict

The City shall reduce conflict between incompatible uses and agriculture within and adjacent to the City.

AG-1.2 Preserve Agricultural Lands

With the exception of presently proposed or approved subdivisions, the City shall discourage urban development on unincorporated land within its Sphere of Influence until annexed by the City. The City shall support County land use regulations that protect the viability of local agriculture in the Ukiah Valley.

AG-1.3 Plan Together

The City shall identify and involve stakeholders, as well as advisors with knowledge and expertise, to create and implement a comprehensive planning framework that preserves and strengthens agricultural uses in and around Ukiah that inform and influence the regional economy.

¹ Golden, S. (2013). *Urban Agriculture Impacts: Social, Health, and Economic: A Literature Review*. University of California Sustainable Agriculture Research and Education Program: Agricultural Sustainability Institute at UC Davis.

AG-2 *To create a healthy, equitable and resilient local-food system that further integrates agriculture into the City's identity.*

AG-2.4 Backyard Food

The City shall allow and encourage residents to undertake supplementary local agriculture, including backyard gardens, apiaries, poultry, and 'foodscaping'. Examples include community, school, backyard, and rooftop gardens with a purpose extending beyond home consumption and education.

AG-2.5 Buy Local, Enjoy Local

The City shall encourage additional farmer and community markets, food trucks, and farm stands to support production, distribution, and sale of locally grown foods and continue to support community-based food production and local, nutritious food by working with local landowners for the creation of additional community gardens.

AG-2.6 Support Gardeners

The City shall coordinate with the University of California Cooperative Extension (UCCE) Mendocino County Master Gardener Program, to connect city residents with backyard gardening knowledge.

AG-2.7 Farmer's Markets

In conjunction with the Mendocino County Farmers Market Association, the City shall research and identify additional ways to support the sale of local produce and goods at farmers markets within the City of Ukiah.

AG-3 *Help existing agricultural stakeholders move 'Beyond the Farm'.*

AG-3.1 Establish Infrastructure to Grow the Agricultural Economy

The City shall support existing agriculture operators by encouraging a diverse, vibrant, and innovative agriculture economy that creates new opportunities and products from regional producers for local consumption and export. In conjunction with stakeholders, the City shall encourage the creation of agricultural business incubators, shared kitchens, and workforce development programs that create locations to strengthen agricultural operators within the region.

AG-3.2 Agritourism

The City shall support expansion of the agricultural tourism industry by assessing utilization use of tourism facilities (e.g., hospitality, restaurants, etc.), as well as supporting efforts to plan and integrate the Great Redwood Trail into the agricultural economy.

AG-3.3 University Research

The City shall encourage research, particularly at the University of California Cooperative Extension, pertinent to the Ukiah Valley to identify new potential uses and enhancement for existing agricultural industries, especially pomology, 'forestry, livestock, 'and viticulture.

8.2 Ukiah Valley Agricultural Stakeholders

While the City recognizes the geographical limitations of its agricultural policies, the City also recognizes its sense of identity and quality of life are closely associated with the surrounding setting. To implement the goals and

policies associated with this Agriculture Element, involvement of the below mentioned stakeholders, plus potentially many more, will be critically important to successful implementation of this general plan element. If implemented successfully, the Agriculture Element would activate conversations between government agencies and key stakeholders in the region to undertake a more collaborative effort resulting in unified land use policies for the future.

LAND USE PLANNING AND POLICY

- Mendocino County Resources Conservation District (MCRCD)
- Mendocino County Department of Planning and Building Services (PBS)
- Sustainable Agriculture Lands Committee (SALC)
- Mendocino Land Trust (MLT)
- Mendocino Local Agency Formation Commission (LAFCo)

FARMING AND FOOD SECTOR

- Mendocino County Farm Bureau (MCFB)
- Mendocino County Farmers Market Association
- University of California's Cooperative Extension - Mendocino County
- Mendocino County Agricultural Commissioner
- Plowshares - Ukiah
- NCO Gardens Project
- Mendo Lake Food Hub

8.3 Implementation Programs

Programs	Implements Which Policy(ies)	Responsible	2022 – 2025	2026 – 2030	2031 – 2040	Annual	Ongoing
		Supporting Department(s)					
A Agricultural Buffer The City shall work with Mendocino County to establish setback or buffers for new non-agricultural development adjacent to agricultural lands to reduce conflict between incompatible land uses.	AG – 1.2	Community Development	■				
B Right to Farm The City shall adopt a right-to-farm ordinance to ensure appropriate disclosure of agricultural activities both within and adjacent to the City of Ukiah.	AG – 1.2	Community Development	■				
C Align Agricultural Standards The City shall revise agricultural standards and use terminology to be consistent with adjacent jurisdictions within the Ukiah Valley for the support of future annexation efforts.	AG – 1.2 AG – 1.3	Community Development		■			
D Williamson Act In coordination with the County Assessor, the City shall establish a Williamson Act program that aligns with ongoing efforts to preserve agricultural lands across Mendocino County.	AG – 1.2	Community Development City Manager	■				
E Reduce Regulation – Local Agriculture The City shall revise the Zoning code to allow low-intensity agricultural activities on residential parcels, including but not limited to back yard beehives, chickens and gardens. The revision will include objective use, development, and environments standards, and minimal permit fee requirements.	AG – 2.4	Community Development City Attorney	■				

Programs	Implements Which Policy(ies)	Responsible	2022 – 2025	2026 – 2030	2031 – 2040	Annual	Ongoing
		Supporting Department(s)					
F Foodscaping The City shall revise the City's objective development and design standards for multi-family housing projects to include the definition of and provisions for 'foodscaping'.	AG – 2.4	Community Development	■				
G "No Mow May" To encourage additional pollinators, the City shall prepare a pilot program for a "No Mow May" to encourage more ecologically beneficial lawns within the City of Ukiah.	AG – 2.4	Community Development City Manager		■			
H Urban Agricultural Definitions The City shall revise the City Zoning Code definitions, standards, and limitations for "Urban Agriculture", including rooftop gardens, aquaculture, hydroponics, etc.	AG – 2.4	Community Development		■			
I Support Community Gardens The City shall revise the Zoning code to streamline the regulatory permitting process to support the creation of additional community gardens within the City.	AG – 2.5 AG – 2.6	Community Development City Manager	■				
J Urban Agricultural Incentive Zone The City shall research and consider implementation of an Urban Agricultural Incentive Zone (AB 551). "The Urban Agriculture Incentive Zones Act authorizes a city... and a landowner to enter into a contract to restrict the use of vacant, unimproved, or otherwise blighted lands for small-scale production of agricultural crops and animal husbandry.	AG – 2.4	Community Development City Manager		■			
K Local Food: Food Trucks & Farm Stands The City shall revise the Zoning Code to support the distribution and sale of locally-grown food via Food Trucks, Farm Stands, and farmer/community markets.	AG – 2.5	Community Development Public Works	■				

Programs	Implements Which Policy(ies)	Responsible	2022 – 2025	2026 – 2030	2031 – 2040	Annual	Ongoing
		Supporting Department(s)					
L Farmers Markets In conjunction with the Mendocino County Farmers Market Association, the City shall research and identify additional ways to support the sale of local produce and goods at farmers markets within the City of Ukiah.	AG – 2.7	Community Development Public Works					■
M Local Purchasing The City shall research and prepare a local preference purchasing policy for future adoption to promote and support local preference purchasing policies for the City of Ukiah, local school districts and other institutions as a means to foster awareness and build relationships across the regional economy.	AG – 3.1	Community Development City Manager		■			

CHAPTER 20.020 CIVIC USE TYPES

Sec. 20.020.005 General Description of Civic Use Types.

Civic use types include the performance of utility, educational, recreational, cultural, medical, protective, governmental, and other uses which are strongly vested with public or social importance. They also include certain uses accessory to the above, as specified in Chapter 20.164, Accessory Use Regulations.

Sec. 20.020.010 Administrative Services Government.

"Administrative services government" means consulting, recordkeeping, clerical or public contact services that deal directly with the citizen, together with incidental storage and maintenance of necessary vehicles. Typical uses include Federal, State, County, city or special district offices.

Sec. 20.020.015 Ambulance Services.

"Ambulance services" means transportation of ill or injured persons to and from treatment facilities together with incidental storage and maintenance of necessary vehicles.

Sec. 20.020.020 Cemetery.

"Cemetery" means land used or intended to be used for the burial of the dead and dedicated for cemetery purposes, including columbariums, crematoriums, mausoleums and mortuaries when operated in conjunction with and within the boundary of such cemetery.

Sec. 20.020.025 Clinic Services.

"Clinic services" means providing nonprofit medical services to persons afflicted with bodily or mental disease or injury without provision for on-site residence or confinement.

Sec. 20.020.030 Community Recreation.

"Community recreation" means recreational, social or multipurpose uses owned or operated by a public entity. Typical uses include public parks, sports facilities, senior citizen centers, nature centers, teen centers, playhouses, auditoriums and recreational centers.

Sec. 20.020.035 Cultural Exhibits and Library Services.

"Cultural exhibits and library services" means nonprofit, museum-like preservation and exhibition of objects of permanent interest in one (1) or more of the arts and sciences, gallery exhibition of works of art or library collection of books, manuscripts, etc., for study and reading.

Sec. 20.020.040 Day Care Facilities/Small Schools.

"Day Care Facility/small schools" means care or education of seven (7) or more, but not to exceed twenty-five (25) persons regardless of age or handicap but excluding overnight care or uses classified as group care or other facilities exempted by the California Health and Safety Code, e.g. Day Care Homes - Small and Large, or major impact services and utilities. A Day Care Home - Large is subject to an Administrative Permit in all zoning districts that permit the Family Residential use types. Typical uses include day nurseries for children, child day care facilities, or day care for elderly, and small schools.

Sec. 20.020.045 Educational Facilities.

"Educational facilities" means public and private schools providing education for more than twenty-five (25) persons.

Sec. 20.020.050 Essential Services.

"Essential services" means services which are necessary to support principal development and involve only minor structures such as lines and poles which are necessary to support principal development.

Sec. 20.020.055 Fire and Police Protection Services.

"Fire and police protection services" means facilities for conduct of public safety services, including police and fire protection services.

Sec. 20.020.060 Group Care.

"Group care" means services provided in facilities authorized, certified or licensed by the State to provide board, room and personal care to seven (7) or more, but not to exceed twenty-five (25) elderly, or mentally impaired or otherwise handicapped persons or dependent and neglected children but excluding those uses classified under major impact services and utilities. Typical uses include emergency shelters, intermediate care facilities and rest homes.

Sec. 20.020.065 Lodge, Fraternal and Civic Assembly.

"Lodge, fraternal and civic assembly" means meetings and activities conducted primarily for their members by nonprofit organizations which are tax exempt pursuant to Section 501(c) of the Internal Revenue Code. Excluded from this use type are uses classified as group care, or transient habitation (all types). Typical uses include meeting places for civic clubs, grange halls, lodges, or fraternal or veterans organizations.

Sec. 20.020.070 Major Impact Facilities.

"Major impact facilities" means services or facilities which may have a substantial impact. Typical uses include airports, hospitals, group care for more than twenty-five (25) persons, detention and correction institutions, and corporation yards.

Sec. 20.020.075 Major Impact Services and Utilities.

"Major impact services and utilities" means services or utilities which may have a substantial impact. Such uses may be conditionally permitted when the public interest supersedes the usual limitations placed on land use and transcends the usual restraints of zoning for reasons of necessary location and community wide interest. Typical places or uses are power generating facilities, Battery Energy Storage Systems, sewage disposal facilities, septage disposal facilities and sites, sanitary landfills and water treatment plants, and radio, telephone and other commercial communication transmission towers and antennas.

Sec. 20.020.080 Minor Impact Utilities.

"Minor impact utilities" means public utilities which have a local impact on surrounding properties and are necessary to provide essential services. Typical uses are electrical and gas distribution substations and transmission distribution lines. Radio, telephone and other commercial communication transmission towers and antennas are not included.

Sec. 20.020.085 Religious Assembly.

"Religious assembly" means religious services involving public assembly such as customarily occurs in synagogues, temples, and churches.

CHAPTER 20.024 COMMERCIAL USE TYPES

Sec. 20.024.005 General Description of Commercial Use Types.

Commercial use types include the distribution and sale or rental of goods; and the provision of services other than those classified as civic uses. They also include certain uses accessory to the above, as specified in Chapter 20.164, Accessory Use Regulations.

Sec. 20.024.010 Administrative and Business Offices.

"Administrative and business offices" means offices of private firms or organizations which are primarily used for the provision of professional, executive, management, or administrative services. Typical uses include administrative offices, and services including real estate, insurance, property management, investment, travel, secretarial services, telephone answering, photocopy and reproduction, and other activities when the service rendered is that customarily associated with administrative office services. Excluded are banks.

Sec. 20.024.015 Agricultural Sales and Services.

"Agricultural sales and services" means establishments or places of business engaged in sale from the premises of feed, grain, fertilizers, pesticides and similar goods or in the provision of agriculturally related services with incidental storage on lots other than where the services are rendered. Typical uses include nurseries, hay, feed and grain stores, crop dusting, or tree service firms.

Sec. 20.024.020 Animal Sales and Services.

"Animal sales and services" means establishments or places of business primarily engaged in animal related sales and services. The following are animals sales and services use types:

- (A) Animal Sales and Services—Auctioning. Auctioning of livestock on a wholesale or retail basis with incidental storage of animals produced off property not exceeding seventy-two (72) hour periods. Typical uses include animal auctions or livestock auction yards.
- (B) Animal Sales and Services—Household Pets. Retail sales and grooming of dogs, cats, birds, fish and similar small animals customarily used as household pets. Typical uses include pet stores, dog bathing and clipping salons, or pet grooming shops.
- (C) Animal Sales and Services—Horse Stables. Boarding, breeding or raising of horses not owned by the occupants of the premises or riding of horses by other than the occupants of the premises or their nonpaying guests. Typical uses include boarding stables or public stables.
- (D) Animal Sales and Services—Kennels. Kennel services for dogs, cats and similar small animals. Typical uses include boarding kennels, pet motels or dog training centers.
- (E) Animal Sales and Services—Stockyards. Stockyard services involving the temporary keeping of transient livestock for slaughter, market or shipping. Typical uses include stockyards or animal sales yards.
- (F) Animal Sales and Services—Veterinary (Large Animals). Veterinary services for large animals. Typical uses include animal hospitals (large animals) and veterinary hospitals (large animals). Typical uses include clinics for the treatment of sheep, cattle, horses, goats and similar large animals.
- (G) Animal Sales and Services—Veterinary (Small Animals). Veterinary services for small animals provided that overnight care shall be within a fully enclosed building or structure. Typical uses include pet clinics, dog and cat hospitals or animal hospitals treating small animals.

Sec. 20.024.025 Automotive and Equipment.

"Automotive and equipment" means establishment or places of business primarily engaged in automotive related or heavy equipment sales or services. The following are automotive and equipment use types:

- (A) Automotive and Equipment—Cleaning. Washing and polishing of automobiles. Typical uses include auto laundries or car washes.
- (B) Automotive and Equipment—Fleet Storage. Storage or parking of one (1) or more vehicles used regularly in business operations. Excluded from this use type are automotive and equipment—sales/rentals, and the incidental parking of vehicles as an accessory use to a permitted use on the same premises. Typical uses include taxi fleets, mobile catering truck storage or delivery truck fleets.
- (C) Automotive and Equipment—Parking. Parking of motor vehicles on a temporary basis within a public or privately owned off-street parking area with or without a fee. Typical uses include commercial parking lots or commercial garages.
- (D) Automotive and Equipment—Gasoline Sales. Establishments or places of business primarily engaged in the retail sale, from the premises, of petroleum products with incidental sale of tires, batteries, and replacement items, lubricating services and minor repair services. Typical uses include automobile service stations, filling stations or truck stops.
- (E) Automotive and Equipment—Repairs, Light (Under Six Thousand (6,000) Pounds). Repairs of automobiles, pick-up trucks, recreational vehicles, farm equipment and boats (less than twenty-four (24) feet in length) and the sale, installation and servicing of automobile equipment and parts but excluding body repairs and painting. Typical uses include muffler shops, auto repair garages, auto glass shops or auto parts stores.
- (F) Automotive and Equipment—Repairs, Heavy (Six Thousand (6,000) Pounds and Over). Repair of motor vehicles such as aircraft, boats, (twenty-four (24) feet or longer) heavy construction equipment, trucks, or major truck terminals etc., as well as the sale, installation and servicing of automotive equipment and parts together with body repairs, painting and steam cleaning. Typical uses include truck transmission shops, body shops or motor freight maintenance groups.
- (G) Automotive and Equipment—Sales/Rentals. Sale, retail or wholesale and/or rental from the premises of auto, trucks, motorcycles, mobile homes, motor homes, trailers, construction equipment, farm equipment and aircraft together with incidental maintenance. Typical uses include auto dealers, car rental agencies, aircraft dealers, boat dealers, construction equipment dealers, or mobile home dealers.
- (H) Automotive and Equipment—Storage, Nonoperating Vehicles. Storage of nonoperating motor vehicles. Typical uses include storage of private parking towaways or impound yards.
- (I) Automotive and Equipment—Storage, Recreational Vehicles and Boats. Storage of recreational vehicles and boats. Typical uses include the collective storage of personal recreational vehicles or boats.

Sec. 20.024.030 Building Maintenance Services.

"Building maintenance services" means establishments primarily engaged in the provision of maintenance and custodial services to firms rather than individuals. Typical uses include janitorial, landscape maintenance, or window cleaning services.

Sec. 20.024.035 Business Equipment Sales and Services.

"Business equipment sales and services" means establishments or places of business primarily engaged in the sale, rental or repair of equipment and supplies used by office, professional and service establishments to the firms themselves rather than to individuals, but excludes automotive, construction

and farm equipment. Typical uses include office equipment and supply firms, small business machine repair shops or hotel equipment and supply firms.

Sec. 20.024.040 Commercial Recreation.

"Commercial recreation" means establishments or places primarily engaged in the provision of sports, entertainment, or recreation for participants or spectators. The following are commercial recreation use types:

- (A) **Indoor Sports and Recreation.** Uses conducted within an enclosed building. Typical uses include bowling alleys, billiard parlors, ice and roller skating rinks, penny arcades.
- (B) **Outdoor Sports and Recreation.** Uses conducted in open or partially enclosed or screened facilities. Typical uses include driving ranges, golf courses, swimming pools, water slides, tennis courts, racquetball courts. Shooting ranges and motorcycle parks shall require a use permit.
- (C) **Outdoor Sports and Recreation—Limited.** Recreational activities that are compatible with and not detrimental to the agricultural use of the property, specifically meaning the use of land by the public, with or without charge, for any of the following recreational uses: Walking, hiking, picnicking, swimming, boating, fishing, hunting, equestrian uses or other outdoor games such as golf driving ranges, tennis courts (grass only), par course (physical fitness) and athletic fields (football, soccer and batting practice range). This recreational use is limited as follows:
 - (1) A duration of two (2) years, subject to renewal.
 - (2) No permanent structures may be constructed to support this use.
 - (3) No soil shall be moved to support this use.
 - (4) Use must be in compliance with Williamson Act contract restrictions and with the use as specified in Mendocino County Code Section 22.08.071.
- (D) **Indoor Entertainment.** Predominantly spectator uses conducted within an enclosed building. Typical uses include motion picture theaters, meeting halls, dance halls and auditoriums.
- (E) **Outdoor Entertainment.** Predominantly spectator uses conducted in open facilities. Typical uses include sports arenas, racing facilities, amusement parks.

Sec. 20.024.045 Communications Services.

"Communications services" means establishments primarily engaged in the provisions of broadcasting and other information relay services accomplished through the use of electronic mechanisms but excludes those classified as major or minor impact services and utilities. Typical uses include television studios, telecommunication service centers or telegraph service offices.

Sec. 20.024.050 Construction Sales and Services.

"Construction sales and services" means establishments or places of business primarily engaged in construction activities and incidental storage on lots other than construction sites as well as the retail or wholesale sale, from the premises, of materials used in the construction of buildings or other structures other than retail sale of paint, fixtures and hardware; but excludes those classified as one of the automotive and heavy equipment use types. Typical uses include building materials stores, tool and equipment rental or sales, retail lumber, contractors storage yard, furniture manufacturing or cabinet shops.

Sec. 20.024.055 Cottage Industries—Limited.

"Cottage industries—limited" means use types conducted in compliance with Chapter 20.160.

Sec. 20.024.060 Cottage Industries—General.

"Cottage industries—general" means use types conducted in compliance with Chapter 20.160.

Sec. 20.024.065 Eating and Drinking Establishments.

"Eating and drinking establishments" means establishments or places of business primarily engaged in the sale of prepared food and beverage for on-premises consumption. Typical uses include restaurants, short order eating places, bars, or tasting rooms when not associated with a Packaging and Processing—winery use type.

Sec. 20.024.070 Financial Services.

"Financial services" means establishments primarily engaged in the provision of financial services and banking. Typical uses include banks, savings and loan institutions, loan and lending activities, and similar services.

Sec. 20.024.075 Food and Beverage Retail Sales.

"Food and beverage retail sales" means establishments or places of business primarily engaged in the retail sale of food and beverage for home consumption. Typical uses include grocery stores, liquor stores, delicatessens or retail bakeries.

Sec. 20.024.080 Food and Beverage Preparation—Without Consumption.

"Food and beverage preparation—without consumption" means establishments or places of business primarily engaged in the preparation of food and beverage and which no consumption of the products occur on the premises. Typical uses include catering.

Sec. 20.024.085 Funeral and Interment Services.

"Funeral and interment services" means establishments primarily engaged in the provision of services involving the care, preparation or disposition of human dead. Typical uses include funeral homes or mortuaries.

Sec. 20.024.090 Laundry Services.

"Laundry services" means establishments primarily engaged in the provision of laundering, dry cleaning or dyeing services other than those classified as personal services. Typical uses include laundry agencies, diaper services or linen supply services.

Sec. 20.024.092 Mail Order Businesses.

"Mail order businesses" means the storage, sale and delivery of goods and merchandise produced on or off the premises to retail or wholesale consumers by way of the mails, delivery services, or in any other manner in which visitation to the premises by the wholesale or retail consumers is strictly incidental.

Sec. 20.024.095 Medical Services.

"Medical services" means establishments primarily engaged in the provision of personal health services ranging from prevention, diagnosis and treatment or rehabilitation services provided by physicians, dentists, nurses and other health personnel as well as the provisions of medical testing and analysis services, but excludes those classified as any civic use type. Typical uses include medical offices, dental laboratories or health maintenance organizations.

Sec. 20.024.100 Personal Services.

"Personal services" means establishments or places of business primarily engaged in the provision of services of a personal nature. Typical uses include beauty and barber shops, seamstress, tailor, self-

service laundry, photography studios, driving schools, health or physical fitness studios, reducing salons, dance studios, handicraft and hobby instruction.

Sec. 20.024.105 Recycling Centers.

"Recycling centers" means places of business or public facilities for the collection or processing of recyclable materials, including but not limited to metals, glass, plastic, paper, appliances or white metals. Appliances and white metals shall be limited to twenty-five (25) percent of the floor area devoted to the storage of recyclable materials but not more than four hundred (400) square feet. Recycling centers exclude automobile wrecking yards, junk yards, and the collection of refuse or hazardous materials except recyclable batteries, or paint, oil or antifreeze limited to one thousand (1,000) gallons of each fluid. Recycling centers may process recyclable materials for efficient shipping or to an end-user's specifications by baling, bunching, crushing, smashing, separation, shredding or similar action. The recycling of materials excluded from recycling centers may be permitted as an industrial use type. See Chapter 20.164 for exemptions classified as accessory recycling.

Sec. 20.024.107 Redemption Centers.

"Redemption centers" means small collection centers for the acceptance and temporary storage of redeemable recyclable materials from the public by donation, redemption or purchase. A redemption center may include reverse vending machine(s) or a mobile recycling unit. A redemption center shall not exceed three thousand (3,000) square feet, and if not contained within a permanent structure shall be contained behind a minimum six (6) foot high view-obstructing fence secure from unauthorized entry. Processing is limited to preparing the accumulated recyclable material for efficient shipping or to an end-user's specifications, including baling, compacting, crushing, mechanical sorting, or shredding, provided that the noise level does not exceed fifty (50) dBA Leq at the property line adjacent to a residential or similar noise sensitive use or sixty (60) dBA Leq at the property line adjacent to a commercial use. All processing shall be conducted between the hours of 9:00 a.m. and 6:00 p.m., Monday through Saturday. Recycling which exceeds the limits of a redemption center may be permitted under recycling centers. See also Chapter 20.164 for accessory recycling.

Sec. 20.024.110 Repair Services, Consumer.

"Repair services, consumer" means establishments primarily engaged in the provision of repair services to individuals and households rather than firms, but excluding automotive and equipment use types. Typical uses include appliance repair shops, watch or jewelry repair, apparel repair firms or musical instrument repair firms.

Sec. 20.024.115 Research Services.

"Research services" means establishments primarily engaged in research of an industrial or scientific nature which is provided as a service or which is conducted by and for a private firm, but excludes medical testing and analysis and product testing. Typical uses include electronics research laboratories, space research and development firms or pharmaceutical research labs.

Sec. 20.024.120 Retail Sales, General.

"Retail sales, general" means sale or rental of commonly used goods, and merchandise for personal or household use, but excludes those classified more specifically in Sections 20.024.005 to 20.024.115 and Sections 20.024.125 to 20.024.140 (all other commercial use types) inclusive. Typical uses include department stores, apparel stores, furniture stores, or establishments providing the following products or services: household cleaning and maintenance products; drugs, cards, and stationery, notions, books, tobacco products, cosmetics, and specialty items; flowers, plants, hobby materials, toys, and handcrafted items; apparel, jewelry, fabrics, and like items; cameras, photography services, household electronic equipment, records, sporting equipment, kitchen utensils, home furnishing and appliances, art supplies and framing, arts and antiques, paint and wallpaper, carpeting and floor covering, interior decorating

services, office supplies; bicycles; automotive parts and accessories (excluding service and installation) or hardware stores (excluding lumber storage or sales).

Sec. 20.024.125 Scrap Operations.

"Scrap operations" means places of business primarily engaged in the storage, sale dismantling or other processing of used or waste materials which are not intended for reuse in their original form. Typical uses include automotive wrecking, and junk yards.

Sec. 20.024.130 Swap Meets.

"Swap meets" means display, exchange, barter or sale of new or used common household items or office equipment and furnishings, provided that such activity is carried on in a swap lot. Typical uses include flea markets where clothing, personal effects, household furnishings and household appliances are sold or otherwise exchanged.

Sec. 20.024.135 Transient Habitation.

"Transient habitation" means establishments primarily engaged in the provision of lodging services on a less than monthly basis with incidental food, drink and other sales and services intended for the convenience of guests. The following are transient habitation use types:

- (A) Transient Habitation—Campground. Campground services involving transient habitation areas for travelers in recreational vehicles or tents. Typical uses include recreational vehicle parks or campgrounds. Uses within this use type are subject to Chapter 20.176, Recreational Vehicle Parks and Campgrounds.
- (B) Transient Habitation—Lodging (Limited). Lodging services involving the provision of room and/or board. Typical uses include hotels, motels, inns, or transient boarding houses with three (3) to six (6) rooms.
- (C) Transient Habitation—Lodging. Lodging services involving the provision of room and/or board. Typical uses include hotels, motels, inns, or transient boarding houses with seven (7) or more rooms.
- (D) Transient Habitation—Resort and Recreational Facilities. Resort services including the provision of extensive outdoor recreation and entertainment services especially for vacationers. Typical uses include resort and recreational facilities, health spas, resort hotels and motels, guest ranch, inns or organized camps.

Sec. 20.024.140 Wholesaling, Storage and Distribution.

"Wholesaling, storage and distribution" means establishment or places of business primarily engaged in wholesaling, storage, distribution and handling of materials and equipment other than live animals. The following are wholesaling, storage and distribution use types:

- (A) Wholesaling, Storage and Distribution—Mini-Warehouses.

Storage or warehousing service within a building(s) primarily for individuals to store personal effects and by businesses to store material for operation of an industrial or commercial enterprise located elsewhere. Incidental uses in a mini-warehouse facility function as an independent retail, wholesale, business or service use. Individual storage spaces within a mini-warehouse shall have a maximum gross floor area of four hundred (400) square feet and shall not be used for workshops, hobbyshops, manufacturing or similar uses and human occupancy of said spaces shall be limited to that required to transport, arrange, and maintain stored materials. Driveways between mini-warehouse buildings on the same site shall have a minimum width of twenty-four (24) feet to accommodate the temporary parking of vehicles during loading and unloading operations.

- (B) Wholesaling, Storage and Distribution—Light. Wholesaling, storage and warehousing services within enclosed structures. Typical uses include wholesale distributor, storage warehouses or moving and storage firms.
- (C) Wholesaling, Storage and Distribution—Heavy. Open-air storage, distribution and handling of materials and equipment. Typical uses include monument or stone yards, grain elevators, propane providers, or open storage yards.

CHAPTER 20.032 AGRICULTURAL USE TYPES

Sec. 20.032.005 General Description of Agricultural Use Types.

Agricultural use types include the on-site production of plant and animal products by agricultural methods. They also include certain uses accessory to the above specified in Chapter 20.164, Accessory Use Regulations.

Sec. 20.032.010 Horticulture.

"Horticulture" means premises devoted to horticultural and floracultural specialties such as flowers, shrubs, and trees intended for ornamental or landscaping purposes. Typical uses include wholesale/retail nurseries limited to the sale of horticulture and horticulture specialties grown on site and in green houses.

Sec. 20.032.015 Row and Field Crops.

"Row and field crops" means premises devoted to the cultivation for sale of agricultural products grown in regular or scattered patterns such as vines, field, forage and other plant crops intended to provide food or fibers.

Sec. 20.032.020 Tree Crops.

"Tree crops" means premises devoted to the cultivation for sale at wholesale of tree-grown agricultural products such as pears, apples, walnuts and Christmas trees but excluding other forestry products.

Sec. 20.032.025 Animal Raising—General Agriculture.

"Animal raising—general agriculture" means the raising of crops or livestock on parcels greater than forty thousand (40,000) square feet or zoned A-G, R-L, U-R, F-L or TPZ and shall include:

- (A) Grazing of livestock and feeding and caring incidental thereof;
- (B) Animal husbandry including, without limitation, the breeding and raising of cattle, sheep, horses, goats, pigs, rabbits, and poultry, including egg production;
- (C) Sale of agricultural products grown, raised, or produced on the premises;
- (D) 4-H, FFA or similar projects shall be permitted in all zoning districts.

Sec. 20.032.030 Animal Raising—Personal.

"Animal raising—personal" means the raising of hen chickens or rabbits for personal use on parcels forty thousand (40,000) square feet or less in size in accordance with the following criteria:

- (A) No more than six (6) of any one (1) or combination of such animals on the lot;
- (B) Maintained in coops or pens located at a distance of fifty (50) feet or more from buildings used for human habitation;
- (C) Coops or pens shall be located only on the rear one-third ($\frac{1}{3}$) of the lot;
- (D) Coops or pens shall be located no closer than five (5) feet from the side or rear property line.

Sec. 20.032.035 Animal Waste Processing.

"Animal waste processing" means processing of animal waste and byproducts, including but not limited to animal manure, animal bedding waste, and similar byproducts of an animal raising agricultural operation, for use as a commercial fertilizer or soil amendment and including composting operations.

Sec. 20.032.040 Packing and Processing.

"Packing and processing" means packing or processing of agricultural crops, animals and their byproducts which entails more than picking, cutting, sorting and boxing or crating, but does not include rendering, tanning, or reduction of meat. The following are packing and processing use types:

- (A) **Packing and Processing—Limited.** Packing or processing of crops grown on the premises;
- (B) **Packing and Processing—Winery.** Crushing of grapes and fermentation, storage, and bottling of wine from grapes grown on or off the premises. Said use type also includes tasting rooms in conjunction with a winery and breweries provided said tasting room occupies less than twenty-five percent (25%) of the floor space of the winery;
- (C) **Packing and Processing—General.** Packing or processing of crops, mineral water, animals or their byproducts regardless of where they were grown or found. Includes mineral water bottling plants;
- (D) **Packing and Processing—Commercial Cooperage.** Manufacture of wood vessels, such as barrels for storing and maturing wine, beer or other beverages, regardless whether the agricultural products stored are grown on or off the premises if it is established in connection with a winery operation on the premises.

Sec. 20.032.045 Forest Production and Processing.

"Forest production and processing" refers to the production and byproduct process from growing to milling to sales of forest products. The following are forest production and processing use types:

- (A) **Forest Production and Processing—Limited.** Refers to the growing, harvesting, curing, milling, packaging, packing, shipping and selling of forest products, produced on the premises.
- (B) **Forest Production and Processing—General.** Refers to the growing, harvesting, curing, milling, packaging, packing, shipping, and selling of forest products regardless of where they are grown.
- (C) **Forest Production and Processing—Commercial Woodlots.** Refers to open or closed storage of firewood for wholesale or retail sales, regardless of where the firewood products are produced.
- (D) **Forest Production and Processing—Portable Sawmills.** Refers to the operation of small portable milling machines for production of rough-sawed lumber subject to the following limitations:
 - (1) Logs or other material to be sawed may come from timber produced on the premises or imported from off-site sources;
 - (2) Combined horsepower of all engines or motors used in the milling process shall not exceed seventy-five (75);
 - (3) Planing or other remanufacturing of lumber shall not be allowed.
 - (4) A maximum of three (3) workers/employees including the owner/operator;
 - (5) Production shall not exceed three thousand (3,000) board feet in any day or thirty thousand (30,000) board feet in any month;
 - (6) Milling machinery shall not be located closer than two hundred (200) feet from the nearest property line;
 - (7) Log/lumber storage and similar uses accessory to the milling operation shall not be located closer than fifty (50) feet from the nearest property line;
 - (8) All equipment and materials associated with the milling operation shall not be located closer than one hundred (100) feet from any Class I or Class II stream, and shall not be located within a one hundred-year (100-year) flood plain;

- (9) Minimum parcel size shall be ten (10) acres;
- (10) Maximum area encompassed by operation shall not exceed one (1) acre;
- (11) Maximum building area shall not exceed 5,000 square feet if the structure is pre-existing, and that any new building area shall be limited to 2,000 square feet as per cottage industries. Pre-existing (legal) facilities must pre-date July 1, 1999;
- (12) Noise created by the operation shall not exceed the levels specified in Appendix C.

CHAPTER 20.052 "A-G" AGRICULTURAL DISTRICT

Sec. 20.052.005 Intent.

This district is intended to create and preserve areas for the raising of crops and animals. Processing of products produced or raised on the premises would be permitted as would certain commercial activities associated with crop and animal raising. Typically the A-G District would be applied to lands subject to Agricultural Preserve contracts, land having present or future potential for significant agricultural production, and contiguous or intermixed smaller parcels on which noncompatible uses could jeopardize the agricultural use of surrounding lands.

Sec. 20.052.010 Permitted Uses.

The following use types are permitted in the A-G District:

- (A) **Residential Use Types (See Chapter 20.016).**
 - Assisted Living Residential Care Facility;
 - Day Care Facility;
 - Employee Housing;
 - Family residential—single-family.
- (B) **Civic Use Type (See Chapter 20.020).**
 - Community recreation;
 - Essential services;
 - Fire and police protection services;
 - Minor impact utilities.
- (C) **Agricultural Use Types (See Chapter 20.032).**
 - Animal raising—general agriculture;
 - Animal raising—personal;
 - Forest production and processing—limited;
 - Horticulture;
 - Packing and processing—limited;
 - Packing and processing—winery; Row and field crops;
 - Tree crops.
- (D) **Accessory uses as provided in Chapter 20.164.**

Sec. 20.052.015 Uses Subject to an Administrative Permit.

The following use types are permitted in the A-G District upon issuance of an Administrative Permit:

- (A) **Residential Use Types (See Chapter 20.016).**
 - Family residential—dwelling group;
 - Low Barrier Navigation Center;
 - Supportive Housing;
 - Transitional Housing;
- (B) **Civic Use Types (See Chapter 20.020).**

Day care facilities/small schools.

(C) **Commercial Use Types (See Chapter 20.024).**

Agricultural sales and services;

Animal sales and services—auctioning;

Animal sales and services—horse stables;

Animal sales and services—kennels;

Animal sales and services—stockyards;

Animal sales and services—veterinary (large animals);

Cottage industries—general.

(D) **Agricultural Use Types (See Chapter 20.032).**

Packing and processing—general;

Forest production and processing—commercial woodlots;

Forest production and processing—portable sawmills.

Sec. 20.052.020 Uses Subject to a Use Permit.

The following use types are permitted in the A-G District upon issuance of a Use Permit:

(A) **Residential Use Types (See Chapter 20.016).**

Family residential—cluster development.

(B) **Civic Use Types (See Chapter 20.020).**

Educational facilities;

Major impact facilities;

Major impact services and utilities.

(C) **Commercial Use Type (See Chapter 20.024).**

Commercial recreation—outdoor sports and recreation (limited).

Transient habitation—lodging (limited).

(D) **Agricultural Use Types (See Chapter 20.032).**

Animal waste processing.

(E) **Extractive Use Type (See Chapter 20.036).**

Mining and processing.

Sec. 20.052.025 Minimum Lot Area.

Forty (40) acres.

Sec. 20.052.030 Maximum Dwelling Density.

One (1) single-family dwelling per legally created parcel, except as separately provided for below. Construction of more than one single-family dwelling may be permissible as the Family Residential—Dwelling Group or Family Residential—Cluster Development use types and shall be consistent with the following density standard: One (1) unit per forty (40) acres.

Sec. 20.052.035 Minimum Front and Rear Yards.

Fifty (50) feet each. See setback exceptions in section 20.052.045.

Sec. 20.052.040 Minimum Side Yards.

Fifty (50) feet each. See setback exceptions in section 20.052.045.

Sec. 20.052.045 Setback Exceptions.

Any nonconforming parcel which is less than five (5) acres shall observe a minimum front, side and rear yard of twenty (20) feet. Additional setback exceptions for certain types of structures or improvements are located in section 20.152.015.

Sec. 20.052.050 Building Height Limit.

Fifty (50) feet. See height exceptions in section 20.152.025.

Sec. 20.052.055 Lot Splits in Agricultural Preserves for Farmworker Housing.

- (A) In compliance with Government Code 51230.2, a two (2)-way division of a parcel of land that is currently subject to a Williamson Act contract may be allowed, if all of the following apply:
- (B) The resulting parcel is to be sold or leased for agricultural employee ("farmworker") housing, and is not more than five (5) acres in size. For the purposes of this section, "agricultural employee" shall have the same meaning as defined by subdivision (b) of Section 1140.4 of the Labor Code.
- (C) The parcel shall be sold or leased to a nonprofit organization, a city, a county, a housing authority, or a state agency, for the sole purpose of the provision and operation of farmworker housing. A lessee that is a nonprofit organization shall not sublease that parcel without the written consent of the landowner, and shall notify the county of such sublease.
- (D) The parcel to be sold or leased shall be subject to a deed restriction that limits the use of the parcel to farmworker housing facilities for not less than thirty (30) years. The deed restriction shall also provide, through reversionary or similar provision, that the parcel shall automatically revert to and be merged with the parcel from which it was subdivided when the parcel ceases to be used for farmworker housing for a period of more than one (1) year. The deed restriction shall be in a form satisfactory to county counsel.
- (E) There is a written agreement between the parties to the sale or lease of the parcel and their successors to operate the parcel to be sold or leased under joint management of the parties, subject to the terms and conditions and for the duration of the Williamson Act contract.
- (F) The parcel to be sold or leased is contiguous to one (1) or more parcels that are located within a designated urban service area, and which are zoned for and developed with urban residential, commercial, or industrial land uses.
- (G) The farmworker housing project shall include provisions designed to minimize potential impacts on surrounding agricultural and rural residential land uses.

A subdivision of land pursuant to this section shall not affect any Williamson Act contract executed pursuant to Article 3 (commencing with Section 51240) of the Government Code, and the parcel to be sold or leased shall remain subject to that contract.

CHAPTER 20.056 U-R UPLAND RESIDENTIAL DISTRICT

Sec. 20.056.005 Intent.

This district is intended to create and enhance farming and low-density agricultural/residential uses. Typically the U-R District would be applied to nonprime production lands which have constraints to commercial agriculture, timber production or grazing but which are absent of such limitations as inadequate access, unacceptable hazard exposure or incompatibility with adjoining resource lands.

Sec. 20.056.010 Permitted Uses.

The following use types are permitted in a U-R District:

(A) Residential Use Types (See Chapter 20.016).

Assisted Living Residential Care Facility;
Day Care Facility;
Employee Housing;
Family residential—single-family.

(B) Civic Use Types (See Chapter 20.020).

Cemetery;
Community recreation;
Essential services;
Fire and police protection services;
Minor impact utilities.

(C) Commercial Use Types (See Chapter 20.024).

Animal sales and services—stables;

(D) Agricultural Use Types (See Chapter 20.032).

Animal raising—general agriculture;
Forest production and processing—limited;
Horticulture;
Packing and processing—limited;
Row and field crops;
Tree crops.

(E) Accessory uses as provided in Chapter 20.164.

Sec. 20.056.015 Uses Subject to an Administrative Permit.

The following use types are permitted in the U-R District upon issuance of an Administrative Permit:

(A) Residential Use Types (See Chapter 20.016).

Family residential—dwelling group;
Low Barrier Navigation Centers;
Supportive Housing;
Transitional Housing.

- (B) **Civic Use Types (See Chapter 20.020).**
Day care facilities/small school;
Group care;
Lodge, fraternal and civic assembly;
Religious assembly.
- (C) **Commercial Use Types (See Chapter 20.024).**
Animal sales and services—auction;
Animal sales and services—kennel;
Animal sales and services—veterinary (large animals);
Cottage industries—general.
- (D) **Agricultural Use Types (See Chapter 20.032).**
Forest production and processing—portable sawmills.

Sec. 20.056.020 Uses Subject to a Use Permit.

The following use types are permitted in the U-R District upon issuance of a Use Permit:

- (A) **Residential Use Types (See Chapter 20.016).**
Family residential—cluster development.
- (B) **Civic Use Types (See Chapter 20.020).**
Educational facilities;
Major impact facilities;
Major impact services and utilities.
- (C) **Commercial Use Types (See Chapter 20.024).**
Transient habitation—campground;
Transient habitation—lodging (limited);
Transient habitation—resort and recreational facilities.
- (D) **Agricultural Use Types (See Chapter 20.032).**
Animal waste processing;
Packing and processing—winery.
- (E) **Extractive Use Type (See Chapter 20.036).**
Mining and processing.

Sec. 20.056.025 Minimum Lot Area.

- (A) U-R:L-20: twenty (20) acres.
- (B) U-R:L-40: forty (40) acres.

Sec. 20.056.030 Maximum Dwelling Density.

One (1) single-family per legally created parcel, except as provided for below. Construction of more than one single-family dwelling may be permissible as the Family Residential—Dwelling Group or Family Residential—Cluster Development use types and shall be consistent with the below density standards. The following density standards apply where there is adequate lot area to accommodate higher density:

(A) U-R:L-20: one (1) unit per twenty (20) acres.

(B) U-R:L-40: one (1) unit per forty (40) acres.

Sec. 20.056.035 Minimum Front and Rear Yards.

Fifty (50) feet each. See setback exceptions in section 20.056.045.

Sec. 20.056.040 Minimum Side Yards.

Fifty (50) feet each. See setback exceptions in section 20.056.045.

Sec. 20.056.045 Setback Exception.

Any nonconforming parcel which is less than five (5) acres shall observe a minimum front, side and rear yard of twenty (20) feet. Additional setback exceptions for certain types of structures or improvements are located in section 20.152.015.

Sec. 20.056.050 Building Height Limit.

Thirty-five (35) feet. See height exceptions in section 20.152.025.

CHAPTER 20.060 R-L RANGELAND DISTRICT

Sec. 20.060.005 Intent.

This district is intended to create and preserve areas for (A) the grazing of livestock, (B) the production and harvest of natural resources, and (C) the protection of such natural resources as watershed lands from fire, pollution, erosion, and other detrimental effects. Processing of products produced on the premises would be permitted as would certain commercial activities associated with crop and animal raising. Typically the R-L District would be applied to lands for incorporation into Type H Agricultural Preserves, other lands generally in range use, and intermixed smaller parcels and other contiguous lands, the inclusion of which is necessary for the protection and efficient management of rangelands.

Sec. 20.060.010 Permitted Uses.

The following use types are permitted in the R-L District:

(A) Residential Use Types (See Chapter 20.016).

Assisted Living Residential Care Facility;
Day Care Facility;
Employee Housing;
Family residential—single-family.

(B) Civic Use Types (See Chapter 20.020).

Cemetery;
Community recreation;
Essential services;
Fire and police protection services;
Minor impact utilities.

(C) Commercial Use Types (See Chapter 20.024).

Animal sales and services—horse stables;
Animal sales and services—kennels;
Animal sales and services—stockyards.

(D) Agricultural Use Types (See Chapter 20.032).

Animal raising—general agriculture;
Animal raising—personal;
Animal waste processing;
Forest production and processing—limited;
Forest production and processing—portable sawmills;
Horticulture;
Packing and processing—limited;
Packing and processing—winery;
Row and field crops;
Tree crops.

- (E) **Accessory uses as provided in Chapter 20.164.**

Sec. 20.060.015 Uses Subject to an Administrative Permit.

The following use types are permitted in the R-L District upon issuance of an Administrative Permit:

- (A) **Residential Use Type (See Chapter 20.016).**
Family residential—dwelling groups;
Low Barrier Navigation Center;
Supportive Housing;
Transitional Housing.
- (B) **Civic Use Types (See Chapter 20.020).**
Day care facilities/ small schools
- (C) **Commercial Use Types (See Chapter 20.024).**
Agricultural sales and services;
Animal sales and services—auctioning;
Animal sales and services—veterinary (large animals);
Cottage industries—general.
- (D) **Agricultural Use Types (See Chapter 20.032).**
Packing and processing—general.

Sec. 20.060.020 Uses Subject to a Use Permit.

The following use types are permitted in the R-L District upon issuance of a Use Permit:

- (A) **Residential Use Types (See Chapter 20.016).**
Family residential—cluster development.
- (B) **Civic Use Types (See Chapter 20.020).**
Educational facilities;
Lodge, fraternal and civic assembly;
Major impact services and utilities;
Religious assembly.
- (C) **Commercial Use Types (See Chapter 20.024).**
Commercial recreation—outdoor sports and recreation;
Commercial recreation—outdoor entertainment;
Transient habitation—campground;
Transient habitation—lodging (limited);
Transient habitation—resort and recreational facilities.
- (D) **Agricultural Use Types (See Chapter 20.032).**
Packing and processing—commercial cooperage.
- (E) **Extractive Use Types (See Chapter 20.036).**
Mining and processing.

Sec. 20.060.025 Minimum Lot Area.

One hundred sixty (160) acres.

Sec. 20.060.030 Maximum Dwelling Density.

One (1) single-family dwelling per legally created parcel, except as separately provided for below. Construction of more than one single-family dwelling may be permissible as the Family Residential—Dwelling Group or Family Residential—Cluster Development use types and shall be consistent with the following density standard: One (1) unit per one hundred sixty (160) acres.

Sec. 20.060.035 Minimum Front and Rear Yards.

Fifty (50) feet each. See setback exceptions in section 20.060.045.

Sec. 20.060.040 Minimum Side Yards.

Fifty (50) feet each. See setback exceptions in section 20.060.045.

Sec. 20.060.045 Setback Exception.

Any nonconforming parcel which is less than five (5) acres shall observe a minimum front, side and rear yard of twenty (20) feet. Additional setback exceptions for certain types of structures or improvements are located in section 20.152.015.

Sec. 20.060.050 Building Height Limit.

Thirty-five (35) feet. See height exceptions in section 20.152.025.

Sec. 20.060.055 Lot Splits in Agricultural Preserves for Farmworker Housing.

In compliance with Government Code 51230.2, a two (2)-way division of a parcel of land that is currently subject to a Williamson Act contract may be allowed, if all of the following apply:

- (A) The resulting parcel is to be sold or leased for agricultural employee ("farmworker") housing, and is not more than five (5) acres in size. For the purposes of this section, "agricultural employee" shall have the same meaning as defined by subdivision (b) of Section 1140.4 of the Labor Code.
- (B) The parcel shall be sold or leased to a nonprofit organization, a city, a county, a housing authority, or a state agency, for the sole purpose of the provision and operation of farmworker housing. A lessee that is a nonprofit organization shall not sublease that parcel without the written consent of the landowner, and shall notify the county of such sublease.
- (C) The parcel to be sold or leased shall be subject to a deed restriction that limits the use of the parcel to farmworker housing facilities for not less than thirty (30) years. The deed restriction shall also provide, through reversionary or similar provision, that the parcel shall automatically revert to and be merged with the parcel from which it was subdivided when the parcel ceases to be used for farmworker housing for a period of more than one (1) year. The deed restriction shall be in a form satisfactory to county counsel.
- (D) There is a written agreement between the parties to the sale or lease of the parcel and their successors to operate the parcel to be sold or leased under joint management of the parties, subject to the terms and conditions and for the duration of the Williamson Act contract.
- (E) The parcel to be sold or leased is contiguous to one (1) or more parcels that are located within a designated urban service area, and which are zoned for and developed with urban residential, commercial, or industrial land uses.
- (F) The farmworker housing project shall include provisions designed to minimize potential impacts on surrounding agricultural and rural residential land uses.

A subdivision of land pursuant to this section shall not affect any Williamson Act contract executed pursuant to Article 3 (commencing with Section 51240) of the Government Code, and the parcel to be sold or leased shall remain subject to that contract.

Resolution Number

City Of Ukiah

December 11, 2024

“AGRICULTURAL CONSISTENCY ORDINANCE”

RESOLUTION OF THE PLANNING COMMISSION, CITY OF
UKIAH, STATE OF CALIFORNIA, PROVIDING A REPORT AND
RECOMMENDATION TO THE UKIAH CITY COUNCIL
REGARDING THE PROPOSED ADOPTION OF AMENDMENTS
TO DIVISION 7 AND DIVISION 9 OF UKIAH CITY CODE

WHEREAS, on December 7, 2022, the Ukiah City Council adopted Resolution No. 2022-79 certifying the Environmental Impact Report for the City of Ukiah 2040 General Plan (State Clearinghouse No. 2022050556) (the “General Plan EIR”), which analyzed the environmental impacts of the adoption of the City’s General Plan, and adopted a Mitigation Monitoring and Reporting Program and Statement of Overriding Considerations; and

WHEREAS, the City may adopt ordinances that regulate the use of land pursuant to Government Code Section 65850; and

WHEREAS, in 2023 and 2024, the City of Ukiah Community Development Department (the “Department”) initiated a process to revise and update -A and A-E zoning districts of the of Ukiah City Code, apprising the City of Ukiah Planning Commission and City Council during budget planning updates; and

WHEREAS, the Department is proposing a comprehensive update of its -A and A-E zoning districts to align Ukiah’s agricultural standards, allowances and land-use terminology with those adopted by Mendocino County as conveyed by the 2040 Ukiah General Plan Agriculture Element, Implementation Program C (Align Agricultural Standards); and

WHEREAS, the Department is proposing adoption of select aspects of Mendocino County’s A-E zoning regulations for cannabis-related regulations, in addition to the implementation of a more restrictive cannabis cultivation framework within the -A and A-E zoning districts, aligning with state-level environmental and public health policies, and aligning with General Plan goals in the preservation of agricultural resources and promotion of long-term compatibility with adjacent land uses; and

WHEREAS, Cannabis cultivation will be reviewed by discretionary permit, allowing the City to evaluate each site individually, considering unique environmental conditions such as proximity to sensitive habitats, water resources, and existing land uses. This approach enables the City to identify potential environmental impacts on a project-by-project basis, consistent with CEQA requirements, and impose targeted mitigation measures to address identified impacts, such as stormwater management practices, noise attenuation, or additional site security considerations; and

WHEREAS, the Articles of the Ukiah Code proposed for amendment or inclusion are attached to this resolution as Exhibit A and incorporated herein by this reference (the “Agricultural Consistency Ordinance”), which show the changes to the various chapters in redline and strikethrough, or indicate that articles are new or being edited; and

WHEREAS, the City of Ukiah's Land Use and Agricultural Elements include goals, policies, and an implementation program to foster regional consistency between the City of Ukiah and Mendocino County. This alignment ensures that agricultural lands within Ukiah's planning area are protected from incompatible uses and that zoning standards support sustainable and economically viable agricultural practices; and

WHEREAS, encouraging consistency between City and County standards reduces administrative complexity for property owners and operators, creating a streamlined regulatory framework; and

WHEREAS, the adoption of the Agricultural Consistency Ordinance aligns with the City's commitment to the preservation and enhancement of agricultural lands as a key regional resource; and

WHEREAS, the statutory exemption set forth in Section 15183 of the California Environmental Quality Act Guidelines (Title 14, Cal. Code Regs., section 15000 *et seq*; "CEQA Guidelines") applies to this action because, for the reasons set forth in the Staff Report accompanying this Resolution, the Agricultural Consistency Ordinance does not have the potential to cause a significant effect on the environment and is therefore not subject to CEQA, as the project is consistent with the City of Ukiah 2040 General Plan; and

WHEREAS, in accordance with applicable provisions of law, the Planning Commission held a public hearing on December 11, 2024, at which time the Planning Commission heard and received all relevant testimony and evidence presented orally or in writing regarding the Agricultural Consistency Ordinance and all interested persons were given an opportunity to hear and be heard regarding the Agricultural Consistency Ordinance; and

WHEREAS, the Planning Commission considered all of the information presented to it including the Staff Report, and public testimony presented in writing and at the public hearings; and

WHEREAS, the Planning Commission has had an opportunity to review this Resolution and finds that it accurately sets forth the intentions of the Planning Commission regarding the Agricultural Consistency Ordinance.

NOW, THEREFORE BE IT RESOLVED that the City of Ukiah Planning Commission, based upon evidence in the record and oral and written testimony presented at public hearings, and all information contained in the record of proceedings related to the Agricultural Consistency Ordinance, makes the following findings and recommendations:

1. The above recitals are true and correct, and incorporated herein by this reference.
2. The proposed changes of the Agricultural Consistency Ordinance are consistent with the City of Ukiah 2040 General Plan. Pursuant to Government Code Section 65860, a zoning ordinance is consistent with a general plan if the City has adopted a plan and the various land uses authorized by the ordinance are compatible with the objectives, policies, general land uses and programs specified in the plan. None of the zoning district articles being modified affect the conformity with the 2040 General Plan.
3. The proposed project has been reviewed in compliance with the California Environmental Quality Act (CEQA). As the proposed Agricultural Consistency

Ordinance is consistent with the Ukiah 2040 General Plan, the project relies upon the General Plan EIR and qualifies for a statutory exemption under CEQA Section 15183 (Projects Consistent with a Community Plan, General Plan, or Zoning).

4. That the City Council adopt an ordinance making the changes shown in the Agricultural Consistency Ordinance, as shown in the attached Exhibit A.

BE IT FURTHER RESOLVED that the Planning Commission designates the City Clerk as the custodian of the document and other materials that constitutes the record of proceedings upon which the Planning Commission decision herein is based. These documents may be found at the office of the City of Ukiah Department of Community Development, 300 Seminary Avenue, Ukiah, CA 95482.

I hereby certify that according to the Provisions of Government Code Section 25103 delivery of this document has been made.

ATTEST:

Stephanie Abba Commission Services
Planning Commission Clerk

Craig Schlatter Community Development
Director

Rick Johnson, Chair
City of Ukiah Planning Commission

Exhibit A: Enclosed

ORDINANCE NO. 2024 - __

ORDINANCE OF THE CITY COUNCIL OF THE CITY OF UKIAH AMENDING VARIOUS SECTIONS OF DIVISIONS 7 AND 9 OF THE CITY CODE TO REGULATE AGRICULTURAL USES AND CERTAIN CANNABIS BUSINESS STANDARDS.

The City Council of the City of Ukiah hereby ordains as follows:

SECTION ONE. FINDINGS

1. It is the policy of the City of Ukiah to implement shared approaches to local agriculture and strengthen existing City policies regarding preservation and enhancement of regional working lands; and
2. Agricultural production has been an important part of the regional economy for generations and will continue to be a foundational component for decades to come. In addition to the economic benefits, agricultural lands provide a pastoral quality that helps define the character of the Ukiah Valley. If undertaken appropriately by addressing issues related to health and, potential nuisances (e.g., noise, odor, aesthetics), urban agriculture can improve access to healthy food, promote community development, and create jobs.
3. It is a goal of the City of Ukiah to preserve and strengthen agricultural uses in and around Ukiah that influence the regional economy (AG-1), and as a policy of its Agriculture Element of the 2040 General Plan, the City shall reduce conflict between incompatible uses and agriculture within and adjacent to the City (AG – 1.1).
4. To implement this policy the City shall revise agricultural standards and use terminology to be consistent with adjacent jurisdictions within the Ukiah Valley for the support of future annexation efforts (Agriculture Implementation Program C).

SECTION 2

Section 6093 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§6093 MARIJUANA-CANNABIS CULTIVATION PROHIBITED

A. Except as set forth in Sections 9174.4 and 9254 of this Code regarding commercial cannabis cultivation, outdoor~~Outdoor~~ cultivation of marijuanacannabis, or indoor cultivation in excess of six (6) mature plants or twelve (12) immature plants per private residence, as defined in Health and Safety Code section 11362.2(b)(5) or as may be amended, for personal use, within the City limits of the City of Ukiah in violation of section 9254 of this code is prohibited and constitutes a violation of this article.

* * *

§6094 SEIZURE AND DESTRUCTION OF MARIJUANACANNABIS

Except as otherwise expressly stated in this section, all marijuana-cannabis seized by the city police in the enforcement of this article shall be seized, retained and destroyed in the same manner and subject to the same procedures as are provided in California Health and Safety Code sections 11472-11479, for marijuana-cannabis possessed in violation of division 10 of the Health and Safety Code. The requirements in subsection (b) of Health and Safety Code section 11479, prescribing the conditions that must be satisfied before

seized ~~marijuana-cannabis~~ may be destroyed without a court order, as applied by this section, are revised as follows:

* * *

SECTION THREE.

Article 10 in Division 9, Chapter 2 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§ 9125 COMBINING AGRICULTURAL OR -A DISTRICTS

A Combining Agricultural (-A) District may be combined with any district or portion of a district defined in this Chapter. The regulations contained in this Article, and the regulations governing any district which is combined with a Combining Agricultural (-A) District shall apply in all combining Agricultural (-A) Districts.

§ 9126 USES ALLOWED

The following uses are allowed uses in Combining Agricultural (-A) Districts in addition to the uses allowed or permitted in any district with which an (-A) District is combined and providing the property is a minimum of five (5) acres in size:

~~Farming, fish, fowl, small animal and livestock raising, excepting hogs and turkeys.~~

A. Animal Raising – Personal.

B. Forest Production and Processing – Limited.

C. Horticulture.

D. Packing and Processing – Limited.

B. Row and Field Crops.

C. Tree Crops.

D. Farm Stand.

§ 9127 USES PERMITTED

The following uses may be permitted in a Combining Agricultural (-A) District subject to first securing a minor use permit, as provided in this chapter, in each case, in addition to the uses allowed or permitted in any district with which a (-A) district is combined and provided the property is a minimum of ~~one-acre~~ **five (5) acres in size**:

A. ~~Farming, fish, fowl, small animal and livestock raising.~~ Animal Raising – General Agriculture.

- B. ~~Hog, turkey and mink raising.~~Animal Sales and Services - Kennels
- C. ~~Animal Sales and Services—Horse Stables, Kennels, veterinarian, riding academies, labor camps and retail sales of products grown or raised on the premises.~~
- D. Animal Sales and Services—Veterinary (Large Animals).
- E. Employee Housing.
- F. Outdoor or Mixed-Light Commercial Cannabis Cultivation of all license types set forth in California Code of Regulations, title 4, section 16201 and section 16201.1, as may be amended from time to time.

SECTION FOUR.

Article 13 in Division 9, Chapter 2 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§9160 AGRICULTURAL EXCLUSIVE OR A-E DISTRICT

A. This district is intended to be an exclusive district for agriculture and those uses which are necessary and an integral part of the agricultural operation. This district has been created to protect and preserve the limited amount of agricultural soils from encroachments of nonrelated agricultural uses which, by their nature, would be injurious to the physical and economical well-being of the ~~a~~Agricultural operations~~District.~~

B. The following specific regulations and general regulations set forth in Article 16 shall apply in all A-E Districts:

C. Uses Allowed:

1. ~~The raising, harvesting and curing of tree, vine, field forage, fiber and other plant life crops of all kinds, including plant nursery stock.~~Residential & Accessory Uses

Accessory dwelling units (ADU), as regulated by Chapter 2, Article 5.3 of this Division.

Employee Housing.

Home occupations.

Junior accessory dwelling units (JADUs), as regulated by Chapter 2, Article 5.4 of this Division.

Single-family residential dwellings, including manufactured/modular homes.

Small and large family daycare homes.

2. ~~Production of agricultural commodities for commercial purposes~~ Agricultural Uses.

Animal raising—general agriculture.

Animal raising—personal.

Horticulture.

3. ~~Grazing of livestock on irrigated pasture.~~

~~4. Dairies and the production of dairy products from milk produced on the premises.~~

~~Packing and processing—limited.~~

~~Packing and processing—winery.~~

5. ~~Boarding horses and other farm animals.~~

6. ~~Sale of food products produced on the premises.~~

7. ~~Apiaries and honey extraction plants.~~

~~8. Holding of nonproducing land for future agricultural use, maintenance of land in its natural state for the purpose of preserving open space for recreation or the creation of plant or animal preserves.~~

~~9. One family dwelling, trailers and accessory buildings, and farm buildings of all kinds, including labor camps when located upon farms and occupied or used by the owner, farm tenant or other persons employed thereon or the nonpaying guests thereof.~~

~~10. Home occupations, including any use customarily conducted entirely within a dwelling and carried on by the inhabitants thereof, which use is clearly incidental and secondary to the use of the structure for dwelling purposes and which use does not change the character thereof.~~

~~11. ___~~ Production of fish life or fish products for commercial purposes (hatcheries, ponds, etc.)

Row and Field Crops.

Tree Crops.

3. Civic Uses

Day care facilities/small schools.

Safety Services.

Utility Service Minor.

4. Commercial Uses

Farm Stands.

D. Uses Requiring Minor Use Permits: The following compatible uses and those which, in the opinion of the ~~Planning Commission~~Community Development Director, may be substantially similar in nature thereto shall be permitted, but only upon the securing of a use permit pursuant to this Chapter:

- ~~1. Development of natural resources, including barrow pits and quarries with necessary buildings, apparatus or appurtenances thereto, except where used as a part of the bonafide agricultural operation.~~Residential Uses

Dwelling Group.

Supportive housing, subject to the same density limitation and to the same regulations applicable to other residential dwelling of the same type.

Transitional housing, subject to the same density limitation and to the same regulations applicable to other residential dwelling of the same type.

- ~~2. The processing, packaging, packing, shipping and selling of agricultural products produced upon the premises or where such activity is carried on in conjunction with or as a part of an agricultural use.~~Agricultural Uses

Forest production and processing—limited.

Packing and processing general.

- ~~3. The maintaining, breeding and raising of poultry and livestock of all kinds, including agricultural specialties, such as furbearing animals.~~Commercial Uses

Agricultural sales and services.

Animal sales and services—auctioning.

Animal sales and services—horse stables.;

Animal sales and services—kennels.

Animal sales and services—stockyards.

Animal sales and services—veterinary (large animals).

Outdoor or Mixed-Light Commercial Cannabis Cultivation of all license types set forth in California Code of Regulations, title 4, section 16201 and section 16201.1, as may be amended from time to time.

4. _____ Sale of food products produced off the premises, provided that the sale of such products is incidental and secondary to the sale of agricultural products produced upon the premises.

~~5. The following uses when carried on as a clearly secondary occupation in conjunction with a bonafide agricultural operation, when no more than ten percent (10%) of the total land is used and where no more than three (3) persons other than the owner are employed in such activities, and which are owned and operated by the owner or occupant of the premises: the manufacturing of agricultural machinery, implements and equipment of all kinds; the manufacture, storage or sale of farm supplies of all kinds, including, but not limited to, fertilizers, agricultural minerals and insecticides; the transportation of agricultural products, supplies or equipment, together with the maintenance, storage, repair and servicing of the necessary trucks and equipment thereof.~~

6. _____ Recreational use, meaning the use of land by the public, with or without charge, for any of the following recreational uses: walking, hiking, picnicking, camping, swimming, boating, fishing, hunting or other outdoor games for which no structures or buildings not permitted by the use permit are provided.

~~7. Commercial radio, television or microwave antennas and transmitters.~~

~~8. Veterinary services.~~

~~9. Buildings, structures and other facilities constructed and utilized only as incidental to a recreational use or to an otherwise permitted agricultural use.~~

~~10. Public utility and public services, structures, uses and buildings.~~

~~11. Locations of underground utility installations and of above-ground utility installations for local service; including substations, generating plants, gas holders and transmission lines.~~

E. _____ Uses Requiring Major Use Permits: The following compatible uses and those which, in the opinion of the Planning Commission, may be substantially similar in nature thereto shall be permitted, but only upon the securing of a major use permit pursuant to this Chapter:

_____ 1. Agricultural Uses

_____ Animal waste processing.

Forest production and processing—commercial woodlots.

Forest production and processing—portable sawmills.

2. Commercial Uses

Transient habitation—campground.

Transient habitation—lodging (limited).

Transient habitation—resort and recreational facilities.

3. Civic Uses

Educational Facilities.

Major impact facilities.

Major impact services and utilities.

~~EE.~~ Minimum lot area. Forty (40) acres.

~~F.~~ ~~Maximum main building coverage. Five percent (5%).~~

G. Minimum front yard. ~~Twenty five~~ Fifty feet (2550').

H. Minimum side yard. ~~Twenty five~~ Fifty feet (2550').

I. Minimum rear yard. ~~Twenty five~~ Fifty feet (2550').

J. Any nonconforming parcel which is less than five twenty (520) acres shall observe a minimum front, side and rear yard of five twenty five (525) feet~~Minimum vehicle parking. Two (2) parking spaces for each dwelling unit, and spaces for all vehicle parking, loading and unloading.~~

K. Maximum building height. ~~Two and one half (2 1/2) stories, but not~~Not to exceed thirty-five feet (35') for residential buildings, all other buildings fifty feet (50').

L. Maximum Dwelling Density. One (1) single-family dwelling per legally created parcel, except as separately provided for below. Construction of more than one single-family dwelling may be permissible as a Dwelling Group and shall be consistent with the following density standard: One (1) unit per forty (40) acres.

SECTION FIVE.

Article 15.7 of Chapter 2 in Division 9 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§9174 PURPOSE

~~Section 9174.2 in t~~This article provides site planning, development, and/or operational standards for certain land uses that are allowed in certain zoning districts and are subject to discretionary review through the use permit process but that may have unique adverse impacts. The standards for each use are intended to mitigate any potentially adverse impacts associated with the specific use.

§9174.1 APPLICABILITY

The land uses and activities included in this article shall comply with the provisions of the section applicable to the specific land use, in addition to all other applicable provisions of this article and the Ukiah City Code.

A. Where Allowed: The uses that are subject to the standards in sections 9174.2 through 9174.9 of this code shall only be located in the zoning districts indicted in Chapter 2, Articles 3 through 15, or as otherwise indicated in this chapter.

B. Development Standards: The standards for specific land uses included in this article are required and supplement those included in the Ukiah City Code. In the event of any conflict between the requirements of this article and those included elsewhere in the City code, the requirements of this article shall control.

§9174.2 CANNABIS-RELATED BUSINESSES

A. Cannabis-Related Business Use Permit Application Requirements:

1. Submission: A complete use permit application submittal packet shall be submitted in accordance with section 9262 of this code, including a detailed written statement as to how the proposed cannabis-related business complies with this section, and any other information or submissions required by this code. All applications for use permits for cannabis-related businesses shall be filed with the **Planning Community Development** Department, using forms provided by the City, and accompanied by the applicable filing fee and any other applicable fees or charges. It is the responsibility of the applicant to provide information required for approval of the permit. The application shall be made under penalty of perjury.

2. Effect Of Other Permits Or Licenses: The fact that an applicant possesses other types of State or City permits or licenses does not exempt the applicant from the requirement of obtaining a use permit.

3. Submittal Requirements: Any application for a use permit for a cannabis-related business shall include the following information, unless the information is inapplicable for applicant's business type:

a. Applicant(s) Name: The full name (including any current or prior aliases, or other legal names the applicant is or has been known by, including maiden names), present address, and telephone number of the applicant;

- b. Applicant(s) Mailing Address: The address to which notice of action on the application is to be mailed;
- c. Verification Of Age: Written proof that the applicant is at least twenty-one (21) years of age;
- d. Physical Description: Applicant's height, weight, color of eyes and hair;
- e. Photographs: Passport quality photographs for identification purposes;
- f. Tax History: The cannabis-related business tax history of the applicant, including whether such person, in previously operating in this or another city, county or state under license, has had a business license revoked or suspended, the reason therefor, and the business or activity or occupation in which the applicant engaged subsequent to such action of suspension or revocation;
- g. Management Information: The name or names and addresses of the person or persons having the management or supervision of applicant's business;
- h. Criminal Background: A completed background investigation verifying whether the ~~person or person having the management or supervision~~ applicant or any owner, as defined in Business and Professions Code section 26001(ap), as may be amended from time to time, of applicant's business have been convicted of a crime(s), the nature of such offense(s), and the sentence(s) received therefor;
- i. Employee Information: Number of employees, volunteers, and other persons who will work at the cannabis-related business;
- j. Plan Of Operations: A plan of operations describing how the cannabis-related business will operate consistent with the intent of State law, including obtaining all applicable State licenses, and the provisions of this section, including but not limited to ensuring that the cannabis-related business will not engage in cannabis-related commercial activities that violate California law or this chapter;
- k. Written Response To Cannabis-Related Business Standards: The applicant shall provide a comprehensive written response identifying how the cannabis-related business plan complies with each of the standards for review in this chapter, specifically the limitation on location and operating requirements in this article;
- l. Security Plan: A detailed security plan and diagram outlining the proposed security arrangements for ensuring the safety of persons and to protect the premises from theft. The plan shall include installation of security cameras, a

premises and panic alarm system monitored by a licensed operator, and a security assessment of the site conducted by a qualified professional;

m. Floor Plan: A sketch or diagram showing the interior configuration of the premises, including a statement of the total floor area occupied by the cannabis-related business. The sketch or diagram need not be professionally prepared, but must be drawn to a designated scale or drawn with marked dimensions of the interior of the premises to an accuracy of plus or minus six inches (6");

n. Site Plan: A sketch or diagram showing exterior configuration of the premises, including the outline of all existing and proposed structures, parking and landscape areas, and property boundaries. The sketch or diagram need not be professionally prepared, but must be drawn to a designated scale or drawn with marked dimensions to an accuracy of plus or minus six inches (6");

o. Accessibility Evaluation: A written evaluation of accessibility to and within the building, and identification of any planned accessibility improvements;

p. Neighborhood Context Map: An accurate straight-line drawing depicting the building and the portion thereof to be occupied by the cannabis-related business, and: (1) the property lines of any school within six hundred feet (600') of the property line of the business for which a permit is requested, (2) the property lines of any cannabis-related business within two hundred fifty feet (250') of the primary entrance of the business for which a permit is requested, and (3) the property lines of any youth-oriented facility or residential zone or use within two hundred fifty feet (250') of the primary entrance of the business;

q. Lighting Plan: A lighting plan showing existing and proposed exterior premises and interior lighting levels that would be the minimum necessary to provide adequate security lighting for the use and comply with all City standards regarding lighting design and installation. All lighting shall be fully hooded and downcast, and shall not shine towards the night sky, adjacent property or any street;

r. City Authorization: Written authorization for the City, its agents and employees to seek verification of the information contained within the application;

s. Statement of Owner's Consent: A statement in writing by the owner that he or she certifies under penalty of perjury that the applicant has the consent of the owner and landlord to operate a cannabis-related business at the location;

t. Applicant's Certification: A statement in writing by the applicant that he or she certifies under penalty of perjury that all the information contained in the application is true and correct;

u. Other Information: Such other information as deemed necessary by the **Planning Community Development** Department to demonstrate compliance with this section including all City and State codes, including operating requirements established in this section.

4. Effect Of Incomplete Filing: Upon notification that an application submittal is incomplete, the applicant shall submit any additional documents or information required to complete the application within thirty (30) days of the date the applicant is notified in writing by the **Planning Community Development** Department that the application is incomplete. If the applicant fails to complete the application within said thirty (30) days, the application shall be deemed withdrawn and a new application submittal that complies with this section shall be required in order to proceed with the application.

B. Operating Requirements For Cannabis-Related Businesses: Cannabis-related business operations shall be established and managed only in compliance with the following standards:

1. Criminal History: Any applicant, ~~his or her agent or employees, volunteer workers, or any person exercising managerial authority of a cannabis-related business on behalf of the applicant~~ and any additional owner of the business, as defined in Business and Professions Code section 26001(ap) and as may be amended, shall not have been convicted of any of the felony offenses enumerated in Business and Professions Code section 26057(b)(4), or of a felony or misdemeanor involving moral turpitude, or on probation for a drug offense, or engaged in misconduct related to the qualifications, functions or duties of a permittee. Notwithstanding the above, an application shall not be denied solely on the basis that the applicant or any **manager-owner** has been convicted of a felony, if the person convicted has obtained a certificate of rehabilitation (expungement of felony record) under California law or under a similar Federal statute or State law where the expungement was granted. In addition, notwithstanding the above, a prior conviction, where the sentence, including any term of probation, incarceration, or supervised release, is completed, for possession of, possession for sale, sale, manufacture, transportation, or cultivation of cannabis or cannabinoid preparations, is not considered related to the qualifications, functions, or duties of a permittee, and shall not be the sole ground for denial of an application.

2. Minors:

a. It is unlawful for any permittee, operator, or other person in charge of any cannabis-related business to employ any person who is not at least twenty-one (21) years of age.

b. The burden of proof is on the cannabis-related business personnel to establish compliance with this subsection B2 of this section by clear and convincing evidence.

3. Inventory And Tracking: Cannabis-related businesses shall at all times operate in a manner to prevent diversion of cannabis and shall promptly comply with any track and trace program established by the State.

4. Multiple Permits Per Site: Multiple cannabis-related businesses proposed on any one site or parcel shall be granted permit approval only if all of the proposed cannabis businesses and their co-location are authorized by both City and State law. Operators of cannabis-related businesses issued use permits for multiple business types or State license types at the same physical address shall maintain clear separation between license types unless otherwise authorized by this code and State law.

5. Operating Plans: An operating plan for a cannabis-related business must contain the following unless not applicable due to the location or nature of the business:

a. Storage: A cannabis-related business shall have suitable locked storage on premises, identified and approved as a part of the security plan, for after-hours storage of cannabis and cannabis products.

b. Odors Control: The cannabis-related business shall have an air treatment system that prevents odors generated from any storage and cultivation of cannabis on the business property from being detected by any reasonable person of normal sensitivity outside the cannabis-related business premises. To achieve this, both the storage and cultivation areas shall be, at minimum, mechanically ventilated with a carbon filter or superior method. This requirement shall not apply to Outdoor Commercial Cultivation of Cannabis, as odor control will be achieved through location restrictions.

c. Security Plans: A cannabis-related business shall provide adequate security on the premises, as approved by the Chief of Police, including lighting and a premises and panic alarm system monitored by a licensed operator, to ensure the safety of persons and to protect the premises from theft.

d. Security Cameras: Security surveillance cameras shall be installed to monitor the main entrance and exterior of the premises to discourage loitering, crime, illegal or nuisance activities. The security surveillance system shall comply with current State standards for digital video surveillance systems to be installed on the premises of licensed cannabis businesses, currently codified in the California Code of Regulations, Title 16, Section 5044, and as may be amended.

e. Security Video Retention: Security video shall be maintained for ninety (90) days. In the event of a crime on site or anywhere within range of the cannabis-related business's security cameras, the cannabis-related business shall provide the Chief of Police or his or her designee with a useable digital copy of the security video upon request or at the earliest convenience.

f. Alarm System: Professionally monitored premises and panic alarm system shall be installed and maintained in good working condition.

g. Emergency Access: Security measures shall be designed to ensure emergency access in compliance the California Fire Code and Ukiah Valley Fire Authority standards.

h. Emergency Contact: A cannabis-related business shall provide the Chief of Police with the name, email address, phone number and facsimile number of an on-site community relations staff person to whom one can provide notice if there are operating problems associated with the business. The business shall make every good faith effort to encourage neighborhood residents to call this person to try to solve operating problems, if any, before any calls or complaints are made to the City.

6. Employee Records: Each owner or operator of a cannabis-related business shall maintain a current register of the names of all volunteers and employees currently working at or employed by the cannabis-related business, and shall disclose such registration for inspection by any City officer or official for purposes of determining compliance with the requirements of this article.

7. Compliance With Other Requirements: The operator shall comply with all applicable provisions of local, State or Federal laws, regulations or orders, as well as any condition imposed on any permits issued pursuant to applicable laws, regulations or orders.

8. Confidentiality: The information provided for purposes of this section regarding the cannabis business security plans, security site plan, and ~~employee~~-background checks shall be maintained by the City as confidential information, and shall not be disclosed as public records unless pursuant to subpoena issued by a court of competent jurisdiction or otherwise compelled by court order or the California Public Records Act.

9. Display Of Permit: Every cannabis-related business shall display at all times during business hours the use permit issued pursuant to the provisions of this chapter for such business in a conspicuous place so that the same may be readily seen by all persons entering the business.

10. Inspections: During normal business hours, cannabis-related businesses permitted under this chapter shall provide access for administrative inspections by City officials or officers or consultants hired by the City to verify compliance with this article. Any cannabis-related business's refusal to comply with this section shall be deemed a violation of this article.

11. Notification Of Theft, Loss, And Criminal Activity: Cannabis-related businesses shall comply with the California Code of Regulations, Title 16, Section 5036, or as may be amended, by notifying the applicable State authorities and the Ukiah Police Department within twenty-four (24) hours of discovery of any of the following

situations:

- a. A significant discrepancy in the business's inventory.
- b. The operator becomes aware of or has reason to suspect diversion, theft, loss, or any other criminal activity pertaining to the operations of the business.
- c. The operator becomes aware of or has reason to suspect diversion, theft, loss, or any other criminal activity by an agent or employee of the business pertaining to the operations of the business.
- d. The operator becomes aware of or has reason to suspect the loss or unauthorized alteration of records related to cannabis goods, customers or clients, or the business's employees or agents.
- e. The operator becomes aware of or has reason to suspect any other breach of security.

The notification shall be in writing and include the date and time of occurrence of the theft, loss, or criminal activity and a description of the incident including, where applicable, the item(s) that were taken or lost.

C. Review And Revocation: Use permits issued for cannabis-related businesses shall be subject to review after the first year of operation according to the procedures set forth in subsection D of this section, and shall be subject to revocation according to the procedures set forth in subsection E of this section.

D. Review Of Use Permits For Cannabis-Related Businesses:

1. Use permits for cannabis-related business will be subject to review after the first year of operation by the Zoning Administrator, including inspection of the business by the Zoning Administrator or his designee, to determine whether the business is being operated in accordance with any conditions of approval imposed on the use permit as issued by the Planning Commission or Zoning Administrator. The City Council may, from time to time by resolution in accordance with the procedures required by law, establish fees to be charged and collected for annual review pursuant to this subsection.

2. In the course of review and after inspection, the Zoning Administrator shall make findings of fact regarding the cannabis-related business operator's adherence to the conditions of approval for the use permit. In addition, the Zoning Administrator will consider the following nonexclusive criteria in making findings of fact which may be grounds for revocation of a use permit for a cannabis-related business:

- a. Whether the cannabis-related business operated pursuant to the use permit has generated an excessive number of calls for police service compared to similarly situated businesses of the same size as the cannabis-related business.

- b. Whether there have been excessive secondary criminal or public nuisance impacts in the surrounding area or neighborhood, including, but not limited to, disturbances of the peace, illegal drug activity, cannabis use in public, harassment of passersby, littering, loitering, illegal parking, loud noises, odors, or lewd conduct.
- c. Whether the cannabis-related business operating pursuant to a use permit has a history of inadequate safeguards or procedures that show it is likely that it will not comply with any operating requirements and standards required in the conditions of approval.
- d. Whether the cannabis-related business has failed to pay fees, penalties, or taxes required by the conditions of approval of the use permit or by this code or State law, or has failed to comply with any requirements for the production of records or other reporting requirements of this code.
- e. Whether the applicant or any operator-owner of the cannabis-related business ~~or one or more of its officers, employees, partners, managers or members with management responsibilities ("managers")~~, as defined in Business and Professions Code section 26001(ap), as may be amended from time to time, has been convicted of a felony, or has engaged in misconduct that is substantially related to the qualifications, functions or duties of an operator of a cannabis-related businesses. A "conviction" within the meaning of this chapter means a plea or verdict of guilty, or a conviction following a plea of nolo contendere. Notwithstanding the above, an application shall not be denied solely on the basis that the applicant or any ~~manager-owner~~ has been convicted of a felony, if the person convicted has obtained a certificate of rehabilitation (expungement of felony record) under California law or under a similar Federal statute or State law where the expungement was granted.
- f. Whether the operator or managers of the cannabis-related business have previously or are currently engaged in unlawful, fraudulent, unfair, or deceptive business acts or practices.
- g. Whether the cannabis-related business has been operated in compliance with applicable State law and provisions of this code generally.

3. If the Zoning Administrator determines that the cannabis-related business is being operated in violation of any conditions of approval imposed on the use permit as issued by the Planning Commission or the Zoning Administrator, the use permit may be subject to revocation.

E. Revocation Of Use Permits For Cannabis-Related Businesses:

1. In addition to the reasons for revocation of an approved use permit set forth in subsection 9262H2 of this code and subsection D2 of this section, an approved use permit for a cannabis-related business may be revoked through the City's revocation

process, as set forth in subsection 9262H2 of this code, except that all references therein to the Planning Commission shall be deemed to refer to the Zoning Administrator, if the cannabis-related business is operated in a manner that violates the conditions of approval imposed by the use permit or the provisions of this code, or conflicts with State law. At the public hearing to be conducted by the Zoning Administrator as set forth in subsection 9262H2 of this code, the Zoning Administrator shall make findings regarding the alleged specific violations of this code or State law.

2. An appeal of the Zoning Administrator's decision on revocation of a use permit for a cannabis-related business may be made to the Planning Commission for a final decision. Any such appeal must comply with the requirements of section 9266 of this code, except that all references therein to the City Council shall be deemed to refer to the Planning Commission.

3. When a final decision revoking a use permit for a cannabis-related business is made as provided in this section, the permittee shall become ineligible for a period of three (3) years thereafter to apply for a use permit for a cannabis-related business. The ineligibility shall include any corporation or other business entity, including, but not limited to, a partnership or limited liability company, in which the permittee has any direct or indirect beneficial, financial or ownership interest.

F. Limitations on Locations of Cannabis-Related Businesses:

1. All cannabis-related businesses, as defined in section 9278 of this code, operating subject to use permits under this chapter will operate indoors in a fully enclosed secure structure, as defined in section 9254 of this code, except as set forth in subsection 9174.3(c)(5) of this code regulating cannabis consumption areas, and in Section 9174.4 of this Code regulating outdoor commercial cannabis cultivation in the A-E district and districts with -A overlay, and shall not be allowed in the following areas, except as otherwise set forth in this Code:

a. Within six hundred feet (600') of a school, as defined in section 5702P of this code, with that distance measured as the horizontal distance in a straight line from the property line of the school to the closest property line of the lot on which the cannabis-related business is to be located without regard to intervening structures, pursuant to California Health and Safety Code section 11362.768; or

b. Within two hundred fifty feet (250') of a youth-oriented facility other than a school, as defined in section 5702R of this code, with that distance measured by street frontage from the property line of the youth-oriented facility to the closest property line of the lot on which the cannabis-related business is to be located, and not radial distance; or

c. Abutting, on any side of the parcel upon which the cannabis-related business is located, a parcel occupied by a youth-oriented facility or a school; or

d. Within any residential zoned parcel or primary land use, or any property with an underlying residential or mobile homes general plan land use designation; or

e. On a parcel having a residential unit, or on a parcel directly abutting a residentially zoned property, unless there are intervening nonresidential uses between the cannabis-related business and the residential unit or the residentially zoned property that the decision-making entity charged with hearing and making the decision on the use permit application or the appeal of that decision determines sufficient to provide an appropriate separation.

2. A cannabis retailer, as defined in section 9278 of this code, shall not be allowed within two hundred fifty feet (250') of another cannabis retailer, with that distance measured by street frontage from the property line of the other cannabis retailer to the closest property line of the lot on which the cannabis retailer is to be located, and not radial distance.

3. A waiver of the provisions in subsections F1a through e and F2 of this section may be granted if the applicant demonstrates on plans and materials presented for review and the Planning Commission determines that a physical barrier or other condition exists which achieves the same purpose and intent as the distance separation requirements established herein, and that, as a result, the Zoning Administrator or the Planning Commission makes a finding of no adverse impact resulting from the proposed location of the cannabis-related business.

4. A Cannabis Cultivation Business located in the A-E district and in the P-F District with A- overlay will not be subject to the location limitations set forth in Subsections F.1.a through F.1.e of this Section.

§9174.3 CANNABIS RETAILERS

A. Applicability: The standards and requirements in this section apply specifically to cannabis retailers, as defined in section 9278 of this code, and other cannabis businesses with a retail component, and shall apply in addition to the requirements and standards for all cannabis businesses set forth in section 9174.2 of this code and elsewhere in this code. In the event of any conflict between the requirements of this section and those included elsewhere in the City Code, the requirements of this section shall control.

* * *

C. Operating Requirements:

* * *

5. Consumption Restrictions:

a. Except as set forth in subsections C5b and c of this section, cannabis shall not be consumed on the premises of the cannabis retailer. ~~The term "premises" includes~~

~~the actual building, as well as, nor within~~ any accessory structures, parking areas, or other surroundings within two hundred feet (200') of the cannabis retailer's entrance.

b. Cannabis may be consumed in a designated cannabis consumption area on the premises of a cannabis retailer upon approval of a use permit or modification of an existing use permit. The smoking of cannabis may be permitted in a designated cannabis consumption area as may be allowable under state law and subject to the terms of the use permit. A cannabis retailer's operation and use of a cannabis consumption area shall otherwise comply with the provisions of Division 5, Chapter 7 of this code, entitled "No Smoking." Cannabis consumption areas shall be secured and designed to prevent access by individuals who are not eligible adult use patrons. If an existing use permit is modified to reflect the creation of a cannabis consumption area, that use permit shall be subject to renewal one year after the cannabis consumption area has become operational.

c. A retailer with a cannabis consumption area that is not enclosed, such as on a patio or a deck, may allow smoking, vaping, and ingesting edible products, subject to all local and State laws. ~~A retailer with a cannabis consumption area that is indoors in a fully enclosed secure structure shall be limited to allowing consumption of edible cannabis product or orally consumed concentrate only.~~

* * *

§9174.4 RESERVED COMMERCIAL CANNABIS CULTIVATION

A. Applicability: The standards and requirements in this section apply specifically to commercial Cultivation of Cannabis as defined in section 9278 of this Code, and shall apply in addition to the applicable requirements and standards for all cannabis businesses set forth in section 9174.2 of this Code and elsewhere in this Code. In the event of any conflict between the requirements of this section and those included elsewhere in the City Code, the requirements of this section shall control.

B. Development Criteria:

1. Location of Commercial Cannabis Cultivation- All Commercial Cannabis Cultivation businesses shall comply with the limitations on location for Cannabis Related Businesses set forth in Subsection 9174.2.F of this Code, except that businesses located in the A-E district and in a district combined with A- Overlay shall be exempted from these location limitations.

2. Setbacks: Commercial Cannabis Cultivation areas shall be setback a minimum of 50-feet from all lot lines and shall comply with the setback requirements set forth the State Water Resources Control Board's comprehensive Cannabis Cultivation General Order.

C. Operating Requirements:

1. Cannabis Waste Discharge Requirements General Order. A Commercial Cannabis Cultivation business shall demonstrate compliance with the State Water Resources Control Board's comprehensive Cannabis Cultivation Policy which includes principles and guidelines for cannabis cultivation, including regulations on the use of pesticides, rodenticides, herbicides, insecticides, fungicides, disinfectants, and fertilizers, within the State.

2. Odor control. A structure for Indoor or Mixed-Light Cultivation must be equipped with a filtration and ventilation system to control odors, humidity, and mold, provided that structures containing only packaged cannabis products may be excluded from this requirement.

3. Lighting. All lighting is to be fully shielded and downward casting so that it does not spill over onto neighboring properties. For operations cultivating within structures, all light is to be fully contained to minimize light trespass that is visible from neighboring parcels. A photometric and supplemental lighting plan shall be provided as a component of the application.

4. Accessory uses. Cannabis Cultivation may include accessory uses on the same parcel that directly support the onsite Cannabis Cultivation, such as: propagation, research and development, processing, drying, packaging and labeling, distribution, other similar support uses as determined by the Zoning Administrator.

5. Limitations on Cannabis harvesting activities. In order to minimize cannabis odors, the drying, curing, and/or trimming of harvested cannabis shall either (1) be located within an enclosed structure which utilizes best available control technology, or (2) include techniques and/or equipment (e.g., the use of freeze drying techniques/ equipment and immediate packaging of harvested cannabis in the field) that shall achieve an equivalent or greater level of odor control as could be achieved using an enclosed structure which utilizes best available control technology, or (3) be located at a sufficient distance from neighboring residential structures so as to avoid odor intrusion as a public nuisance as described in Subsection 9254.B.4 of this Code.

6. Generators. Generator use for Cannabis Cultivation must comply with the requirements set forth in California Code of Regulations, title 4, section 16306, as may be amended from time to time.

SECTION SIX.

Section 9254 in Article 19, Chapter 2, Division 9 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§9254 CANNABIS CULTIVATION

A. Definitions: As used herein the following definitions shall apply:

CULTIVATION: The planting, growing, harvesting, drying, or processing of ~~marijuana~~

cannabis plants or any part thereof.

FULLY ENCLOSED AND SECURE STRUCTURE: A space within a building that complies with the California Building Code, as adopted in the City of Ukiah ("CBC"), or, if exempt from the permit requirements of the CBC, that has a complete roof enclosure supported by connecting walls extending from the ground to the roof, a foundation, slab or equivalent base to which the floor is secured by bolts or similar attachments, is secure against unauthorized entry, and is accessible only through one or more lockable doors. Walls and roofs must be constructed of solid materials that cannot be easily broken through, such as two-inch (2") by four-inch (4") or thicker studs overlaid with three-eighth-inch (3/8") or thicker plywood or the equivalent. Plastic sheeting, regardless of gauge, or similar products do not satisfy this requirement. If indoor grow lights or air filtration systems are used, they must comply with the California Building, Electrical, and Fire Codes as adopted in the City of Ukiah.

IMMATURE MARIJUANA-CANNABIS PLANT: A marijuana-cannabis plant, whether male or female, that has not yet flowered and which does not yet have buds that are readily observed by unaided visual examination, and which is less than twelve inches (12") in height and less than twelve inches (12") in width.

INDOORS: Within a fully enclosed and secure structure.

MATURE MARIJUANA-CANNABIS PLANT: A marijuana-cannabis plant, whether male or female, that has flowered and which has buds that are readily observed by unaided visual examination.

MIXED-LIGHT: Within a greenhouse, hoop-house, glasshouse, conservatory, hothouse, or other similar structure using a combination of natural and artificial light and meeting the definition of "mixed-light" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

OUTDOOR: Any location within the City of Ukiah that is not within a fully enclosed and secure structure.

PARCEL: Property assigned a separate parcel number by the Mendocino County Assessor.

B. Cultivation Of Cannabis:

1. Outdoor Cultivation: Except as set forth in Subsection B.4 of this Section and in Section 9174.4 of this Code, it is hereby declared to be unlawful and a public nuisance for any person owning, leasing, occupying, or having charge or possession of any parcel within any zoning district in the City of Ukiah to cause or allow such premises to be used for the outdoor cultivation of marijuana plants.

* * *

4. Outdoor Commercial Cultivation Of Cannabis: A person owning, leasing, occupying,

or having charge or possession of any parcel within the City of Ukiah may cause or allow such parcel to be used for the outdoor commercial cultivation of cannabis if the person is operating that commercial cannabis cultivation business pursuant to a valid use permit within the A-E district or a district combined with -A overlay and in compliance with all requirements set forth in sections 9174.2, 9174.4, 9261, and 9262 of this Code and with all applicable State laws and regulations including licensing requirements.

54. Public Nuisance Prohibited: It is hereby declared to be unlawful and a public nuisance for any person owning, leasing, occupying, or having charge or possession of any parcel within the City of Ukiah to create a public nuisance in the course of cultivating ~~marijuana-cannabis~~ plants or any part thereof in any location, indoor or outdoor. A public nuisance may be deemed to exist, if such activity produces: (a) odors which are disturbing to people of normal sensitivity residing or present on adjacent or nearby property or areas open to the public, (b) repeated responses to the parcel from law enforcement officers, (c) a repeated disruption to the free passage of persons or vehicles in the neighborhood, (d) excessive noise which is disturbing to people of normal sensitivity on adjacent or nearby property or areas open to the public, or (e) any other impacts on the neighborhood which are disruptive of normal activity in the area.

C. Enforcement:

* * *

3. Summary Abatement Procedure:

* * *

d. A final order to abate the nuisance will subject the property owner or owners and any occupant or occupants of the property who are cultivating ~~marijuana-cannabis~~ in violation of this section to a civil penalty of five hundred dollars (\$500.00) for each day that the violation continues after the date specified in the notice under subsection C3a(3) of this section, when the violation must be abated. * * *

4. Violation: Cultivation of ~~marijuana-cannabis~~ on parcels within the City that does not comply with this section constitutes a violation of the zoning ordinance and is subject to the penalties and enforcement as provided in Chapter 2, Article 22 of this Division.

* * *

SECTION SEVEN.

Section 9261 of Article 20, Chapter 2, Division 9 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *):

§9261 DISCRETIONARY PLANNING PERMITS

The City’s discretionary planning permits include use permits, site development permits, and variances.

* * *

D. Major And Minor Use Permits, Site Development Permits, And Variances: At the time of application submittal, the **Planning Community Development** Director or assigned designee shall determine if the proposed project constitutes a major or minor use permit, site development permit, or variance. The **Planning Community Development** Director or assigned designee shall be guided by the following criteria when determining whether a discretionary planning permit is major or minor:

* * *

5. a. In all zoning districts in which they are a permitted use, the following cannabis-related businesses shall be considered major uses:

~~Cannabis cultivation—Processor.~~

~~Cannabis cultivation—Specialty cottage.~~

~~Cannabis cultivation—Specialty indoor.~~

~~Cannabis cultivation—Specialty mixed light.~~

Cannabis microbusiness.

Cannabis nursery.

Cannabis retailer.

Major use permits issued for cannabis-related businesses shall be subject to review after the first year of operation, and shall be subject to review and revocation procedures set forth in subsections 9174.2D and E of this code.

b. In all zoning districts in which they are a permitted use, the following cannabis-related businesses shall be considered minor uses:

Cannabis Cultivation – All Types.

Cannabis distribution.

Cannabis manufacturer – Level 1.

Cannabis manufacturer – Packaging.

Cannabis Manufacturer – Shared use.

Minor use permits issued for cannabis-related businesses shall be subject to review after the first year of operation, and shall be subject to review and revocation procedures set forth in subsections 9174.2D and E of this code.

* * *

SECTION EIGHT.

Article 21 in Division 9, Chapter 2 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§ 9278 DEFINITIONS

A. Any words or phrases not defined within this article shall be defined as set forth in current dictionaries. If no dictionary defines a particular term, the City **Planning Community Development Director** shall have the authority to define the term or equate it to a defined term that is similar in nature.

B. For purposes of this article, the words and phrases set out herein shall have the following meanings:

* * *

~~AGRICULTURAL PROCESSING: The processing, treatment or remanufacture of agricultural products on a commercial basis. Typical uses include wineries, packing and canning plants, feedlots, and livestock auction yards.~~

* * *

~~ANIMAL PRODUCTION: Raising of animals or production of animal products such as meat, eggs or dairy products. Typical uses include grazing, ranching, dairy farming, and poultry farming.~~

~~ANIMAL RAISING—GENERAL AGRICULTURE means the raising of crops or livestock on parcels greater than forty thousand (40,000) square feet or zoned A-E and shall include:~~

- ~~1. Grazing of livestock and feeding and caring incidental thereof;~~
- ~~2. Animal husbandry including, without limitation, the breeding and raising of cattle, sheep, horses, goats, pigs, rabbits, and poultry, including egg production;~~
- ~~3. Sale of agricultural products grown, raised, or produced on the premises;~~
- ~~4. 4-H, FFA or similar projects shall be permitted in all zoning districts.~~

~~ANIMAL RAISING—PERSONAL means the raising of hen chickens or rabbits for personal use on parcels forty thousand (40,000) square feet or less in size in accordance with the following criteria:~~

- ~~1. No more than six (6) of any one (1) or combination of such animals on the lot~~
- ~~2. Maintained in coops or pens located at a distance of fifty (50) feet or more from buildings used for human habitation;~~
- ~~3. Coops or pens shall be located only on the rear one-third (1/3) of the lot;~~
- ~~4. Coops or pens shall be located no closer than five (5) feet from the side or rear property line.~~

ANIMAL SALES AND SERVICES: Establishments or places of business primarily engaged in animal related sales and services. The following are animal sales and services use types:

1. Animal Sales and Services—Auctioning. Auctioning of livestock on a wholesale or retail basis with incidental storage of animals produced off property not exceeding seventy-two (72) hour periods. Typical uses include animal auctions or livestock auction yards.
2. Animal Sales and Services—Household Pets. Retail sales and grooming of dogs, cats, birds, fish and similar small animals customarily used as household pets. Typical uses include pet stores, dog bathing and clipping salons, or pet grooming shops.
3. Animal Sales and Services—Horse Stables. Boarding, breeding or raising of horses not owned by the occupants of the premises or riding of horses by other than the occupants of the premises or their nonpaying guests. Typical uses include boarding stables or public stables.
4. Animal Sales and Services—Kennels. Kennel services for dogs, cats and similar small animals. Typical uses include boarding kennels, pet motels or dog training centers.
5. Animal Sales and Services—Stockyards. Stockyard services involving the temporary keeping of transient livestock for slaughter, market or shipping. Typical uses include stockyards or animal sales yards.
6. Animal Sales and Services—Veterinary (Large Animals). Veterinary services for large animals. Typical uses include animal hospitals (large animals) and veterinary hospitals (large animals). Typical uses include clinics for the treatment of sheep, cattle, horses, goats and similar large animals.

ANIMAL WASTE PROCESSING: Processing of animal waste and byproducts, including but not limited to animal manure, animal bedding waste, and similar byproducts of an animal raising agricultural operation, for use as a commercial fertilizer or soil amendment and including composting operations.

* * *

CANNABIS CULTIVATION: Shall have the same definition as set forth for "cultivation" in Business and Professions Code section 26001(k), as may be amended from time to time.

CANNABIS CULTIVATION – INDOOR: Shall have the same definition as set forth for "indoor cultivation" in California Code of Regulations, title 4, section 15000(cc), as may be amended from time to time. For purposes of this code, indoor cultivation involves cultivation of cannabis within a fully enclosed secure structure, as defined in section 9254 of this code.

CANNABIS CULTIVATION – LARGE INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "large indoor" set forth in California Code of Regulations, title 4, section 16201.1, as may be amended from time to time.~~Indoor cultivation using exclusively artificial lighting greater than twenty-two thousand (22,000)~~

~~square feet, inclusive, of total canopy size on one premises.~~

CANNABIS CULTIVATION – LARGE MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "large mixed light" set forth in California Code of Regulations, title 4, section 16201.1, as may be amended from time to time.~~Indoor-cultivation using any combination of natural and supplemental artificial lighting, greater than twenty-two thousand (22,000) square feet, inclusive, of total canopy size on one premises.~~

CANNABIS CULTIVATION – LARGE OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "large outdoor" set forth in California Code of Regulations, title 4, section 16201.1, as may be amended from time to time.

CANNABIS CULTIVATION – MEDIUM INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "medium indoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – MEDIUM MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "medium mixed light tier 1 and 2" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – MEDIUM OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "medium outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – OUTDOOR: Shall have the same definition as set forth for "outdoor cultivation" in California Code of Regulations, title 4, section 15000(xx), as may be amended from time to time. For purposes of this Code, commercial outdoor cultivation involves cultivation of cannabis that is not within a fully enclosed secure structure, as defined in section 9254 of this Code.

CANNABIS CULTIVATION – PROCESSOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "processor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SMALL INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "small indoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SMALL MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently

established, and meeting the definition of "small mixed light tier 1 and 2" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SMALL OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "small outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY COTTAGE: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty cottage" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY COTTAGE OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty cottage outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty indoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty mixed light tier 1 and 2" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

* * *

COMMERCIAL WOODLOTS: Open or closed storage of firewood for wholesale or retail sales, regardless of where the firewood products are produced.

* * *

COMMUNITY RECREATION: Recreational, social or multipurpose uses owned or operated by a public entity. Typical uses include public parks, sports facilities, senior citizen centers, nature centers, teen centers, playhouses, auditoriums and recreational centers.

* * *

CROP PRODUCTION: Growing and harvesting of tree, row or field crops, or horticultural specialties, including incidental packing and processing. Typical uses include orchards, vineyards, and wholesale plant nurseries.

* * *

DAY CARE FACILITY / SMALL SCHOOL: Care or education of seven (7) or more, but not to exceed twenty-five (25) persons regardless of age or handicap but excluding overnight care or uses classified as group care or other facilities exempted by the California Health and Safety Code, e.g. Day Care Homes -Small and Large, or major impact services and utilities. Typical uses include day nurseries for children, child day care facilities, or day care for elderly, and small schools.

* * *

EMPLOYEE HOUSING: Employee housing consistent with the Employee Housing Act as specified in California Health and Safety Code §§ 17000 through 17062.5.

* * *

FARM STAND: A small-scale structure or area for the seasonal or year-round sale of agricultural products grown or produced on the same premises or within the local area. The farm stand is generally temporary or semi-permanent in nature, does not exceed 200 square feet and obtains any needed building or encroachment permits, and may only sell agricultural goods or value-added products directly produced from on-site agricultural operations.

* * *

FOREST PRODUCTION AND PROCESSING: Refers to the growing, harvesting and production of forest products and forest byproducts including growing, milling and sales of forest products. The following are forest production and processing use types:

1. Forest Production and Processing: Limited. The growing, harvesting, air drying or kiln drying, milling, packaging, packing, shipping and selling of forest products, produced on the premises or experimental tree farms and tree nurseries.
2. Forest Production and Processing: General. The growing, harvesting, air drying or kiln drying, milling, packaging, packing, shipping and selling of forest products regardless of where they are grown and also forestry related research laboratories.
3. Forest Production and Processing: Commercial Woodlots. Open or closed storage of firewood for wholesale or retail sales, regardless of where the firewood products are produced.

* * *

HORTICULTURE: Premises devoted to horticultural and floracultural specialties such as flowers, shrubs, and trees intended for ornamental or landscaping purposes. Typical uses include wholesale/retail nurseries limited to the sale of horticulture and horticulture specialties grown on site and in green houses. The art or science of growing flowers, shrubs, fruits, and vegetables.

* * *

MAJOR IMPACT FACILITIES: Services or facilities which may have a substantial impact. Typical uses include airports, hospitals, group care for more than twenty-five (25) persons, detention and correction institutions, and corporation yards.

MAJOR IMPACT SERVICES AND UTILITIES: Services or utilities which may have a substantial impact. Such uses may be conditionally permitted when the public interest supersedes the usual limitations placed on land use and transcends the usual restraints of zoning for reasons of necessary location and community wide interest. Typical places or uses are power generating facilities, Battery Energy Storage Systems, sewage disposal facilities, septage disposal facilities and sites, sanitary landfills and water treatment plants, and radio, telephone and other commercial communication transmission towers and antennas.

* * *

PACKING AND PROCESSING: Packing or processing of agricultural crops, animals and their byproducts which entails more than picking, cutting, sorting and boxing or crating, but does not include rendering, tanning, or reduction of meat. The following are packing and processing use types:

1. Packing and Processing—Limited. Packing or processing of crops grown on the premises;
2. Packing and Processing—Winery. Crushing of grapes and fermentation, storage, and bottling of wine from grapes grown on or off the premises. Said use type also includes tasting rooms in conjunction with a winery and breweries provided said tasting room occupies less than twenty-five percent (25%) of the floor space of the winery;
3. Packing and Processing—General. Packing or processing of crops, mineral water, animals or their byproducts regardless of where they were grown or found. Includes mineral water bottling plants;

* * *

ROW AND FIELD CROPS: Premises devoted to the cultivation for sale of agricultural products grown in regular or scattered patterns such as vines, field, forage and other plant crops intended to provide food or fibers.

* * *

TRANSIENT HABITATION: Establishments primarily engaged in the provision of lodging services on a less than monthly basis with incidental food, drink and other sales and services intended for the convenience of guests. The following are transient habitation use types:

1. Transient Habitation—Campground. Campground services involving transient habitation areas for travelers in recreational vehicles or tents. Typical uses include recreational vehicle parks or campgrounds. Uses within this use type are subject to Chapter 20.176, Recreational Vehicle Parks and Campgrounds.
2. Transient Habitation—Lodging (Limited). Lodging services involving the provision of room and/or board. Typical uses include hotels, motels, inns, or transient boarding

houses with three (3) to six (6) rooms.

3. Transient Habitation—Lodging. Lodging services involving the provision of room and/or board. Typical uses include hotels, motels, inns, or transient boarding houses with seven (7) or more rooms.

4. Transient Habitation—Resort and Recreational Facilities. Resort services including the provision of extensive outdoor recreation and entertainment services especially for vacationers. Typical uses include resort and recreational facilities, health spas, resort hotels and motels, guest ranch, inns or organized camps.

* * *

TREE CROPS: Premises devoted to the cultivation for sale at wholesale of tree-grown agricultural products such as pears, apples, walnuts and Christmas trees but excluding other forestry products.

SECTION NINE.

1. SEVERABILITY.

If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council of the City of Ukiah hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

2. EFFECTIVE DATE.

This Ordinance shall be published as required by law in a newspaper of general circulation in the City of Ukiah, and shall become effective thirty (30) days after its adoption.

Introduced by title only on _____, 2024, by the following roll call vote:

AYES:

NOES: None

ABSENT: None

ABSTAIN: None

Adopted on _____, 2024, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST:

Josefina Dueñas~~Douglas Crane~~, Mayor

Kristine Lawler, CMC/City Clerk

DRAFT

ORDINANCE NO. 2024 - __**ORDINANCE OF THE CITY COUNCIL OF THE CITY OF UKIAH AMENDING VARIOUS SECTIONS OF DIVISIONS 7 AND 9 OF THE CITY CODE TO REGULATE AGRICULTURAL USES AND CERTAIN CANNABIS BUSINESS STANDARDS.**

The City Council of the City of Ukiah hereby ordains as follows:

SECTION ONE. FINDINGS

1. It is the policy of the City of Ukiah to implement shared approaches to local agriculture and strengthen existing City policies regarding preservation and enhancement of regional working lands; and
2. Agricultural production has been an important part of the regional economy for generations and will continue to be a foundational component for decades to come. In addition to the economic benefits, agricultural lands provide a pastoral quality that helps define the character of the Ukiah Valley. If undertaken appropriately by addressing issues related to health and, potential nuisances (e.g., noise, odor, aesthetics), urban agriculture can improve access to healthy food, promote community development, and create jobs.
3. It is a goal of the City of Ukiah to preserve and strengthen agricultural uses in and around Ukiah that influence the regional economy (AG-1), and as a policy of its Agriculture Element of the 2040 General Plan, the City shall reduce conflict between incompatible uses and agriculture within and adjacent to the City (AG – 1.1).
4. To implement this policy the City shall revise agricultural standards and use terminology to be consistent with adjacent jurisdictions within the Ukiah Valley for the support of future annexation efforts (Agriculture Implementation Program C).

SECTION 2

Section 6093 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *)”:

§6093 CANNABIS CULTIVATION PROHIBITED

A. Except as set forth in Sections 9174.4 and 9254 of this Code regarding commercial cannabis cultivation, outdoor cultivation of cannabis, or indoor cultivation in excess of six (6) mature plants or twelve (12) immature plants per private residence, as defined in Health and Safety Code section 11362.2(b)(5) or as may be amended, for personal use, within the City limits of the City of Ukiah in violation of section 9254 of this code is prohibited and constitutes a violation of this article.

* * *

§6094 SEIZURE AND DESTRUCTION OF CANNABIS

Except as otherwise expressly stated in this section, all cannabis seized by the city police in the enforcement of this article shall be seized, retained and destroyed in the same manner and subject to the same procedures as are provided in California Health and Safety Code sections 11472-11479, for cannabis possessed in violation of division 10 of the Health and Safety Code. The requirements in subsection (b) of Health and Safety Code section 11479, prescribing the conditions that must be satisfied before seized cannabis

may be destroyed without a court order, as applied by this section, are revised as follows:

* * *

SECTION THREE.

Article 10 in Division 9, Chapter 2 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§ 9125 COMBINING AGRICULTURAL OR -A DISTRICTS

A Combining Agricultural (-A) District may be combined with any district or portion of a district defined in this Chapter. The regulations contained in this Article, and the regulations governing any district which is combined with a Combining Agricultural (-A) District shall apply in all combining Agricultural (-A) Districts.

§ 9126 USES ALLOWED

The following uses are allowed uses in Combining Agricultural (-A) Districts in addition to the uses allowed or permitted in any district with which an (-A) District is combined and providing the property is a minimum of five (5) acres in size

- A. Animal Raising – Personal.
- B. Forest Production and Processing – Limited.
- C. Horticulture.
- D. Packing and Processing – Limited.
- B. Row and Field Crops.
- C. Tree Crops.
- D. Farm Stand.

§ 9127 USES PERMITTED

The following uses may be permitted in a Combining Agricultural (-A) District subject to first securing a minor use permit, as provided in this chapter, in each case, in addition to the uses allowed or permitted in any district with which a (-A) district is combined and provided the property is a minimum of five (5) acres in size.

- A. Animal Raising – General Agriculture.
- B. Animal Sales and Services - Kennels

- C. Animal Sales and Services—Horse Stables.
- D. Animal Sales and Services—Veterinary (Large Animals).
- E. Employee Housing.
- F. Outdoor or Mixed-Light Commercial Cannabis Cultivation of all license types set forth in California Code of Regulations, title 4, section 16201 and section 16201.1, as may be amended from time to time.

SECTION FOUR.

Article 13 in Division 9, Chapter 2 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§9160 AGRICULTURAL EXCLUSIVE OR A-E DISTRICT

A. This district is intended to be an exclusive district for agriculture and those uses which are necessary and an integral part of the agricultural operation. This district has been created to protect and preserve the limited amount of agricultural soils from encroachments of nonrelated agricultural uses which, by their nature, would be injurious to the physical and economical well-being of the agricultural operations.

B. The following specific regulations and general regulations set forth in Article 16 shall apply in all A-E Districts:

C. Uses Allowed:

1. Residential & Accessory Uses

Accessory dwelling units (ADU), as regulated by Chapter 2, Article 5.3 of this Division.

Employee Housing.

Home occupations.

Junior accessory dwelling units (JADUs), as regulated by Chapter 2, Article 5.4 of this Division.

Single-family residential dwellings, including manufactured/modular homes.

Small and large family daycare homes.

2. Agricultural Uses.

Animal raising—general agriculture.

Animal raising—personal.

Horticulture.

Dairies and the production of dairy products from milk produced on the premises.

Packing and processing—limited.

Packing and processing—winery.

Production of fish life or fish products for commercial purposes (hatcheries, ponds, etc.)

Row and Field Crops.

Tree Crops.

3. Civic Uses

Day care facilities/small schools.

Safety Services.

Utility Service Minor.

4. Commercial Uses

Farm Stands.

D. Uses Requiring Minor Use Permits: The following compatible uses and those which, in the opinion of the Community Development Director, may be substantially similar in nature thereto shall be permitted, but only upon the securing of a use permit pursuant to this Chapter:

1. Residential Uses

Dwelling Group.

Supportive housing, subject to the same density limitation and to the same regulations applicable to other residential dwelling of the same type.

Transitional housing, subject to the same density limitation and to the same regulations applicable to other residential dwelling of the same type.

2. Agricultural Uses

Forest production and processing—limited.

Packing and processing general.

3. Commercial Uses

Agricultural sales and services.

Animal sales and services—auctioning.

Animal sales and services—horse stables.;

Animal sales and services—kennels.

Animal sales and services—stockyards.

Animal sales and services—veterinary (large animals).

Outdoor or Mixed-Light Commercial Cannabis Cultivation of all license types set forth in California Code of Regulations, title 4, section 16201 and section 16201.1, as may be amended from time to time.

Sale of food products produced off the premises, provided that the sale of such products is incidental and secondary to the sale of agricultural products produced upon the premises.

Recreational use, meaning the use of land by the public, with or without charge, for any of the following recreational uses: walking, hiking, picnicking, camping, swimming, boating, fishing, hunting or other outdoor games for which no structures or buildings not permitted by the use permit are provided.

E. Uses Requiring Major Use Permits: The following compatible uses and those which, in the opinion of the Planning Commission, may be substantially similar in nature thereto shall be permitted, but only upon the securing of a major use permit pursuant to this Chapter:

1. Agricultural Uses

Animal waste processing.

Forest production and processing—commercial woodlots.

Forest production and processing—portable sawmills.

2. Commercial Uses

Transient habitation—campground.

Transient habitation—lodging (limited).

Transient habitation—resort and recreational facilities.

3. Civic Uses

Educational Facilities.

Major impact facilities.

Major impact services and utilities.

F. Minimum lot area. Forty (40) acres.

G. Minimum front yard. Fifty feet (50').

H. Minimum side yard. Fifty feet (50').

I. Minimum rear yard. Fifty feet (50').

J. Any nonconforming parcel which is less than twenty (20) acres shall observe a minimum front, side and rear yard of twenty five (25) feet

K. Maximum building height. Not to exceed thirty-five feet (35') for residential buildings, all other buildings fifty feet (50').

L. Maximum Dwelling Density. One (1) single-family dwelling per legally created parcel, except as separately provided for below. Construction of more than one single-family dwelling may be permissible as a Dwelling Group and shall be consistent with the following density standard: One (1) unit per forty (40) acres.

SECTION FIVE.

Article 15.7 of Chapter 2 in Division 9 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *):

§9174 PURPOSE

This article provides site planning, development, and/or operational standards for certain land uses that are allowed in certain zoning districts and are subject to discretionary review through the use permit process but that may have unique adverse impacts. The standards for each use are intended to mitigate any potentially adverse impacts associated with the specific use.

§9174.1 APPLICABILITY

The land uses and activities included in this article shall comply with the provisions of the

section applicable to the specific land use, in addition to all other applicable provisions of this article and the Ukiah City Code.

A. Where Allowed: The uses that are subject to the standards in sections 9174.2 through 9174.9 of this code shall only be located in the zoning districts indicted in Chapter 2, Articles 3 through 15, or as otherwise indicated in this chapter.

B. Development Standards: The standards for specific land uses included in this article are required and supplement those included in the Ukiah City Code. In the event of any conflict between the requirements of this article and those included elsewhere in the City code, the requirements of this article shall control.

§9174.2 CANNABIS-RELATED BUSINESSES

A. Cannabis-Related Business Use Permit Application Requirements:

1. Submission: A complete use permit application submittal packet shall be submitted in accordance with section 9262 of this code, including a detailed written statement as to how the proposed cannabis-related business complies with this section, and any other information or submissions required by this code. All applications for use permits for cannabis-related businesses shall be filed with the Community Development Department, using forms provided by the City, and accompanied by the applicable filing fee and any other applicable fees or charges. It is the responsibility of the applicant to provide information required for approval of the permit. The application shall be made under penalty of perjury.

2. Effect Of Other Permits Or Licenses: The fact that an applicant possesses other types of State or City permits or licenses does not exempt the applicant from the requirement of obtaining a use permit.

3. Submittal Requirements: Any application for a use permit for a cannabis-related business shall include the following information, unless the information is inapplicable for applicant's business type:

a. Applicant(s) Name: The full name (including any current or prior aliases, or other legal names the applicant is or has been known by, including maiden names), present address, and telephone number of the applicant;

b. Applicant(s) Mailing Address: The address to which notice of action on the application is to be mailed;

c. Verification Of Age: Written proof that the applicant is at least twenty-one (21) years of age;

d. Physical Description: Applicant's height, weight, color of eyes and hair;

e. Photographs: Passport quality photographs for identification purposes;

- f. Tax History: The cannabis-related business tax history of the applicant, including whether such person, in previously operating in this or another city, county or state under license, has had a business license revoked or suspended, the reason therefor, and the business or activity or occupation in which the applicant engaged subsequent to such action of suspension or revocation;
- g. Management Information: The name or names and addresses of the person or persons having the management or supervision of applicant's business;
- h. Criminal Background: A completed background investigation verifying whether the applicant or any owner, as defined in Business and Professions Code section 26001(ap), as may be amended from time to time, of applicant's business have been convicted of a crime(s), the nature of such offense(s), and the sentence(s) received therefor;
- i. Employee Information: Number of employees, volunteers, and other persons who will work at the cannabis-related business;
- j. Plan Of Operations: A plan of operations describing how the cannabis-related business will operate consistent with the intent of State law, including obtaining all applicable State licenses, and the provisions of this section, including but not limited to ensuring that the cannabis-related business will not engage in cannabis-related commercial activities that violate California law or this chapter;
- k. Written Response To Cannabis-Related Business Standards: The applicant shall provide a comprehensive written response identifying how the cannabis-related business plan complies with each of the standards for review in this chapter, specifically the limitation on location and operating requirements in this article;
- l. Security Plan: A detailed security plan and diagram outlining the proposed security arrangements for ensuring the safety of persons and to protect the premises from theft. The plan shall include installation of security cameras, a premises and panic alarm system monitored by a licensed operator, and a security assessment of the site conducted by a qualified professional;
- m. Floor Plan: A sketch or diagram showing the interior configuration of the premises, including a statement of the total floor area occupied by the cannabis-related business. The sketch or diagram need not be professionally prepared, but must be drawn to a designated scale or drawn with marked dimensions of the interior of the premises to an accuracy of plus or minus six inches (6");
- n. Site Plan: A sketch or diagram showing exterior configuration of the premises, including the outline of all existing and proposed structures, parking

and landscape areas, and property boundaries. The sketch or diagram need not be professionally prepared, but must be drawn to a designated scale or drawn with marked dimensions to an accuracy of plus or minus six inches (6");

o. Accessibility Evaluation: A written evaluation of accessibility to and within the building, and identification of any planned accessibility improvements;

p. Neighborhood Context Map: An accurate straight-line drawing depicting the building and the portion thereof to be occupied by the cannabis-related business, and: (1) the property lines of any school within six hundred feet (600') of the property line of the business for which a permit is requested, (2) the property lines of any cannabis-related business within two hundred fifty feet (250') of the primary entrance of the business for which a permit is requested, and (3) the property lines of any youth-oriented facility or residential zone or use within two hundred fifty feet (250') of the primary entrance of the business;

q. Lighting Plan: A lighting plan showing existing and proposed exterior premises and interior lighting levels that would be the minimum necessary to provide adequate security lighting for the use and comply with all City standards regarding lighting design and installation. All lighting shall be fully hooded and downcast, and shall not shine towards the night sky, adjacent property or any street;

r. City Authorization: Written authorization for the City, its agents and employees to seek verification of the information contained within the application;

s. Statement of Owner's Consent: A statement in writing by the owner that he or she certifies under penalty of perjury that the applicant has the consent of the owner and landlord to operate a cannabis-related business at the location;

t. Applicant's Certification: A statement in writing by the applicant that he or she certifies under penalty of perjury that all the information contained in the application is true and correct;

u. Other Information: Such other information as deemed necessary by the Community Development Department to demonstrate compliance with this section including all City and State codes, including operating requirements established in this section.

4. Effect Of Incomplete Filing: Upon notification that an application submittal is incomplete, the applicant shall submit any additional documents or information required to complete the application within thirty (30) days of the date the applicant is notified in writing by the ~~Planning~~ Community Development Department that the application is incomplete. If the applicant fails to complete the application within said thirty (30) days, the application shall be deemed withdrawn and a new application

submittal that complies with this section shall be required in order to proceed with the application.

B. Operating Requirements For Cannabis-Related Businesses: Cannabis-related business operations shall be established and managed only in compliance with the following standards:

1. Criminal History: Any applicant and any additional owner of the business, as defined in Business and Professions Code section 26001(ap) and as may be amended, shall not have been convicted of any of the felony offenses enumerated in Business and Professions Code section 26057(b)(4), or of a felony or misdemeanor involving moral turpitude, or on probation for a drug offense, or engaged in misconduct related to the qualifications, functions or duties of a permittee. Notwithstanding the above, an application shall not be denied solely on the basis that the applicant or any owner has been convicted of a felony, if the person convicted has obtained a certificate of rehabilitation (expungement of felony record) under California law or under a similar Federal statute or State law where the expungement was granted. In addition, notwithstanding the above, a prior conviction, where the sentence, including any term of probation, incarceration, or supervised release, is completed, for possession of, possession for sale, sale, manufacture, transportation, or cultivation of cannabis or cannabinoid preparations, is not considered related to the qualifications, functions, or duties of a permittee, and shall not be the sole ground for denial of an application.

2. Minors:

a. It is unlawful for any permittee, operator, or other person in charge of any cannabis-related business to employ any person who is not at least twenty-one (21) years of age.

b. The burden of proof is on the cannabis-related business personnel to establish compliance with this subsection B2 of this section by clear and convincing evidence.

3. Inventory And Tracking: Cannabis-related businesses shall at all times operate in a manner to prevent diversion of cannabis and shall promptly comply with any track and trace program established by the State.

4. Multiple Permits Per Site: Multiple cannabis-related businesses proposed on any one site or parcel shall be granted permit approval only if all of the proposed cannabis businesses and their co-location are authorized by both City and State law. Operators of cannabis-related businesses issued use permits for multiple business types or State license types at the same physical address shall maintain clear separation between license types unless otherwise authorized by this code and State law.

5. Operating Plans: An operating plan for a cannabis-related business must contain the following unless not applicable due to the location or nature of the business:

- a. Storage: A cannabis-related business shall have suitable locked storage on premises, identified and approved as a part of the security plan, for after-hours storage of cannabis and cannabis products.
- b. Odors Control: The cannabis-related business shall have an air treatment system that prevents odors generated from any storage and cultivation of cannabis on the business property from being detected by any reasonable person of normal sensitivity outside the cannabis-related business premises. To achieve this, both the storage and cultivation areas shall be, at minimum, mechanically ventilated with a carbon filter or superior method. This requirement shall not apply to Outdoor Commercial Cultivation of Cannabis, as odor control will be achieved through location restrictions.
- c. Security Plans: A cannabis-related business shall provide adequate security on the premises, as approved by the Chief of Police, including lighting and a premises and panic alarm system monitored by a licensed operator, to ensure the safety of persons and to protect the premises from theft.
- d. Security Cameras: Security surveillance cameras shall be installed to monitor the main entrance and exterior of the premises to discourage loitering, crime, illegal or nuisance activities. The security surveillance system shall comply with current State standards for digital video surveillance systems to be installed on the premises of licensed cannabis businesses, currently codified in the California Code of Regulations, Title 16, Section 5044, and as may be amended.
- e. Security Video Retention: Security video shall be maintained for ninety (90) days. In the event of a crime on site or anywhere within range of the cannabis-related business's security cameras, the cannabis-related business shall provide the Chief of Police or his or her designee with a useable digital copy of the security video upon request or at the earliest convenience.
- f. Alarm System: Professionally monitored premises and panic alarm system shall be installed and maintained in good working condition.
- g. Emergency Access: Security measures shall be designed to ensure emergency access in compliance the California Fire Code and Ukiah Valley Fire Authority standards.
- h. Emergency Contact: A cannabis-related business shall provide the Chief of Police with the name, email address, phone number and facsimile number of an on-site community relations staff person to whom one can provide notice if there are operating problems associated with the business. The business shall make every good faith effort to encourage neighborhood residents to call this person to try to solve operating problems, if any, before any calls or complaints are made to the City.

6. Employee Records: Each owner or operator of a cannabis-related business shall maintain a current register of the names of all volunteers and employees currently working at or employed by the cannabis-related business, and shall disclose such registration for inspection by any City officer or official for purposes of determining compliance with the requirements of this article.

7. Compliance With Other Requirements: The operator shall comply with all applicable provisions of local, State or Federal laws, regulations or orders, as well as any condition imposed on any permits issued pursuant to applicable laws, regulations or orders.

8. Confidentiality: The information provided for purposes of this section regarding the cannabis business security plans, security site plan, and background checks shall be maintained by the City as confidential information, and shall not be disclosed as public records unless pursuant to subpoena issued by a court of competent jurisdiction or otherwise compelled by court order or the California Public Records Act.

9. Display Of Permit: Every cannabis-related business shall display at all times during business hours the use permit issued pursuant to the provisions of this chapter for such business in a conspicuous place so that the same may be readily seen by all persons entering the business.

10. Inspections: During normal business hours, cannabis-related businesses permitted under this chapter shall provide access for administrative inspections by City officials or officers or consultants hired by the City to verify compliance with this article. Any cannabis-related business's refusal to comply with this section shall be deemed a violation of this article.

11. Notification Of Theft, Loss, And Criminal Activity: Cannabis-related businesses shall comply with the California Code of Regulations, Title 16, Section 5036, or as may be amended, by notifying the applicable State authorities and the Ukiah Police Department within twenty-four (24) hours of discovery of any of the following situations:

- a. A significant discrepancy in the business's inventory.
- b. The operator becomes aware of or has reason to suspect diversion, theft, loss, or any other criminal activity pertaining to the operations of the business.
- c. The operator becomes aware of or has reason to suspect diversion, theft, loss, or any other criminal activity by an agent or employee of the business pertaining to the operations of the business.
- d. The operator becomes aware of or has reason to suspect the loss or unauthorized alteration of records related to cannabis goods, customers or clients, or the business's employees or agents.

e. The operator becomes aware of or has reason to suspect any other breach of security.

The notification shall be in writing and include the date and time of occurrence of the theft, loss, or criminal activity and a description of the incident including, where applicable, the item(s) that were taken or lost.

C. Review And Revocation: Use permits issued for cannabis-related businesses shall be subject to review after the first year of operation according to the procedures set forth in subsection D of this section, and shall be subject to revocation according to the procedures set forth in subsection E of this section.

D. Review Of Use Permits For Cannabis-Related Businesses:

1. Use permits for cannabis-related business will be subject to review after the first year of operation by the Zoning Administrator, including inspection of the business by the Zoning Administrator or his designee, to determine whether the business is being operated in accordance with any conditions of approval imposed on the use permit as issued by the Planning Commission or Zoning Administrator. The City Council may, from time to time by resolution in accordance with the procedures required by law, establish fees to be charged and collected for annual review pursuant to this subsection.

2. In the course of review and after inspection, the Zoning Administrator shall make findings of fact regarding the cannabis-related business operator's adherence to the conditions of approval for the use permit. In addition, the Zoning Administrator will consider the following nonexclusive criteria in making findings of fact which may be grounds for revocation of a use permit for a cannabis-related business:

a. Whether the cannabis-related business operated pursuant to the use permit has generated an excessive number of calls for police service compared to similarly situated businesses of the same size as the cannabis-related business.

b. Whether there have been excessive secondary criminal or public nuisance impacts in the surrounding area or neighborhood, including, but not limited to, disturbances of the peace, illegal drug activity, cannabis use in public, harassment of passersby, littering, loitering, illegal parking, loud noises, odors, or lewd conduct.

c. Whether the cannabis-related business operating pursuant to a use permit has a history of inadequate safeguards or procedures that show it is likely that it will not comply with any operating requirements and standards required in the conditions of approval.

d. Whether the cannabis-related business has failed to pay fees, penalties, or taxes required by the conditions of approval of the use permit or by this code

or State law, or has failed to comply with any requirements for the production of records or other reporting requirements of this code.

e. Whether the applicant or any owner of the cannabis-related business, as defined in Business and Professions Code section 26001(ap), as may be amended from time to time, has been convicted of a felony, or has engaged in misconduct that is substantially related to the qualifications, functions or duties of an operator of a cannabis-related businesses. A "conviction" within the meaning of this chapter means a plea or verdict of guilty, or a conviction following a plea of nolo contendere. Notwithstanding the above, an application shall not be denied solely on the basis that the applicant or any owner has been convicted of a felony, if the person convicted has obtained a certificate of rehabilitation (expungement of felony record) under California law or under a similar Federal statute or State law where the expungement was granted.

f. Whether the operator or managers of the cannabis-related business have previously or are currently engaged in unlawful, fraudulent, unfair, or deceptive business acts or practices.

g. Whether the cannabis-related business has been operated in compliance with applicable State law and provisions of this code generally.

3. If the Zoning Administrator determines that the cannabis-related business is being operated in violation of any conditions of approval imposed on the use permit as issued by the Planning Commission or the Zoning Administrator, the use permit may be subject to revocation.

E. Revocation Of Use Permits For Cannabis-Related Businesses:

1. In addition to the reasons for revocation of an approved use permit set forth in subsection 9262H2 of this code and subsection D2 of this section, an approved use permit for a cannabis-related business may be revoked through the City's revocation process, as set forth in subsection 9262H2 of this code, except that all references therein to the Planning Commission shall be deemed to refer to the Zoning Administrator, if the cannabis-related business is operated in a manner that violates the conditions of approval imposed by the use permit or the provisions of this code, or conflicts with State law. At the public hearing to be conducted by the Zoning Administrator as set forth in subsection 9262H2 of this code, the Zoning Administrator shall make findings regarding the alleged specific violations of this code or State law.

2. An appeal of the Zoning Administrator's decision on revocation of a use permit for a cannabis-related business may be made to the Planning Commission for a final decision. Any such appeal must comply with the requirements of section 9266 of this code, except that all references therein to the City Council shall be deemed to refer to the Planning Commission.

3. When a final decision revoking a use permit for a cannabis-related business is made as provided in this section, the permittee shall become ineligible for a period of three (3) years thereafter to apply for a use permit for a cannabis-related business. The ineligibility shall include any corporation or other business entity, including, but not limited to, a partnership or limited liability company, in which the permittee has any direct or indirect beneficial, financial or ownership interest.

F. Limitations on Locations of Cannabis-Related Businesses:

1. All cannabis-related businesses, as defined in section 9278 of this code, operating subject to use permits under this chapter will operate indoors in a fully enclosed secure structure, as defined in section 9254 of this code, except as set forth in subsection 9174.3(c)(5) of this code regulating cannabis consumption areas, and in Section 9174.4 of this Code regulating outdoor commercial cannabis cultivation in the A-E district and districts with -A overlay, and shall not be allowed in the following areas, except as otherwise set forth in this Code:

a. Within six hundred feet (600') of a school, as defined in section 5702P of this code, with that distance measured as the horizontal distance in a straight line from the property line of the school to the closest property line of the lot on which the cannabis-related business is to be located without regard to intervening structures, pursuant to California Health and Safety Code section 11362.768; or

b. Within two hundred fifty feet (250') of a youth-oriented facility other than a school, as defined in section 5702R of this code, with that distance measured by street frontage from the property line of the youth-oriented facility to the closest property line of the lot on which the cannabis-related business is to be located, and not radial distance; or

c. Abutting, on any side of the parcel upon which the cannabis-related business is located, a parcel occupied by a youth-oriented facility or a school; or

d. Within any residential zoned parcel or primary land use, or any property with an underlying residential or mobile homes general plan land use designation; or

e. On a parcel having a residential unit, or on a parcel directly abutting a residentially zoned property, unless there are intervening nonresidential uses between the cannabis-related business and the residential unit or the residentially zoned property that the decision-making entity charged with hearing and making the decision on the use permit application or the appeal of that decision determines sufficient to provide an appropriate separation.

2. A cannabis retailer, as defined in section 9278 of this code, shall not be allowed within two hundred fifty feet (250') of another cannabis retailer, with that distance measured by street frontage from the property line of the other cannabis retailer to

the closest property line of the lot on which the cannabis retailer is to be located, and not radial distance.

3. A waiver of the provisions in subsections F1a through e and F2 of this section may be granted if the applicant demonstrates on plans and materials presented for review and the Planning Commission determines that a physical barrier or other condition exists which achieves the same purpose and intent as the distance separation requirements established herein, and that, as a result, the Zoning Administrator or the Planning Commission makes a finding of no adverse impact resulting from the proposed location of the cannabis-related business.

4. A Cannabis Cultivation Business located in the A-E district and in the P-F District with A- overlay will not be subject to the location limitations set forth in Subsections F.1.a through F.1.e of this Section.

§9174.3 CANNABIS RETAILERS

A. Applicability: The standards and requirements in this section apply specifically to cannabis retailers, as defined in section 9278 of this code, and other cannabis businesses with a retail component, and shall apply in addition to the requirements and standards for all cannabis businesses set forth in section 9174.2 of this code and elsewhere in this code. In the event of any conflict between the requirements of this section and those included elsewhere in the City Code, the requirements of this section shall control.

* * *

C. Operating Requirements:

* * *

5. Consumption Restrictions:

a. Except as set forth in subsections C5b and c of this section, cannabis shall not be consumed on the premises of the cannabis retailer, nor within any accessory structures, parking areas, or other surroundings within two hundred feet (200') of the cannabis retailer's entrance.

b. Cannabis may be consumed in a designated cannabis consumption area on the premises of a cannabis retailer upon approval of a use permit or modification of an existing use permit. The smoking of cannabis may be permitted in a designated cannabis consumption area as may be allowable under state law and subject to the terms of the use permit. A cannabis retailer's operation and use of a cannabis consumption area shall otherwise comply with the provisions of Division 5, Chapter 7 of this code, entitled "No Smoking." Cannabis consumption areas shall be secured and designed to prevent access by individuals who are not eligible adult use patrons. If an existing use permit is modified to reflect the creation of a cannabis consumption area, that use permit shall be subject to renewal one year after the cannabis consumption area has become operational.

c. A retailer with a cannabis consumption area that is not enclosed, such as on a patio or a deck, may allow smoking, vaping, and ingesting edible products, subject to all local and State laws.

* * *

§9174.4 COMMERCIAL CANNABIS CULTIVATION

A. Applicability: The standards and requirements in this section apply specifically to commercial Cultivation of Cannabis as defined in section 9278 of this Code, and shall apply in addition to the applicable requirements and standards for all cannabis businesses set forth in section 9174.2 of this Code and elsewhere in this Code. In the event of any conflict between the requirements of this section and those included elsewhere in the City Code, the requirements of this section shall control.

B. Development Criteria:

1. Location of Commercial Cannabis Cultivation- All Commercial Cannabis Cultivation businesses shall comply with the limitations on location for Cannabis Related Businesses set forth in Subsection 9174.2.F of this Code, except that businesses located in the A-E district and in a district combined with A- Overlay shall be exempted from these location limitations.

2. Setbacks: Commercial Cannabis Cultivation areas shall be setback a minimum of 50-feet from all lot lines and shall comply with the setback requirements set forth the State Water Resources Control Board's comprehensive Cannabis Cultivation General Order.

C. Operating Requirements:

1. Cannabis Waste Discharge Requirements General Order. A Commercial Cannabis Cultivation business shall demonstrate compliance with the State Water Resources Control Board's comprehensive Cannabis Cultivation Policy which includes principles and guidelines for cannabis cultivation, including regulations on the use of pesticides, rodenticides, herbicides, insecticides, fungicides, disinfectants, and fertilizers, within the State.

2. Odor control. A structure for Indoor or Mixed-Light Cultivation must be equipped with a filtration and ventilation system to control odors, humidity, and mold, provided that structures containing only packaged cannabis products may be excluded from this requirement.

3. Lighting. All lighting is to be fully shielded and downward casting so that it does not spill over onto neighboring properties. For operations cultivating within structures, all light is to be fully contained to minimize light trespass that is visible from neighboring parcels. A photometric and supplemental lighting plan shall be provided as a component of the application.

4. Accessory uses. Cannabis Cultivation may include accessory uses on the same parcel that directly support the onsite Cannabis Cultivation, such as: propagation, research and development, processing, drying, packaging and labeling, distribution, other similar support uses as determined by the Zoning Administrator.

5. Limitations on Cannabis harvesting activities. In order to minimize cannabis odors, the drying, curing, and/or trimming of harvested cannabis shall either (1) be located within an enclosed structure which utilizes best available control technology, or (2) include techniques and/or equipment (e.g., the use of freeze drying techniques/ equipment and immediate packaging of harvested cannabis in the field) that shall achieve an equivalent or greater level of odor control as could be achieved using an enclosed structure which utilizes best available control technology, or (3) be located at a sufficient distance from neighboring residential structures so as to avoid odor intrusion as a public nuisance as described in Subsection 9254.B.4 of this Code.

6. Generators. Generator use for Cannabis Cultivation must comply with the requirements set forth in California Code of Regulations, title 4, section 16306, as may be amended from time to time.

SECTION SIX.

Section 9254 in Article 19, Chapter 2, Division 9 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§9254 CANNABIS CULTIVATION

A. Definitions: As used herein the following definitions shall apply:

CULTIVATION: The planting, growing, harvesting, drying, or processing of cannabis plants or any part thereof.

FULLY ENCLOSED AND SECURE STRUCTURE: A space within a building that complies with the California Building Code, as adopted in the City of Ukiah ("CBC"), or, if exempt from the permit requirements of the CBC, that has a complete roof enclosure supported by connecting walls extending from the ground to the roof, a foundation, slab or equivalent base to which the floor is secured by bolts or similar attachments, is secure against unauthorized entry, and is accessible only through one or more lockable doors. Walls and roofs must be constructed of solid materials that cannot be easily broken through, such as two-inch (2") by four-inch (4") or thicker studs overlaid with three-eighth-inch (3/8") or thicker plywood or the equivalent. Plastic sheeting, regardless of gauge, or similar products do not satisfy this requirement. If indoor grow lights or air filtration systems are used, they must comply with the California Building, Electrical, and Fire Codes as adopted in the City of Ukiah.

IMMATURE CANNABIS PLANT: A cannabis plant, whether male or female, that has not yet flowered and which does not yet have buds that are readily observed by unaided visual examination, and which is less than twelve inches (12") in height and less than

twelve inches (12") in width.

INDOORS: Within a fully enclosed and secure structure.

MATURE CANNABIS PLANT: A cannabis plant, whether male or female, that has flowered and which has buds that are readily observed by unaided visual examination.

MIXED-LIGHT: Within a greenhouse, hoop-house, glasshouse, conservatory, hothouse, or other similar structure using a combination of natural and artificial light and meeting the definition of "mixed-light" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

OUTDOOR: Any location within the City of Ukiah that is not within a fully enclosed and secure structure.

PARCEL: Property assigned a separate parcel number by the Mendocino County Assessor.

B. Cultivation Of Cannabis:

1. Outdoor Cultivation: Except as set forth in Subsection B.4 of this Section and in Section 9174.4 of this Code, it is hereby declared to be unlawful and a public nuisance for any person owning, leasing, occupying, or having charge or possession of any parcel within any zoning district in the City of Ukiah to cause or allow such premises to be used for the outdoor cultivation of marijuana plants.

* * *

4. Outdoor Commercial Cultivation Of Cannabis: A person owning, leasing, occupying, or having charge or possession of any parcel within the City of Ukiah may cause or allow such parcel to be used for the outdoor commercial cultivation of cannabis if the person is operating that commercial cannabis cultivation business pursuant to a valid use permit within the A-E district or a district combined with -A overlay and in compliance with all requirements set forth in sections 9174.2, 9174.4, 9261, and 9262 of this Code and with all applicable State laws and regulations including licensing requirements.

5. Public Nuisance Prohibited: It is hereby declared to be unlawful and a public nuisance for any person owning, leasing, occupying, or having charge or possession of any parcel within the City of Ukiah to create a public nuisance in the course of cultivating cannabis plants or any part thereof in any location, indoor or outdoor. A public nuisance may be deemed to exist, if such activity produces: (a) odors which are disturbing to people of normal sensitivity residing or present on adjacent or nearby property or areas open to the public, (b) repeated responses to the parcel from law enforcement officers, (c) a repeated disruption to the free passage of persons or vehicles in the neighborhood, (d) excessive noise which is disturbing to people of normal sensitivity on adjacent or nearby property or areas open to the public, or (e) any other impacts on the neighborhood which are disruptive of normal activity in the area.

C. Enforcement:

* * *

3. Summary Abatement Procedure:

* * *

d. A final order to abate the nuisance will subject the property owner or owners and any occupant or occupants of the property who are cultivating cannabis in violation of this section to a civil penalty of five hundred dollars (\$500.00) for each day that the violation continues after the date specified in the notice under subsection C3a(3) of this section, when the violation must be abated. * * *

4. Violation: Cultivation of cannabis on parcels within the City that does not comply with this section constitutes a violation of the zoning ordinance and is subject to the penalties and enforcement as provided in Chapter 2, Article 22 of this Division.

* * *

SECTION SEVEN.

Section 9261 of Article 20, Chapter 2, Division 9 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *):

§9261 DISCRETIONARY PLANNING PERMITS

The City’s discretionary planning permits include use permits, site development permits, and variances.

* * *

D. Major And Minor Use Permits, Site Development Permits, And Variances: At the time of application submittal, the Community Development Director or assigned designee shall determine if the proposed project constitutes a major or minor use permit, site development permit, or variance. The Community Development Director or assigned designee shall be guided by the following criteria when determining whether a discretionary planning permit is major or minor:

* * *

5. a. In all zoning districts in which they are a permitted use, the following cannabis-related businesses shall be considered major uses:

Cannabis microbusiness.

Cannabis nursery.

Cannabis retailer.

Major use permits issued for cannabis-related businesses shall be subject to review after the first year of operation, and shall be subject to review and revocation procedures set forth in subsections 9174.2D and E of this code.

b. In all zoning districts in which they are a permitted use, the following cannabis-related businesses shall be considered minor uses:

Cannabis Cultivation – All Types.

Cannabis distribution.

Cannabis manufacturer – Level 1.

Cannabis manufacturer – Packaging.

Cannabis Manufacturer – Shared use.

Minor use permits issued for cannabis-related businesses shall be subject to review after the first year of operation, and shall be subject to review and revocation procedures set forth in subsections 9174.2D and E of this code.

* * *

SECTION EIGHT.

Article 21 in Division 9, Chapter 2 of the Ukiah City Code is hereby amended to read as follows (unchanged text is omitted and is shown by “* * *”):

§ 9278 DEFINITIONS

A. Any words or phrases not defined within this article shall be defined as set forth in current dictionaries. If no dictionary defines a particular term, the City Community Development Director shall have the authority to define the term or equate it to a defined term that is similar in nature.

B. For purposes of this article, the words and phrases set out herein shall have the following meanings:

* * *

* * *

ANIMAL RAISING—GENERAL AGRICULTURE means the raising of crops or livestock on parcels greater than forty thousand (40,000) square feet or zoned A-E and shall include:

1. Grazing of livestock and feeding and caring incidental thereof;
2. Animal husbandry including, without limitation, the breeding and raising of cattle,

- sheep, horses, goats, pigs, rabbits, and poultry, including egg production;
3. Sale of agricultural products grown, raised, or produced on the premises;
 4. 4-H, FFA or similar projects shall be permitted in all zoning districts.

ANIMAL RAISING—PERSONAL means the raising of hen chickens or rabbits for personal use on parcels forty thousand (40,000) square feet or less in size in accordance with the following criteria:

1. No more than six (6) of any one (1) or combination of such animals on the lot
2. Maintained in coops or pens located at a distance of fifty (50) feet or more from buildings used for human habitation;
3. Coops or pens shall be located only on the rear one-third ($\frac{1}{3}$) of the lot;
4. Coops or pens shall be located no closer than five (5) feet from the side or rear property line.

ANIMAL SALES AND SERVICES: Establishments or places of business primarily engaged in animal related sales and services. The following are animal sales and services use types:

1. **Animal Sales and Services—Auctioning.** Auctioning of livestock on a wholesale or retail basis with incidental storage of animals produced off property not exceeding seventy-two (72) hour periods. Typical uses include animal auctions or livestock auction yards.
2. **Animal Sales and Services—Household Pets.** Retail sales and grooming of dogs, cats, birds, fish and similar small animals customarily used as household pets. Typical uses include pet stores, dog bathing and clipping salons, or pet grooming shops.
3. **Animal Sales and Services—Horse Stables.** Boarding, breeding or raising of horses not owned by the occupants of the premises or riding of horses by other than the occupants of the premises or their nonpaying guests. Typical uses include boarding stables or public stables.
4. **Animal Sales and Services—Kennels.** Kennel services for dogs, cats and similar small animals. Typical uses include boarding kennels, pet motels or dog training centers.
5. **Animal Sales and Services—Stockyards.** Stockyard services involving the temporary keeping of transient livestock for slaughter, market or shipping. Typical uses include stockyards or animal sales yards.
6. **Animal Sales and Services—Veterinary (Large Animals).** Veterinary services for large animals. Typical uses include animal hospitals (large animals) and veterinary hospitals (large animals). Typical uses include clinics for the treatment of sheep, cattle, horses, goats and similar large animals.

ANIMAL WASTE PROCESSING: Processing of animal waste and byproducts, including but not limited to animal manure, animal bedding waste, and similar byproducts of an animal raising agricultural operation, for use as a commercial fertilizer or soil amendment and including composting operations.

* * *

CANNABIS CULTIVATION: Shall have the same definition as set forth for "cultivation" in

Business and Professions Code section 26001(k), as may be amended from time to time.

CANNABIS CULTIVATION – INDOOR: Shall have the same definition as set forth for "indoor cultivation" in California Code of Regulations, title 4, section 15000(cc), as may be amended from time to time. For purposes of this code, indoor cultivation involves cultivation of cannabis within a fully enclosed secure structure, as defined in section 9254 of this code.

CANNABIS CULTIVATION – LARGE INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "large indoor" set forth in California Code of Regulations, title 4, section 16201.1, as may be amended from time to time

CANNABIS CULTIVATION – LARGE MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "large mixed light" set forth in California Code of Regulations, title 4, section 16201.1, as may be amended from time to time.

CANNABIS CULTIVATION – LARGE OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "large outdoor" set forth in California Code of Regulations, title 4, section 16201.1, as may be amended from time to time.

CANNABIS CULTIVATION – MEDIUM INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "medium indoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – MEDIUM MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "medium mixed light tier 1 and 2" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – MEDIUM OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "medium outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – OUTDOOR: Shall have the same definition as set forth for "outdoor cultivation" in California Code of Regulations, title 4, section 15000(xx), as may be amended from time to time. For purposes of this Code, commercial outdoor cultivation involves cultivation of cannabis that is not within a fully enclosed secure structure, as defined in section 9254 of this Code.

CANNABIS CULTIVATION – PROCESSOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "processor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SMALL INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently

established, and meeting the definition of "small indoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SMALL MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "small mixed light tier 1 and 2" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SMALL OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "small outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY COTTAGE: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty cottage" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY COTTAGE OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty cottage outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY INDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty indoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY MIXED LIGHT: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty mixed light tier 1 and 2" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

CANNABIS CULTIVATION – SPECIALTY OUTDOOR: A cannabis-related business operating under a State cultivator license, or a State cultivation license type subsequently established, and meeting the definition of "specialty outdoor" set forth in California Code of Regulations, title 4, section 16201, as may be amended from time to time.

* * *

COMMERCIAL WOODLOTS: Open or closed storage of firewood for wholesale or retail sales, regardless of where the firewood products are produced.

* * *

COMMUNITY RECREATION: Recreational, social or multipurpose uses owned or operated by a public entity. Typical uses include public parks, sports facilities, senior citizen centers, nature centers, teen centers, playhouses, auditoriums and recreational centers.

* * *

* * *

DAY CARE FACILITY / SMALL SCHOOL: Care or education of seven (7) or more, but not to exceed twenty-five (25) persons regardless of age or handicap but excluding overnight care or uses classified as group care or other facilities exempted by the California Health and Safety Code, e.g. Day Care Homes -Small and Large, or major impact services and utilities. Typical uses include day nurseries for children, child day care facilities, or day care for elderly, and small schools.

* * *

EMPLOYEE HOUSING: Employee housing consistent with the Employee Housing Act as specified in California Health and Safety Code §§ 17000 through 17062.5.

* * *

FARM STAND: A small-scale structure or area for the seasonal or year-round sale of agricultural products grown or produced on the same premises or within the local area. The farm stand is generally temporary or semi-permanent in nature, does not exceed 200 square feet and obtains any needed building or encroachment permits, and may only sell agricultural goods or value-added products directly produced from on-site agricultural operations.

* * *

FOREST PRODUCTION AND PROCESSING: Refers to the growing, harvesting and production of forest products and forest byproducts including growing, milling and sales of forest products. The following are forest production and processing use types:

1. Forest Production and Processing: Limited. The growing, harvesting, air drying or kiln drying, milling, packaging, packing, shipping and selling of forest products, produced on the premises or experimental tree farms and tree nurseries.
2. Forest Production and Processing: General. The growing, harvesting, air drying or kiln drying, milling, packaging, packing, shipping and selling of forest products regardless of where they are grown and also forestry related research laboratories.
3. Forest Production and Processing: Commercial Woodlots. Open or closed storage of firewood for wholesale or retail sales, regardless of where the firewood products are produced.

* * *

HORTICULTURE: Premises devoted to horticultural and floracultural specialties such as flowers, shrubs, and trees intended for ornamental or landscaping purposes. Typical uses include wholesale/retail nurseries limited to the sale of horticulture and horticulture specialties grown on site and in green houses..

* * *

MAJOR IMPACT FACILITIES: Services or facilities which may have a substantial impact.

Typical uses include airports, hospitals, group care for more than twenty-five (25) persons, detention and correction institutions, and corporation yards.

MAJOR IMPACT SERVICES AND UTILITIES: Services or utilities which may have a substantial impact. Such uses may be conditionally permitted when the public interest supersedes the usual limitations placed on land use and transcends the usual restraints of zoning for reasons of necessary location and community wide interest. Typical places or uses are power generating facilities, Battery Energy Storage Systems, sewage disposal facilities, septage disposal facilities and sites, sanitary landfills and water treatment plants, and radio, telephone and other commercial communication transmission towers and antennas.

* * *

PACKING AND PROCESSING: Packing or processing of agricultural crops, animals and their byproducts which entails more than picking, cutting, sorting and boxing or crating, but does not include rendering, tanning, or reduction of meat. The following are packing and processing use types:

1. Packing and Processing—Limited. Packing or processing of crops grown on the premises;
2. Packing and Processing—Winery. Crushing of grapes and fermentation, storage, and bottling of wine from grapes grown on or off the premises. Said use type also includes tasting rooms in conjunction with a winery and breweries provided said tasting room occupies less than twenty-five percent (25%) of the floor space of the winery;
3. Packing and Processing—General. Packing or processing of crops, mineral water, animals or their byproducts regardless of where they were grown or found. Includes mineral water bottling plants;

* * *

ROW AND FIELD CROPS: Premises devoted to the cultivation for sale of agricultural products grown in regular or scattered patterns such as vines, field, forage and other plant crops intended to provide food or fibers.

* * *

TRANSIENT HABITATION: Establishments primarily engaged in the provision of lodging services on a less than monthly basis with incidental food, drink and other sales and services intended for the convenience of guests. The following are transient habitation use types:

1. Transient Habitation—Campground. Campground services involving transient habitation areas for travelers in recreational vehicles or tents. Typical uses include recreational vehicle parks or campgrounds. Uses within this use type are subject to Chapter 20.176, Recreational Vehicle Parks and Campgrounds.
2. Transient Habitation—Lodging (Limited). Lodging services involving the provision of room and/or board. Typical uses include hotels, motels, inns, or transient boarding houses with three (3) to six (6) rooms.
3. Transient Habitation—Lodging. Lodging services involving the provision of room and/or board. Typical uses include hotels, motels, inns, or transient boarding houses with seven

(7) or more rooms.

4. Transient Habitation—Resort and Recreational Facilities. Resort services including the provision of extensive outdoor recreation and entertainment services especially for vacationers. Typical uses include resort and recreational facilities, health spas, resort hotels and motels, guest ranch, inns or organized camps.

* * *

TREE CROPS: Premises devoted to the cultivation for sale at wholesale of tree-grown agricultural products such as pears, apples, walnuts and Christmas trees but excluding other forestry products.

SECTION NINE.

1. SEVERABILITY.

If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council of the City of Ukiah hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

2. EFFECTIVE DATE.

This Ordinance shall be published as required by law in a newspaper of general circulation in the City of Ukiah, and shall become effective thirty (30) days after its adoption.

Introduced by title only on _____, 2024, by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

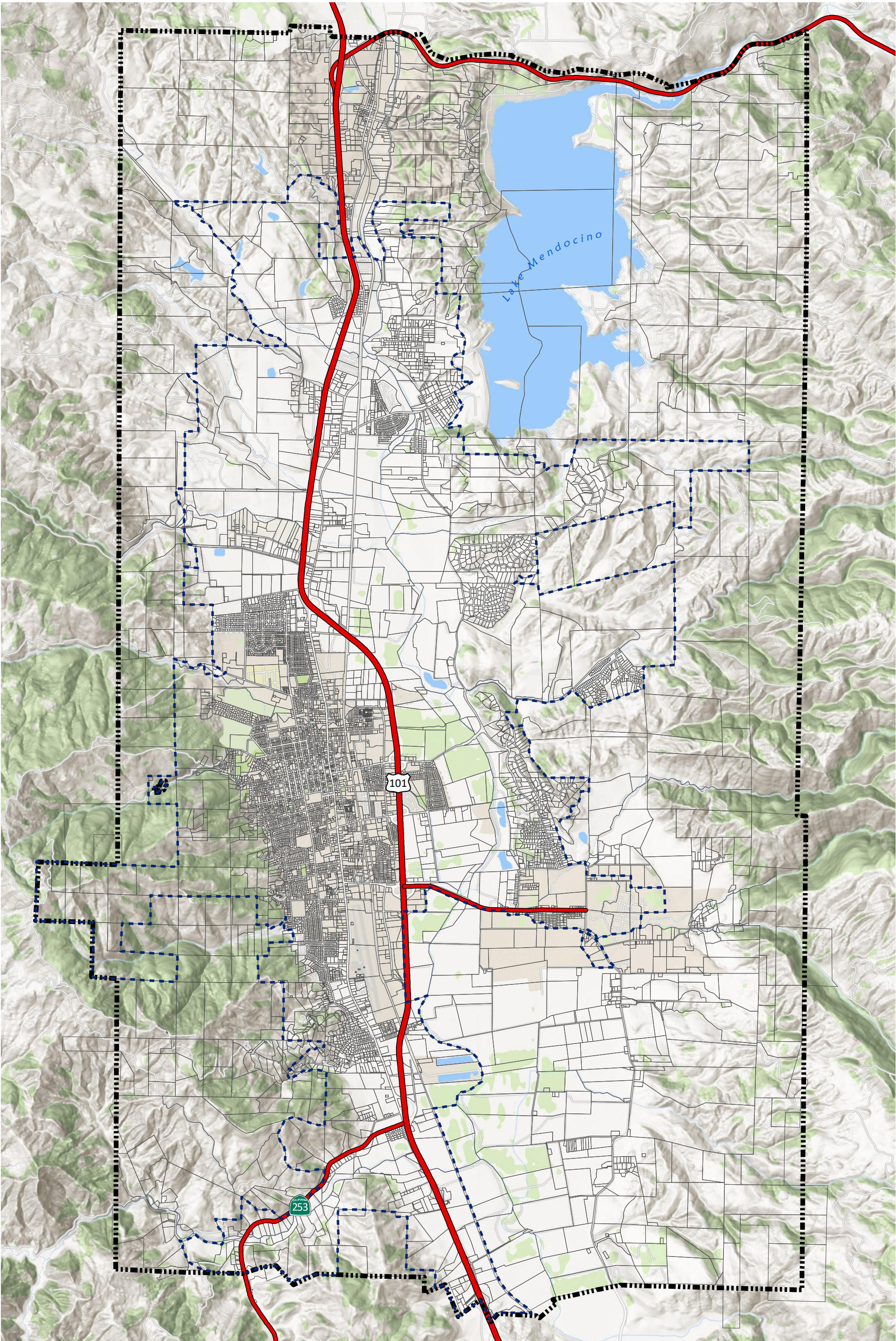
Adopted on _____, 2024, by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

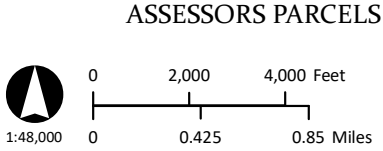
Douglas F. Crane, Mayor

ATTEST:

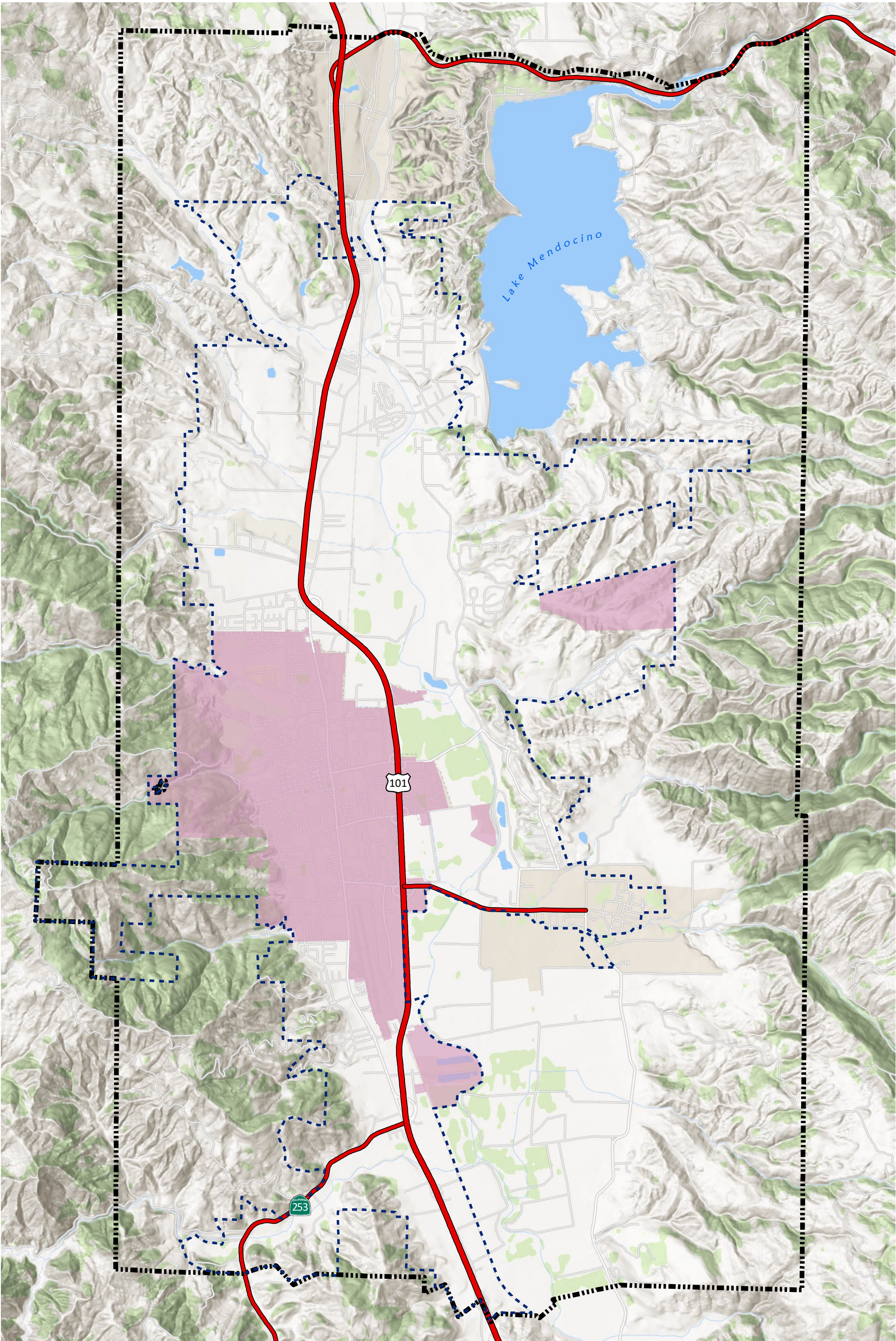
Araceli Sandoval, Deputy City Clerk



CITY OF UKIAH
Sphere of Influence & Planning Areas



ASSESSORS PARCELS



CITY OF UKIAH

Sphere of Influence &
Planning Areas

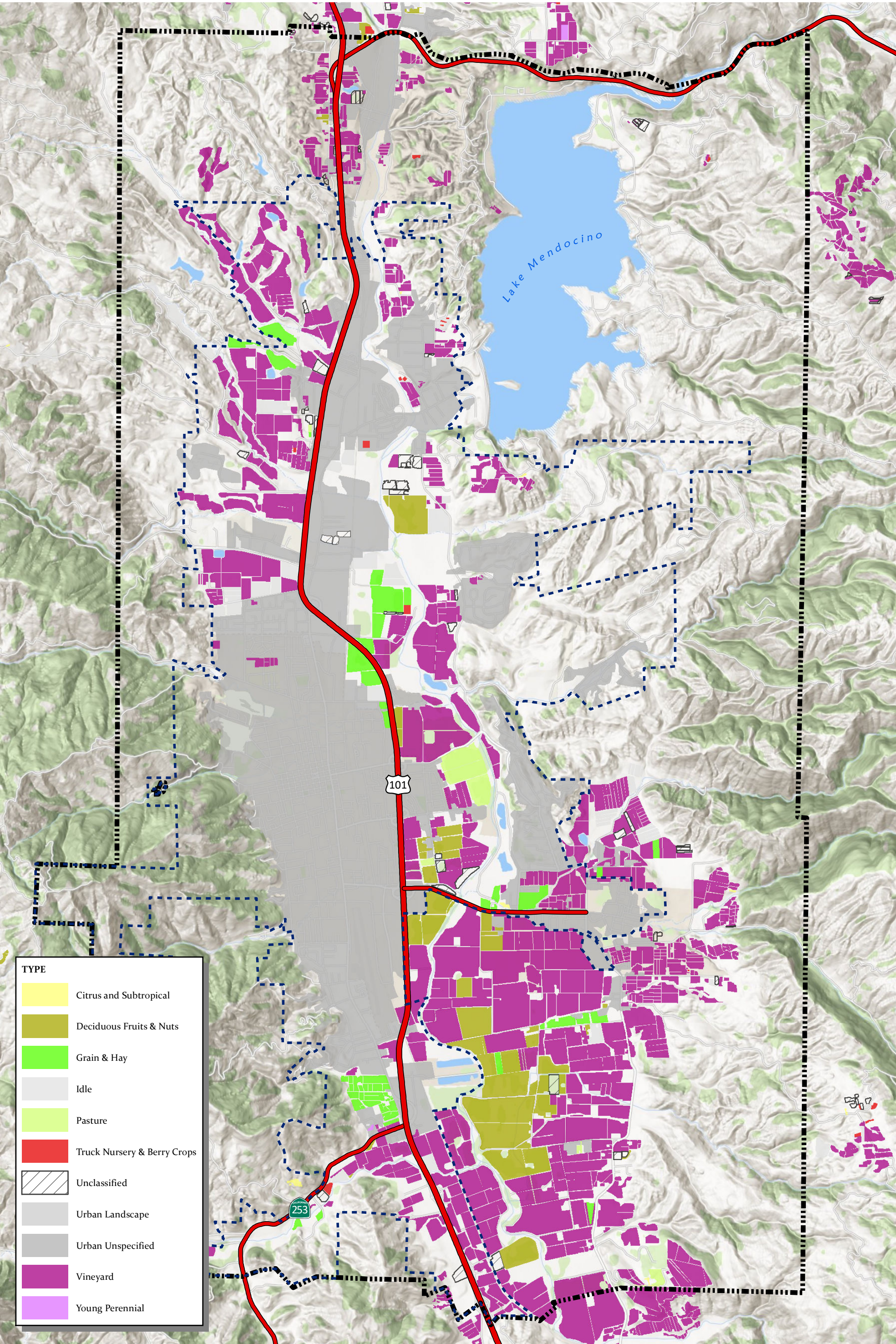
- Highways
- City Limits
- Sphere of Influence

Planning Area

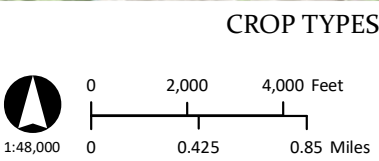
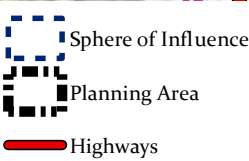


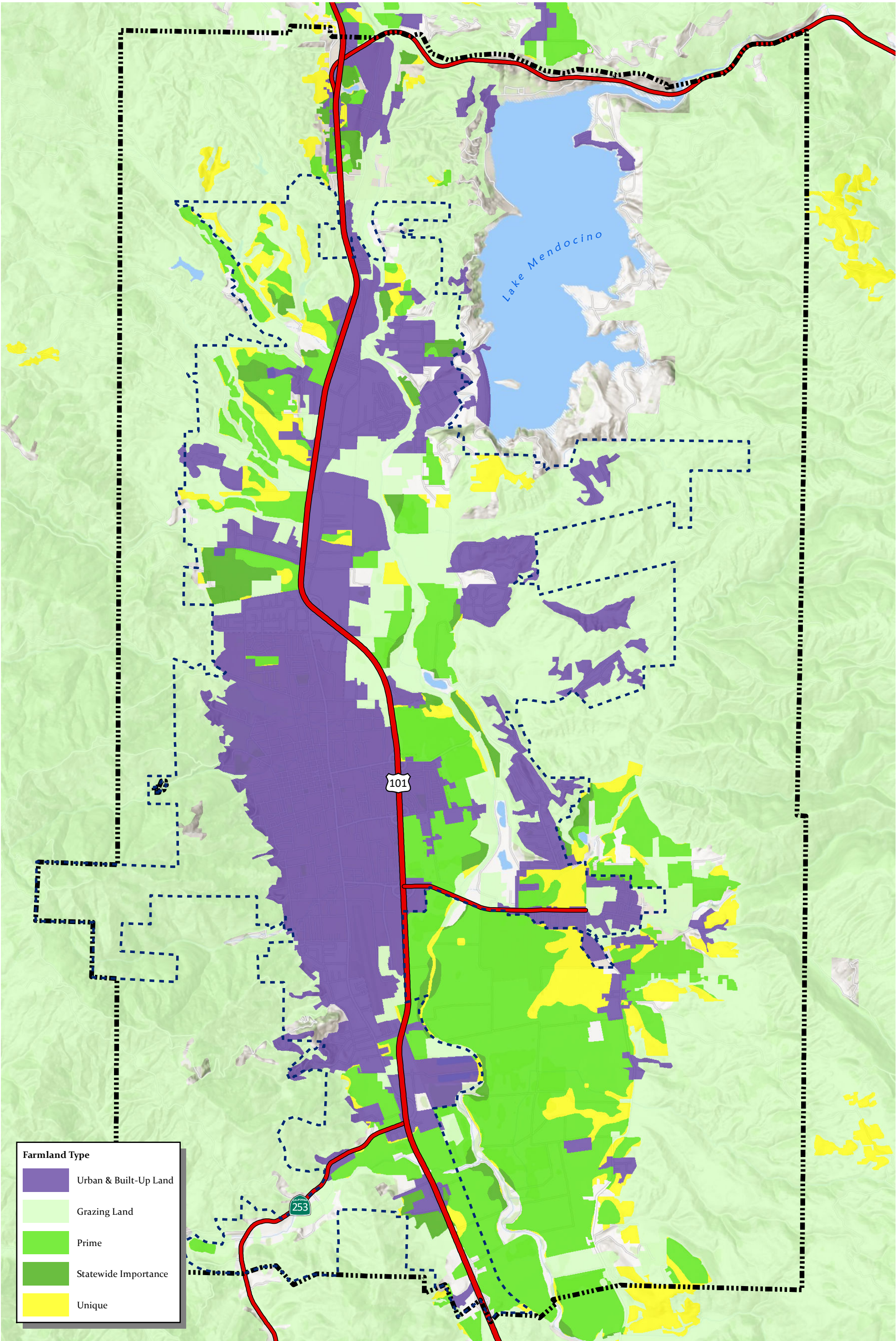
0 2,000 4,000 Feet
0 0.425 0.85 Miles

CITY LIMITS



CITY OF UKIAH
Sphere of Influence & Planning Areas





Farmland Type

Urban & Built-Up Land
Grazing Land
Prime
Statewide Importance
Unique

CITY OF UKIAH

Sphere of Influence & Planning Areas

Sphere of Influence

Planning Area

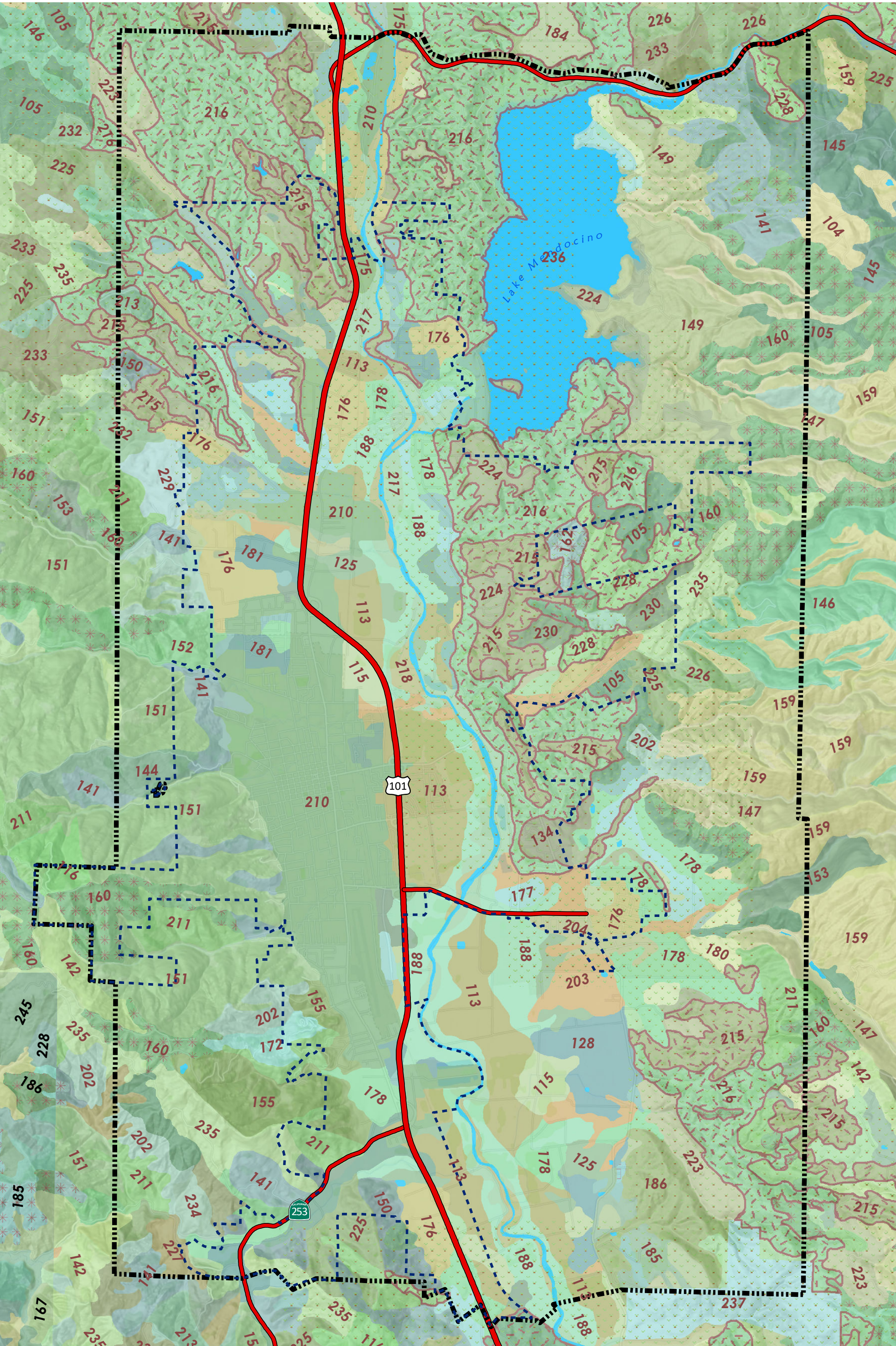
Highways

FARMLAND CLASSIFICATIONS

0 2,000 4,000 Feet

0 0.425 0.85 Miles

1:48,000

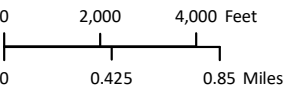


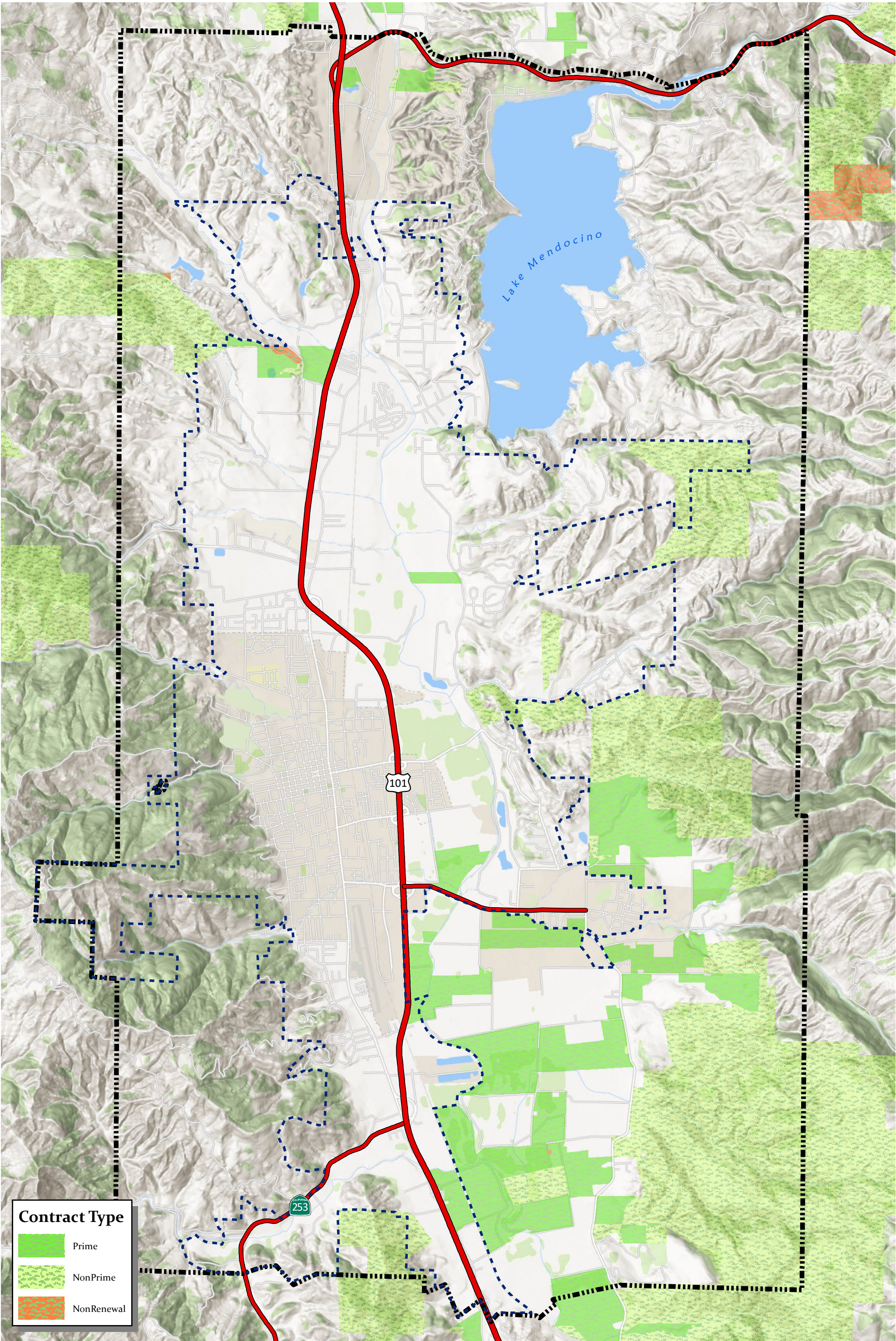
CITY OF UKIAH

Sphere of Influence &
Planning Areas

-  Sphere of Influence
-  Planning Area
-  Highways

EASTERN SOIL CLASSES





Contract Type

Prime

NonPrime

NonRenewal

CITY OF UKIAH

Sphere of Influence & Planning Areas

Sphere of Influence

Planning Area

Highways

LANDS IN WILLIAMSON ACT

02,0004,000 Feet

1:48,000

00.4250.85 Miles



**Draft Findings of Consistency:
Agricultural Consistency Ordinance
CEQA Section 15183 Statutory Exemption
November 22, 2024**

SCH No: XXXXXXXXXXXX

Prepared by:

**City of Ukiah
Community Development Department
Planning Division
300 Seminary Avenue, Ukiah, CA 95482
www.cityofukiah.com/community-development/planning-services/**

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I. PROJECT INFORMATION

Project Title: Agriculture Consistency Ordinance
Lead Agency Address and Phone Number: City of Ukiah Community Development Department 300 Seminary Avenue Ukiah, California 95482
CEQA Contact Person and Phone Number: Katherine Schaefer, Planning Manager City of Ukiah, Community Development Department (707) 463-6203 KSchaefer@cityofukiah.com
Applicant: City of Ukiah
Property Owner: City of Ukiah
Project Location: City-wide within the Agricultural Exclusive (A-E) and Combining Agricultural (-A) Districts
General Plan Designation: Those designations listed as compatible with the (A-E) or (-A) Zoning Districts, including: Industrial (I), Public (P), Recreational (REC), Open Space (OS), Agriculture (AG)
Zoning Designation: Agricultural Exclusive (A-E) and Combining Agricultural (-A)

II. INTRODUCTION

1. Purpose of the 15183 Findings of Consistency

California Public Resources Code section 21083.3 and California Environmental Quality Act (CEQA) Guidelines Section 15183 provide an exemption from additional environmental review for projects that are consistent with the development density established by existing zoning, community plan or general plan policies for which an Environmental Impact Report (EIR) was certified, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site.

Section 15183 specifies that examination of environmental effects shall be limited to those effects that:

- (1) Are peculiar to the project or the parcel on which the project would be located, and were not analyzed as significant effects in a prior EIR on the zoning action, general plan, or community plan, with which the project is consistent,
- (2) Are potentially significant off-site impacts and cumulative impacts which were not discussed in the prior EIR prepared for the general plan, community plan or zoning action, or
- (3) Are previously identified significant effects which, as a result of substantial new information which was not known at the time the EIR was certified, are determined to have a more severe adverse impact than discussed in the prior EIR.

Section 15183(c) further specifies that if an impact is not peculiar to the parcel or to the proposed project, has been addressed as a significant effect in the prior EIR, or can be substantially mitigated by the imposition of uniformly applied development policies or standards, then an additional EIR need not be prepared for that project solely on the basis of that impact.

2. Ukiah 2040 General Plan EIR

The Ukiah 2040 General Plan and its associated EIR (SCH# 2022050556) were certified in December 2022. The General Plan designates land uses defining the type and amount of development that can occur throughout the City and proposed annexation areas through the planning horizon year of 2040 (over approximately 18 years). The EIR comprehensively evaluated environmental impacts that would result from the General Plan's implementation, including information related to existing site conditions, analyses of the types and magnitude of project-level and cumulative environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts.

III. PROJECT DESCRIPTION

1. Project Purpose

The Agricultural Consistency Ordinance (hereafter referred to as the “Ordinance”) represents a planned alignment within the Ukiah 2040 General Plan and EIR, of the City of Ukiah’s zoning regulations with regional agricultural standards, particularly those established by Mendocino County. By revising the Agricultural Exclusive (A-E) and Combining Agricultural (-A) zoning districts, the Ordinance reflects the adaptation of agricultural practices and land-use policies to support the long-term sustainability of the region’s cultural and ecological landscape.

Reflective of the goals and policies of the Ukiah 2040 General Plan (See 3. Background below), the Ordinance responds to a need to protect agricultural lands from fragmentation and encroachment. Policies such as **LU-7.5** highlight the importance of preserving agricultural viability by discouraging incompatible development, while **AG-1.2** reinforces the commitment to safeguarding these lands within the City’s Sphere of Influence through zoning practices that maintain minimum lot sizes and encourage compatibility with surrounding uses. These principles maintain the integrity of agricultural spaces in an increasingly urbanized landscape.

Overall, the Ordinance seeks to provide a clear regulatory framework for agricultural and ancillary uses by codifying Mendocino County regulations such as minimum lot sizes, setbacks, and performance standards. It also anticipates evolving land-use needs by incorporating select Mendocino County outdoor cannabis cultivation provisions, while maintaining alignment with City of Ukiah goals and discretionary processes to ensure minimal environmental and social disruption.

2. Environmental Setting and Project Location

The City of Ukiah includes approximately 4.72 square miles. It serves as the County Seat of Mendocino County, as well as the county’s commercial hub. Predominant land uses in the City include single family residential, multi-family residential, and commercial uses ranging from local commercial to service commercial, as well manufacturing, industrial and public facilities. Further west is undeveloped open space, and steep, densely vegetated areas interspersed with rural residential lots within the Western Hills and Mendocino County’s jurisdiction. The Agricultural Exclusive and Agricultural Combining districts within the City of Ukiah’s planning area are characterized by agricultural operations, including vineyards, orchards, and pasturelands, supported by a mix of soil types and climatic conditions conducive to farming.

3. Background

Ukiah 2040 General Plan

The Ukiah 2040 General Plan outlines key goals and policies within the Land Use and Agricultural Elements that directly support the alignment of the City of Ukiah’s zoning regulations with Mendocino County standards. These include:

Goal LU-7 To ensure the orderly and timely growth and expansion of the City.

Policy LU 7.7 Development Pattern The City shall ensure an orderly, contiguous development pattern that prioritizes infill development, phases new development,

encourages compactness and efficiency, preserves surrounding open space and agricultural resources, and avoids land use incompatibilities.

Policy LU 7.5 Agriculture and Annexation The City shall discourage urban development of unincorporated land in the City's Sphere of influence until such lands are annexed by the City. The City shall support County land use regulations that require minimum lot sizes to protect the viability of local agriculture and to prevent the development of incompatible or undesirable land use patterns prior to eventual annexation and urbanization.

Goal LU-10 To assure coordination and consistency with special planning areas.

Policy 10.3 Ukiah Valley Area Plan The City shall coordinate with Mendocino County to assure consistency with the Ukiah Valley Area Plan goals and policies

Goal AG-1 To preserve and strengthen agricultural uses in and around Ukiah that influence the regional economy.

Policy AG-1.1 Reduce Agricultural/Urban Conflict The City shall reduce conflict between incompatible uses and agriculture within and adjacent to the City.

Policy AG-1.2 Preserve Agricultural Lands With the exception of presently proposed or approved subdivisions, the City shall discourage urban development on unincorporated land within its Sphere of Influence until annexed by the City. The City shall support County land use designations that protect the viability of local agriculture in the Ukiah Valley.

Policy AG 1.3 Plan Together The City shall identify and involve stakeholders, as well as advisors with knowledge and expertise, to create and implement a comprehensive planning framework that preserves and strengthens agricultural uses in and around Ukiah that inform and influence the regional economy.

Agriculture Element Implementation Program C: Align Agricultural Standards The City shall revise agricultural standards and use terminology to be consistent with adjacent jurisdictions within the Ukiah Valley for the support of future annexations efforts.

The Agricultural Element of the Ukiah 2040 General Plan emphasizes the importance of regional consistency to foster collaboration between the City and Mendocino County. The proposed Ordinance directly implements these goals and policies by updating Ukiah's zoning code to align with County regulations. This alignment ensures that agricultural lands within Ukiah's planning area are protected from incompatible uses and that zoning standards support sustainable and economically viable agricultural practices.

Moreover, the General Plan recognizes that consistency between City and County standards reduces administrative complexity for property owners and operators, creating a streamlined regulatory framework. By adopting the Agricultural Consistency Ordinance, the City of Ukiah demonstrates its commitment to the preservation and enhancement of agricultural lands as a key regional resource. (City of Ukiah 2022)

IV. EVALUATION OF ENVIRONMENTAL EFFECTS

The following findings are made in compliance with CEQA Section 15183 – Project consistent with a Community Plan or Zoning.

Section 15183 of the State CEQA Guidelines states that a project shall qualify for an exemption if the following findings can be made:

- 1) The project is consistent with the development density established by existing zoning, community plan or general plan policies for which an EIR was certified.
- 2) There are no project-specific effects which are peculiar to the project or its site, and which the Ukiah 2040 EIR failed to analyze as significant effects.
- 3) There are no project-specific impacts which the Ukiah 2040 EIR failed to analyze as significant effects.
- 4) There are no potentially significant offsite and/or cumulative impacts that the Ukiah 2040 EIR failed to evaluate.
- 5) There is no substantial new information that results in more severe impacts than anticipated by the Ukiah 2040 EIR.

A discussion of staff's finding of each potential environmental effect is provided below.

1. Density

The project is consistent with the development density established by existing zoning, community plan or general plan policies for which an EIR was certified.

Finding

The Ordinance is consistent with the development density established by existing zoning, community plan, or general plan policies for which an Environmental Impact Report (EIR) was certified.

Discussion

The current City of Ukiah Agricultural Combining (-A) zoning regulations establish limited agricultural uses, requiring a minimum lot size of five acres for certain activities. However, these regulations lack explicit density restrictions and a comprehensive framework to guide agricultural production. To address these gaps, the Ordinance clarifies and strengthens the standards for agricultural activities, introducing explicit provisions for uses such as animal raising (personal and general), tree crops, and farm stands.

Moreover, the Ordinance integrates Mendocino County's minimum 40-acre lot size standard for Agricultural Exclusive (A-E) zones. This approach ensures agricultural parcels remain sufficiently large to support economically viable farming operations, such as vineyards or orchards, while mitigating risks associated with land fragmentation. For example, smaller lots that might otherwise be converted to residential uses could introduce land-use conflicts, such as noise or odor complaints from residents unfamiliar with standard farming practices. The 40-acre standard protects agricultural operations by reducing such risks and preserving the agricultural character of the region.

Proposed A-E regulation changes also include the addition of density restrictions of one dwelling per 40 acres, mirroring Mendocino County's approach, in addition to limited processing and packing of agricultural products, horticulture, and farm stands which would be explicitly allowed,

7

provided these uses remain secondary to the primary agricultural activity. For instance, wineries may produce grapes grown on-site, and farm stands can sell locally produced goods, enhancing economic sustainability for agricultural operations. These updates reflect the Ordinance's attention to preserving agricultural soils by restricting residential encroachment and supporting the economic viability of farming through accessory commercial uses such as small-scale processing and direct sales.

2. Effects

There are no project-specific effects which are peculiar to the project or its site, and which the Ukiah 2040 EIR failed to analyze as significant effects

Finding

All potential impacts from the Ordinance were evaluated with the Ukiah 2040 EIR. The proposed Ordinance has no unique features that were not evaluated within the General Plan EIR.

Discussion

The Ordinance does not introduce unique effects or conditions beyond those anticipated and analyzed in the Ukiah 2040 General Plan EIR. As emphasized under **Goal LU-7** of the General Plan, the Ordinance is consistent with the directive to “ensure an orderly, contiguous development pattern that prioritizes infill development, phases new development, encourages compactness and efficiency, preserves surrounding open space and agricultural resources, and avoids land use incompatibilities.” This alignment reinforces the Ordinance's focus on minimizing environmental disruption and promoting sustainable agricultural practices.

The Ordinance also directly supports **Policy LU-7.5** which states that the City shall “support County land use regulations that require minimum lot sizes to protect the viability of local agriculture and to prevent the development of incompatible or undesirable land use patterns.” By aligning with Mendocino County zoning standards, the Ordinance operationalizes this policy, ensuring agricultural lands are preserved for their intended uses and safeguarded from premature urbanization.

Furthermore, **Goal AG-1** of the General Plan commits to “preserve and strengthen agricultural uses in and around Ukiah that influence the regional economy,” while **Policy AG-1.1** emphasizes reducing conflicts between incompatible uses and agriculture. The Ordinance addresses these objectives by codifying zoning standards that create clear protections for agricultural lands. Additionally, **Policy AG-1.2** calls for the City to “discourage urban development on unincorporated land within its Sphere of Influence until such lands are annexed,” a directive mirrored by the Ordinance's adoption of minimum lot size requirements to prevent fragmentation of agricultural lands.

Implementation of these policies is supported by **Agriculture Element Implement Program C**, which directs the City to “revise agricultural standards and use terminology to be consistent with adjacent jurisdictions within the Ukiah Valley for the support of future annexation efforts.” The Ordinance fulfills this directive by aligning City agricultural zoning standards with Mendocino County's practices, ensuring compatibility and promoting long-term agricultural sustainability.

3. Impacts

There are no project-specific impacts which the Ukiah 2040 EIR failed to analyze as significant effects

Finding

There is no new information as a result of the proposed Ordinance that would result in more severe impacts. The Ordinance is consistent with the Ukiah 2040 General Plan density and land use designations. All potential impacts were evaluated with the General Plan EIR.

Discussion

No project-specific impacts were identified that would result in significant environmental effects. The alignment with Mendocino County standards ensures a uniform regulatory approach, reducing the potential for conflicts or adverse effects on neighboring properties. As emphasized in **Policy AG-1.1** “The City shall reduce conflict between incompatible uses and agriculture within and adjacent to the City.” By incorporating regional agricultural standards, the Ordinance actively mitigates potential land-use conflicts and promotes compatibility between agricultural and neighboring uses.

Additionally, the Ordinance includes provisions to maintain agricultural operations and protect critical resources. **Policy LU-7.5** emphasizes that “the City shall support County land use regulations that require minimum lot sizes to protect the viability of local agriculture and to prevent the development of incompatible or undesirable land use patterns.”

4. Cumulative Impacts

There are no potentially significant offsite and/or cumulative impacts that the Ukiah 2040 EIR failed to evaluate

Finding

There are no potentially significant offsite and/or cumulative impacts as a result of the proposed Ordinance.

Discussion

The Ordinance aligns with regional agricultural policies and contributes to the cumulative preservation of agricultural lands. As outlined in **Policy AG-1.2** “The City shall discourage urban development on unincorporated land within its Sphere of Influence until annexed by the City” and “support County land use regulations that protect the viability of local agriculture in the Ukiah Valley.” These directives ensure the Ordinance prioritizes agricultural preservation while managing growth in a way that avoids incompatible or fragmented land-use patterns.

The Ukiah 2040 EIR considered the incremental impacts of maintaining agricultural density and protecting agricultural resources in alignment with the General Plan. **Policy LU-7.7** emphasizes the need for “an orderly, contiguous development pattern that...preserves surrounding open space and agricultural resources and avoids land use incompatibilities.” The Ordinance directly supports this policy by reinforcing minimum lot size standards and maintaining agricultural zoning consistency with Mendocino County, thus contributing to the long-term sustainability of agricultural lands.

5. New Information

There is no substantial new information that results in more severe impacts than anticipated by the Ukiah 2040 EIR

Finding

There is no substantial new information that results in more severe impacts than anticipated by the Ukiah 2040 EIR.

Discussion

No new substantial information has been identified that would result in more severe environmental impacts. The Ordinance aligns with agricultural preservation goals outlined in the Ukiah 2040 EIR and General Plan. Specifically, **Policy LU-7.5** supports maintaining agricultural land and preventing incompatible development, stating, “The City shall discourage urban development of unincorporated land in the City’s Sphere of Influence until such lands are annexed by the City. The City shall support County land use regulations that require minimum lot sizes to protect the viability of local agriculture and to prevent the development of incompatible or undesirable land use patterns.” The Ordinance also reflects **Policy LU-7.7**, which emphasizes preserving compatibility with surrounding land uses through effective zoning standards.

The introduction of outdoor cannabis cultivation under the proposed Ordinance represents a new regulatory framework. The City will incorporate selected aspects of Mendocino County’s A-E zoning regulations, such as setback requirements mandating a minimum of 50 feet from all property lines to ensure land use compatibility and reduce adverse impacts. Additionally, the City will implement a more restrictive regulatory regime. Cannabis cultivation will be reviewed by discretionary permit, allowing the City to evaluate each site individually, considering unique environmental conditions such as proximity to sensitive habitats, water resources, and existing land uses. This approach enables the City to identify potential environmental impacts on a project-by-project basis, consistent with CEQA requirements, and impose targeted mitigation measures to address identified impacts, such as stormwater management practices, noise attenuation, or additional site security considerations.

To address air quality concerns, the Ordinance requires all structures used for mixed-light and indoor cannabis cultivation to be equipped with advanced filtration and ventilation systems designed to control odors, humidity, and mold. This provision is critical for ensuring compatibility with neighboring uses and for reducing potential nuisance complaints from nearby residents or businesses. For example, the Ordinance mandates that harvesting activities, such as drying and curing, occur either within enclosed structures utilizing best available control technology or by implementing innovative techniques like freeze-drying, to achieve equivalent odor mitigation. These measures align with best practices outlined by the California Department of Cannabis Control (DCC), which emphasizes minimizing community impacts through effective operational controls.

Water conservation is another key component of the Ordinance, reflecting statewide efforts to sustainably manage natural resources. The Ordinance requires compliance with the State Water Resources Control Board’s Cannabis Cultivation Policy, which includes guidelines for water diversion, use, and discharge to protect California’s water quality and supply. By enforcing these standards, the Ordinance ensures that cannabis operations do not deplete local water resources or adversely affect the Ukiah Valley watershed.

By adopting provisions that align with the General Plan's goals, the Ordinance supports the preservation of agricultural resources and promotes long-term compatibility with adjacent land uses. These measures, including cannabis-related regulations, not only align with state-level environmental and public health policies but also uphold the goals set forth in the Ukiah 2040 General Plan. Specifically, **Policy LU-7.5** ensures the prevention of incompatible development patterns, while the adoption of these operating standards ensures that cannabis activities remain consistent with the City's broader land-use and environmental objectives.

V. DETERMINATION

Summary of Findings: Section 15378 of the California Environmental Quality Act (CEQA) defines a “Project” as an activity that (1) is a discretionary action by a governmental agency; and (2) will either have a direct or reasonably foreseeable indirect impact on the environment. (Pub. Res. Cod, § 21065). “Project” means the whole of the action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following: An activity directly undertaken by any public agency including but not limited to public works construction and related activities, clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Government Code Sections 65100-65700.

In accordance with CEQA Guidelines Section 15183, the Agricultural Consistency Ordinance qualifies for an exemption because the following findings can be made:

- 1) **The project is consistent with the development density established by existing zoning, community plan or general plan policies for which an EIR was certified.**
- 2) **There are no project-specific effects which are peculiar to the project or its site, and which the Ukiah 2040 EIR failed to analyze as significant effects.**
- 3) **There are no project-specific impacts which the Ukiah 2040 EIR failed to analyze as significant effects.**
- 4) **There are no potentially significant offsite and/or cumulative impacts that the Ukiah 2040 EIR failed to evaluate.**
- 5) **There is no substantial new information that results in more severe impacts than anticipated by the Ukiah 2040 EIR.**

Signature

Date

Katherine Schaefer, Planning Manager
Community Development Department
City of Ukiah
kschaefer@cityofukiah.com



AGENDA SUMMARY REPORT

SUBJECT: Approval of Plans and Specifications for Remodel at 501 South State Street, Specification 25-01, and Direct Staff to Advertise for Bids.

DEPARTMENT: Community Development

PREPARED BY: Myles Fisette, Purchasing Manager

PRESENTER: Consent Calendar

ATTACHMENTS:

1. Ukiah_BofA Issue for Bids_DWGS
2. Ukiah_BofA Issue for Bid_SPECS
3. Ukiah B of A Cost Estimate

Summary: Council will consider approving the plans and specifications for remodel at 501 South State Street, Specification 25-01, and directing Staff to advertise for bids.

Background: In 2020, the City acquired the property located at 501 S. State Street with the intention of utilizing it as a centralized location for providing municipal services. In May 2021, a contract was awarded to The KPA Group to develop plans and specifications for barrier removal at the site, a task that was successfully completed in October 2021. A State Community Development Block Grant in the amount of \$50,000 was applied for and awarded to the City to complete this portion of the project. Following this, in January 2023, The KPA Group was awarded a contract for Phase 2 Design services. These services included project management coordination, schematic design, design development, construction documents, and bidding services. The design work for this phase has now been completed, and the project is set to move into its first stage of construction.

Discussion: The design services for the Phase 2 remodel of the building at 501 South State Street included architectural and engineering design for all upgrades and improvements to make the site ready to serve as the City's future Customer Service Center. See Attachments 1 and 2 for plans and technical specifications.

The engineer's estimate for the work, provided in Attachment 3, is \$3,776,071, which includes a 10% contingency. Staff and design professionals believe it is likely that bids will come in significantly under that estimate; however, if additional value engineering is required upon receipt of bids, that will occur. Funding for this project will primarily come from the Series 2020A Lease Revenue Bonds, with an available balance of approximately \$1.3 million. The remaining funds will be sourced from the Series 2022 Lease Revenue Bonds, a \$15 million general fund obligation bond originally issued to support the Corporation Yard capital project.

Staff recommends Council adopt the plans and specifications and authorizing Staff to advertise for bids. Note, award of bid will require Council approval and if the project does not come in at an acceptable price point, Council will have the option to reject bids and consider staff recommendations and/or provide direction to staff.

Recommended Action: Approve plans and specifications for remodel at 501 South State Street, Specification 25-01, and direct Staff to advertise for bids.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: Series 2020A Lease Revenue Bond (Community Facilities Improvement Project) and Series 2022 Lease Revenue Bond (Capital Projects)

REVENUE: Yes / No GRANT: Yes / No

PREVIOUS CONTRACT/PURCHASE ORDER NO.:

COORDINATED WITH: Matt Keizer, Chief Building Official; Mary Horger, Financial Services Manager

DIVERSITY-EQUITY INITIATIVES (DEI):

CLIMATE INITIATIVES (CI):

GENERAL PLAN ELEMENTS (GP):

Approved: 
Sage Sangiacomo, City Manager

CITY OF UKIAH

BANK OF AMERICA ADA BARRIER REMOVAL



CITY OF UKIAH
BANK OF AMERICA
ADA BARRIER REMOVAL
501 South State St. Ukiah, CA 95482

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

COVER SHEET

Sheet Number:

G000

PROJECT DESCRIPTION:

THE BUILDING AND SITE LOCATED AT 501 SOUTH STATE STREET, UKIAH, CA 95501 IS TO UNDERGO REMODELING CENTERED AROUND ADA BARRIER REMOVAL AND ASSOCIATED UPGRADES.

THE SCOPE OF WORK IS TO INCLUDE:

- NEW ACCESSIBLE TOILET ROOMS
- NEW ACCESSIBLE DRINKING FOUNTAINS
- NEW ACCESSIBLE ELEVATOR
- NEW ACCESSIBLE FIRE EXTINGUISHERS
- NEW ACCESSIBLE SERVICE COUNTER
- NEW ACCESSIBILITY SIGNAGE
- NEW ACCESSIBLE PARKING STALLS
- NEW ACCESSIBLE EXTERIOR RAMP
- NEW ACCESSIBLE STAFF SINK
- NEW SEWER LATERAL
- RECONFIGURED ACCESSIBLE DOORWAYS, DOORS, AND HARDWARE
- NEW EXIT EGRESS INTERIOR STAIRWAY
- REPAIRS TO UNEVEN FLOORING SURFACES

DEFERRED SUBMITTAL & DELEGATED DESIGN:

- NON-STRUCTURAL SEISMIC SUPPORTS
- CONSTRUCTION WASTE MANAGEMENT PLAN PER CGBSC SECTION 5.408.1

RESPONSIBILITY LIST:

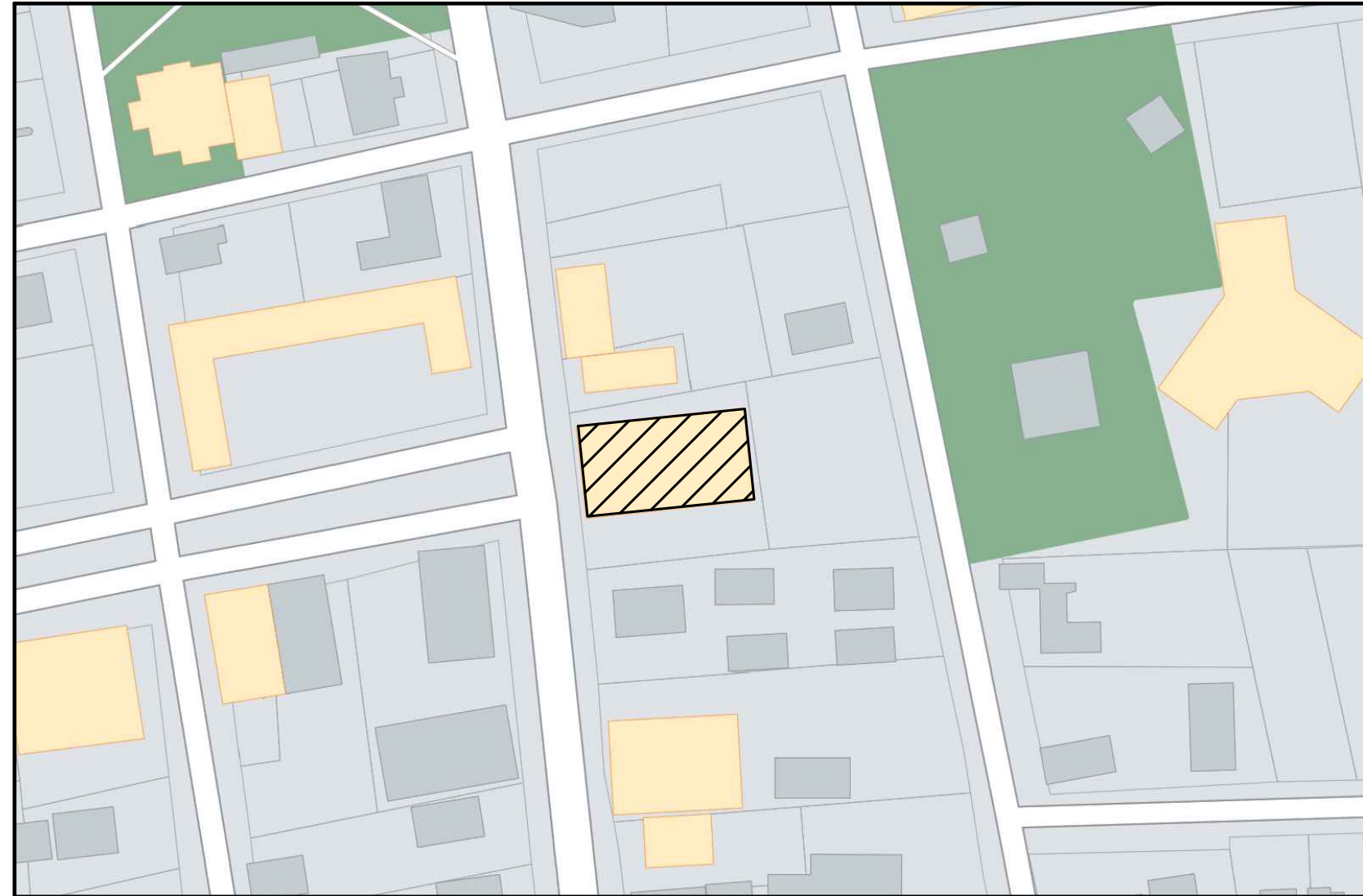
- ACQUIRE 24/7 ELEVATOR MONITORING SERVICE BY OWNER.
- PROVIDE INTERNET ACCESS FOR ELEVATOR BY OWNER.
- REMAINING BALANCE OF PROJECT WORK TO BE PERFORMED BY GENERAL CONTRACTOR.

ABBREVIATIONS:

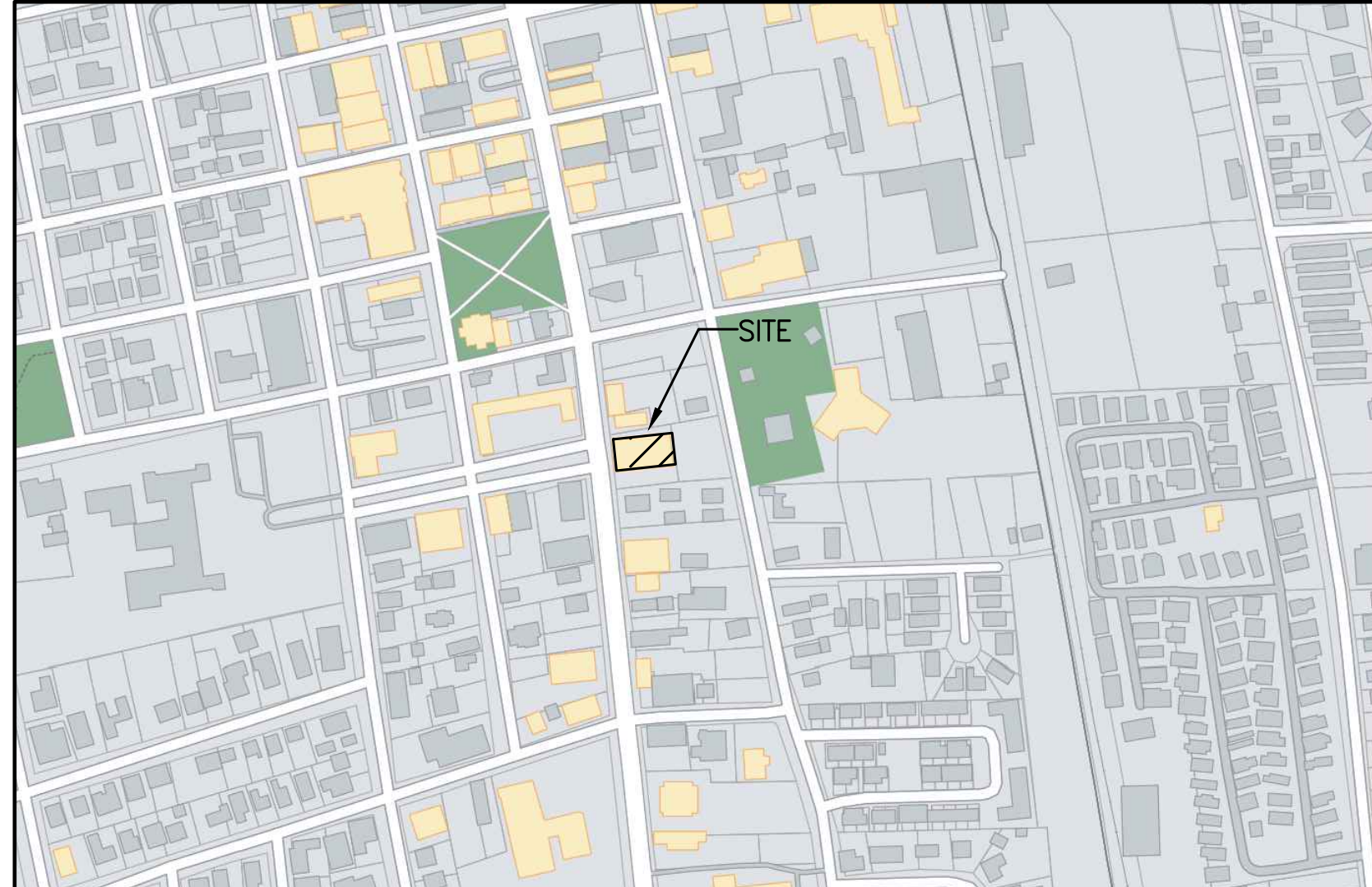
⊙	AT	LAM.	LAMINATE(d)
⊙	CENTERLINE	LB., LBS.	POUND(S)
⊙	DIAMETER OR ROUND	LOC.	LOCATION
#	POUND OR NUMBER	LONG.	LONGITUDINAL
⊕	WORKING POINT	LT.	LIGHT
"	INCH		
'	FOOT OR FEET		
ABI #	ADDITIVE ALTERNATE BID ITEM (ADD ALT)	MAINT.	MAINTENANCE
ACT	ACOUSTICAL CEILING TILE	MAX.	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MECH.	MECHANICAL
ADJ.	ADJACENT	MTL.	METAL
A.F.F.	ABOVE FINISH FLOOR	MFR.	MANUFACTURER
ARCH.	ARCHITECTURAL/ARCHITECT	MIN.	MINIMUM
		MISC.	MISCELLANEOUS
		MNTG.	MOUNTING
		(N)	NEW
BLDG.	BUILDING	N	NORTH
BOT.	BOTTOM	N/A	NOT APPLICABLE
B.O.	BOTTOM OF		or NOT AVAILABLE
BTWN.	BETWEEN	N.I.C.	NOT IN CONTRACT
		NO.	NUMBER
		N.T.S.	NOT TO SCALE
CBC	CALIFORNIA BUILDING CODE	O.C.	ON CENTER
CFCI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED	O.D.	OUTSIDE DIAMETER
CFOI	CONTRACTOR FURNISHED/OWNER INSTALLED	OFCI	OWNER FURNISHED/CONTRACTOR INSTALLED
CLG.	CEILING	OFOI	OWNER FURNISHED/OWNER INSTALLED
CLR.	CLEAR	O.H.	OPPOSITE HAND
COL.	COLUMN	OPNG.	OPENING
CONC.	CONCRETE	OPP.	OPPOSITE
CONT.	CONTINUOUS		
d	PENNY (NAIL SIZE)	P.A.F.	POWDER ACTUATED FASTENER
DEMO	DEMOLITION	PERP.	PERPENDICULAR
DET.	DETAIL	P.I.V.	POST INDICATOR VALVE
DIA.	DIAMETER	PL.	PLATE
DIAG.	DIAGONAL	PLYWD.	PLYWOOD
DIM(S)	DIMENSION(S)	PSF	POUNDS PER SQUARE FOOT
DWG(S)	DRAWINGS	P.T.	PRESSURE TREATED
(E)	EXISTING	QTY.	QUANTITY
EA.	EACH		
E.F.	EACH FACE	R	RADIUS
EFTR	EXISTING FINISH TO REMAIN	R.C.P.	REFLECTED CEILING PLAN
ELEC.	ELECTRICAL	REINF.	REINFORCED/REINFORCING
ELEV.	ELEVATION	REQ'D	REQUIRED
ENG.	ENGINEER	REV	REVISION
EQ.	EQUAL	RM.	ROOM
EQUIP.	EQUIPMENT		
ETR.	EXISTING TO REMAIN	S.A.D.	SEE ARCHITECTURAL DWGS
EXT.	EXTERIOR	SDI	STORM DRAIN INLET
EXP.	EXPOSED	S.E.D.	SEE ELECTRICAL DWGS
		SF.	SQUARE FOOT
F.E.C.	FIRE EXTINGUISHER CABINET	SIM.	SIMILAR
F.F.	FINISH FLOOR	S.M.D.	SEE MECHANICAL DRAWINGS
F.O.F.	FACE OF FINISH	SMS	SHEET METAL SCREW
FT.	FOOT OR FEET	S.P.D.	SEE PLUMBING DWGS
FURR.	FURRING	SPEC.	SPECIFICATION
		STL.	STEEL
GA.	GAUGE OR GAGE	STRUCT.	STRUCTURE/STRUCTURAL
GALV.	GALVANIZED	SUSP.	SUSPEND(ED)
CG.	CORNER GUARD		
GL.	GLASS or GLAZED	T&B	TOP & BOTTOM
GR.	GRADE	THRU	THROUGH
G.S.M.	GALVANIZED SHEET METAL	T.O.C.	TOP OF CONCRETE
		T.O.S.	TOP OF STEEL
H.M.	HOLLOW METAL	TYP.	TYPICAL
HR.	HOUR		
HT.	HEIGHT	U.L.	UNDERWRITER'S LABORATORY
H.V.A.C.	HEATING/VENTILATING /AIR CONDITIONING	U.O.N.	UNLESS OTHERWISE NOTED
		U.N.O.	UNLESS NOTED OTHERWISE
		V.I.F.	VERIFY IN FIELD
IN.	INCHES		
INFO	INFORMATION	W/	WITH
INSUL.	INSULATION	WD.	WOOD
INT.	INTERIOR	W/O	WITHOUT
JT.	JOINT	W.R.B.	WEATHER RESISTIVE BARRIER

AREA MAPS:

PROJECT LOCATION



LOCAL VICINITY MAP



SHEET INDEX:

GENERAL

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G002	GENERAL NOTES
G003	GENERAL NOTES
G004	ACCESSIBILITY PLAN
G005	CODE COMPLIANCE
G006	ELEVATOR

CIVIL

CD101	SITE DEMOLITION PLAN
CD501	EXISTING SITE PHOTOS
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C102	SITE UTILITY PLAN
C401	ENLARGED SITE PLAN
C402	ENLARGED SITE UTILITY PLANS AND DETAILS
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C502	SITE DETAILS
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STRUCTURAL

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S502	DETAILS

ARCHITECTURAL

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AD111	FIRST AND SECOND FLOOR DEMOLITION REFLECTED CEILING PLANS
A101	FIRST FLOOR PLAN
A102	SECOND FLOOR PLAN
A103	ROOF PLAN
A111	FIRST FLOOR REFLECTED CEILING PLAN
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A301	SECTIONS AND DETAILS
A302	BUILDING SECTIONS
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A402	ENLARGED TOILET ROOM PLANS AND TYPICAL MOUNTING HEIGHTS
A501	DETAILS
A511	PARTITION TYPES
A512A	TYPICAL WOOD FRAMING DETAILS
A512B	TYPICAL WOOD FRAMING DETAILS
A513	TYPICAL CEILING DETAILS
A514	MILLWORK COUNTER PLAN AND ELEVATIONS
A515	MILLWORK PLANS, ELEVATIONS AND DETAILS
A516	MILLWORK COUNTER DETAILS
A601	FINISH SCHEDULE
A602	DOOR SCHEDULE
A603	DOOR DETAILS
A604	DOOR/MISC. DETAILS
A605	WINDOW TYPES AND DETAILS
A606	FIRST FLOOR SIGNAGE PLAN
A607	SECOND FLOOR SIGNAGE PLAN
A608	SIGNAGE PLAN SCHEDULE, AND DETAILS
A901	FIRST FLOOR FURNITURE PLAN (FOR REFERENCE ONLY)
A902	SECOND FLOOR FURNITURE PLAN (FOR REFERENCE ONLY)

FIRE PROTECTION

FP101	FIRST AND SECOND FLOOR FIRE PROTECTION PLANS
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PLUMBING

P001	PLUMBING DETAILS AND LEGENDS
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PD101	FIRST AND SECOND FLOOR PLUMBING DEMOLITION
P101	UNDERSLAB PLUMBING PLAN
P102	FIRST FLOOR PLUMBING PLAN
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MECHANICAL

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ELECTRICAL

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ED100	FIRST AND SECOND FLOOR PLAN - ELECTRICAL DEMOLITION
E100	FIRST AND SECOND FLOOR PLAN - LIGHTING
E200	FIRST AND SECOND FLOOR PLAN - POWER/SYSTEMS
E201	ROOF PLAN POWER
E300	ELECTRICAL DETAILS

PROJECT TEAM:

OWNER:

CITY OF UKIAH
300 SEMINARY AVENUE
UKIAH, CA 95482

ARCHITECT/STRUCTURE/CIVIL:

THE KPA GROUP
6700 KOLL CENTER PARKWAY, STE 125
PLEASANTON, CA 94566

ELECTRICAL:

KEITH PHARIS ENGINEERING
7110 AUSTINWOOD ROAD
LOUISVILLE, KY 40214

MECHANICAL/PLUMBING:

MORRISON-MAIERLE
315 N. 25TH ST. SUITE 102
KALISPELL MT OFFICE, 59101

LEGEND:

	NORTH		ROOM
	NORTH DIRECTION		ROOM NUMBER
	CENTERLINE/GRIDLINE		DOOR NUMBER
	DETAIL #		PARTITION TYPE, SEE SHEET A511
	SHEET NAME		PLAN/DETAIL CALLOUT
	DETAIL NUMBER		INTERIOR/EXTERIOR ELEVATION CALLOUT
	SHEET WHERE DETAIL OCCURS		WORK POINT, DATUM, ELEVATION
	BUILDING SECTION		
	KEYED NOTE		
	SITE PHOTO		
	DETAIL CUT		
	CEILING FINISH TAG		
	WINDOW TYPE TAG		
	REVISION NUMBER		
	EXTENT OF REVISION		

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SHEET INDEX,
ABBREVIATIONS,
AND LEGEND

Sheet Number:

G001

GENERAL NOTES:

1.

THE CONTRACTOR SHALL BE IN RECEIPT OF APPROVED PLANS PRIOR TO BIDDING AND CONSTRUCTION. A SET OF SIGNED PLANS AND A SET OF SPECIFICATIONS WILL BE KEPT AT ALL TIMES AT THE JOB SITE ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING ALL EXISTING UTILITIES, ARE TO BE RECORDED AND/OR CORRECTED DAILY AND SUBMITTED TO THE ENGINEER WHEN THE WORK TO BE DONE IS COMPLETED ("AS-BUILTS").
2.

THE CONTRACTOR SHALL POSSESS THE CLASS OR CLASSES OF LICENSE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
3.

A COMPONENT IN ONE CONTRACT PART APPLIES AS IF APPEARING IN EACH. THE PLANS AND SPECIFICATIONS PARTS ARE COMPLEMENTARY AND DESCRIBE AND PROVIDE FOR A COMPLETE WORK. IF A DISCREPANCY IS FOUND OR CONFUSION ARISES, REQUEST CORRECTION OR CLARIFICATION IN WRITING. ANY DEVIATION FROM THE APPROVED PLANS AND SPECIFICATIONS SHALL BE APPROVED BY THE ENGINEER AND ALL CHANGES SHALL BE BY WRITTEN PERMISSION ONLY.
4.

ALL WORK SHALL BE IN ACCORDANCE WITH THE PLANS, DETAILS AND SPECIFICATIONS PREPARED FOR THE PROJECT. ANY DEVIATION FROM APPROVED PLANS DURING CONSTRUCTION WILL REQUIRE 48 HOURS PRIOR WRITTEN NOTICE TO AND SUBJECT TO THE APPROVAL OF THE CITY. ALL WORKMANSHIP, MATERIALS AND CONSTRUCTION SHALL CONFORM TO THESE PLANS, THE LATEST CALIFORNIA BUILDING, PLUMBING AND ELECTRICAL CODES, THE NAPA COUNTY ROAD AND STREET STANDARDS, THE CONTRACT SPECIFICATIONS FOR THIS PROJECT, THE LATEST EDITION CALTRANS STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED, INSOFAR AS THEY MAY APPLY.
5.

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE CITY AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
6.

CONTRACTOR SHALL CONTACT THE CITY ENGINEER, OR HIS/HER DESIGNEE, TO ARRANGE A PRE-CONSTRUCTION CONFERENCE FOR THE PURPOSE OF REVIEWING JOB REQUIREMENTS AND CITY PROCEDURES.
7.

CONTRACTOR SHALL PROVIDE A CONSTRUCTION SCHEDULE AT THE PRE- CONSTRUCTION CONFERENCE, NO LESS THAN 2 WEEKS PRIOR TO THE START OF WORK.
8.

CONTRACTOR SHALL NOTIFY THE CITY ENGINEER OR HIS/HER DESIGNEE, AT LEAST 72 HOURS IN ADVANCE OF COMMENCEMENT OF ANY PART OF THE WORK.
9.

CONTRACTOR SHALL PROVIDE AND MAINTAIN SUFFICIENT TEMPORARY BARRICADES TO PROVIDE FOR THE SAFETY OF THE STAFF AND PUBLIC TO THE SATISFACTION OF THE ENGINEER.
10.

CONTRACTOR SHALL VERIFY LOCATIONS, LEVELS, DISTANCES, AND FEATURES THAT MAY AFFECT THE WORK. SHOULD EXISTING CONDITIONS DIFFER FROM THOSE SHOWN OR INDICATED IN THESE PLANS, STANDARD SPECIFICATIONS, AND SPECIAL PROVISIONS, OR IF IT APPEARS THAT THESE PLANS, STANDARD SPECIFICATIONS, AND SPECIAL PROVISIONS DO NOT ADEQUATELY DETAIL THE WORK TO BE DONE, CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONTINUING WITH ANY RELATED WORK. NO ALLOWANCE WILL BE MADE IN THE CONTRACTOR'S BEHALF FOR ANY EXTRA EXPENSE RESULTING FROM FAILURE OR NEGLECT IN DETERMINING THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALE.
11.

ALL MATERIALS SHALL BE NEW AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
12.

CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING STRUCTURES AND UTILITIES DURING CONSTRUCTION.
13.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL AND/OR ERECT THE CONSTRUCTION AS REQUIRED TO PROPERLY COMPLETE THE WORK. MISCELLANEOUS ITEMS OF WORK, MATERIAL, EQUIPMENT, ETC. NECESSARY TO COMPLETE THE INSTALLATION SHALL BE PROVIDED BY THE CONTRACTOR WHETHER OR NOT MENTIONED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS.
14.

CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS TO MAINTAIN A FUNCTIONAL SHELTER THROUGHOUT THE PERIOD OF CONSTRUCTION.
15.

WORK SHALL NOT INTERFERE WITH SHELTER OPERATIONS. WORK SHALL BE PHASED PER PLAN.

16.

CONTRACTOR SHALL PROPERLY COORDINATE HIS WORK WITH THE WORK UNDER OTHER CONTRACTS THAT MAY BE UNDERWAY CONCURRENTLY WITH THIS PROJECT.
17.

REFER TO THE CIVIL UTILITY PLANS AND OTHER DOCUMENTS FOR ADDITIONAL REQUIREMENTS AND WORK. UTILITY AND SERVICE MODIFICATION AND ROUTING MAY EXTEND OUTSIDE THE BOUNDARY OF THE LIMIT OF PROJECT WORK. CONTRACTOR SHALL INCLUDE IN BID ALL COSTS AND MATERIALS ASSOCIATED WITH UTILITY AND SERVICE WORK OUTSIDE LIMIT OF PROJECT WORK BOUNDARY.
18.

PROPERLY DIVERT EXISTING STORMWATER STRUCTURES, DOWNSPOUTS, AND RAINWATER LEADER DURING CONSTRUCTION.
19.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF ANY DIFFERENCES IN LOCATIONS OF EXISTING UTILITIES FROM THAT SHOWN, OR ANY CONFLICTS WITH THE DESIGN BEFORE CONTINUING WORK IN THAT AREA.
20.

ALL REVISIONS TO THESE DOCUMENTS SHALL BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION AND SHALL BE ACCURATELY REPRESENTED IN REVISED PLANS PRIOR TO THE ACCEPTANCE OF THE WORK AS COMPLETE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE CITY.
21.

THE CONTRACTOR SHALL PROVIDE PROMPT, WRITTEN NOTIFICATION TO CITY'S REPRESENTATIVE CONCERNING CONFLICTS WITH, OR RECOMMENDED DEVIATIONS FROM CODES, LAWS, REGULATIONS, STANDARDS, AND OPINIONS OF REVIEW OFFICIALS AS DESCRIBED ABOVE.
22.

ALL MONUMENTS SHOWN HEREON MUST BE PROTECTED PER STATE LAND SURVEYORS STANDARD SPECIFICATION SECTION. NOTIFY THE CITY'S REPRESENTATIVE TO REPORT ANY MONUMENTS IN DANGER OF DESTRUCTION OR REMOVAL. MONUMENTS AND SURVEY MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AND A CORNER RECORD FILED WITH THE CITY SURVEYOR'S OFFICE AT THE CONTRACTOR'S EXPENSE.
23.

CONTRACTOR SHALL SATISFY HIM/HERSELF AS TO THE CORRECTNESS OF THE EXISTING TOPOGRAPHY AND OTHER SITE CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY AND OBTAIN WRITTEN APPROVAL FROM THE CITY OF UKIAH IF ANY DISCREPANCIES, REVISIONS, AND ADDITIONAL WORK THAT IS REQUIRED AS A RESULT OF SUCH FIELD INVESTIGATION PRIOR TO BEGINNING ANY WORK.
24.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE WORK SHOWN IN THESE DRAWINGS FROM THE APPROPRIATE AGENCIES.
25.

SAFETY OF PERSONNEL AND PROPERTY DURING DEMOLITION AND EXCAVATION WORK IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. ONLY THE EXTENT OF THE WORK IS INDICATED; AND NOT THE METHOD, SEQUENCE, OR SAFETY PROCEDURES AND CONSIDERATIONS. REVIEW OF THE CONTRACTOR'S SUBMITTALS IS NOT INTENDED TO RELIEVE HIM/HER OF ANY OF THE ABOVE RESPONSIBILITY.
26.

THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FENCING, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY.
27.

THE NOISE LEVEL OF THE CONTRACTOR'S OPERATING SHALL BE KEPT TO A MINIMUM AS PER LOCAL STANDARDS.
28.

THE CONTRACTOR SHALL EMPLOY MEANS NECESSARY TO CONTROL DUST AT AND NEAR THE SITE OF WORK AND ALONG APPROACH ROUTES TO THE CONSTRUCTION SITE. ADJACENT STREETS ARE TO BE CLEANSED DAILY OF DIRT AND DEBRIS THAT ARE THE RESULT OF OPERATION. CONTROL DUST AS NEED DICTATES.
29.

DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS. AT ALL TIMES DURING CONSTRUCTION AND UNTIL FINAL COMPLETION, THE CONTRACTOR, OR SUBCONTRACTOR OPERATING EQUIPMENT ON THE SITE, SHALL PREVENT THE FORMATION OF ANY AIRBORNE NUISANCE BY WATERING AND/OR TREATING THE SITE OF THE WORK IN SUCH A MANNER THAT WILL CONFINE DUST PARTICLES TO THE IMMEDIATE SURFACE OF THE WORK. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGED CAUSED BY CONTRACTOR OR HIS SUBCONTRACTOR ACTIVITIES IN PERFORMING THE WORK UNDER THIS CONTRACT AND SHALL BE RESPONSIBLE FOR ANY CITATIONS, FINES OR CHARGES RESULTING FROM DUST NUISANCE.
30.

THE CONTRACTOR SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

A.

WATERING OR COVERING OF STOCKPILES OF DEBRIS, SOIL, SAND OR OTHER MATERIALS THAT CAN BE BLOWN BY WIND

B.

COVER ALL TRUCKS HAULING SOIL, SAND AND OTHER LOOSE, MATERIALS OR ALL TRUCKS SHALL MAINTAIN TWO FEET CLEAR, BETWEEN HAULED MATERIALS AND THE TOP OF THE TRUCK BED

31.

IF ANY CULTURAL FEATURES OR ARCHEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION WORK ALL WORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHEOLOGIST (SOPA) AND/OR THE SOCIETY OF CALIFORNIA ARCHEOLOGY (SCA) HAS HAD THE OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND APPROPRIATE MITIGATION MEASURES HAVE BEEN DETERMINED AND IMPLEMENTED THE CONTRACTOR SHALL ALSO IMMEDIATELY NOTIFY THE CITY'S REPRESENTATIVE.
32.

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO THE CALIFORNIA STORM WATER CONSTRUCTION BMP HANDBOOK. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING STORM WATER BMP's AND MAINTAINING THEM DURING CONSTRUCTION AS REQUIRED.
33.

THE CONTRACTOR SHALL MEET AND FOLLOW ALL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REQUIREMENTS IN EFFECT AT THE TIME OF CONSTRUCTION.
34.

CONTRACTOR SHALL MAINTAIN GOOD HOUSEKEEPING PRACTICES AT THE JOB SITE. EXCESS BUILDING MATERIALS AND DEBRIS SHALL BE REMOVED PROMPTLY FROM THE JOB SITE AND DISPOSED OF AT AN APPROVED DUMPSITE. THE JOB SITE SHALL BE LEFT CLEAN AT THE END OF EACH WORKDAY.
35.

THE CONTRACTOR MUST MAINTAIN THE STREETS, SIDEWALKS, AND ANY OTHER PUBLIC & PRIVATE RIGHTS-OF-WAY IN A CLEAN, SAFE, AND USABLE CONDITION. ANY SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS MUST BE REMOVED AND SWEEP CLEAN FROM THE PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT.
36.

CONSTRUCTION OPERATIONS – WASTEWATER GENERATED DURING CONSTRUCTION SHALL NOT BE DISCHARGED TO THE STORM DRAIN SYSTEM. THIS INCLUDES WASTE FROM PAINTING, SAWCUTTING, CONCRETE WORK, ETC. THE CONTRACTOR SHALL MAKE ARRANGEMENTS TO ELIMINATE DISCHARGE TO THE STORM DRAIN SYSTEM AND, IF NECESSARY, PROVIDE AN AREA FOR ON-SITE WASHING ACTIVITIES DURING CONSTRUCTION. MATERIALS, WHICH COULD CONTAMINATE STORM RUNOFF, SHALL BE STORED IN AREAS WHICH ARE DESIGNED TO PREVENT EXPOSURE TO RAINFALL AND NOT ALLOW STORM WATER TO RUN ONTO THE AREA.
37.

FLUSHING OF STREETS AND PARKING LOTS TO REMOVE DIRT AND CONSTRUCTION DEBRIS IS PROHIBITED UNLESS PROPER SEDIMENT CONTROLS ARE USED. PREFERABLY, AREAS REQUIRING CLEANING SHOULD BE SWEPT.
38.

CONTRACTOR SHALL PROTECT EXISTING FACILITIES FROM DAMAGE. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE CITY OF UKIAH. BARRICADES, SIGNS, LIGHTS, ETC., REQUIRED FOR THE PROTECTION OF PERSONNEL, THE PUBLIC PROPERTY AND MATERIAL SHALL BE PROVIDED FOR AND MAINTAINED DURING CONSTRUCTION BY THE CONTRACTOR, AND SHALL CONFORM TO ALL GOVERNING CODES, ORDINANCES AND REGULATIONS. THE CONTRACTOR IS RESPONSIBLE FOR THE REPAIR OF PUBLIC AND PRIVATE IMPROVEMENTS/FACILITIES DAMAGED BY OPERATIONS INCLUDING BUT NOT LIMITED TO MONUMENTS, BENCHMARKS, AC PAVEMENT, PAVEMENT MARKINGS, TRAFFIC STRIPING AND SIGNAGE, TRAFFIC LOOPS, EXISTING FIBER OPTIC, EXISTING SEWER MAINS ETC.
39.

THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UTILITIES AS SHOWN ON DRAWINGS ARE APPROXIMATE AND WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. ONLY ACTUAL DEMOLITION WILL REVEAL THE TYPES, EXTENT, SIZES AND LOCATIONS OF SUCH UTILITIES.
40.

ALL UNDERGROUND UTILITIES SHALL BE COMPLETE BEFORE PLACING OF BASE ROCK UNLESS OTHERWISE NOTED.
41.

ALL KNOWN EXISTING UTILITY LINES ARE SHOWN FOR INFORMATION ONLY. CONTRACTOR SHALL EXERCISE ALL NECESSARY CAUTION TO AVOID DAMAGE TO ANY EXISTING UTILITY LINES OR FACILITIES TO REMAIN IN PLACE, WHETHER OR NOT SUCH LINES OR FACILITIES ARE SHOWN ON THESE PLANS, AND SHALL BEAR FULL RESPONSIBILITY FOR ANY DAMAGE THERETO. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION AND DEPTH. NEITHER THE CITY OF UKIAH NOR THE DESIGN TEAM ASSUMES RESPONSIBILITIES THAT EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED WILL BE THOSE ENCOUNTERED. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY AN UNDERGROUND UTILITY LOCATING COMPANY HIRED BY THE CONTRACTOR FIVE (5) WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION ALL WORK SHALL BE BORNE BY THE CONTRACTOR.

42.

CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK TO AVOID CONFLICTS BETWEEN SEWER, STORM DRAINS, WATER, GAS, STEAM AND ELECTRICAL MAINS. THE GENERAL CONTRACTOR SHALL EMPLOY A UTILITY AND SERVICE LOCATOR APPROVED BY THE CITY OF UKIAH IN LOCATING BURIED UTILITIES AND SERVICES AT (AND IN THE VICINITY OF) THE PROJECT.
43.

CONTRACTOR IS RESPONSIBLE FOR HAVING EXISTING GAS LINES, POWER LINES, WATER LINES, SEWER LINES, COMMUNICATION LINES, CABLE, ELECTRICAL LINES, ETC. DISCONNECTED AND RELOCATED AS NECESSARY. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT (800) 227- 2600 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, FOR MARK OUTS OF EXISTING UNDERGROUND FACILITIES. CONTRACTOR SHALL COORDINATE WORK WITH UTILITY COMPANIES.
44.

UTILITIES OR SERVICES TEMPORARILY REMOVED OR DISCONNECTED IN ORDER TO PERFORM THE WORK SHALL BE REBUILT OR REPLACED TO MATCH THE (E) CONDITION PRIOR TO THEIR REMOVAL AND REINSTALLATION. SUCH WORK SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF UKIAH.
45.

UTILITY CONNECTIONS AND DISCONNECTIONS NECESSARY TO COMPLETE THE WORK WILL BE PERFORMED IN SUCH MANNER IN ORDER TO MINIMIZE UTILITY SERVICE INTERRUPTIONS TO FACILITY OPERATIONS IN THE VICINITY OF CONSTRUCTION. THE CONTRACTOR WILL COORDINATE ALL UTILITY INTERRUPTIONS DURING ALL PHASES OF CONSTRUCTION WITH THE CITY'S REPRESENTATIVE. COORDINATE ALL "DOWN TIME" WITH THE CITY OF UKIAH.
46.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF ANY DIFFERENCES IN LOCATIONS OF EXISTING UTILITIES FROM THAT SHOWN, OR ANY CONFLICTS WITH THE DESIGN BEFORE CONTINUE WORK IN THAT AREA.
47.

ALL EXCAVATIONS SHOULD BE PERFORMED IN ACCORDANCE WITH CAL OSHA REQUIREMENTS.
48.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INCLUDE ALL MATERIAL AND LABOR REQUIRED WITHIN THE BID PRICE, FOR EARTHWORK CONSTRUCTION, TO CARRY OUT THE CUT/FILL AND/OR IMPORT/EXPORT AS NECESSARY TO MEET THE DESIGN GRADES SHOWN ON THE PLANS. CONTRACTOR IS TO DELIVER TO THE CITY OF UKIAH THE PROJECT IN A COMPLETE AND OPERATIONAL MANNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY INVESTIGATION OR STUDIES THAT ARE REQUIRED BY THE CONTRACTOR TO SATISFY THIS REQUIREMENT. NO ADDITIONAL COMPENSATION SHALL BE PAID FOR SAID CUT/FILL AND/OR IMPORT/EXPORT.
49.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN CONTROL OF THE ENTIRE CONSTRUCTION OPERATION AND TO KEEP THE ENTIRE SITE IN COMPLIANCE WITH STATE AND LOCAL LAWS AND MEASURES.
50.

ADJUSTMENTS SHALL BE MADE TO CONSTRUCTION PHASING PLAN AS NECESSARY TO WORK WITH THE CONSTRUCTION PHASING OF THE PROJECT. SUBMIT PHASING PLAN TO THE CITY OF UKIAH FOR APPROVAL.
51.

THE CONTROL PLAN MAY NOT COVER ALL THE SITUATIONS THAT MAY ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS AND ADDITIONS MAY BE MADE BY THE CONTRACTOR TO THIS PLAN WITH APPROVAL BY THE CITY.
52.

VACUUM, DUST, SWEEP AND REMOVE DEBRIS DAILY.
53.

ANY NOISE CAUSED BY CONSTRUCTION (INCLUDING BUT NOT LIMITED BY DEMOLITION, DRYWALL INSTALLATION AND OTHER DISRUPTIVE PORTIONS OF WORK) SHOULD NOT EXCEED OSHA's PERMISSIBLE EXPOSURE LIMIT (PEL) FOR NOISE DURING THE HOURS OF 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY. ANY CONSTRUCTION WORK EXCEEDING OSHA NOISE THRESHOLD SHOULD BE DONE DURING OFF HOURS INCLUDING WEEKENDS, HOLIDAYS, EVENINGS AND NIGHTS.
54.

COORDINATE ANY NECESSARY ELECTRICAL OR OTHER SYSTEM SHUTDOWN WITH THE CITY OF UKIAH AT LEAST 30 DAYS IN ADVANCE. PROVIDE ALL NECESSARY LIFE SAFETY, SECURITY AND MONITORING DURING SHUTDOWN.
55.

PROTECT ALL EXISTING ITEMS AND FINISHES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION.
56.

PROTECT COUNTY AND SHELTER PROPERTY, DESKS, OFFICE PAPERS AND EQUIPMENT. INSTALL PLASTIC DUST COVERING TO KEEP AREA CLEAN.
57.

PROTECT EXISTING TREES AND VEGETATION TO REMAIN. EXISTING VEGETATION SHALL BE REMOVED ONLY AS DIRECTED BY THE CITY'S REPRESENTATIVE.
58.

PROTECT EXISTING WATER VALVE, IRRIGATION WIRING, UTILITIES, COMMUNICATION AND OTHER SITE ATTRIBUTES AS REQUIRED DURING DEMOLITION AND NEW CONSTRUCTION.



CITY OF UKIAH

BANK OF AMERICA

ADA BARRIER REMOVAL

501 South State St. Ukiah, CA 95482

Revisions:

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Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

GENERAL NOTES

Sheet Number:

G002

GENERAL NOTES:

59. REPLACE ALL (E) ITEMS TO REMAIN THAT ARE DAMAGED/REMOVED BY CONSTRUCTION ACTIVITIES, AT NO ADDITIONAL COST TO CITY OF UKIAH.
60. PROVIDE ANY NECESSARY OFF–SITE STORAGE AND STAGING.
61. MAINTAIN 6’–0” HIGH CONSTRUCTION BARRIERS (FENCE WITH VISUAL CONTROLS) AT ALL TIMES. ALL CONSTRUCTIONS BARRIERS ARE DIAGRAMMATIC. ADJUST LOCATION AND CONFIGURATION OF CONSTRUCTION BARRIERS DURING PROJECT AS NECESSARY. PROVIDE ADEQUATE SAFETY BARRICADES AT NO ADDITIONAL COST TO CITY OF UKIAH.
62. MAINTAIN FREE AND UNOBSTRUCTED PATHWAYS AND DESIGNATE ALTERNATE PATHWAY WHEN REQUIRED.
63. CONTRACTOR IS RESPONSIBLE FOR FINAL CONSTRUCTION PHASING SEQUENCE.
64. WORKING HOURS SHALL BE FROM 10:00AM TO 7:00PM. VERIFY HOURS WITH CITY STAFF AT THE PRECONSTRUCTION MEETING.
65. ALL WORK SHALL BE IN ACCORDANCE WITH THE PLANS, DETAILS AND SPECIFICATIONS PREPARED FOR THE PROJECT. ANY DEVIATION FROM APPROVED PLANS DURING CONSTRUCTION WILL REQUIRE 48 HOURS PRIOR WRITTEN NOTICE TO AND SUBJECT TO THE APPROVAL OF THE CITY OF UKIAH.
66. NO RECORD OR EXISTING DRAWINGS ARE PROVIDED/AVAILABLE FOR THIS BUILDING. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT.
67. CONTRACTOR SHALL ANTICIPATE MINOR DIMENSIONAL ADJUSTMENTS TO MATCH/FIT NEW AND EXISTING CONDITIONS. MINOR DIMENSIONAL ADJUSTMENTS SHALL BE AT NO ADDITIONAL COST TO CONTRACT SUM.
68. EXISTING BUILDING SYSTEMS ARE PARTIALLY SUSPENDED FROM ROOF STRUCTURE AND PARTIALLY SUPPORTED BY EXISTING WOOD STUD PARTITION WALLS. PORTIONS OF EXISTING WALLS SHALL BE REMOVED AND CEILING SYSTEMS WILL REQUIRE TEMPORARILY AND PERMANENT SUPPORT.
69. EXISTING STAIRWAY SHALL BE DEMOLISHED AND RECONSTRUCTED TO ALLOW ACCESS FOR CONSTRUCTION OF NEW ELEVATOR SHAFT. RECONSTRUCTED WOOD STAIRWAY SHALL MEET CBC 2019 REQUIREMENTS.
70. EXISTING CEILINGS, WALLS, AND CONCRETE SLAB–ON–GRADE REQUIRE PARTIAL DEMOLITION, RECONSTRUCTION, AND REFINISHING TO ALLOW ACCESS FOR NEW MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS.
71. A TWO (2) STORY CONCRETE VAULT FORMALLY USED BY BANK AS VAULT AND SECURED STORAGE SHALL REMAIN.
72. CONTRACT TO PROVIDE SURVEY SERVICES TO LAYOUT, CONFIRM AND COORDINATE REQUIRED CODE SLOPES AND DIMENSIONS WITH EXISTING CONDITIONS.
73. CONTRACTOR SHALL REMOVE FROM SITE ALL EXCAVATED SOILS, AND INCLUDING ROCK, NOT SUITABLE FOR TRENCH OR BUILDING BACKFILL.
74. SEWER LATERAL SHALL COMPLY WITH UTILITY DETAILS, STANDARDS AND BE COORDINATED WITH EXISTING SITE AND UNDERGROUND CONDITIONS.

ENGINEERS
ARCHITECTS

KPA

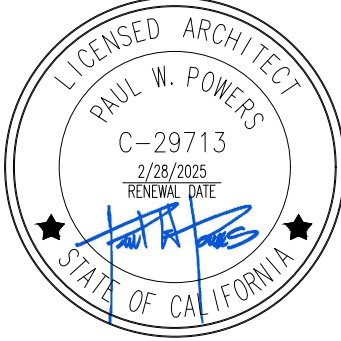
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THE KPA GROUP 2024

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CITY OF UKIAH

BANK OF AMERICA

ADA BARRIER REMOVAL

501 South State St. Ukiah, CA 95482

Revisions:

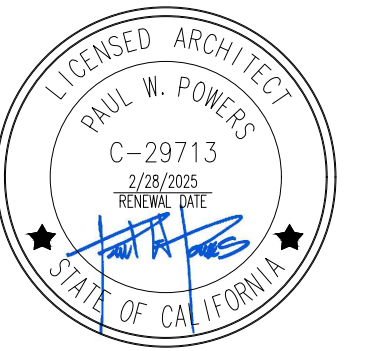
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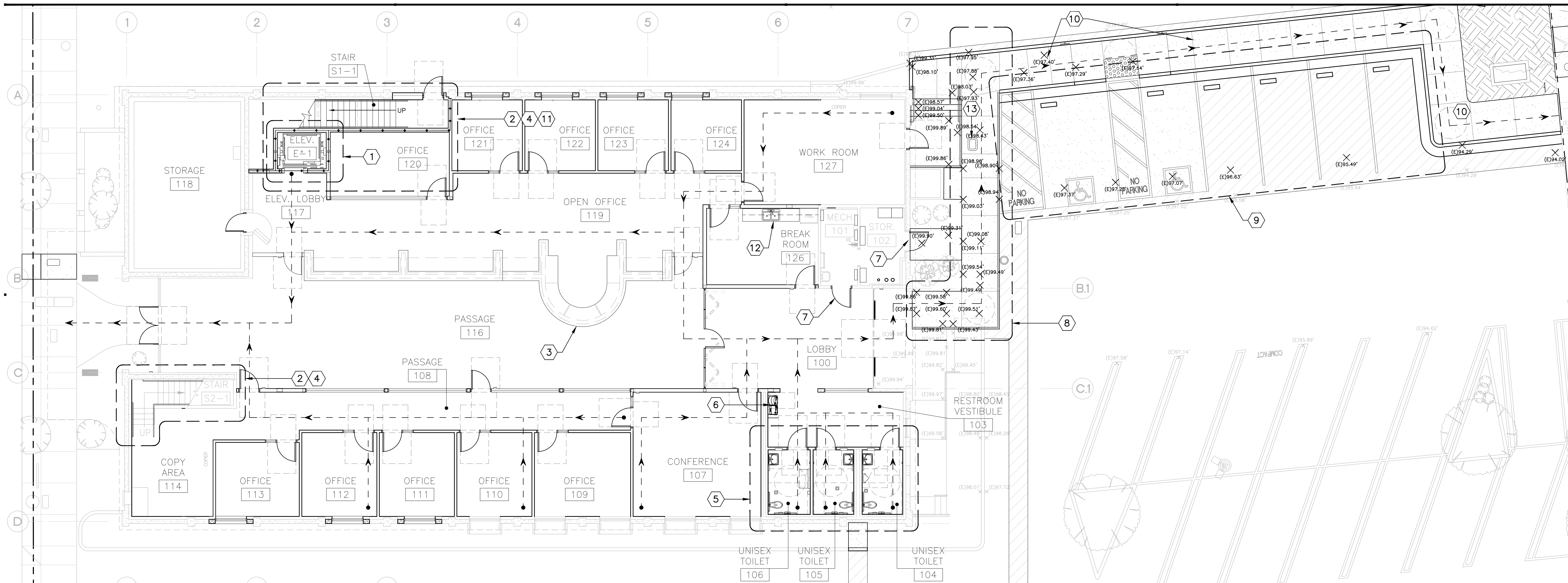
Sheet Number:

G003



CITY OF UKIAH
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501 South State St. Ukiah, CA 95482

G004



PLAN
NORTH

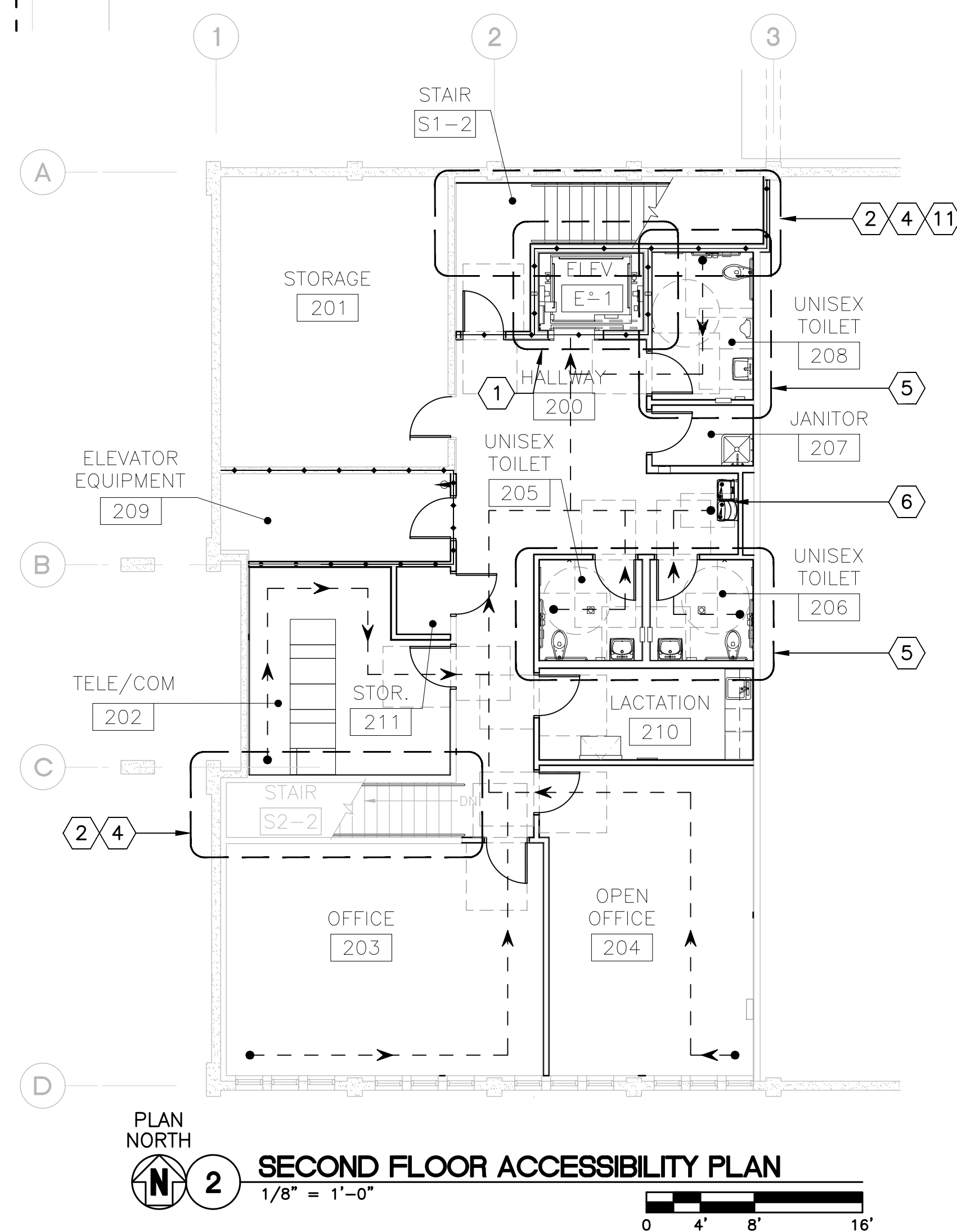
 **1** **FIRST FLOOR ACCESSIBILITY PLAN**

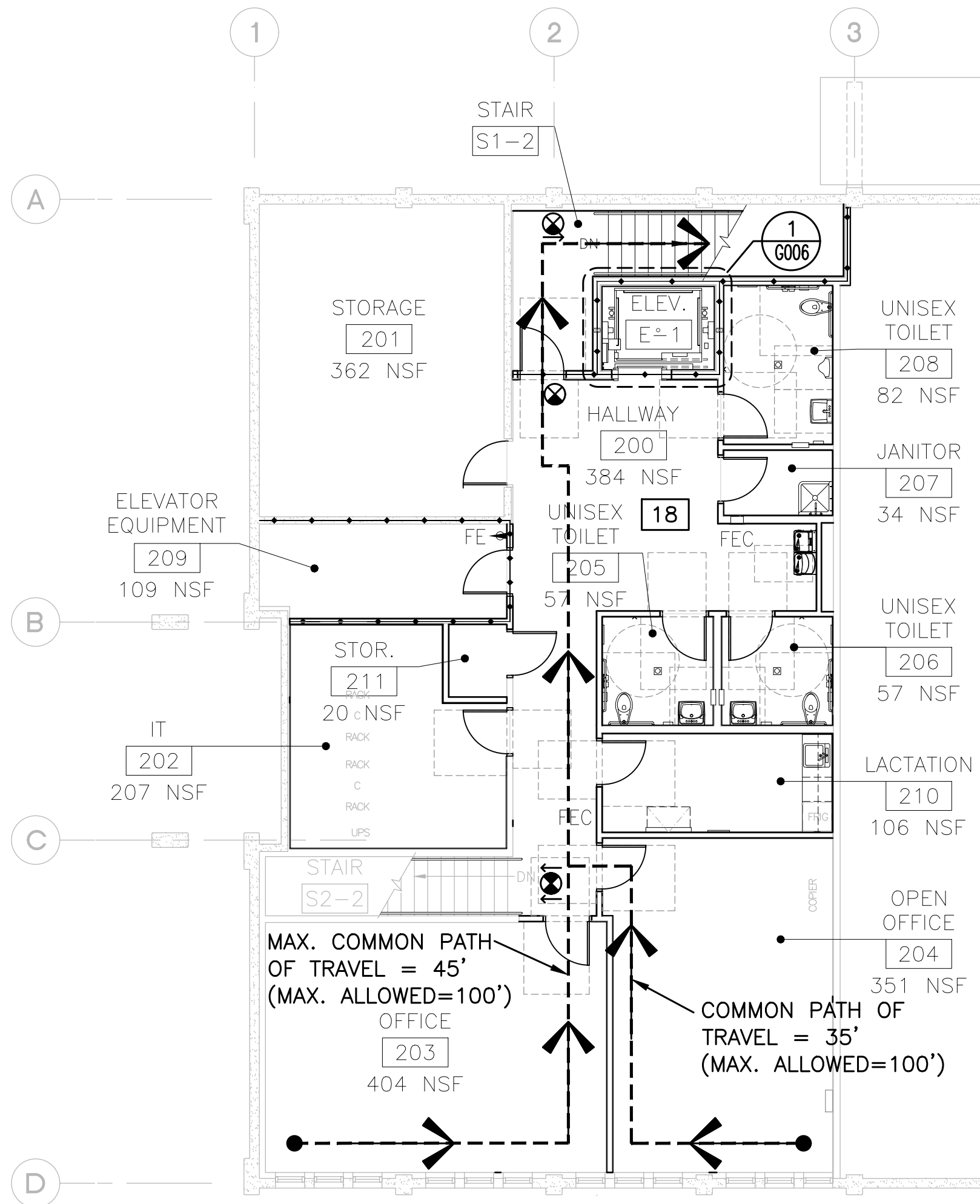
$1/8" = 1'-0"$

- ① PROVIDE NEW ACCESSIBLE ELEVATOR
- ② PROVIDE ADA COMPLIANT STAIR HANDRAILS
- ③ PROVIDE NEW ACCESSIBLE SERVICE COUNTER AT LOBBY
- ④ PROVIDE ADA COMPLIANT STAIR WARNING SURFACES
- ⑤ PROVIDE NEW ACCESSIBLE UNISEX TOILET ROOMS
- ⑥ PROVIDE NEW ACCESSIBLE DRINKING FOUNTAINS
W/ BOTTLE FILLER.
- ⑦ SERVICE ENTRY ONLY.
- ⑧ PROVIDE NEW ACCESSIBLE ROUTE FROM PARKING TO ENTRY
- ⑨ PROVIDE NEW ADA PARKING STALLS AND SIGNAGE TO MEET
ADA REQUIREMENTS
- ⑩ PROVIDE ACCESSIBLE ROUTE AND SIDEWALK FROM STREET TO
THE BUILDING
- ⑪ PROVIDE NEW ACCESSIBLE STAIR AND VESTIBULE
- ⑫ PROVIDE NEW ACCESSIBLE BREAK ROOM COUNTER AND SINK
- ⑬ ELECTRIC HAND HOLE COVER TO BE INSTALLED FLUSH
W/ SLOPED WALKWAY.

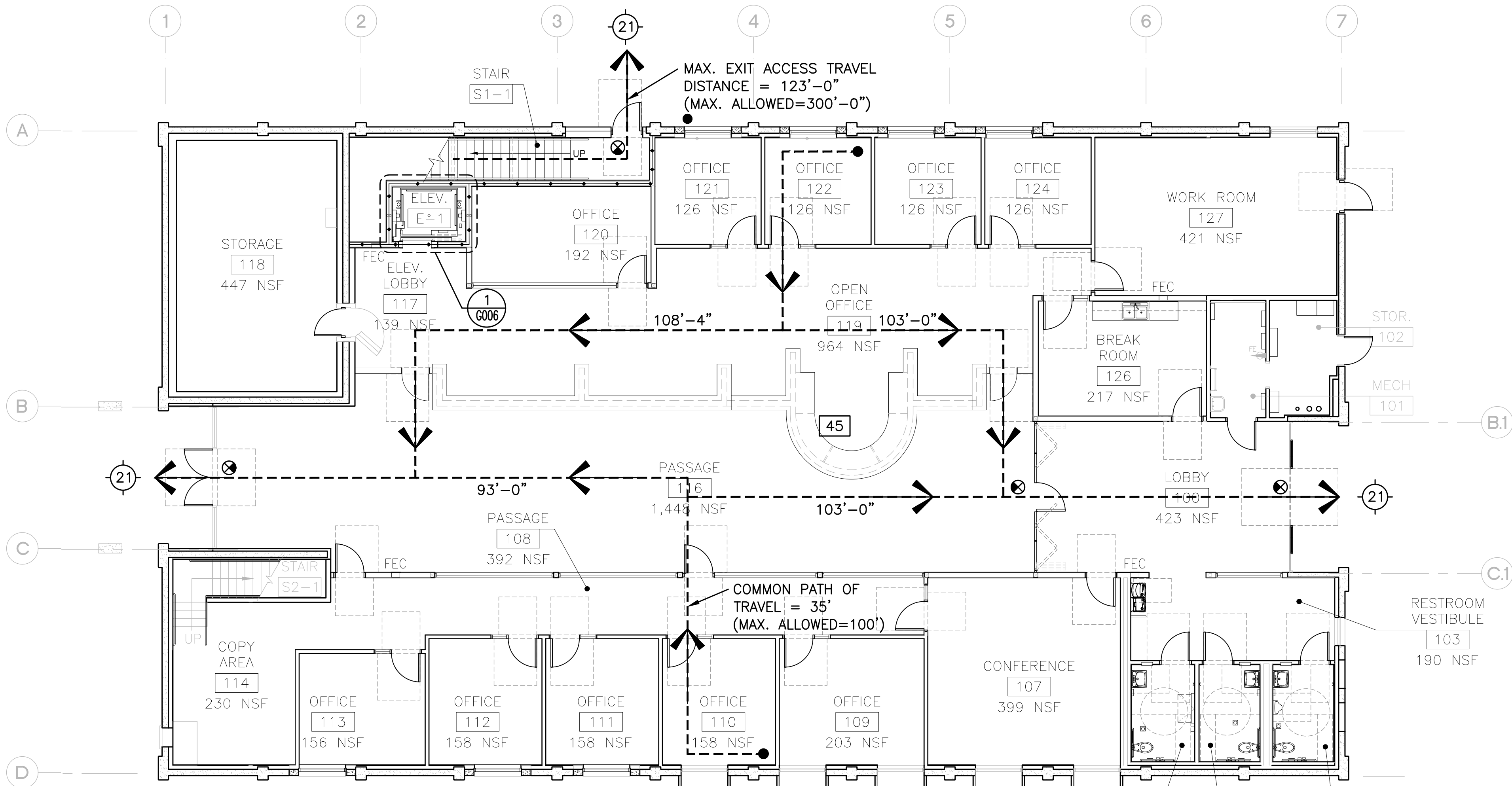
1. ALL NEW DOORS, DOOR FRAMES, AND DOOR HARDWARE TO MEET ALL APPLICABLE ACCESSIBILITY STANDARDS. SEE SHEET A602 FOR DOOR SCHEDULE AND DETAILS.
2. SEE SHEETS A606, A607, AND A608 FOR SIGNAGE PLAN, SCHEDULE, AND DETAILS.
3. PROVIDE SMOOTH, ACCESSIBLE FLOOR SURFACES THROUGHOUT.

 5'-0" CLEAR TURNING RADIUS,
 MAX. SLOPE 1:48 IN ALL DIRECTIONS
 --->--- ACCESSIBLE PATH





PLAN NORTH
2 SECOND FLOOR CODE PLAN
1/8" = 1'-0"



PLAN NORTH
1 FIRST FLOOR CODE PLAN
1/8" = 1'-0"

APPLICABLE BUILDING CODES:

BUILDING CODE: 2022 CALIFORNIA BUILDING CODE
STRUCTURAL CODE: 2022 CALIFORNIA BUILDING CODE
PLUMBING CODE: 2022 CALIFORNIA PLUMBING CODE
MECHANICAL CODE: 2022 CALIFORNIA MECHANICAL CODE
ELECTRICAL CODE: 2022 CALIFORNIA ELECTRIC CODE
NFPA 70 - 2023 NATIONAL ELECTRICAL CODE
FIRE PROTECTION: 2022 CALIFORNIA FIRE CODE
NFPA 13 - 2022
ENERGY CODE: 2022 CALIFORNIA ENERGY CODE
SUSTAINABILITY: 2022 CALIFORNIA GREEN BUILDING STANDARDS

1. USE AND OCCUPANCY CLASSIFICATION

304 - BUSINESS GROUP B

2. FIRE PROTECTION SYSTEMS

EXISTING BUILDING NOT SPRINKLERED. SPRINKLER SYSTEM ADDED TO THIS PROJECT PER OWNER.

907.2.2- GROUP B
A MANUAL FIRE ALARM SYSTEM IS NOT REQUIRED (OCCUPANT LOAD IS LESS THAN 100) & SPRINKLERED
906.1 - GROUP B
PORTABLE FIRE EXTINGUISHERS ARE REQUIRED
TABLE 906.3(1) CLASS A-75' MAX. TO EXTINGUISHER (2-A)

3. OCCUPANCY SEPARATIONS

508.2.4 NO SEPARATION IS REQUIRED BETWEEN ACCESSORY OCCUPANCIES AND THE MAIN OCCUPANCY.

4. BUILDING CONSTRUCTION TYPE

TABLES 601 - CONSTRUCTION CLASSIFICATION
PRIMARY STRUCTURAL FRAME 0 HOUR
BEARING WALLS - EXTERIOR 0 HOUR
BEARING WALLS - INTERIOR 0 HOUR
NON-BEARING WALLS AND PARTITIONS - INTERIOR 0 HOUR
FLOOR CONSTRUCTION AND SECONDARY MEMBERS 0 HOUR
ROOF CONSTRUCTION AND SECONDARY MEMBERS 0 HOUR

TABLE 705.5 - FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE
EXTERIOR WALLS X < 10' 1 HOUR
EXTERIOR WALLS X ≥ 30' 0 HOUR

713.4 FIRE RESISTANCE RATING - SHAFTS: 1 HOUR (< 4 STORIES)

5. BUILDING HEIGHT AND AREA

504 - BUILDING HEIGHT AND NUMBER OF STORIES (SPRINKLERED)
TABLE 504.3 - ALLOWABLE BUILDING HEIGHT 60'
ACTUAL BUILDING HEIGHT 26'
TABLE 504.4 - ALLOWABLE NUMBER OF STORIES 3
ACTUAL NUMBER OF STORIES 2

506 - BUILDING AREA
TABLE 506.2 ALLOWABLE AREA (TYPE V-B, B OCCUPANCY)

	ALLOWABLE AREA	ACTUAL AREA
1ST FL	27,000 SF	6,616 SF
2ND FL	27,000 SF	2,585 SF
TOTAL	54,000 SF	9,201 SF

6. DESIGN OCCUPANT LOAD AND EXIT ACCESS

TABLE 1004.5	LOAD FACTOR	AREA	OCCUPANTS
1ST FL (BUSINESS)	150 GROSS	6,616 GSF	45
2ND FL (BUSINESS)	150 GROSS	2,585 GSF	18

BUILDING TOTAL: 63

7. MEANS OF EGRESS

TABLE 1006.2.1 & 1006.3.3(2) - EXITS & COMMON PATH OF TRAVEL

LEVEL	REQUIRED EXITS	PROVIDED	COMMON PATH
FIRST	2	3	100' MAX.
SECOND	2	2	100' MAX.

TABLE 1017.2 - EXIT ACCESS TRAVEL DISTANCE
GROUP B 300' (SPRINKLERED)
ALL EXIT DISTANCES < 140'-0"

1005.3.1 STAIRWAY WIDTH: 0.3" PER OCC. 18.9"

1011.2 WIDTH AND CAPACITY	REQUIRED	PROVIDED
1ST FLOOR	44" MIN.	54" MIN.
2ND FLOOR	44" MIN.	54" MIN.

1005.3.2 EXIT WIDTH:
0.2" PER OCC. (SPRINKLERED) 12.4"
ACTUAL PROVIDED 144" MIN

8. INTERIOR FINISHES

PER TABLE 803.13 - SPRINKLERED

- INTERIOR EXIT, STAIRWAYS, RAMPS, AND EXIT PASSAGEWAYS CLASS B
- CORRIDORS AND ENCLOSURE FOR EXIT ACCESS STAIRWAYS AND RAMPS CLASS C
- ROOMS AND ENCLOSED SPACES CLASS C

9. ROOF ASSEMBLY

705.11 PARAPETS, EXCEPTION 6 - A PARAPET NEED NOT BE PROVIDED ON AN EXTERIOR WALL

1505.1 ROOF ASSEMBLIES
TYPE V-B - CLASS C ROOF ASSEMBLY

10. PLUMBING FIXTURES

*CPC 2022: 422.4.1 ACCESS TO TOILET FACILITIES:
IN MULTI-STORY BUILDINGS, ACCESSIBILITY TO THE REQUIRED TOILET FACILITIES SHALL NOT EXCEED ONE VERTICAL STORY. CUSTOMER ACCESS TO TOILETS SHALL NOT PASS THROUGH EMPLOYEE ONLY AREAS.

*CALIFORNIA PLUMBING CODE - TABLE 422.1 TABLE A AND TABLE 4-1

OCCUPANT TOTALS*	OCC.		FIXTURES REQ'D		PROVIDED	
	M	W	M	W	M	W
WATER CLOSETS	32	32	1	3	3	3
URINALS	32	32	1	—	2	—
LAVATORIES	32	32	1	1	3	3
DRINKING FOUNTAIN	63		1		4	
SERVICE SINKS	63		1		1	

11. AUTHORITY HAVING JURISDICTION (AHJ)

CITY OF UKIAH - BUILDING AND CODE ENFORCEMENT SERVICES DIVISION

LEGEND:

- LONGEST EGRESS DISTANCE FROM ROOM
- OCCUPANT LOAD AT EXIT
- NEW EXIT SIGNS
- OCCUPANCY LOAD WITHIN SUITE/ROOM
- COMMON PATH OF TRAVEL
- RATED WALLS - 1 HR (FIRE)
- FIRE EXTINGUISHER CABINET
- FIRE EXTINGUISHER

12. PARKING

TABLE 11B-208.2: PARKING SPACES

*TOTAL PARKING STALLS ON SITE: 41
*TOTAL ADA PARKING REQUIRED: 2

TABLE 11B-208.2.4: VAN PARKING SPACES
FOR EVERY 6 PARKING SPACES, AT LEAST 1 SHALL BE A VAN PARKING SPACE

MINIMUM # OF ACCESSIBLE PARKING STALLS:	TOTAL STALLS	VAN	CAR
41	REQUIRED: 1	1	1
	PROVIDED: 1	1	1

Revisions:

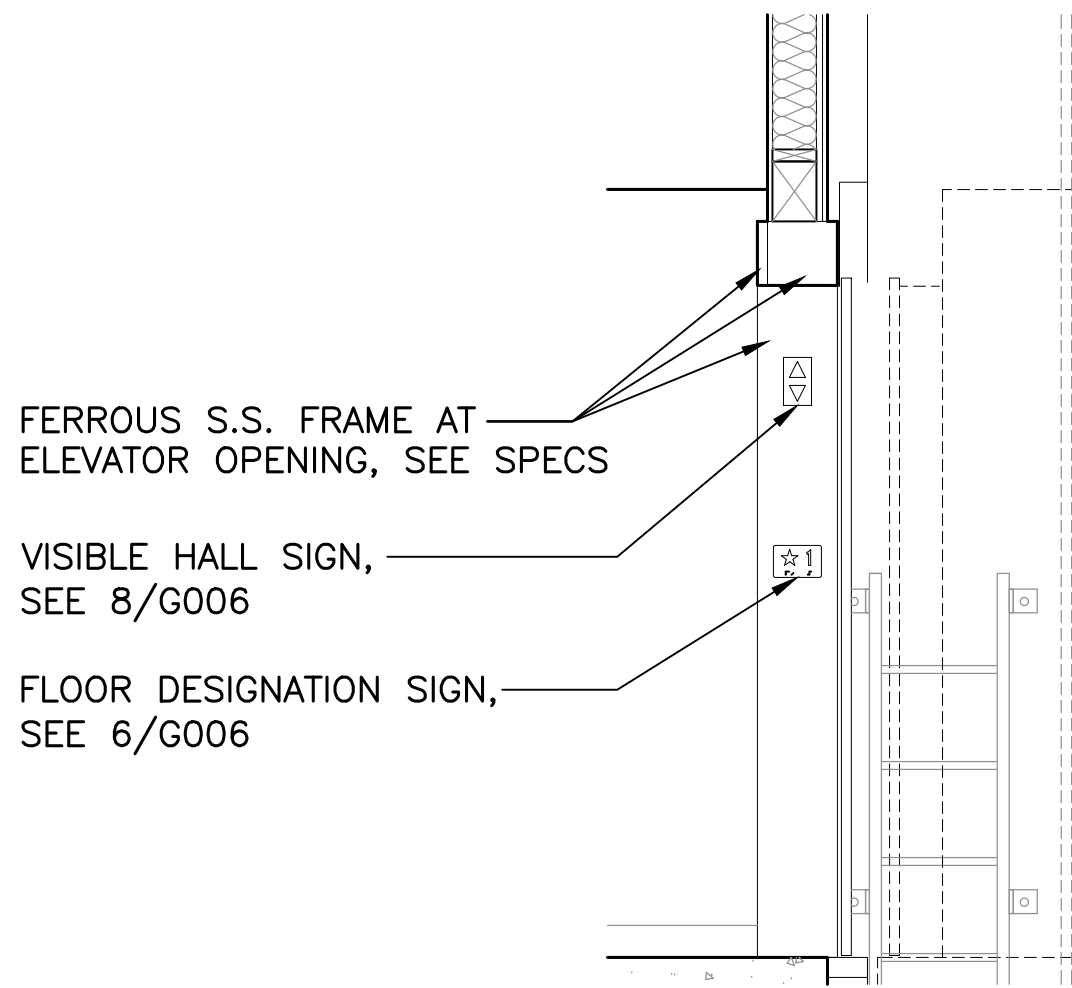
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Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

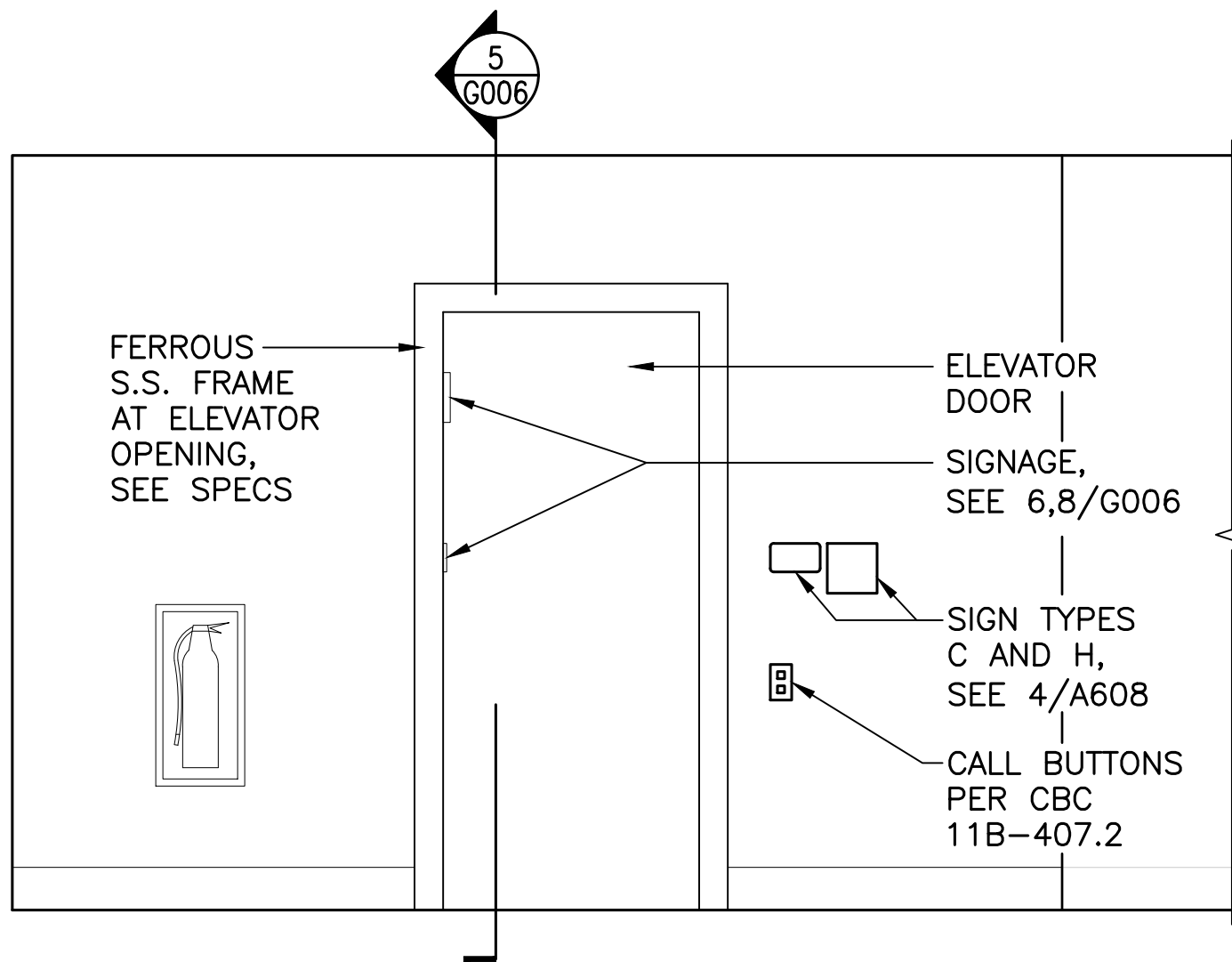
CODE COMPLIANCE

Sheet Number:

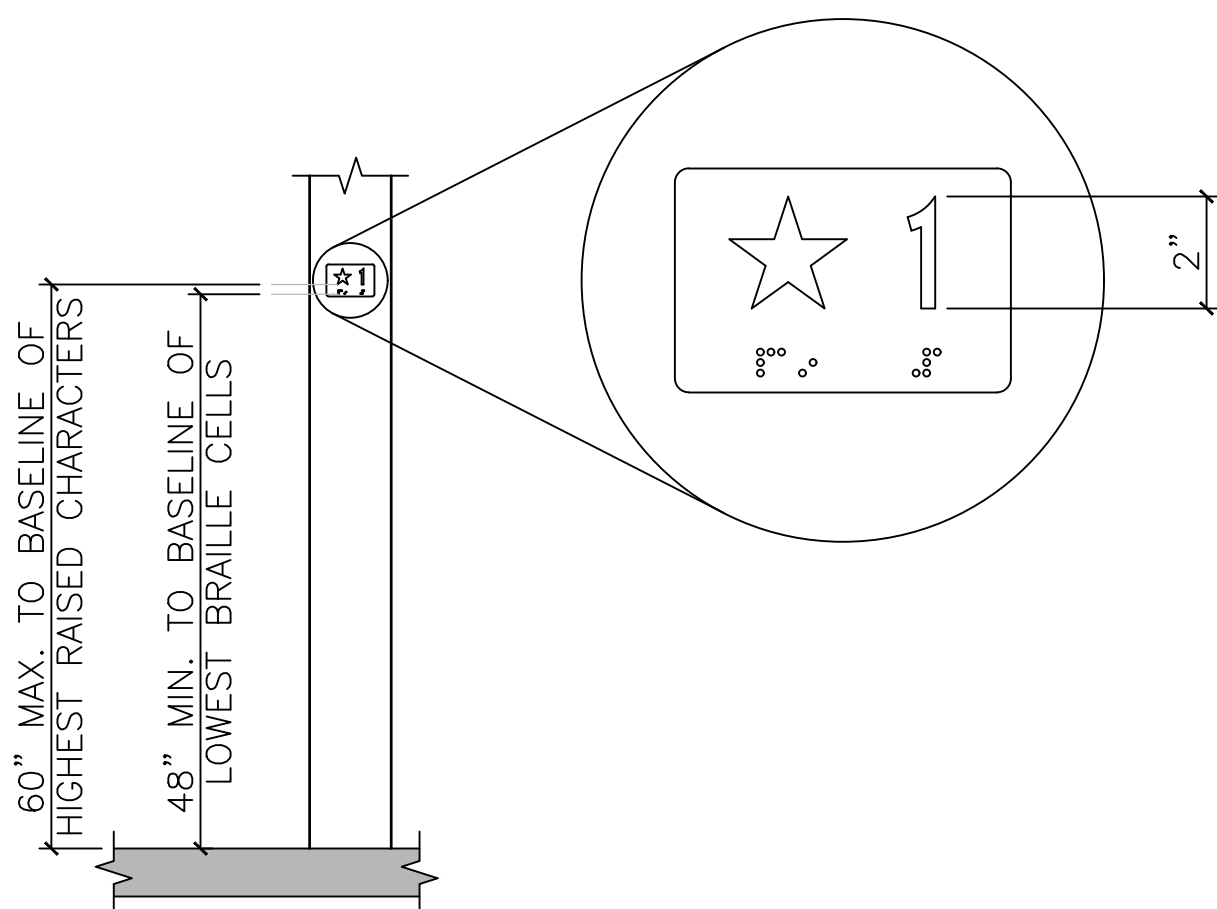
G005



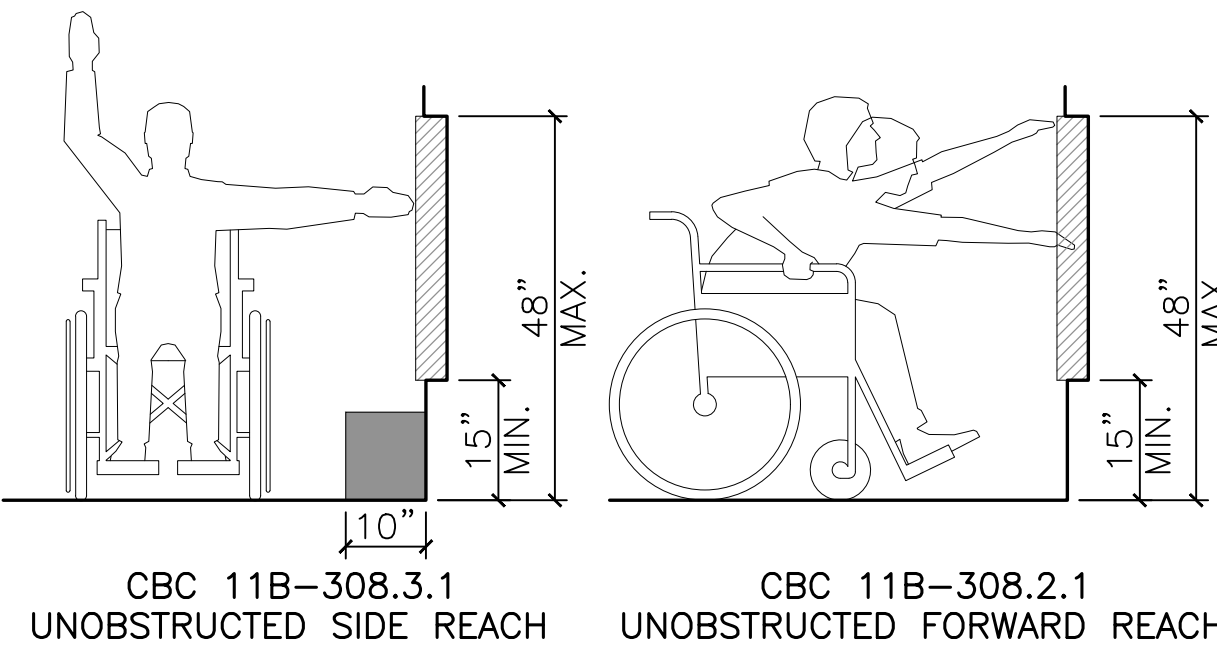
5 TYPICAL SECTION AT ELEVATOR
1/2" = 1'-0"



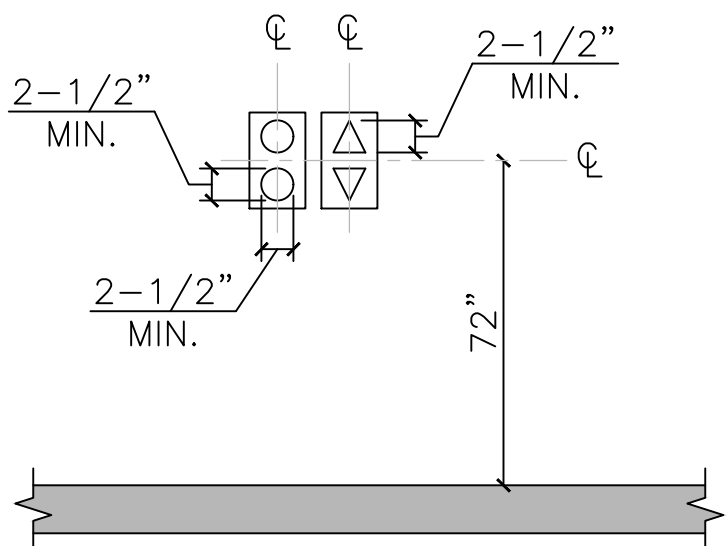
2 NORTH ELEVATION - ELEVATOR LOBBY 117
1/2" = 1'-0"



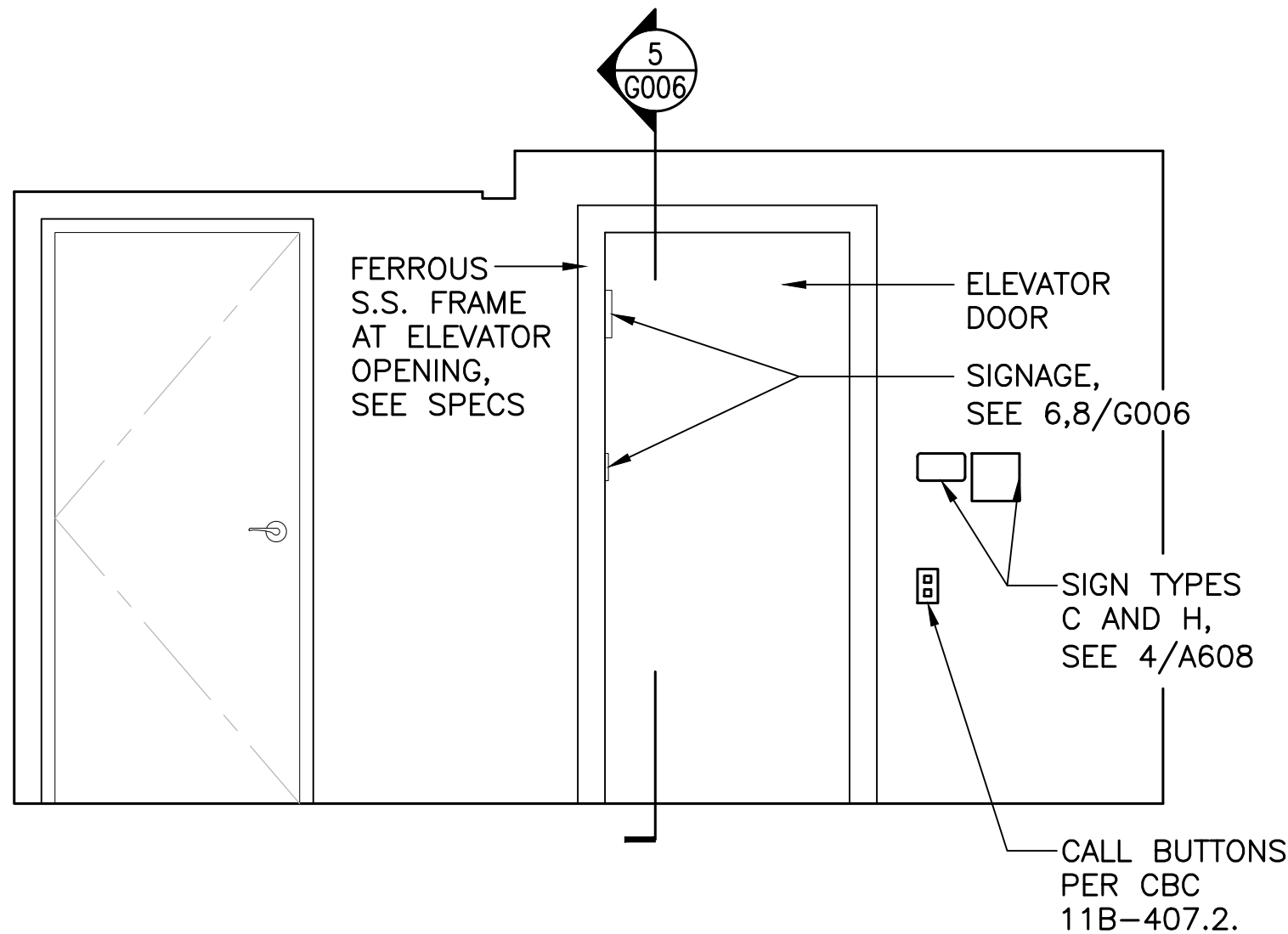
6 FLOOR DESIGNATIONS ON JAMBS OF ELEVATOR HOISTWAY ENTRANCES
NOT TO SCALE
CBC 11B-407.2.3.1



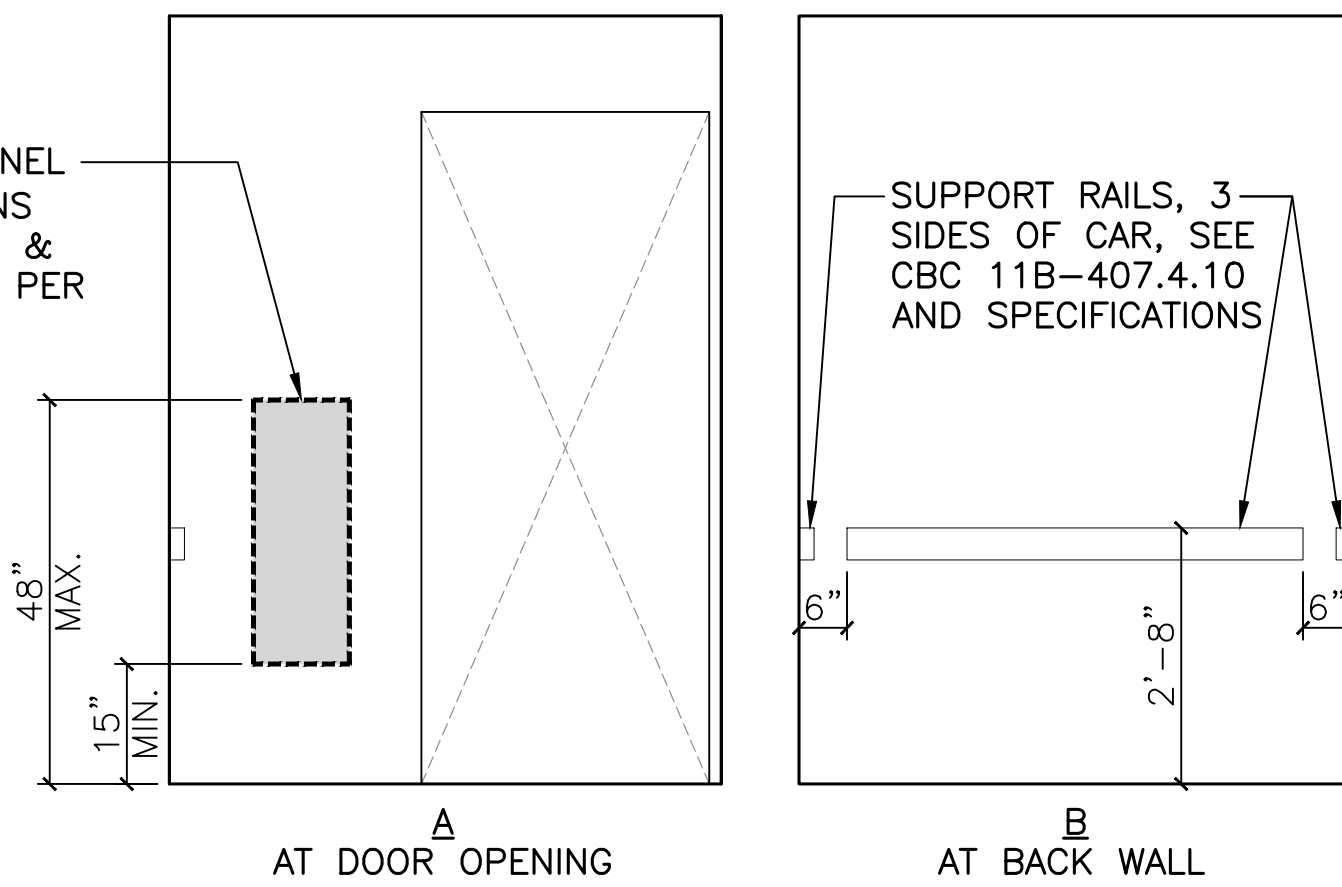
7 TYPICAL CBC CODE DIAGRAMS
NO SCALE



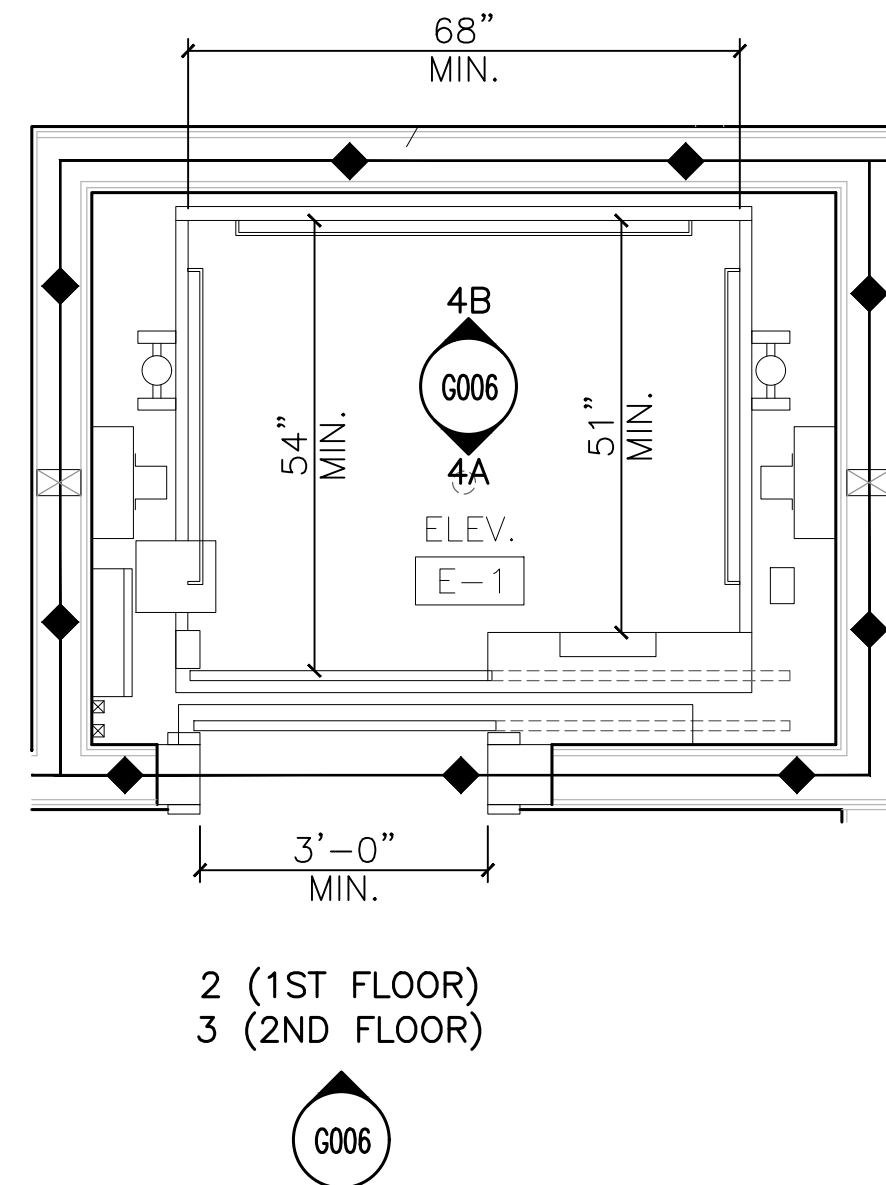
8 VISIBLE HALL SIGNS
NOT TO SCALE
CBC 11B-407.2.2.2



3 NORTH ELEVATION - HALLWAY 200
1/2" = 1'-0"



4 TYPICAL ELEVATIONS - ELEVATOR CAR
NO SCALE



1 ELEVATOR CAR PLAN
1/2" = 1'-0"

APPLICABLE BUILDING CODES

BUILDING CODE:	2022 CALIFORNIA BUILDING CODE
STRUCTURAL CODE:	2022 CALIFORNIA BUILDING CODE
PLUMBING CODE:	2022 CALIFORNIA PLUMBING CODE
MECHANICAL CODE:	2022 CALIFORNIA MECHANICAL CODE
ELECTRICAL CODE:	2022 CALIFORNIA ELECTRIC CODE
FIRE PROTECTION:	NFPA 70 - 2023 NATIONAL ELECTRICAL CODE
ENERGY CODE:	NFPA 13 - 2022
SUSTAINABILITY:	2022 CALIFORNIA ENERGY CODE
	2022 CALIFORNIA GREEN BUILDING STANDARDS

ELEVATOR

CBC 11B-407.1 GENERAL - ELEVATORS SHALL COMPLY WITH SECTION CBC 11B-407 AND ASME A17.1. THEY SHALL BE PASSENGER ELEVATORS AS CLASSIFIED BY 11B-407.1 & OPERATION SHALL BE AUTOMATIC.

CBC 11B-309.4 OPERATION - OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND WITH FORCE OF 5 LBS MAXIMUM.

CBC 11B-407.2 - ELEVATOR LANDING REQUIREMENTS.

CBC 11B-407.2.1.1 HEIGHT - CALL BUTTONS AND KEYPADS SHALL BE LOCATED PER SECTION 11B-308, MEASURED TO CENTERLINE OF HIGHEST OPERABLE PART.

CBC 11B-407.3 ELEVATOR DOOR REQUIREMENTS - HOISTWAY AND CAR DOORS SHALL COMPLY WITH SECTION 11B-407.3.

CBC 11B-407.4 - ELEVATOR CAR REQUIREMENTS

CBC CHAPTER 30 - ELEVATORS SHALL COMPLY WITH THIS CHAPTER.

CBC 3001.2 - EMERGENCY ELEVATOR COMMUNICATION SYSTEMS FOR THE DEAF, HARD OF HEARING AND SPEECH IMPAIRED.

AN EMERGENCY TWO-WAY COMMUNICATION SYSTEM SHALL BE PROVIDED. THE SYSTEM SHALL PROVIDE VISIBLE TEXT AND AUDIBLE MODES THAT MEET ALL THE FOLLOWING REQUIREMENTS:

1. WHEN OPERATING IN EACH MODE, INCLUDE A LIVE INTERACTION SYSTEM THAT ALLOWS BACK AND FORTH CONVERSATION BETWEEN THE ELEVATOR OCCUPANTS AND EMERGENCY PERSONNEL.
2. IS OPERATIONAL WHEN THE ELEVATOR IS OPERATIONAL.
3. ALLOWS ELEVATOR OCCUPANTS TO SELECT THE TEXT-BASED OR AUDIBLE MODE DEPENDING ON THEIR COMMUNICATION NEEDS TO INTERACT WITH EMERGENCY PERSONNEL.

CBC 3006.2 & 3006.3 - HOISTWAY OPENING PROTECTION NOT REQUIRED BECAUSE ELEVATOR ONLY SPANS 2 FLOORS, BUILDING IS SPRINKLERED, AND IS A "B" OCCUPANCY.

Revisions:

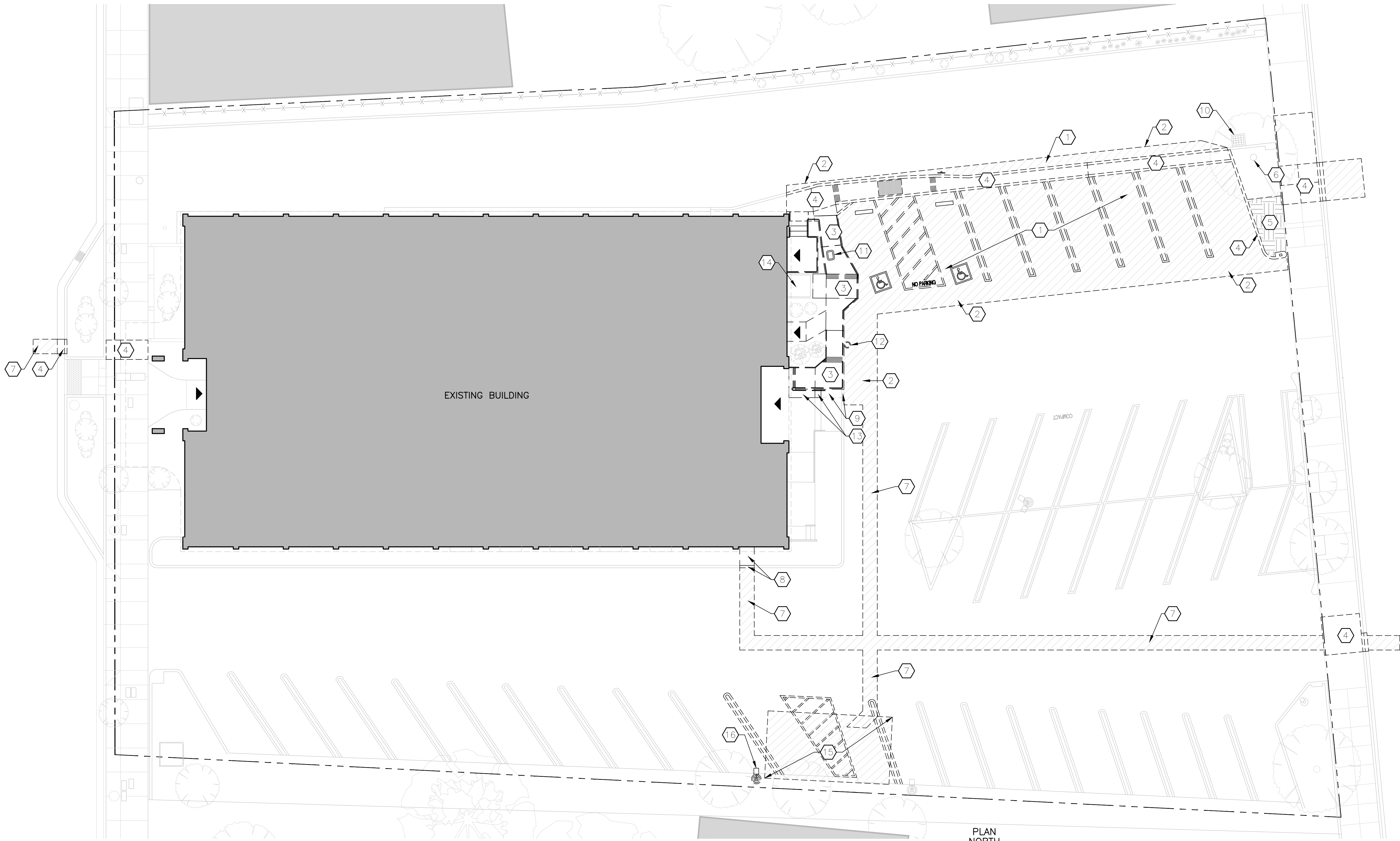
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

ELEVATOR

Sheet Number:

G006



KEYED NOTES:

- | | |
|---|--|
| 1- SAWCUT AND REMOVE (E) ASPHALT PAVEMENT | 8- REMOVE PORTION OF CONCRETE CURB AND LANDSCAPE MATERIALS/SOILS AS REQUIRED FOR UTILITY TRENCH PER CITY STANDARDS |
| 2- EXTENT OF PAVEMENT REMOVAL | 9- PORTION OF (E) LANDING/CURB TO REMAIN, TO BE COVERED BY SLOPED WALK AND GUARDRAIL IN (N) WORK |
| 3- DEMOLISH (E) RAMP AND GUARDRAIL/HANDRAIL | 10- (E) STORM DRAIN INLET TO REMAIN, DO NOT DISTURB STRUCTURE OR PIPING |
| 4- DEMOLISH (E) SIDEWALK AND/OR CURB AS SHOWN | 11- (E) ELECTRICAL HAND HOLE TO BE RELOCATED, SEE ENLARGED PLAN C401 |
| 5- REMOVE (E) LANDSCAPE MATERIAL AND SOILS AS REQUIRED BY (N) WORK | 12- (E) SUB-GRADE WATER VALVE TO BE RELOCATED, SEE ENLARGED PLAN C401 |
| 6- (E) TREE TO REMAIN, PROTECT TREE AND ROOT ZONE DURING ALL DEMOLITION AND CONSTRUCTION ACTIVITIES | |
| 7- SAW CUT AND REMOVE (E) ASPHALT AND DIG UTILITY TRENCH, SEE UTILITY PLAN C102 | |

- | |
|--|
| 13- PORTION OF LANDING/STAIR TO BE SAWCUT, DEMOLISHED, AND REMOVED |
| 14- (E) TRANSFORMER TO REMAIN, PROTECT DURING NEW CONSTRUCTION |
| 15- EXCAVATE AREA FOR NEW CONCRETE EQUIPMENT PAD FOR NEW GENERATOR AND BOLLARDS |
| 16- REMOVE (E) LIGHT POLE AND CONCRETE BASE IN ITS ENTIRETY, COORDINATE W/ ELECTRICAL DRAWINGS |

LEGEND:

- | | |
|-----|-----------------------------------|
| --- | PROPERTY LINE |
| ▼ | ENTRANCE |
| /// | ASPHALT PAVEMENT TO BE DEMOLISHED |

GENERAL NOTES:

1. REMOVE PAVEMENT, BASE COURSE, SOILS, SIGNAGE, CONCRETE, FOUNDATIONS, FOOTINGS AND RAILS AS NECESSARY TO INSTALL NEW CONSTRUCTION
2. USE DIMENSIONS ON ENLARGED SITE PLAN C401 TO DETERMINE EXTENTS OF ASPHALT PAVEMENT REMOVAL REQUIRED BY (N) WORK.
3. SEE SHEET CD501 FOR SITE DEMOLITION PHOTOS.

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SITE DEMOLITION PLAN

Sheet Number:

CD101



1 PHOTO



2 PHOTO



3 PHOTO



4 PHOTO

Revisions:

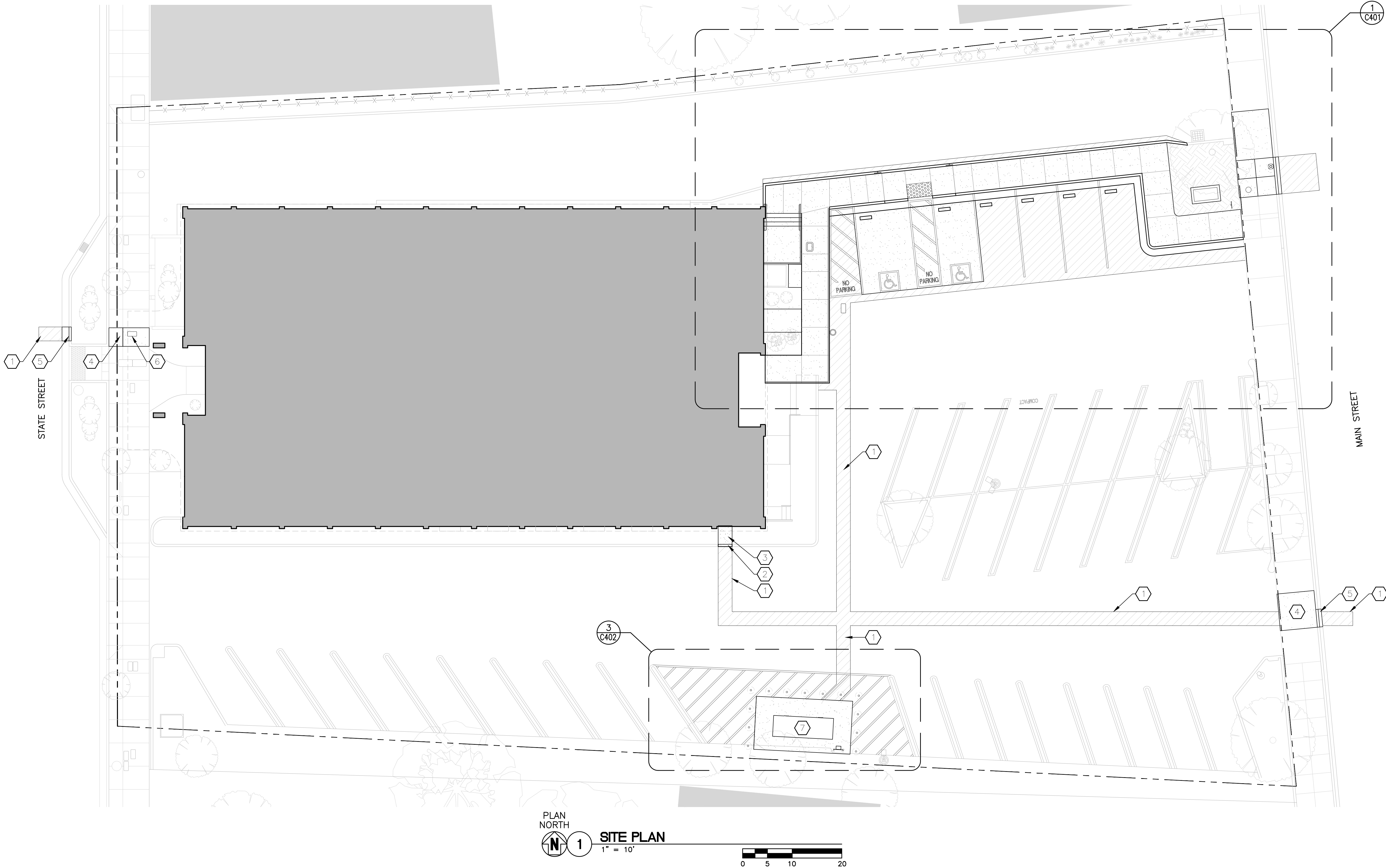
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

EXISTING SITE PHOTOS

Sheet Number:

CD501



KEYED NOTES:

- 1 (N) UTILITY TRENCH PER CITY STANDARDS, COVER WITH ASPHALT PAVEMENT TO MATCH ADJACENT MATERIAL AND GRADE OF (E) PER CITY STANDARDS, SEE UTILITY PLAN C102

2 (N) PORTION OF CONCRETE CURB TO MATCH MATERIAL, DESIGN, AND ELEVATIONS OF ADJACENT (E)

3 (N) SOILS AND LANDSCAPE COVERING TO MATCH (E) ADJACENT
- 4 CONCRETE SIDEWALK, ENSURE GRADES MEET ACCESSIBLE PATH OF TRAVEL REQUIREMENTS, SEE TYPICAL DETAIL 8/C501

5 CONCRETE CURB GUTTER, MATCH EXISTING CONSTRUCTION AND GRADES, ENSURE GRADES MEET ACCESSIBLE PATH OF TRAVEL REQUIREMENTS

6 UTILITY HANDHOLE, SEE UTILITY PLAN C102

7 EMERGENCY GENERATOR ON CONCRETE EQUIPMENT PAD, SEE PAD DETAIL 2/C503

LEGEND:

- PROPERTY LINE

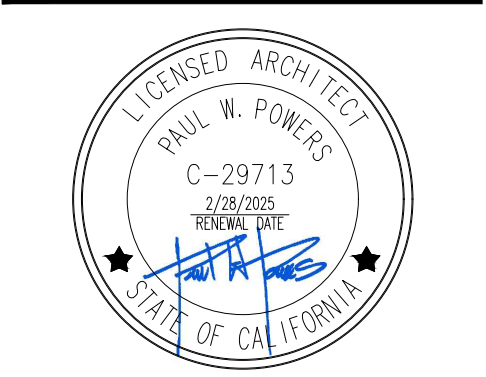
▼ ENTRANCE

(N) ASPHALT PAVEMENT

GENERAL NOTES:

1. VERIFY ALL SITE CONDITIONS. BRING ANY UNFORESEEN CIRCUMSTANCES TO THE ATTENTION OF THE ARCHITECT/ ENGINEER PRIOR TO START OF WORK FOR RESOLUTION.

2. FINAL ROUTE OF IT/COMMUNICATIONS CABLING TO BE COORDINATED WITH SERVICE PROVIDER.



CITY OF UKIAH

BANK OF AMERICA

ADA BARRIER REMOVAL

501 South State St. Ukiah, CA 95482

Revisions:

Client Project Number: 000

APN Number: 000-000-000

KPA Project Number: 76100

Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SITE PLAN

Sheet Number:

C101

Revisions:

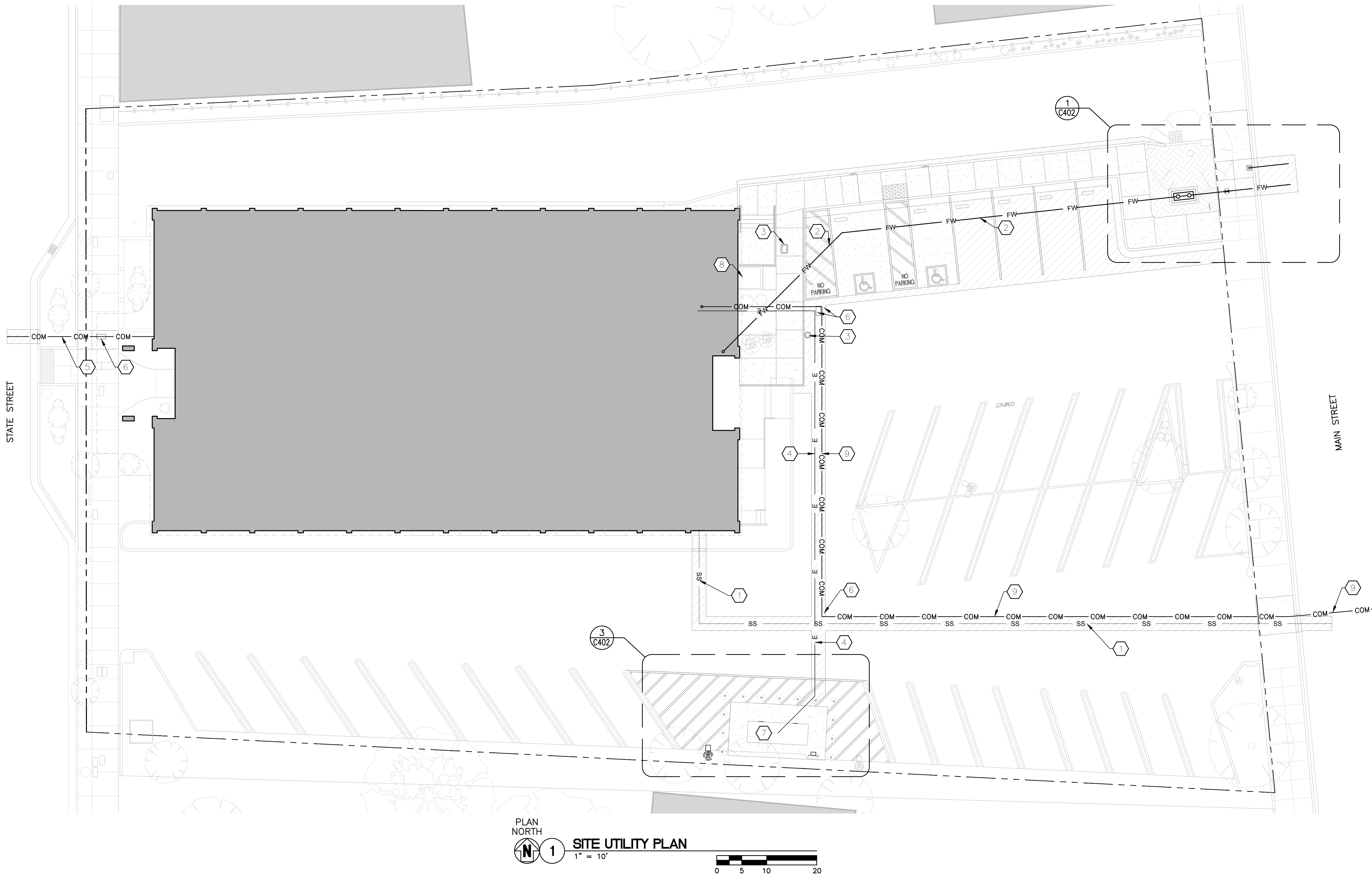
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SITE UTILITY PLAN

Sheet Number:

C102



KEYED NOTES:

- 1 6" SANITARY SEWER PIPING TO CITY SERVICE LINE AT STREET, TRENCH AND COVER PER CITY STANDARDS, ALSO SEE SHEET C101
- 2 6" DUCTILE IRON FIRE WATER PIPING TO CITY SERVICE LINE AT STREET, TRENCH AND COVER PER CITY STANDARDS, ALSO SEE SHEET C101
- 3 MATCH EXISTING UTILITY INFRASTRUCTURE TO NEW GRADES, SEE ENLARGED SITE PLAN C401 FOR TOPOGRAPHY
- 4 ELECTRICAL CONDUIT AND CONDUCTOR TO AND FROM EMERGENCY GENERATOR, TRENCH AND COVER PER CITY STANDARDS

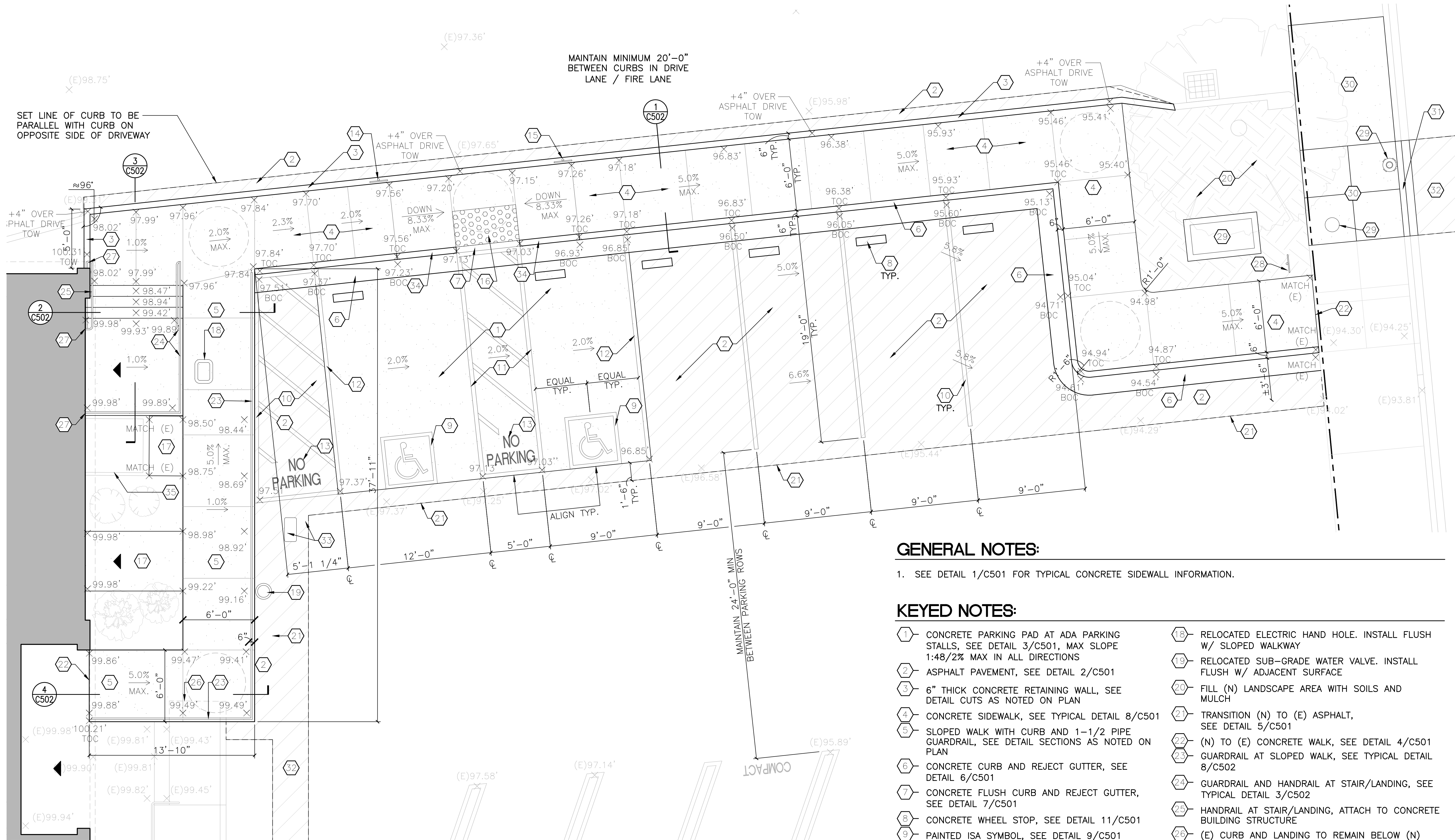
- 5 COMMUNICATIONS CONDUIT AND CONDUCTOR, TRENCH AND COVER PER CITY STANDARDS
- 6 HANDHOLE
- 7 EMERGENCY GENERATOR ON CONCRETE EQUIPMENT PAD
- 8 (E) TRANSFORMER TO REMAIN, PROTECT DURING CONSTRUCTION
- 9 (N) (2) EMPTY 2" PVC CONDUITS EXTENDING FROM ELECTRICAL ROOM TO MUSEUM PROPERTY ACROSS MAIN STREET, TERMINATE IN HANDHOLE BEYOND FENCE LINE

LEGEND:

- PROPERTY LINE
- ▼ ENTRANCE

GENERAL NOTES:

- 1. VERIFY ALL SITE CONDITIONS. BRING ANY UNFORESEEN CIRCUMSTANCES TO THE ATTENTION OF THE ARCHITECT/ ENGINEER PRIOR TO START OF WORK FOR RESOLUTION.
- 2. SEE ARCHITECTURAL PLANS FOR EXTENSIONS WITHIN BUILDING
- 3. FINAL ROUTE OF IT/COMMUNICATIONS CABLING TO BE COORDINATED WITH SERVICE PROVIDER.



LEGEND:

- PROPERTY LINE
- ENTRANCE
- (N) ASPHALT PAVEMENT
- 60" ACCESSIBLE TURN RADIUS, 2% SLOPE MAX. IN ALL DIRECTIONS

GENERAL NOTES:

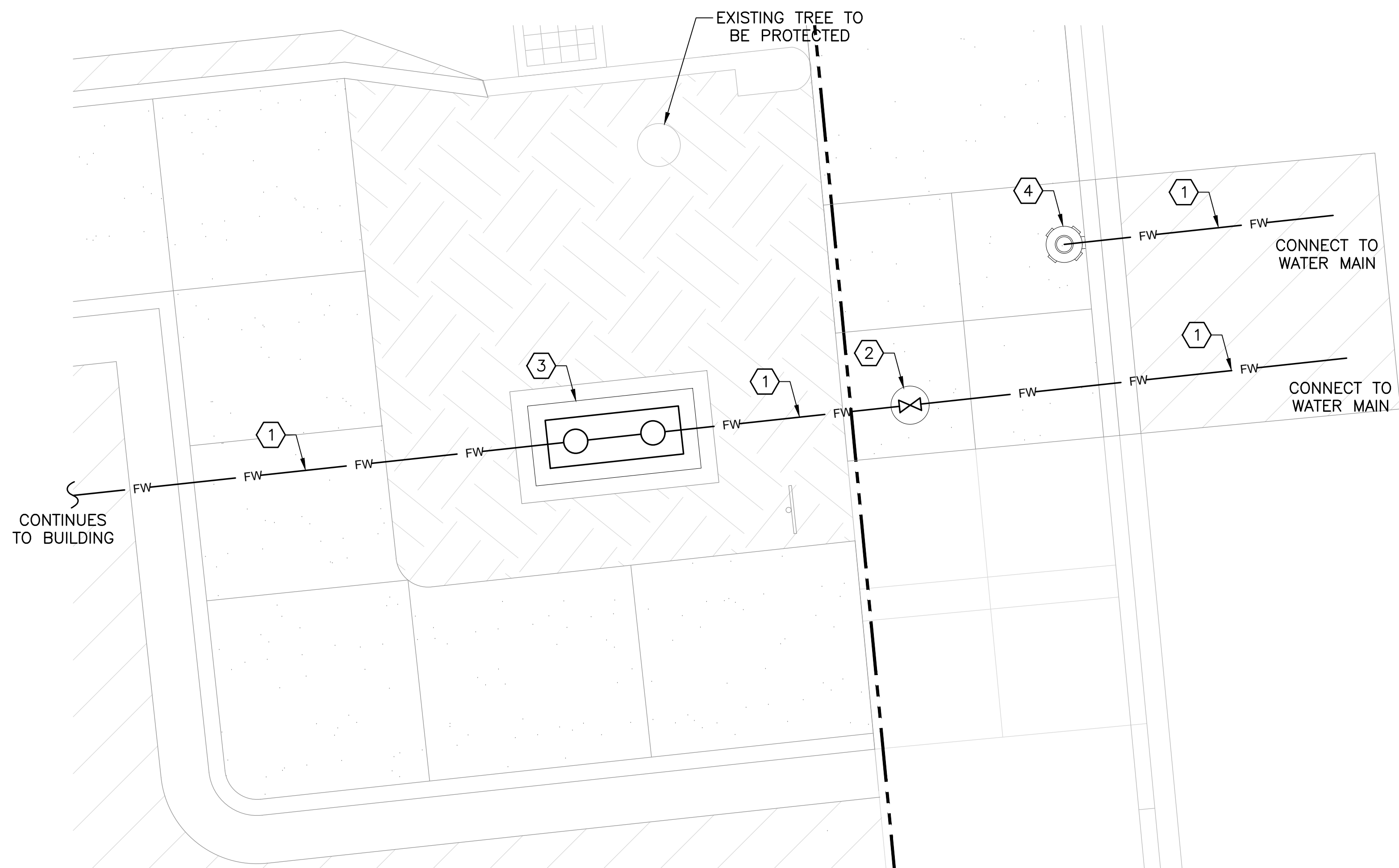
- SEE DETAIL 1/C501 FOR TYPICAL CONCRETE SIDEWALL INFORMATION.

KEYED NOTES:

- CONCRETE PARKING PAD AT ADA PARKING STALLS, SEE DETAIL 3/C501, MAX SLOPE 1:48/2% MAX IN ALL DIRECTIONS
- ASPHALT PAVEMENT, SEE DETAIL 2/C501
- 6" THICK CONCRETE RETAINING WALL, SEE DETAIL CUTS AS NOTED ON PLAN
- CONCRETE SIDEWALK, SEE TYPICAL DETAIL 8/C501
- SLOPED WALK WITH CURB AND 1-1/2 PIPE GUARDRAIL, SEE DETAIL SECTIONS AS NOTED ON PLAN
- CONCRETE CURB AND REJECT GUTTER, SEE DETAIL 6/C501
- CONCRETE FLUSH CURB AND REJECT GUTTER, SEE DETAIL 7/C501
- CONCRETE WHEEL STOP, SEE DETAIL 11/C501
- PAINTED ISA SYMBOL, SEE DETAIL 9/C501
- 4" WIDE WHITE PARKING STRIPING W/, WHERE APPLICABLE, FIELD OF 4" WIDE STRIPES AT 36" O.C.
- 4" WIDE BLUE PARKING STRIPE BORDER/ PERIMETER WITH FIELD OF 4" WIDE WHITE STRIPES AT 36" O.C. AT ADA PARKING ACCESS AISLE
- 4" WIDE BLUE PARKING STRIPE
- PAINTED TEXT TO READ "NO PARKING" SEE DETAIL 12/C501
- ACCESSIBLE VAN PARKING ONLY SIGN ON 1-1/2 STEEL POST SET IN RETAINING WALL, SEE DETAIL 10B/C501
- ACCESSIBLE PARKING ONLY SIGN ON 1-1/2 STEEL POST SET IN RETAINING WALL, SEE DETAIL 10A/C501
- TRUNCATED DOME TACTILE WARNING, 36" DEEP x FULL WIDTH OF CURB CUT, SEE DETAIL 13/C501
- WARPED CONCRETE WALK, NON ACCESSIBLE
- RELOCATED ELECTRIC HAND HOLE. INSTALL FLUSH W/ SLOPED WALKWAY
- RELOCATED SUB-GRADE WATER VALVE. INSTALL FLUSH W/ ADJACENT SURFACE
- FILL (N) LANDSCAPE AREA WITH SOILS AND MULCH
- TRANSITION (N) TO (E) ASPHALT, SEE DETAIL 5/C501
- (N) TO (E) CONCRETE WALK, SEE DETAIL 4/C501
- GUARDRAIL AT SLOPED WALK, SEE TYPICAL DETAIL 8/C502
- GUARDRAIL AND HANDRAIL AT STAIR/LANDING, SEE TYPICAL DETAIL 3/C502
- HANDRAIL AT STAIR/LANDING, ATTACH TO CONCRETE BUILDING STRUCTURE
- (E) CURB AND LANDING TO REMAIN BELOW (N) CONCRETE WALK, SEE 4/C502
- HANDRAIL RETURN TO BUILDING FACE
- SITE ENTRY SIGNAGE, SEE DETAIL 1/C503
- FIRE WATER UTILITY INFRASTRUCTURE, SEE UTILITY PLAN C102 AND ENLARGED UTILITY PLAN C402
- CONCRETE SIDEWALK, ENSURE GRADES MEET ACCESSIBLE PATH OF TRAVEL REQUIREMENTS, SEE TYPICAL DETAIL 8/C501
- CONCRETE CURB GUTTER, MATCH EXISTING CONSTRUCTION AND GRADES, ENSURE GRADES MEET ACCESSIBLE PATH OF TRAVEL REQUIREMENTS
- ASPHALT PAVEMENT OVER UTILITY TRENCHING, BLEND GRADES TO (E), SEE DETAIL 2/C501
- UTILITY HANDHOLE, SEE UTILITY PLAN C102
- CURB SLOPES WITH GRADE OF RAMP
- EXISTING TRANSFORMER TO REMAIN

- ①-NEW 6" DUCTILE IRON FIRE WATER PIPE
- ②-NEW 6" FIRE WATER SHUT-OFF VALVE IN SIDEWALK
- ③-NEW 6" FIRE WATER BACKFLOW PREVENTER WITH 1" CONDUIT AND SENSOR CONDUCTOR, ENCLOSURE, AND CONCRETE PAD, SEE DETAIL 2/C402
- ④-NEW FIRE HYDRANT
- ⑤-EMERGENCY GENERATOR
- ⑥-CONCRETE GENERATOR PAD, SEE DETAIL 2/C503
- ⑦-4" BOLLARD SET IN CONCRETE GENERATOR PAD,
(F-FIXED BOLLARD, R-REMOVABLE BOLLARD)
SEE DETAIL 2/C503, BOLLARDS TO BE SPACED AT
A MAXIMUM CLEAR DISTANCE OF 48"

- 8- 4" WIDE WHITE PARKING STRIPING W/, WHERE APPLICABLE, FIELD OF 4" WIDE STRIPES AT 36" O.C.
- 9- OUTDOOR FIRE EXTINGUISHER CABINET TOP OF CABINET 60" MAX. ABOVE GRADE, MOUNT TO FENCE
- 10- PROVIDE NFPA 704 PLACARD AND A "NO SMOKING" SIGN MOUNTED ON GENERATOR HOUSING, SEE DETAILS 7/C503 & 8/C503
- 11- PROVIDE A "NO SMOKING OR OPEN FLAME" SIGNAGE, SEE DETAIL 9/C503

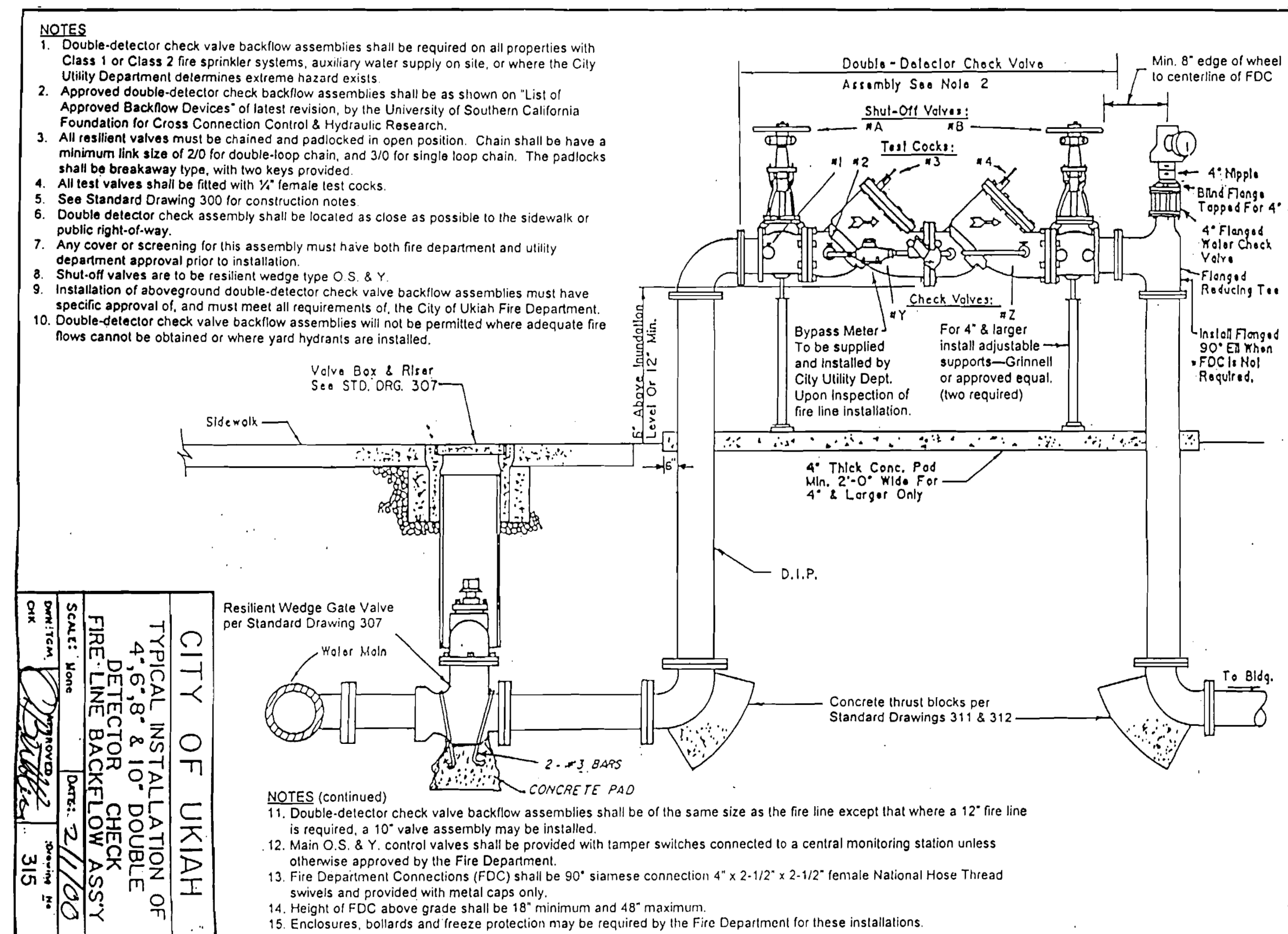


PLAN
NORTH

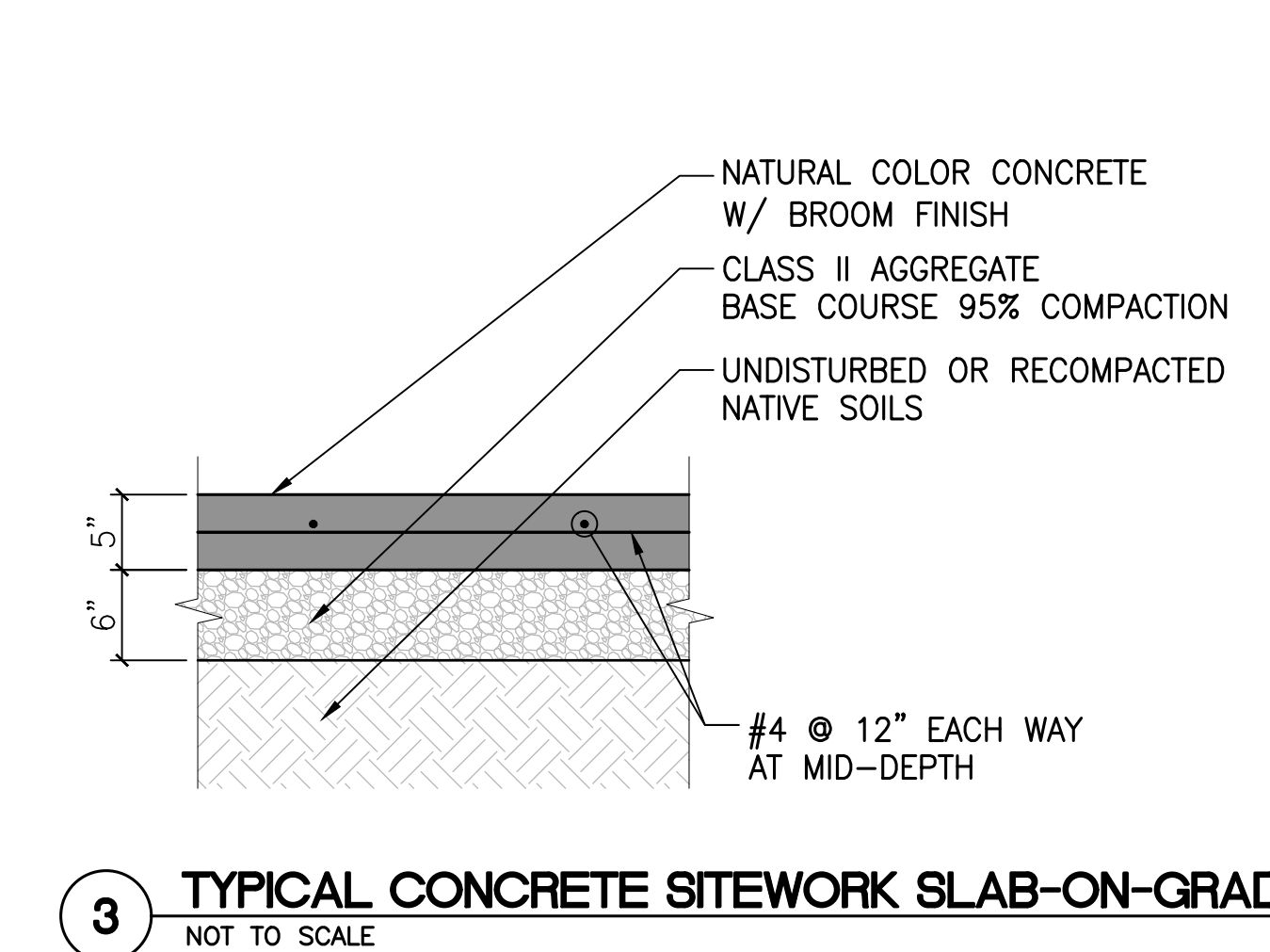
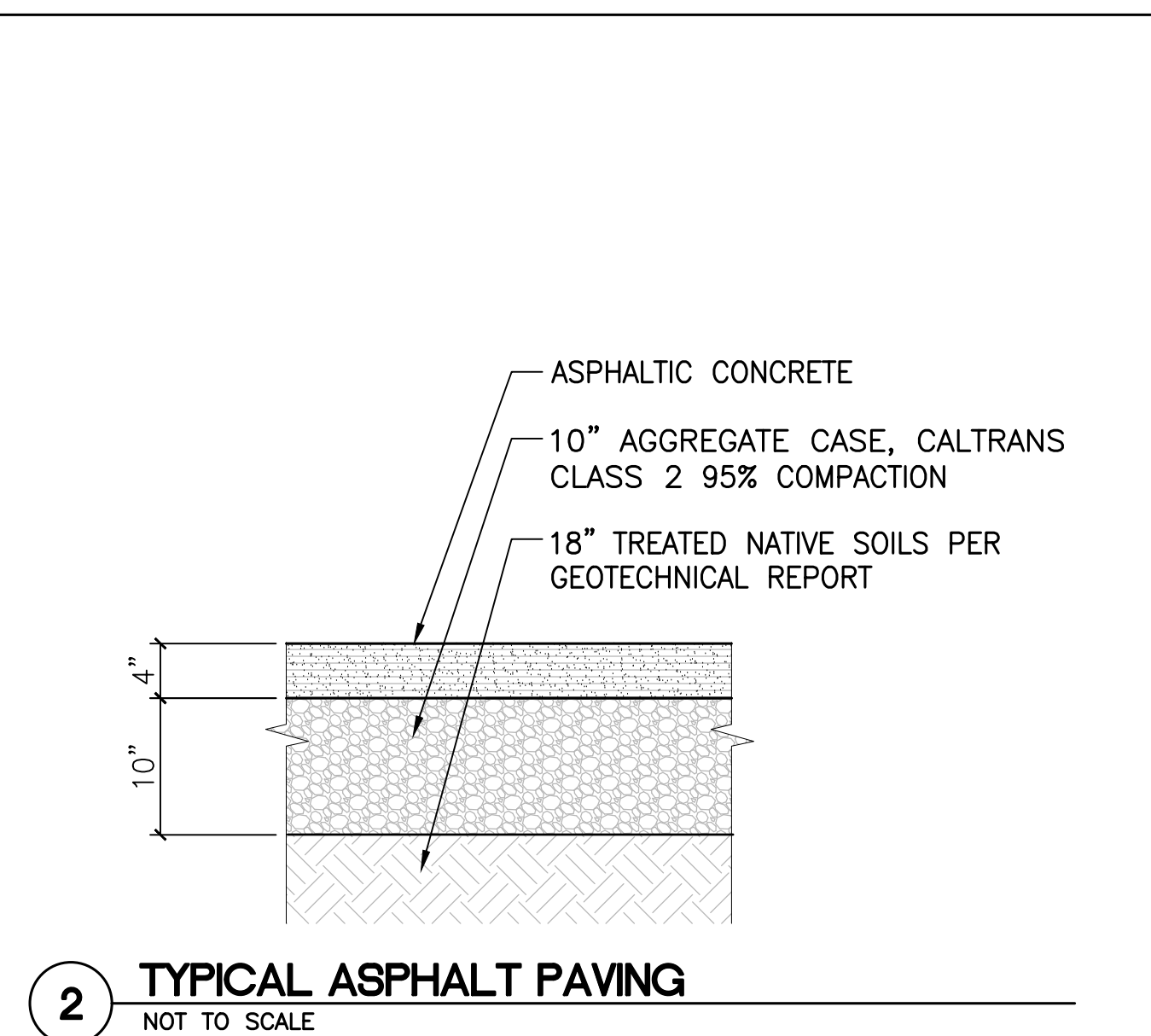
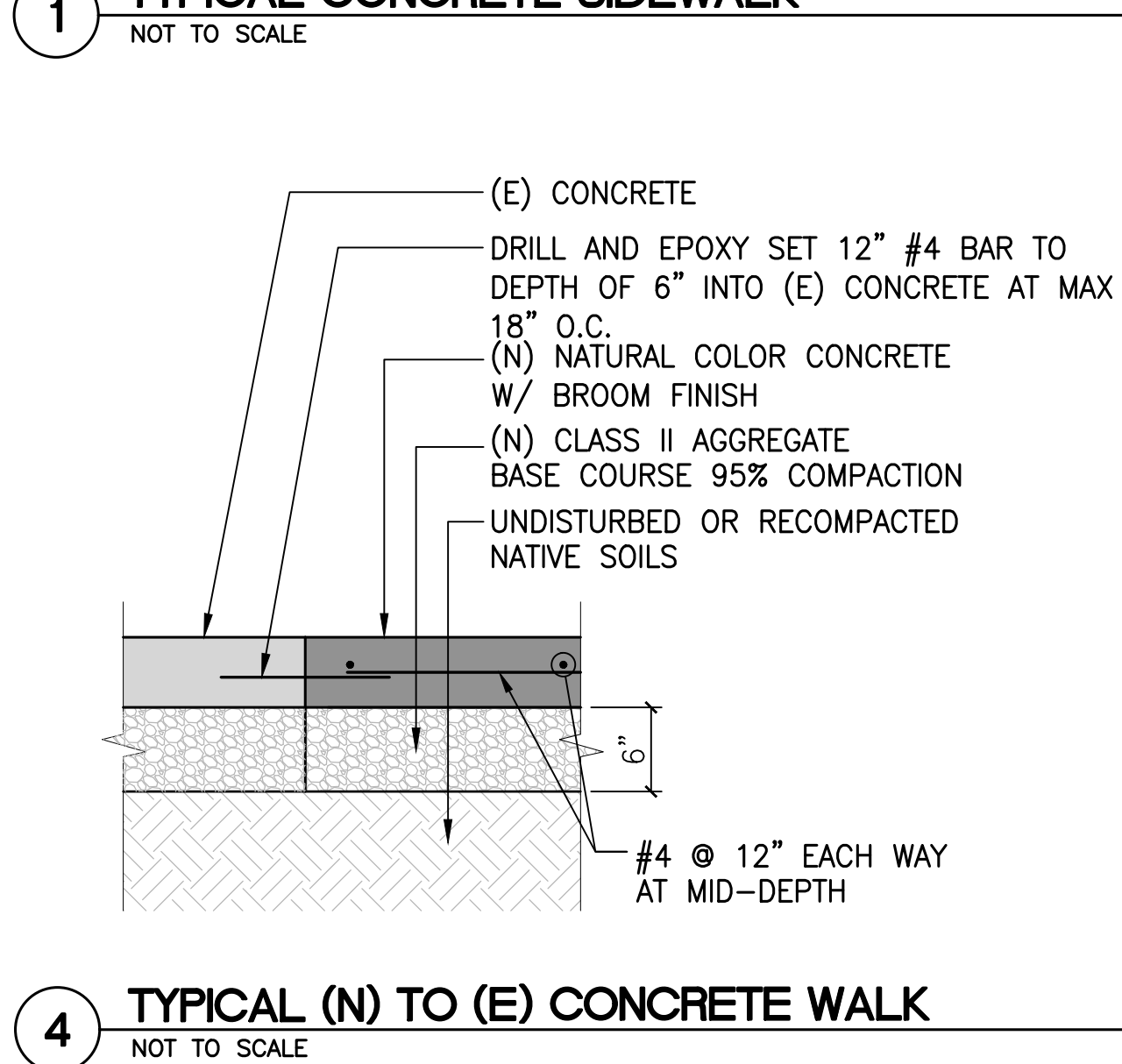
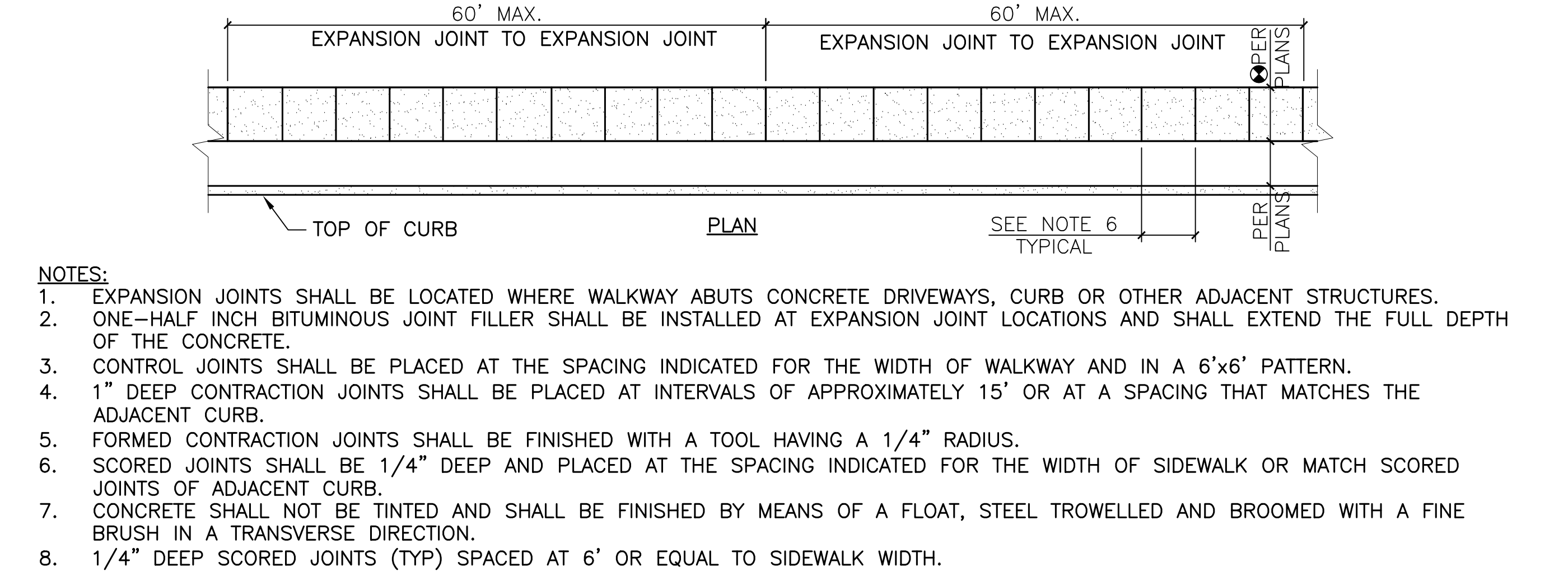
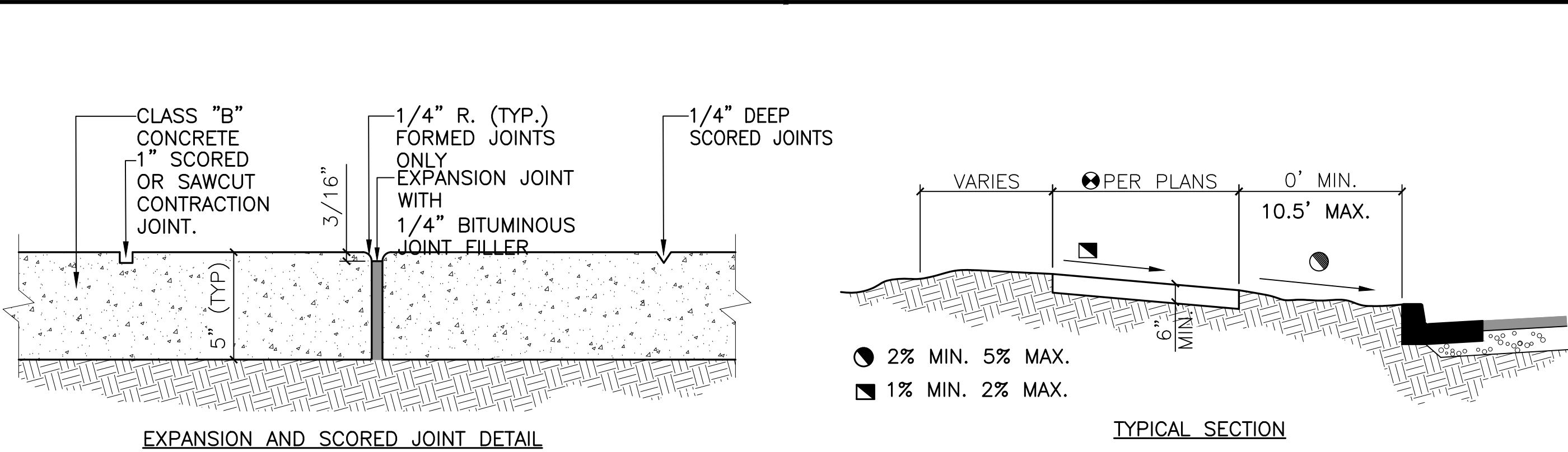
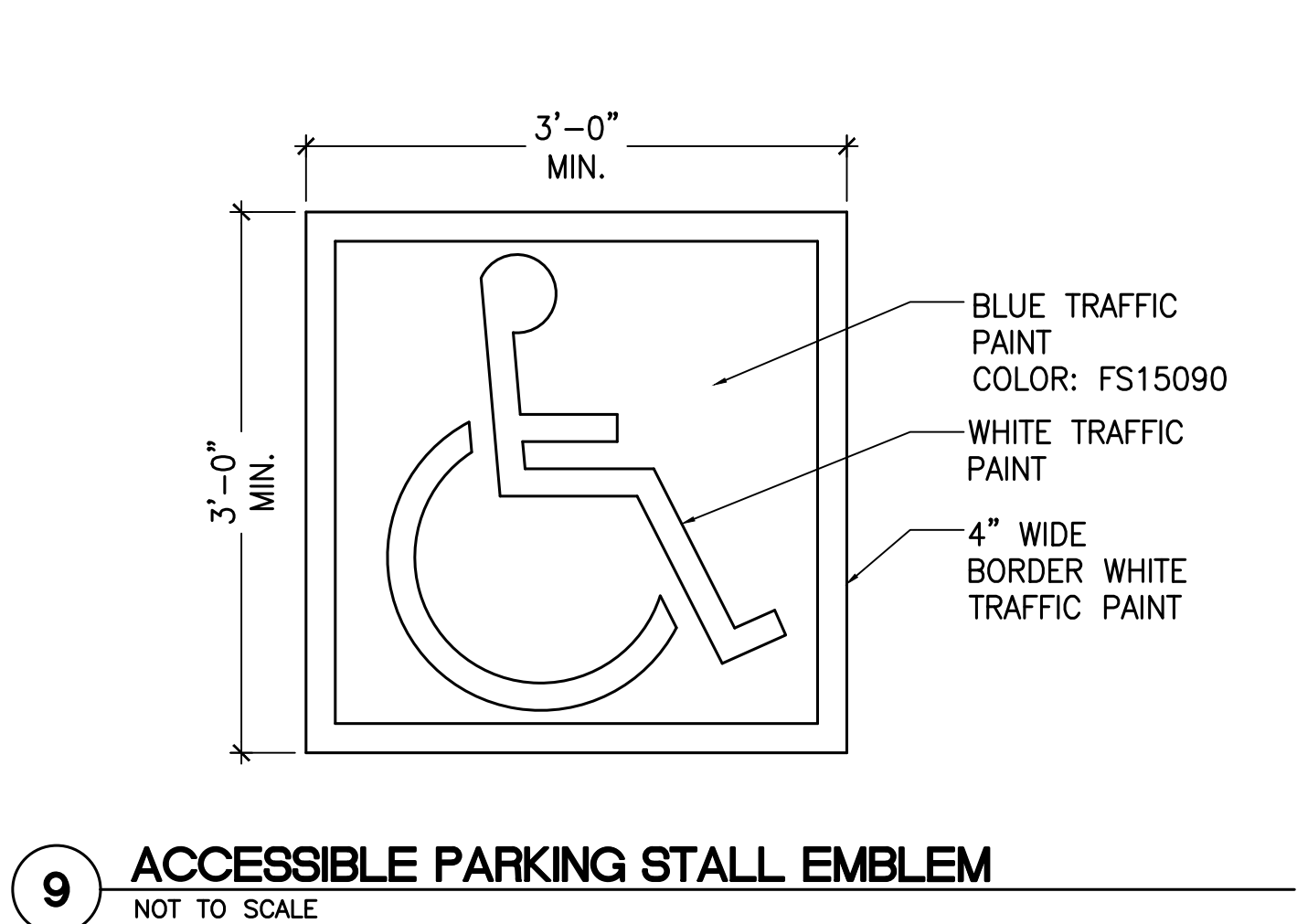
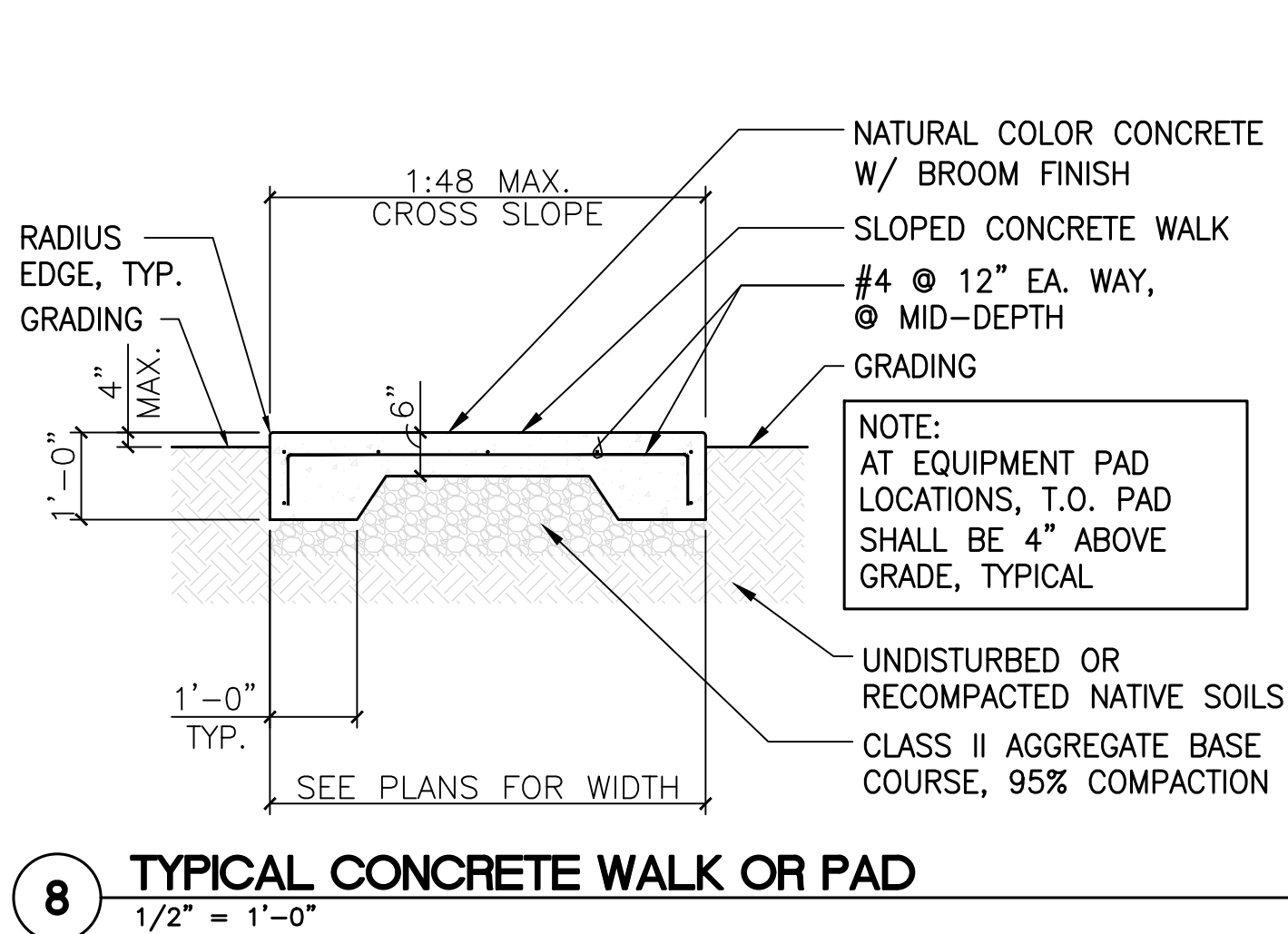
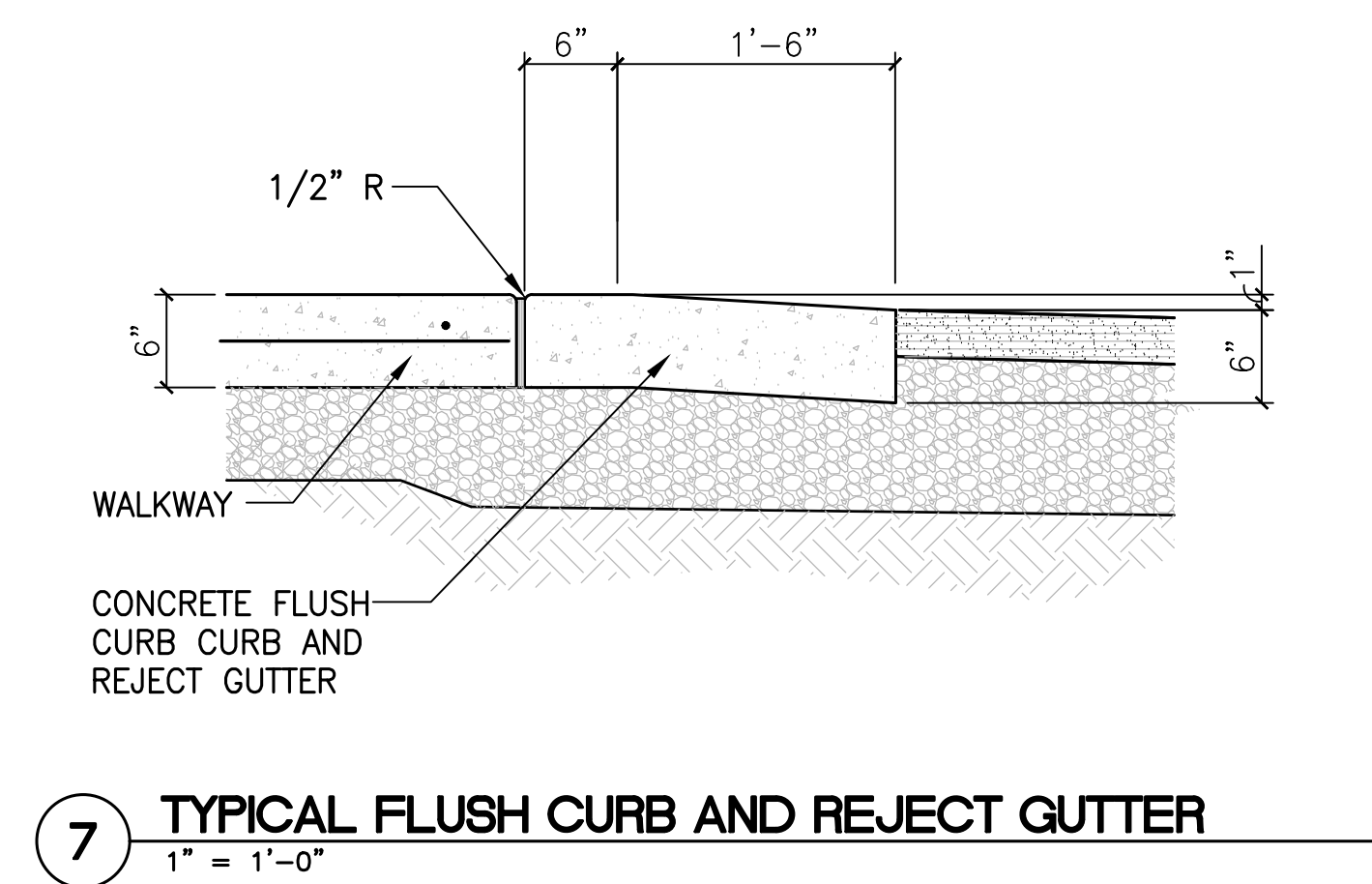
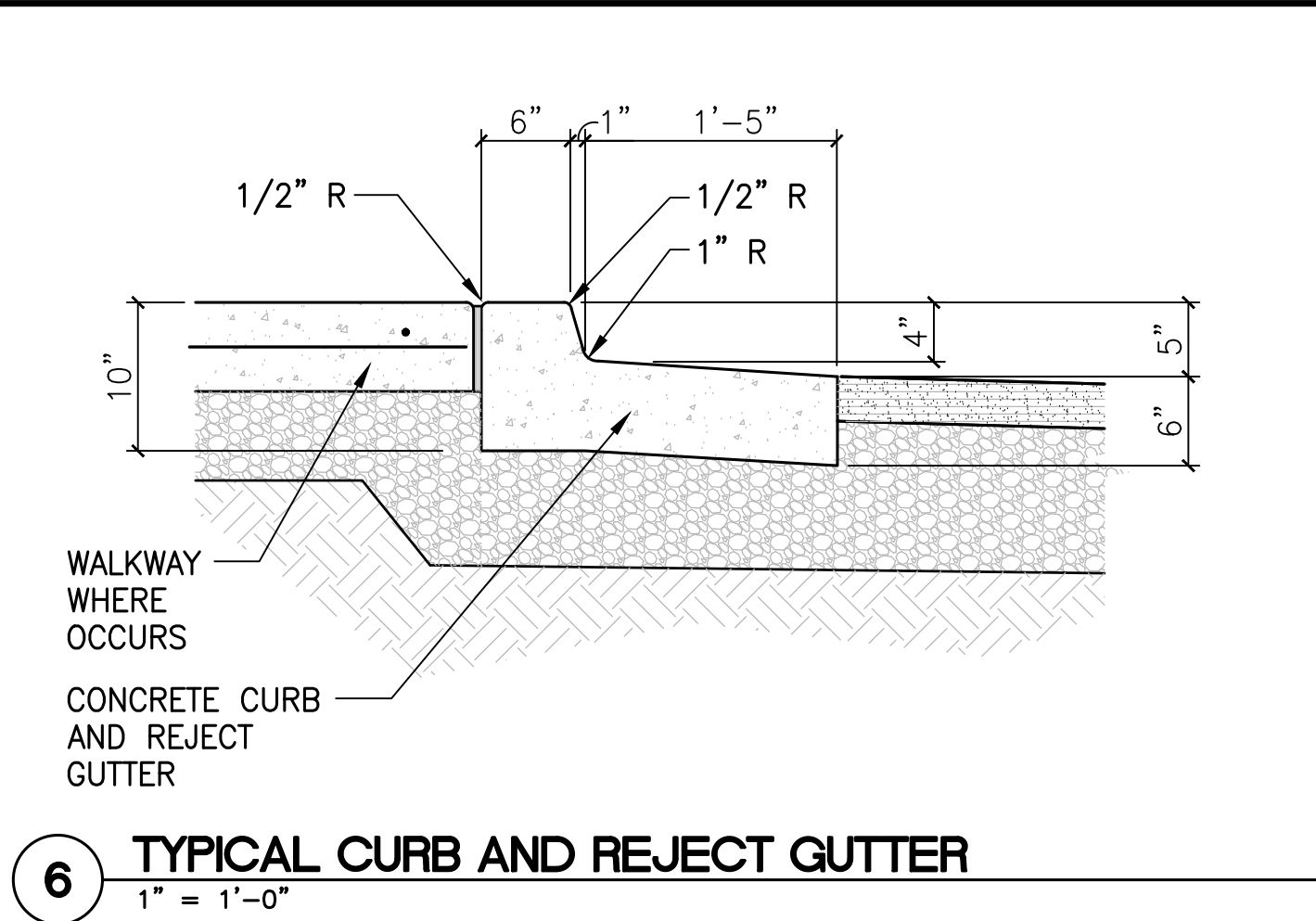
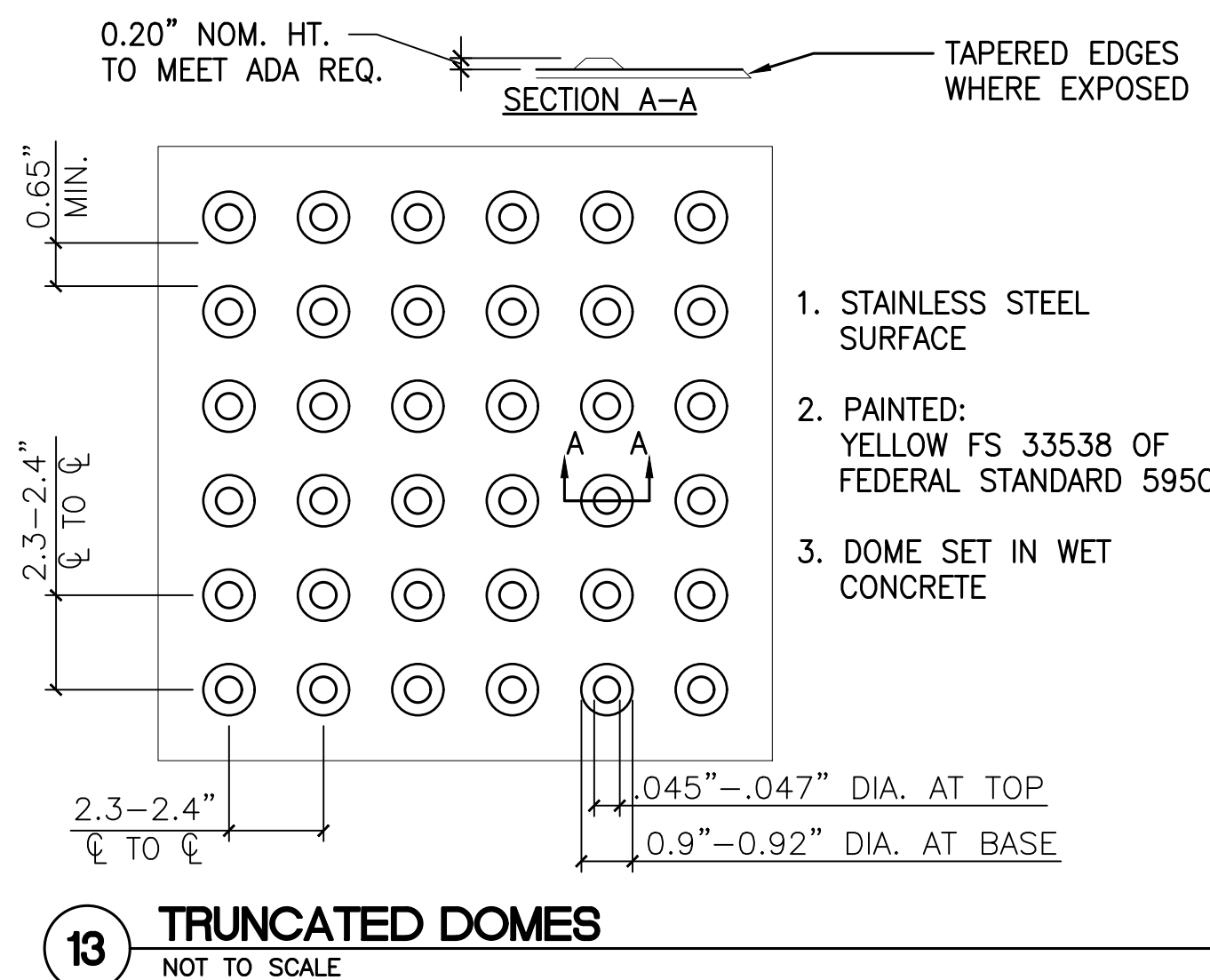
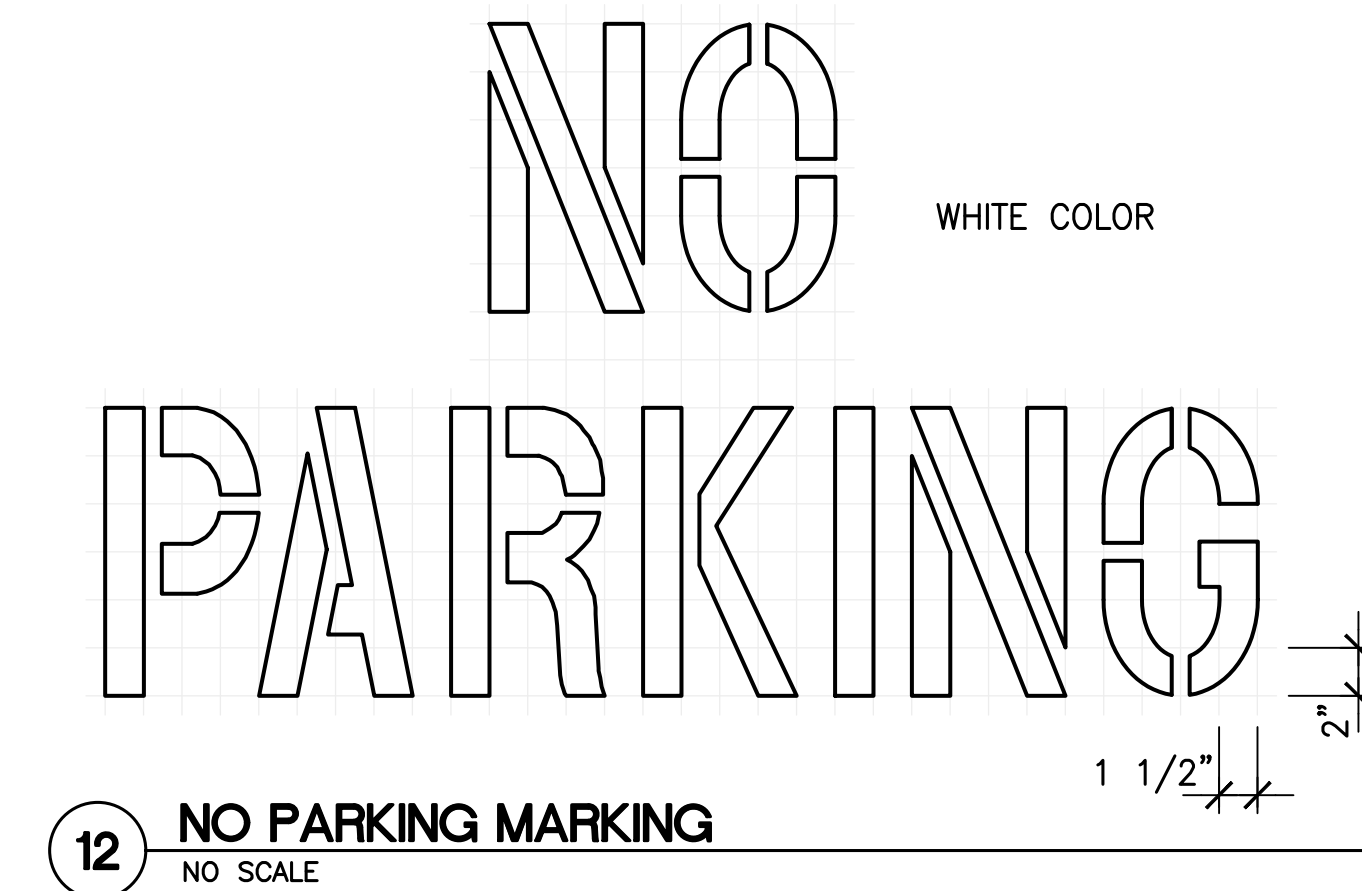
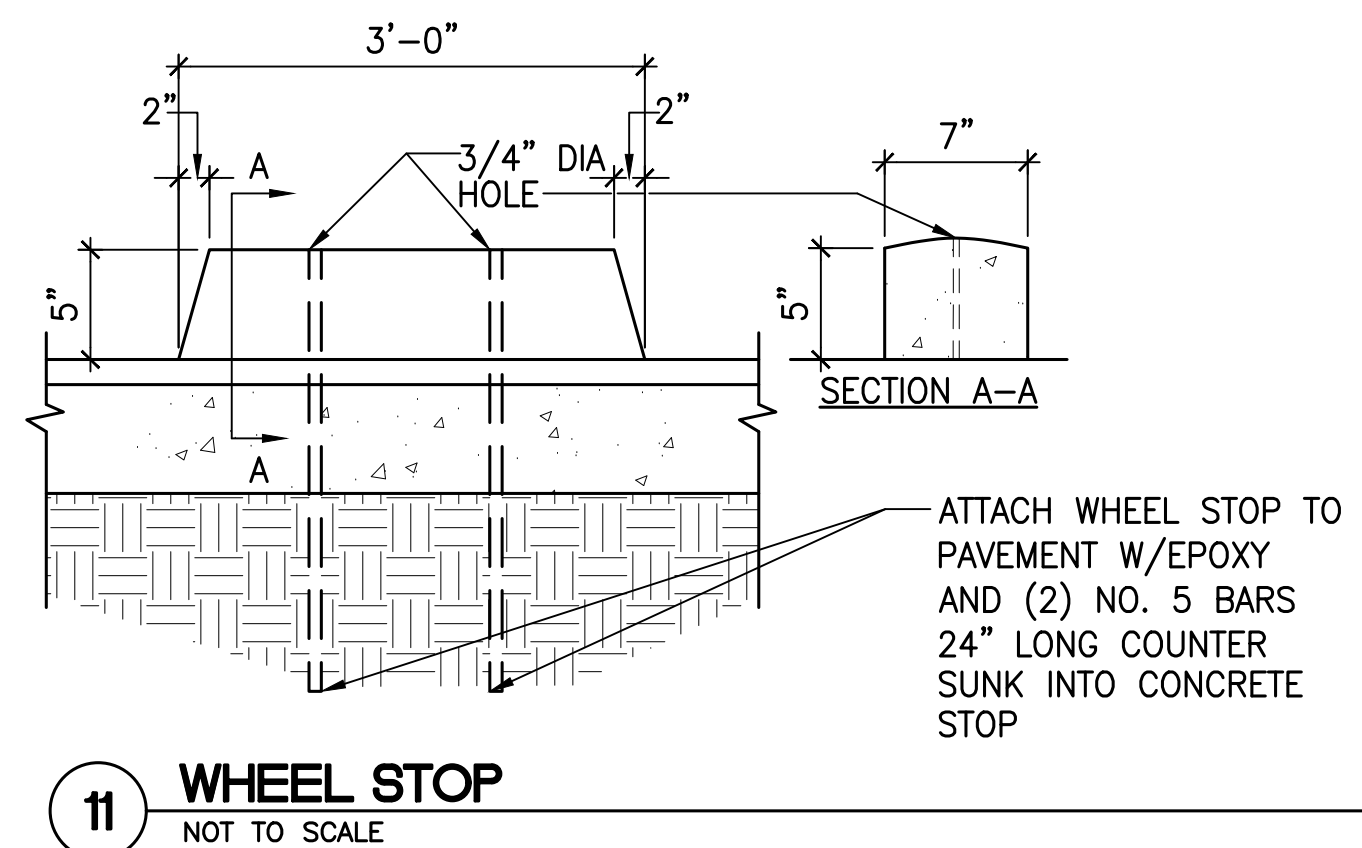
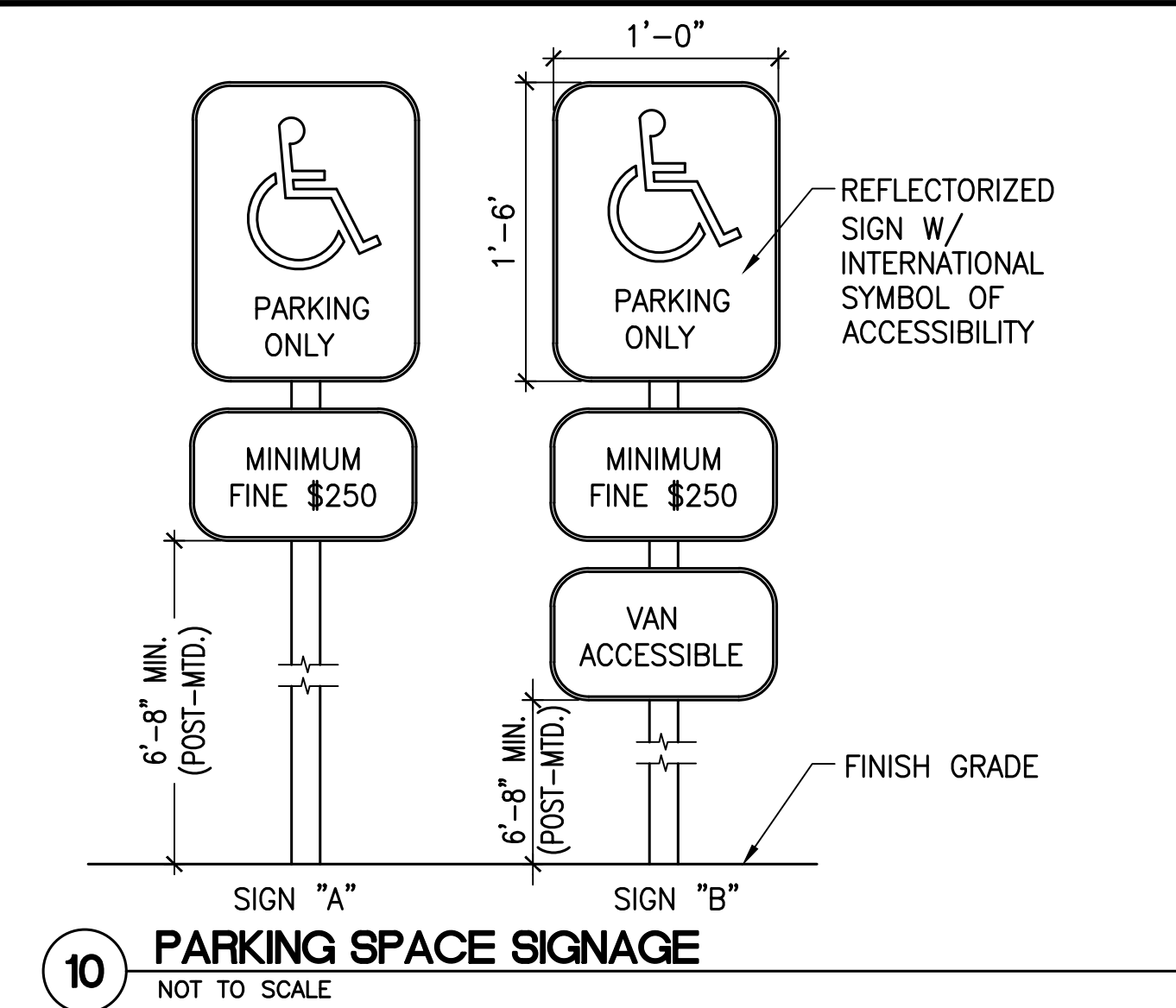
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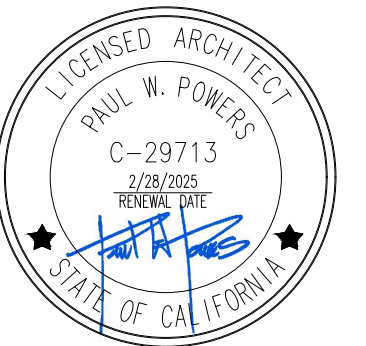
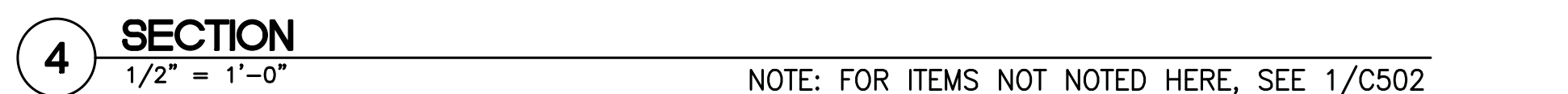
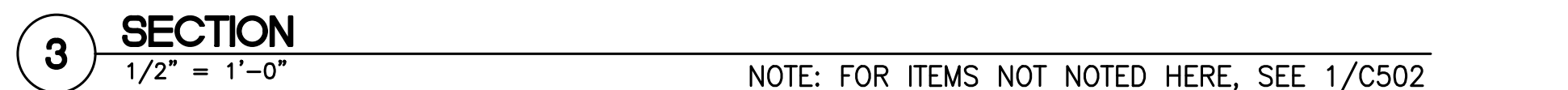
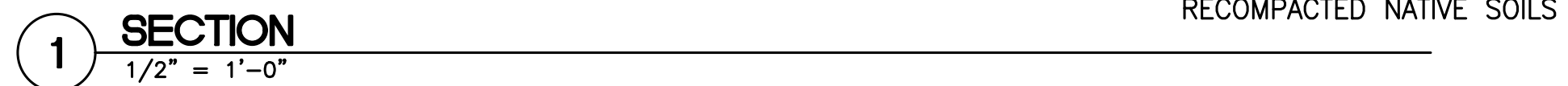
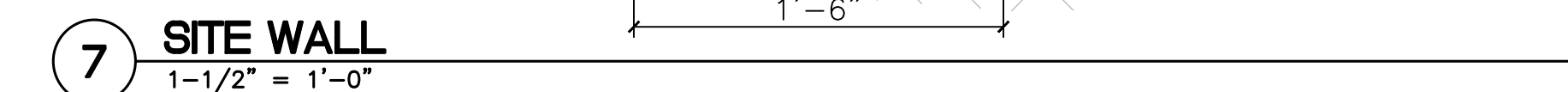
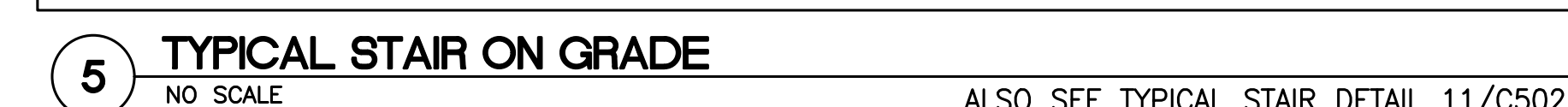
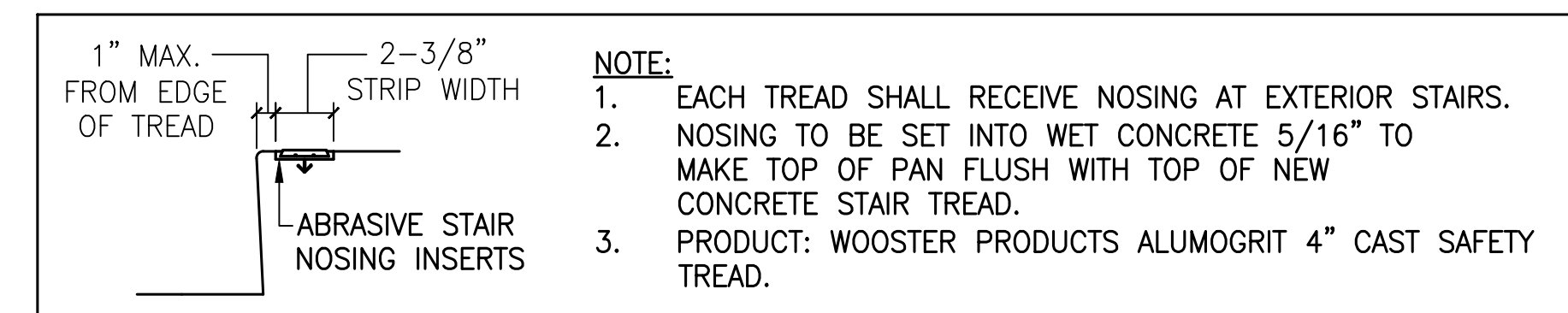
ENLARGED UTILITY PLAN

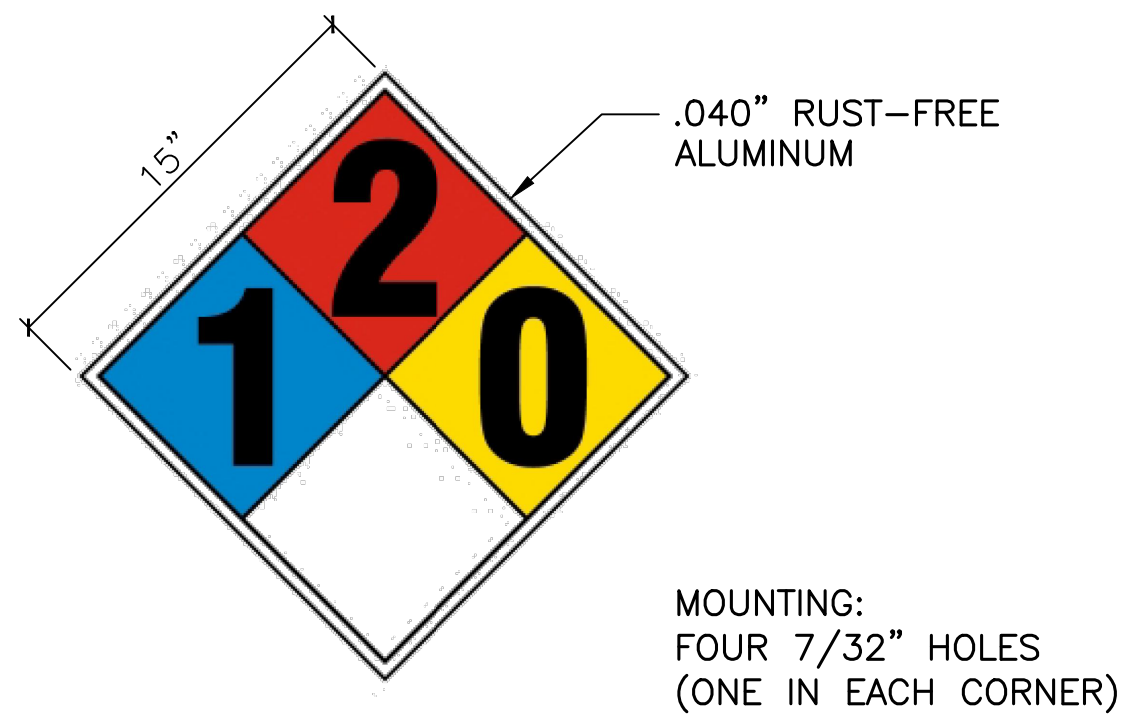
$\frac{3}{8}'' = 1'-0''$



2 CITY OF UKIAH STANDARD DETAIL - FIRE WATER BACKFLOW PREVENTER
NOT TO SCALE







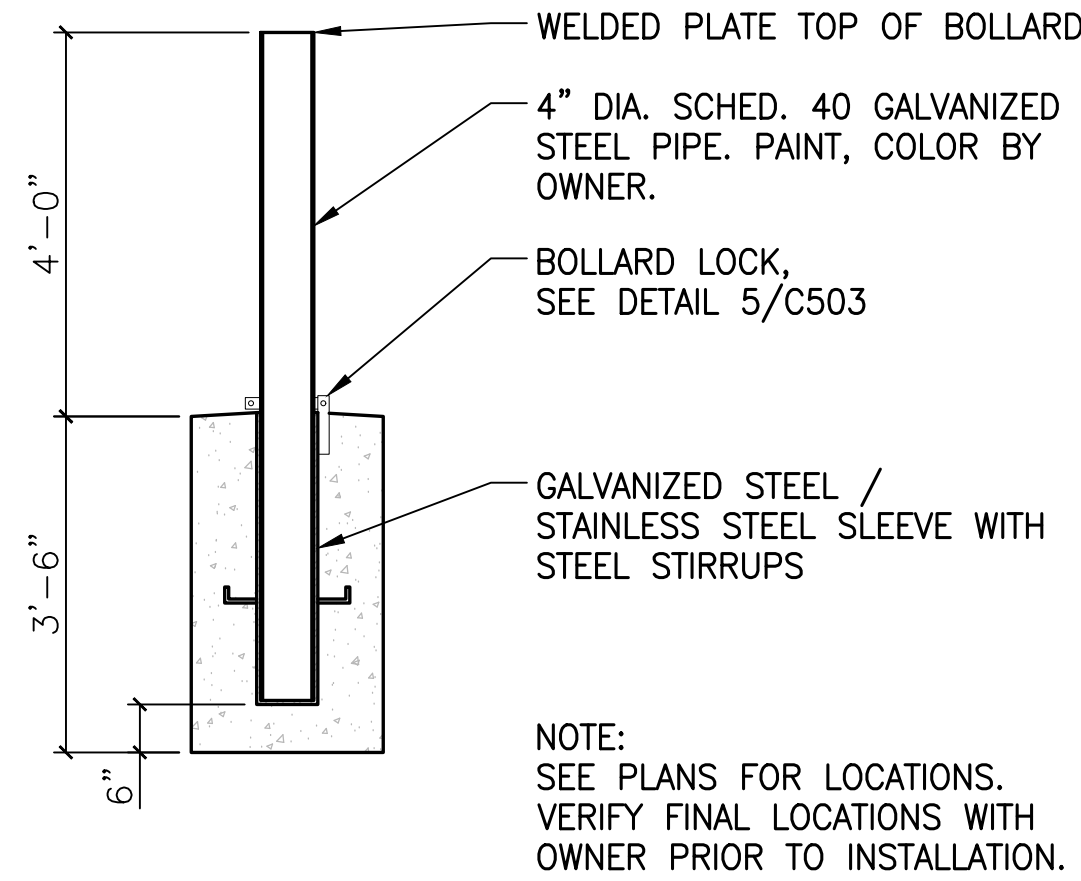
7 NFP 704 PLACARD SIGNAGE
NOT TO SCALE



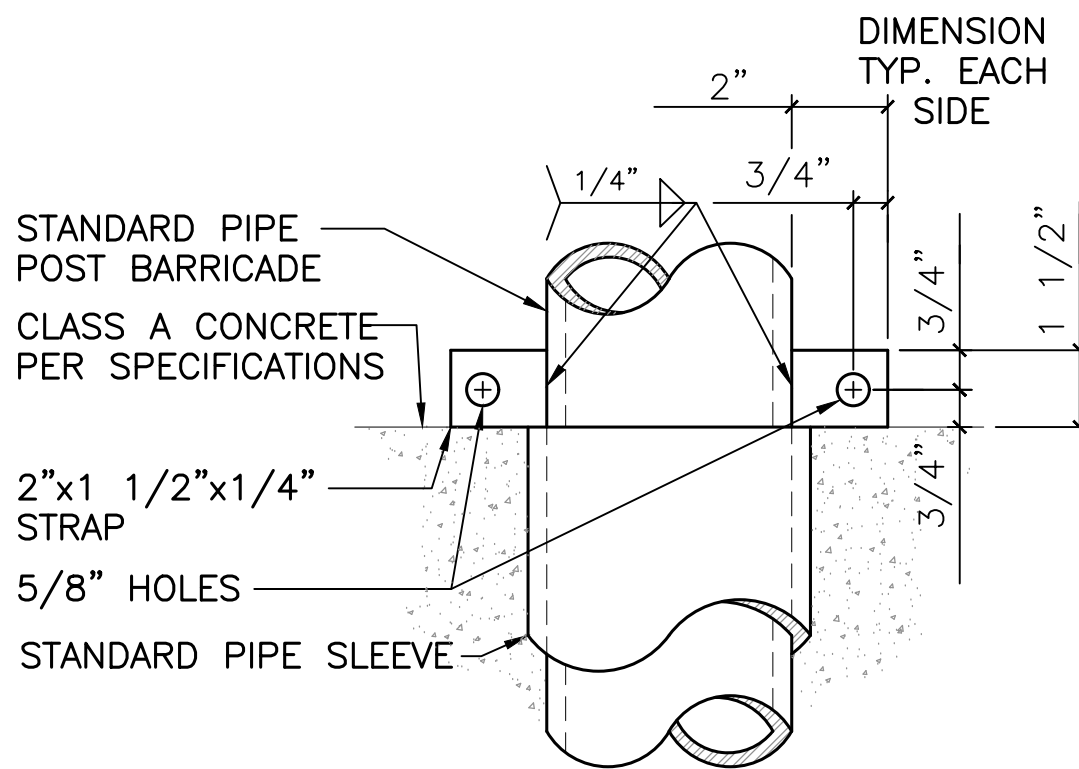
8 NO SMOKING SIGNAGE
NOT TO SCALE



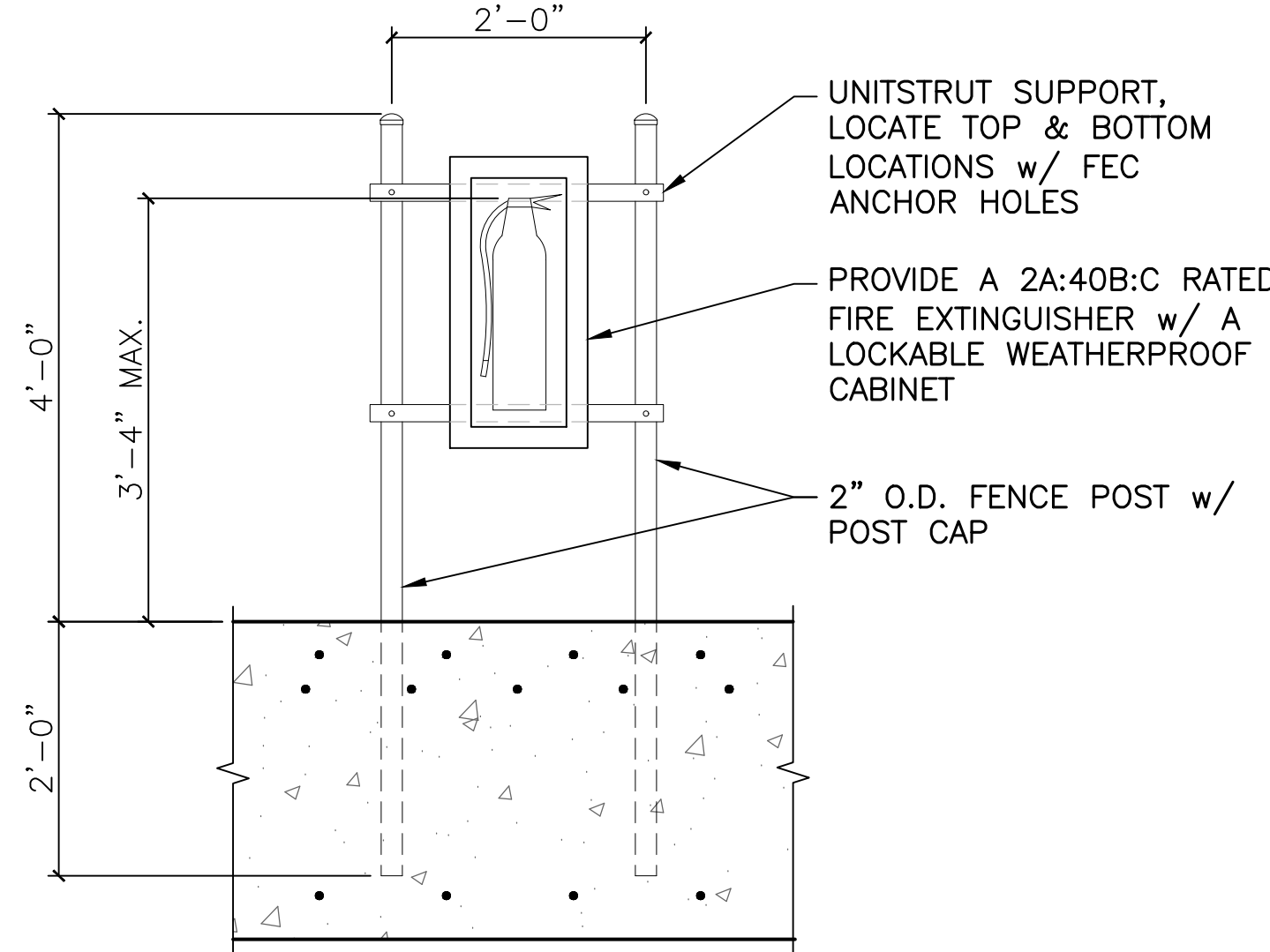
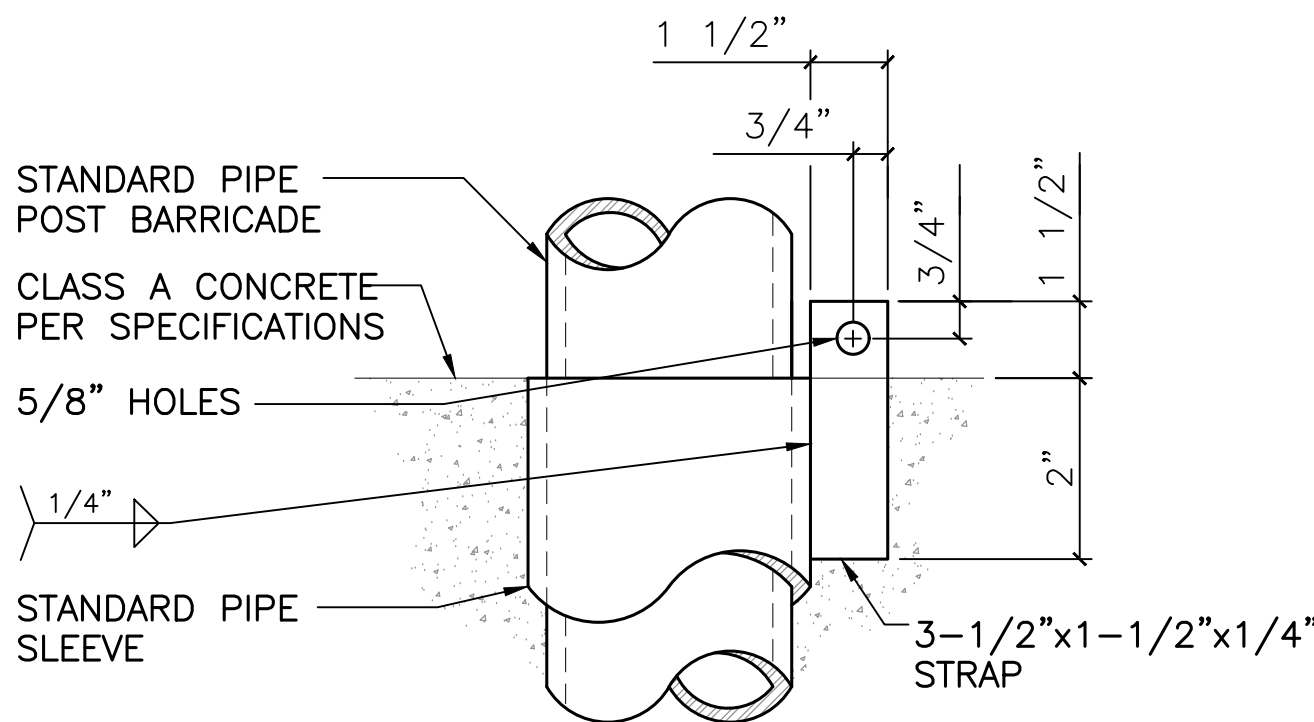
9 NO SMOKING/OPEN FLAME SIGNAGE
NOT TO SCALE



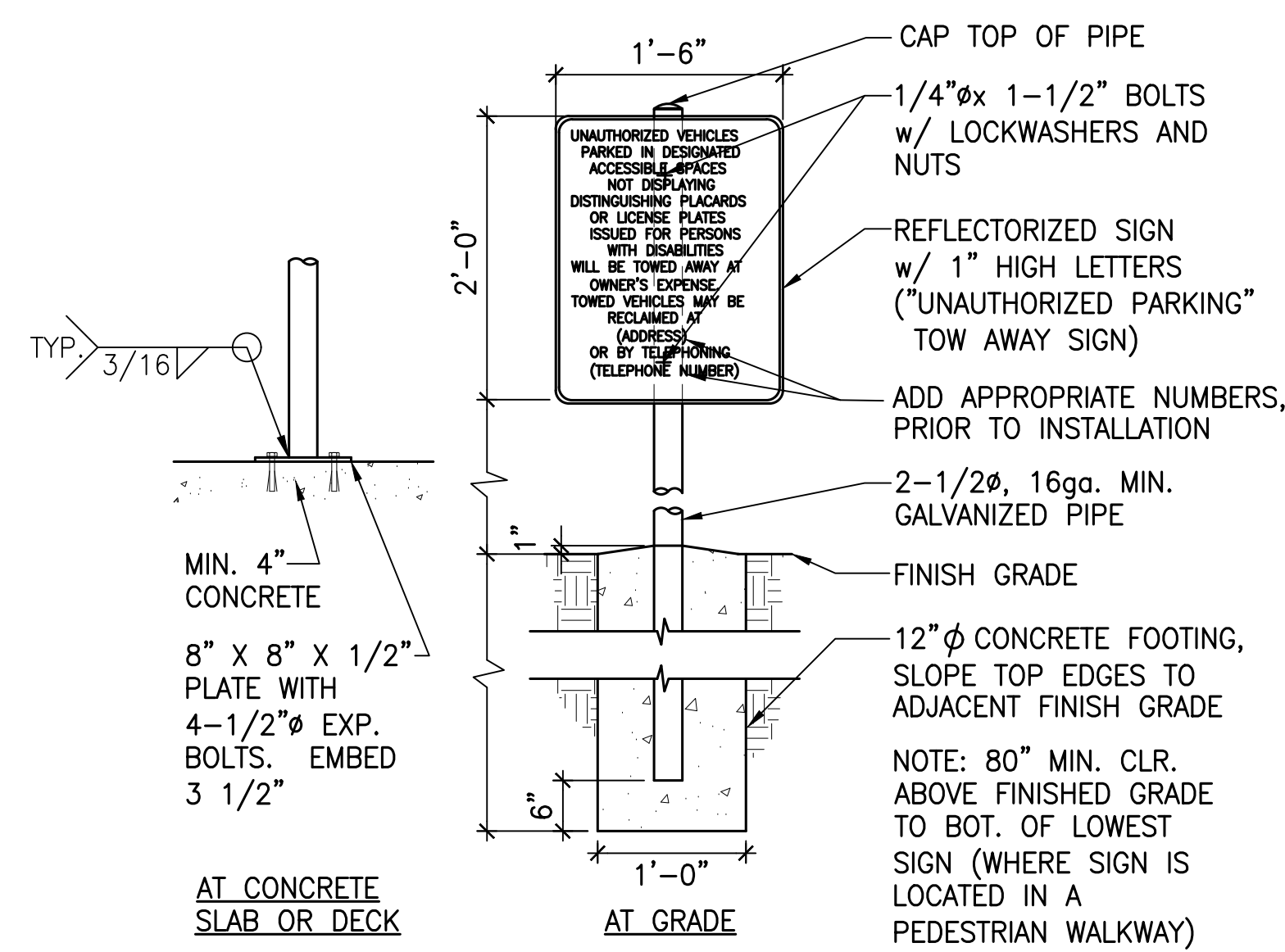
4 REMOVABLE BOLLARD
1/2" = 1'-0"



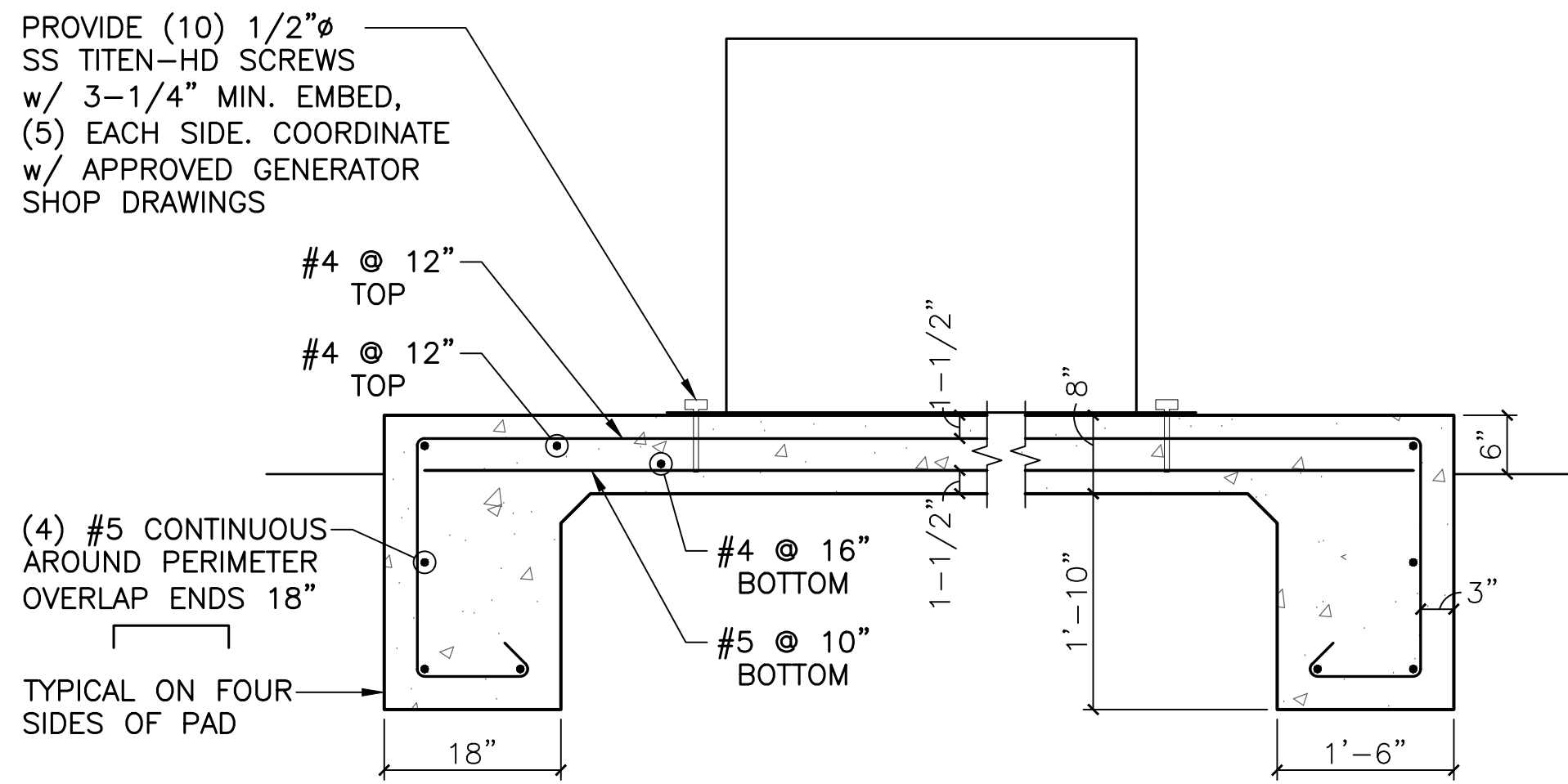
5 BOLLARD STRAP DETAIL
NOT TO SCALE



6 FEC SUPPORT
3/4" = 1'-0"

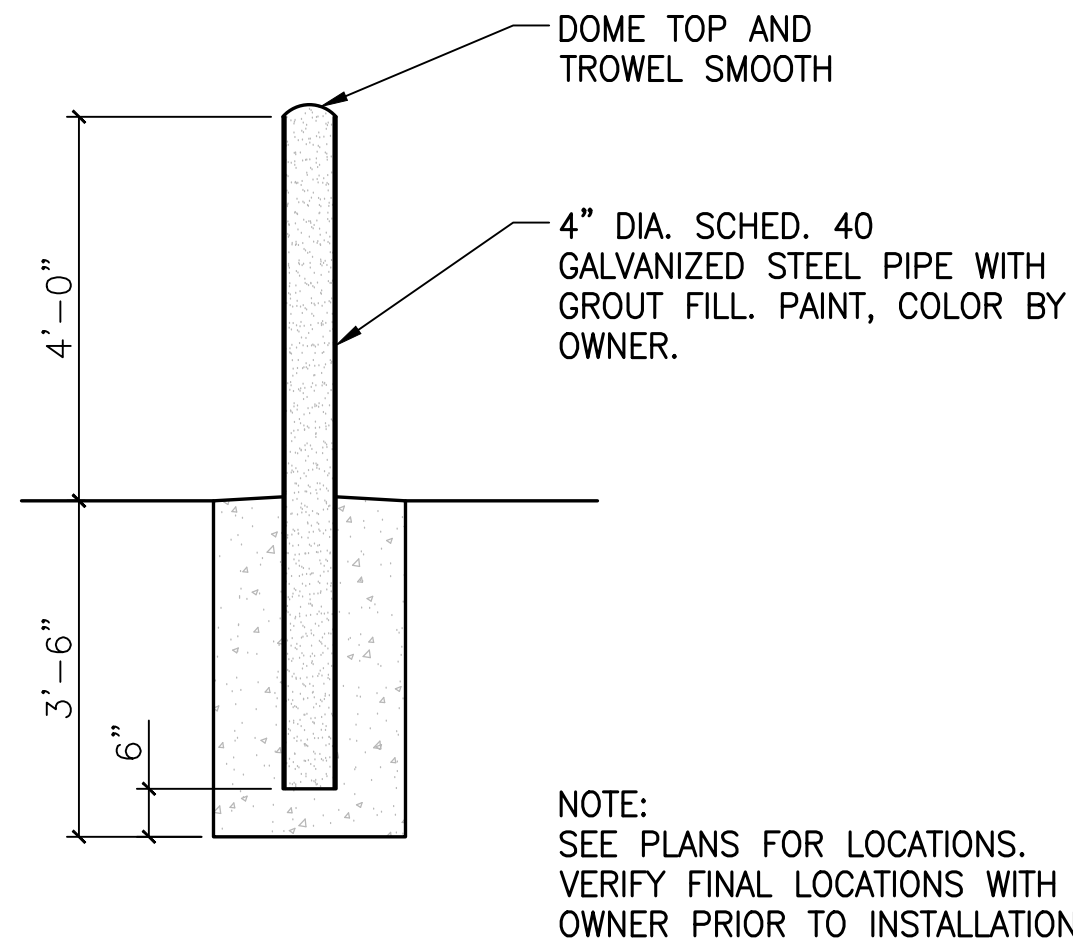


1 SITE ENTRY SIGN FOUNDATION AND MOUNTING
NOT TO SCALE



NOTES: 1. SEE CIVIL PLANS FOR OVERALL DIMENSIONS
2. TOTAL GENERATOR OPERATING WEIGHT INCLUDING ENCLOSURE AND FUEL NOT TO EXCEED 20,000 LBS.

2 GENERATOR PAD DETAIL
3/4" = 1'-0"



3 STEEL PIPE BOLLARD
1/2" = 1'-0"

Revisions:

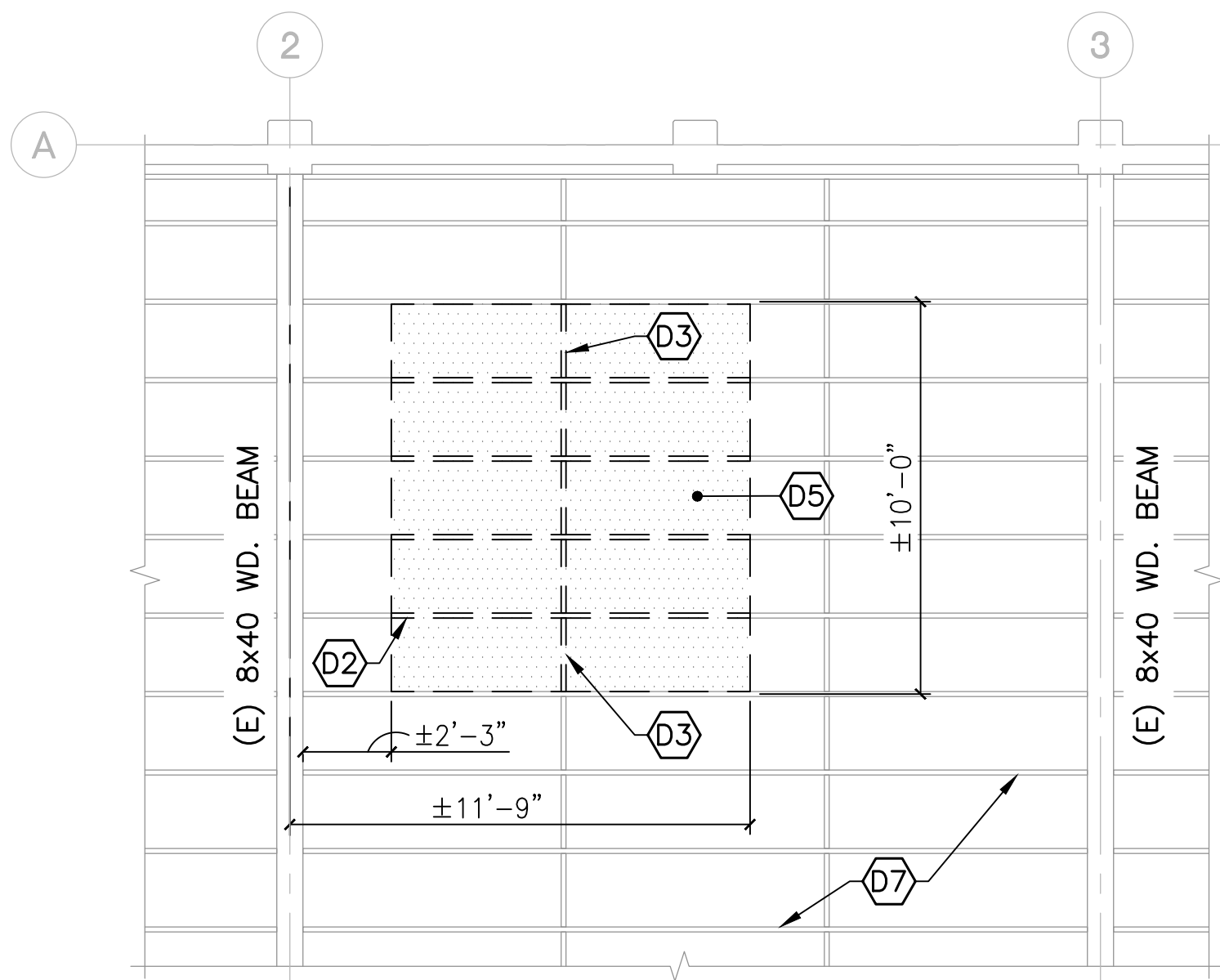
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

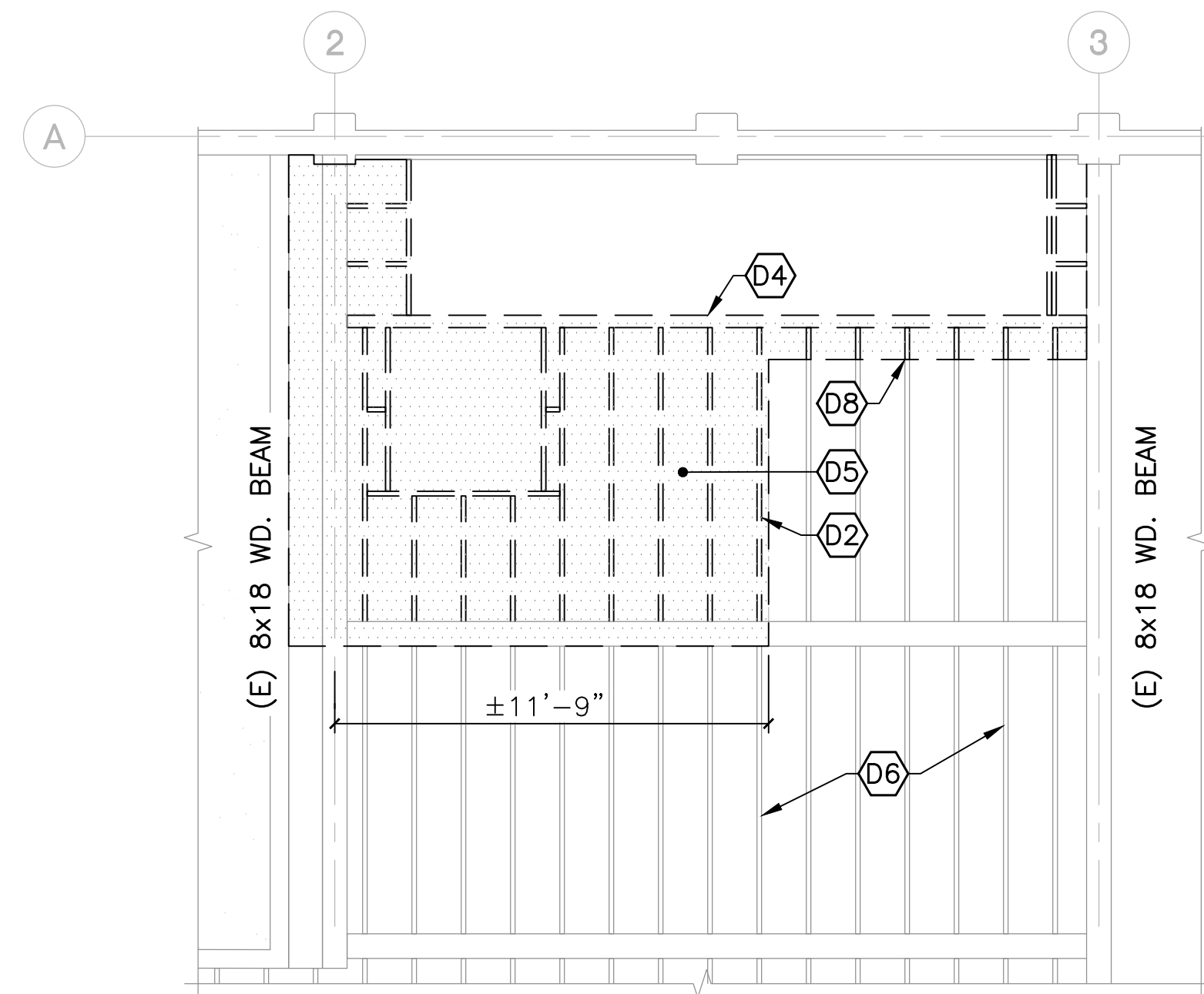
SITE DETAILS

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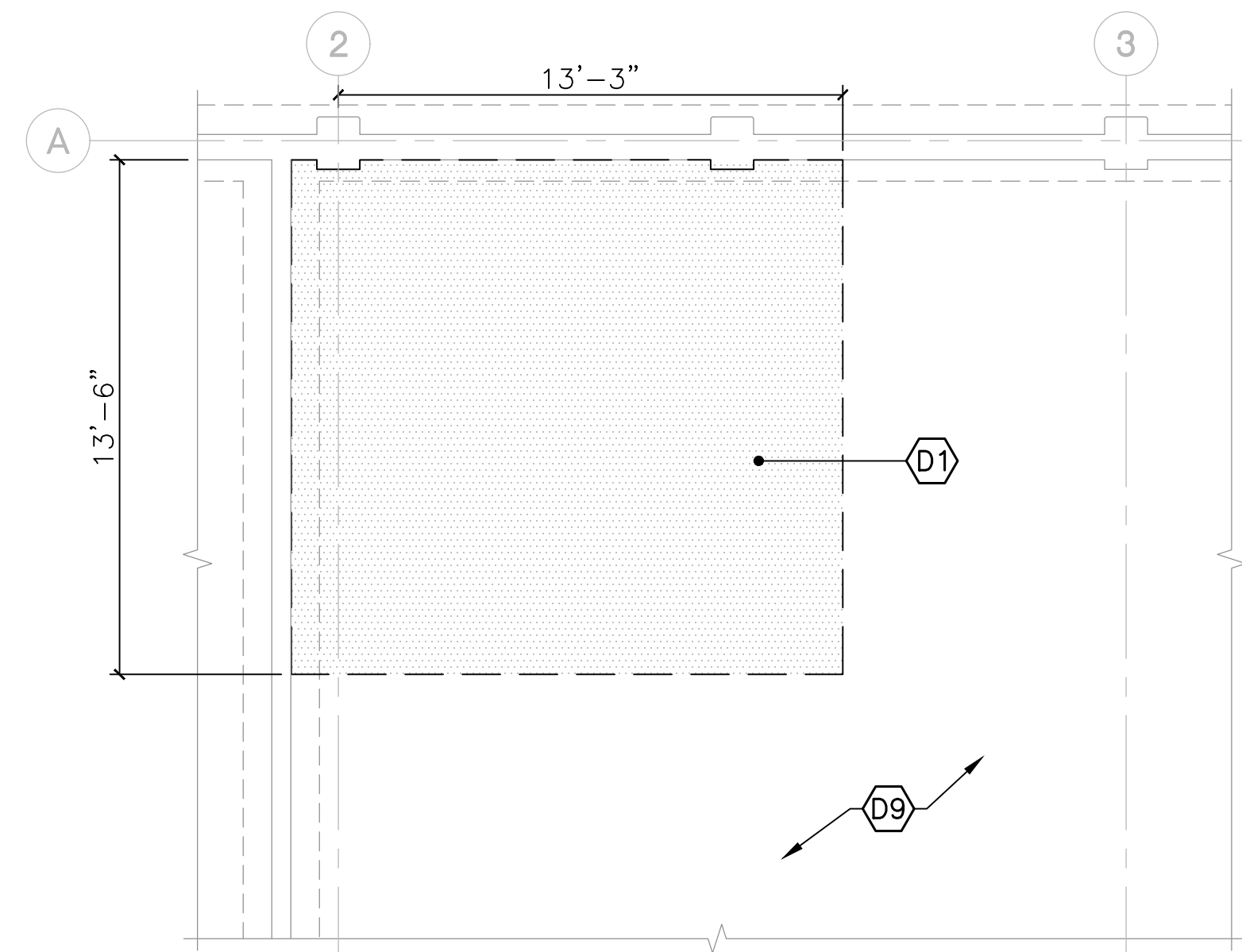
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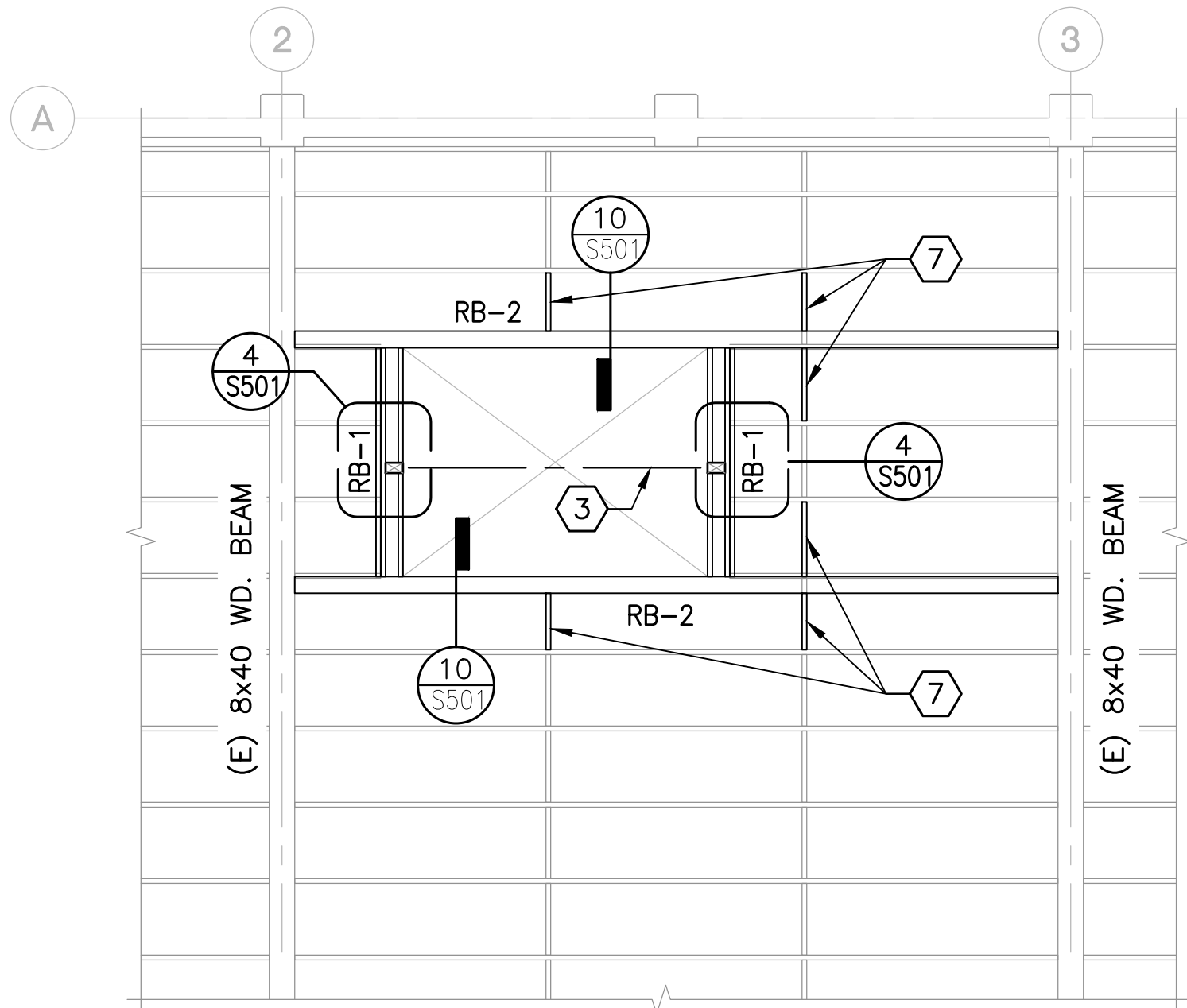
PLAN NORTH
5
ROOF DEMOLITION
FRAMING PLAN AT NEW ELEVATOR SHAFT
1/4" = 1'-0"



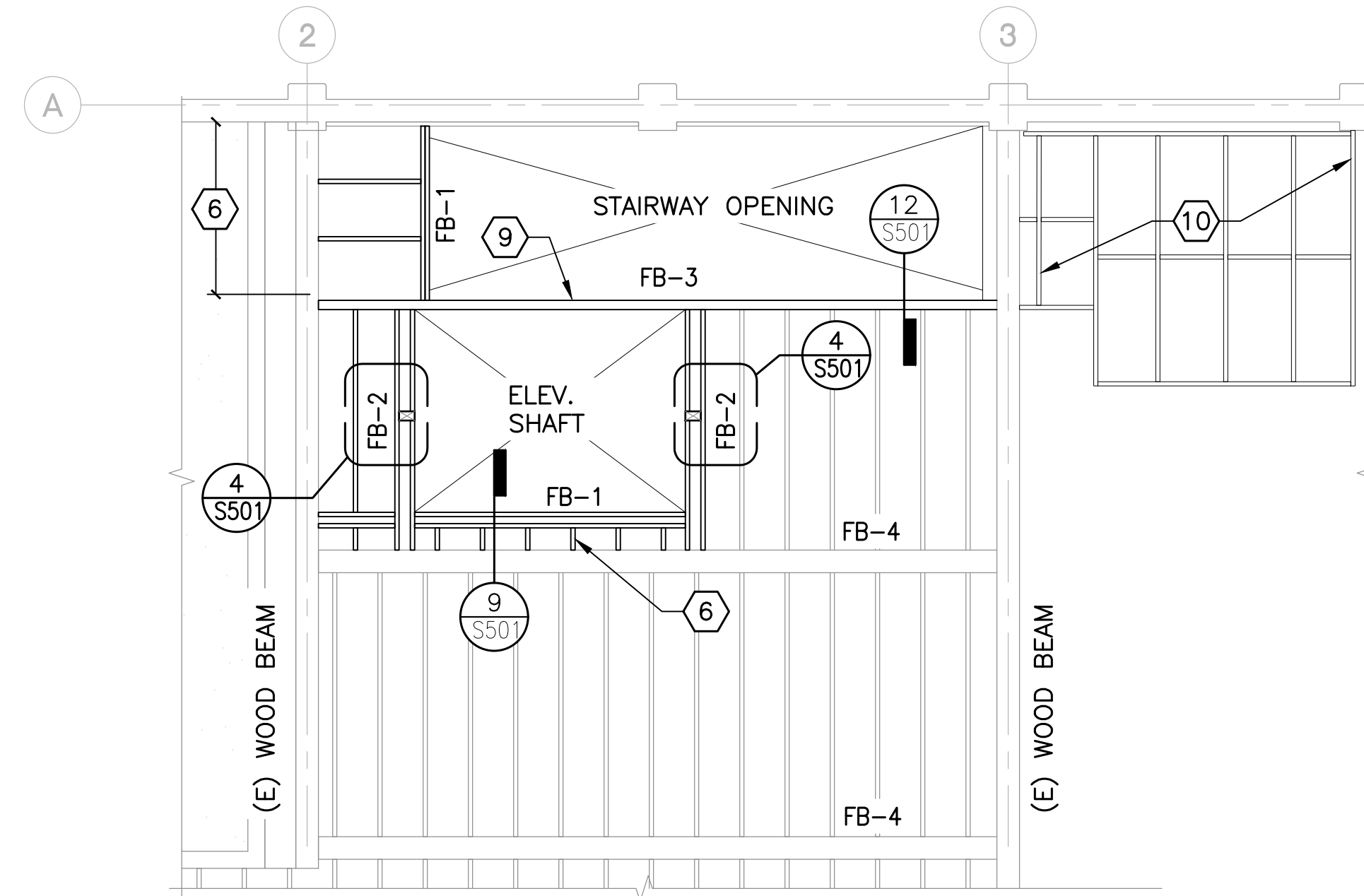
PLAN NORTH
3
SECOND FLOOR DEMOLITION FRAMING PLAN
AT NEW ELEVATOR SHAFT/STAIR OPENING
1/4" = 1'-0"



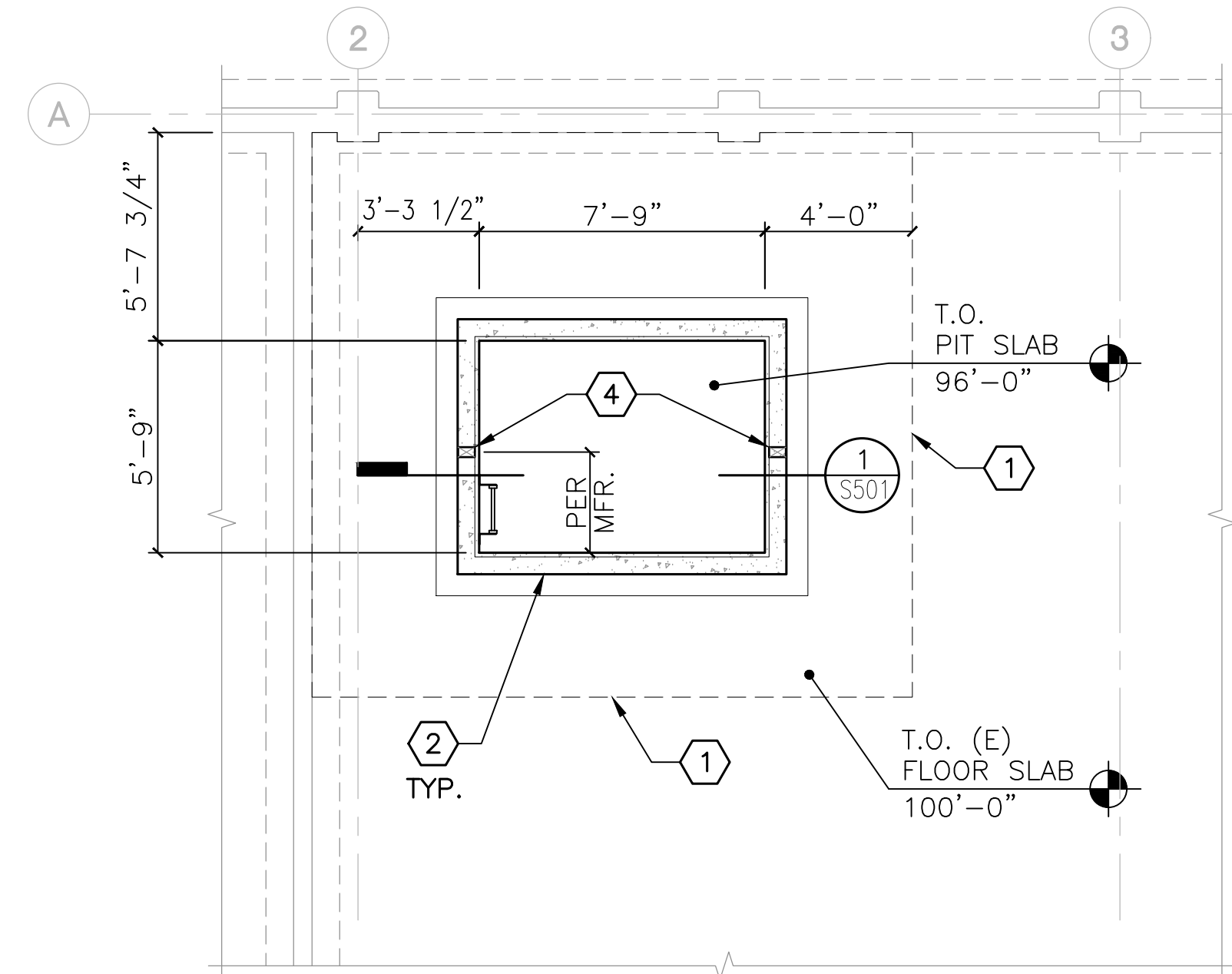
PLAN NORTH
1
DEMOLITION
SLAB PLAN AT NEW ELEVATOR PIT
1/4" = 1'-0"



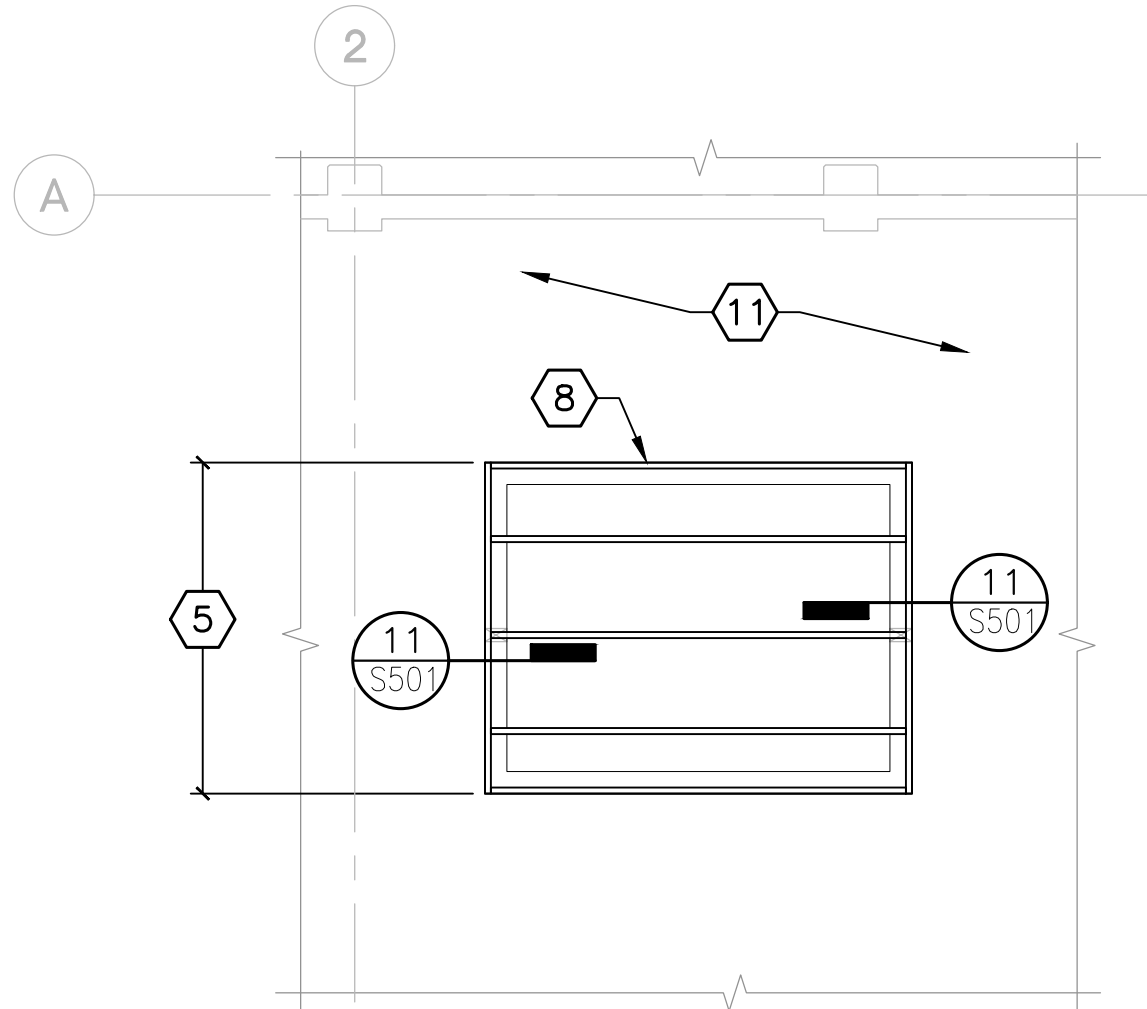
PLAN NORTH
6
ROOF FRAMING PLAN AT
EXISTING ROOF LEVEL FOR NEW ELEVATOR SHAFT
1/4" = 1'-0"



PLAN NORTH
4
SECOND FLOOR FRAMING PLAN
AT NEW ELEVATOR SHAFT/STAIR OPENING
1/4" = 1'-0"



PLAN NORTH
2
FOUNDATION PLAN AT NEW ELEVATOR PIT
1/4" = 1'-0"



PLAN NORTH
7
OVERRUN PENTHOUSE ROOF FRAMING PLAN
1/4" = 1'-0"

DEMOLITION KEYED NOTES:

- D1 SAWCUT AND REMOVE (E) CONCRETE SLAB TO CONSTRUCT NEW ELEVATOR PIT
- D2 CUT AND/OR REMOVE (E) 2x10 FLOOR OR (E) 2x12 ROOF JOISTS, SHORE AS REQUIRED FOR INSTALLATION OF NEW ELEVATOR SHAFT AND WALLS
- D3 REMOVE (E) WOOD BLOCKING BETWEEN FLOOR JOISTS AS REQUIRED FOR INSTALLATION OF NEW ELEVATOR SHAFT
- D4 REMOVE (E) 4x18 WOOD FRAMING ALONG EXISTING STAIR OPENING FOR INSTALLATION OF NEW STAIR/ELEVATOR SHAFT OPENING LOCATIONS
- D5 REMOVE (E) FLOOR AND/OR ROOF SHEATHING
- D6 (E) STRUCTURE (2x10 FLOOR JOISTS) TO REMAIN
- D7 (E) STRUCTURE (2x12 ROOF JOISTS) TO REMAIN
- D8 CUT (E) FLOOR JOISTS (SHORE AS REQUIRED) FOR INSTALLATION OF NEW BEAM ALONG NEW STAIR OPENING LOCATION
- D9 (E) CONCRETE SLAB-ON-GRADE TO REMAIN

KEYED NOTES:

- 1 (N) SLAB-ON-GRADE INFILL OVER VAPOR RETARDER, DOWEL INTO (E) ON (2) SIDES, SEE DETAIL 5 & 6/S501
- 2 6" REINFORCED CONCRETE PIT WALLS, ALL SIDES. SEE DETAIL 1/S501
- 3 W8X21 HOIST BEAM ABOVE, BRACE TOP OF BEAM AT MID POINT TO ADJACENT WALLS WITH 4"x4"x3/16" ANGLE, REMOVE BRACE AFTER INSTALL
- 4 4X6 WOOD POST RAIL/HOIST BEAM SUPPORT, COORDINATE EXACT LOCATION W/ APPROVED ELEVATOR SHOP DRAWINGS, SEE DETAIL 3/S501
- 5 2x12 ROOF JOIST AT 24" O.C., MAXIMUM
- 6 2x10 FLOOR JOISTS AT 16" O.C., MAXIMUM
- 7 PROVIDE FLOOR AND/OR ROOF BLOCKING BETWEEN NEW/EXISTING
- 8 2x12 RIM JOIST AROUND PERIMETER OF ELEVATOR SHAFT ROOF OVERRUN
- 9 CONNECT EACH END OF NEW 3 1/2" PSL BEAM TO EXISTING BEAM W/ HU416 FACE MOUNT HANGER
- 10 (N) 2x10 FRAMING AT 24" O.C., MAX. OVER STAIR EXIT WALLS
- 11 (E) ROOF SYSTEM BELOW

GENERAL NOTES:

1. SEQUENCE WORK AND/OR SHORE (E) FLOOR, ROOF AND CEILING FRAMING SYSTEMS TO MAINTAIN SUPPORT.
2. PROVIDE NEW 2X FRAMING, JOIST HANGERS AND FASTENING SYSTEMS FOR FLOOR IN-FILL AT NEW SHAFTS.

LEGEND:

- MATERIAL TO BE REMOVED/DEMOLISHED.
- FB-1 FLOOR BEAM: (2) NEW 2x10
- FB-2 FLOOR BEAM: (2) NEW 2x10
- FB-3 FLOOR BEAM: (1) NEW 3 1/2" x 16" PSL
- FB-4 FLOOR BEAM: (1) EXISTING 8x18
- RB-1 ROOF BEAM: (3) NEW 2x12
- RB-2 ROOF BEAM: (1) NEW 5 1/4" x 11 7/8" PSL

Revisions:

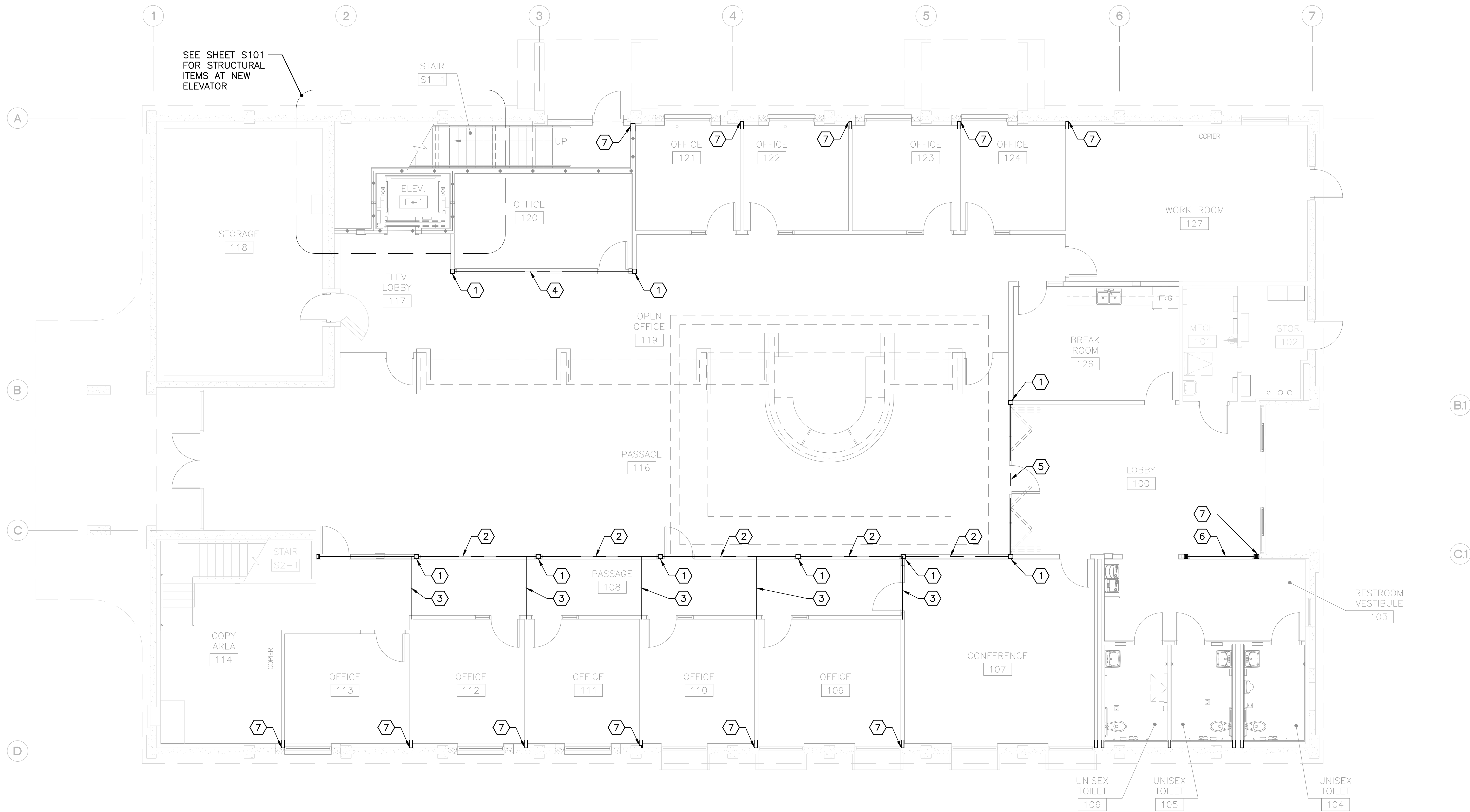
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

FOUNDATION AND
FRAMING PLANS

Sheet Number:

S101



GENERAL NOTES:

1. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
2. REPAIR AND RE-FINISH ANY EXISTING WALLS AND/OR SURFACES DISTURBED BY DEMOLITION, NEW CONSTRUCTION AND/OR DETERIORATION, (MATCH (E), U.N.O.).
3. SEE SHEET G001 FOR TYPICAL LEGEND ITEMS SHOWN ON PLANS.

KEYED NOTES:

- 1 6x6 WOOD POSTS, CONNECT TO BOTTOM PLATE PER DETAIL 6/A512A
- 2 3 1/2" x 11 7/8" PSL HEADER
- 3 BRACE HEADER ABOVE WALL ALONG C.1 TO TOP OF (N) OFFICE WALLS WHERE PERPENDICULAR RETURN WALLS OCCUR, SEE DETAIL 6/S502, TYPICAL
- 4 5 1/4" x 14" PSL HEADER
- 5 6x12 HEADER, PROVIDE HUC612 HANGER AT BEAM ENDS, SEE DETAIL 2/S502
- 6 (N) HEADER, SEE TYPICAL DETAIL 6/A512A
- 7 SEE DETAIL 1/S502 FOR (N) WALL ATTACHMENT TO (E) CONCRETE WALL

PLAN
NORTH



1

STRUCTURAL FIRST FLOOR PLAN

3/16" = 1'-0"



Revisions:

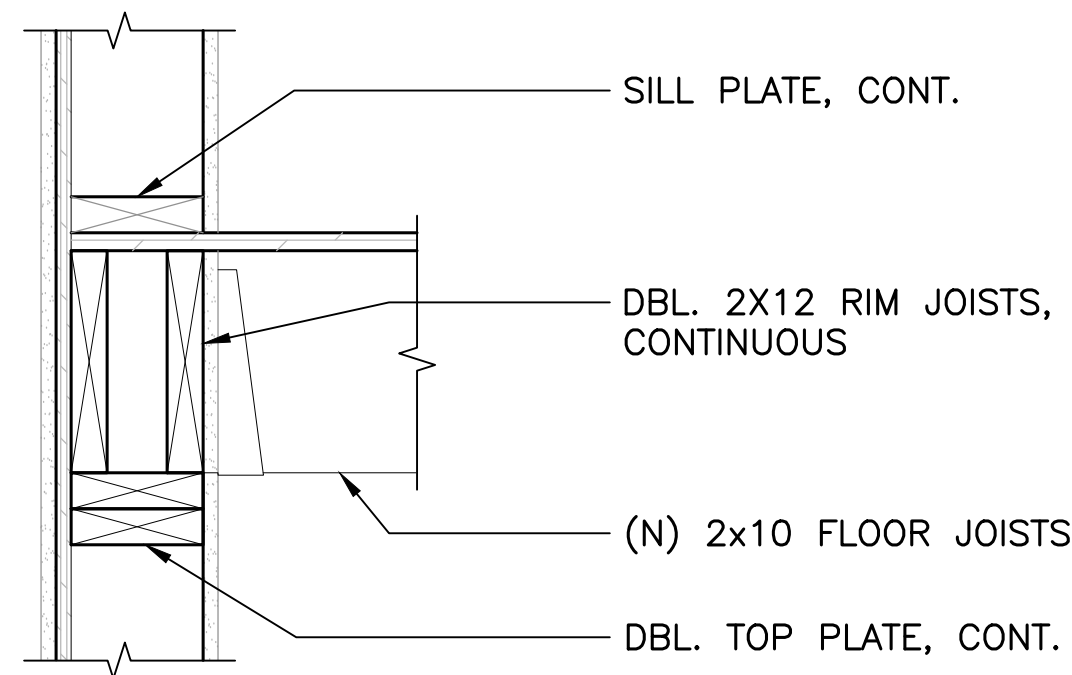
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APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

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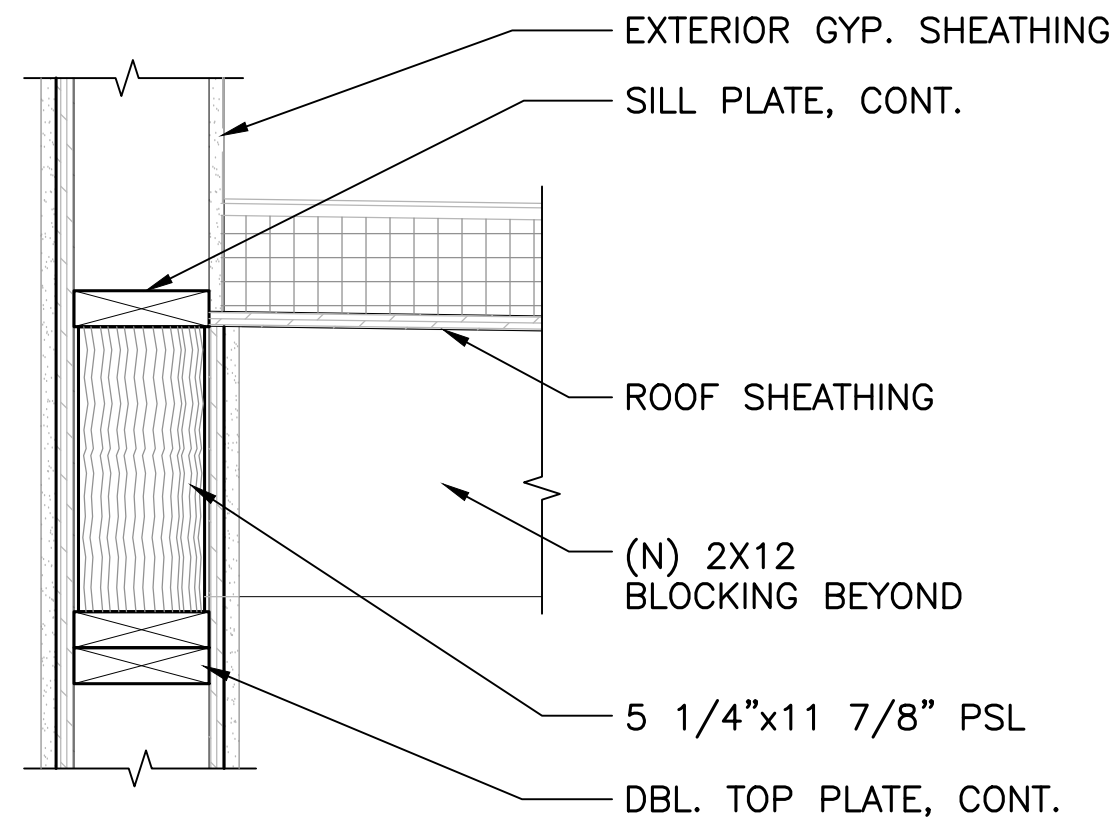
**STRUCTURAL FIRST
FLOOR PLAN**

Sheet Number:

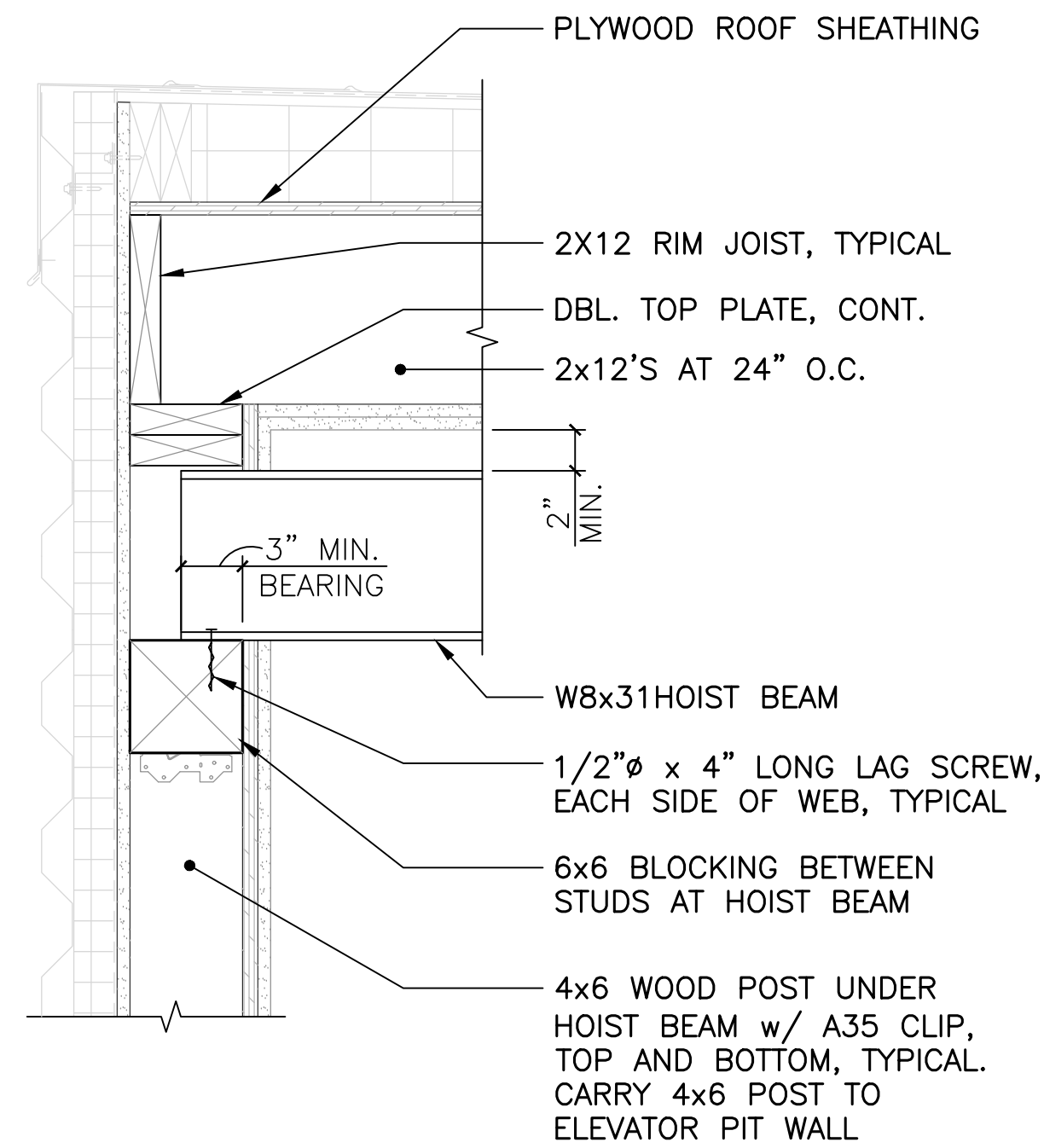
S102



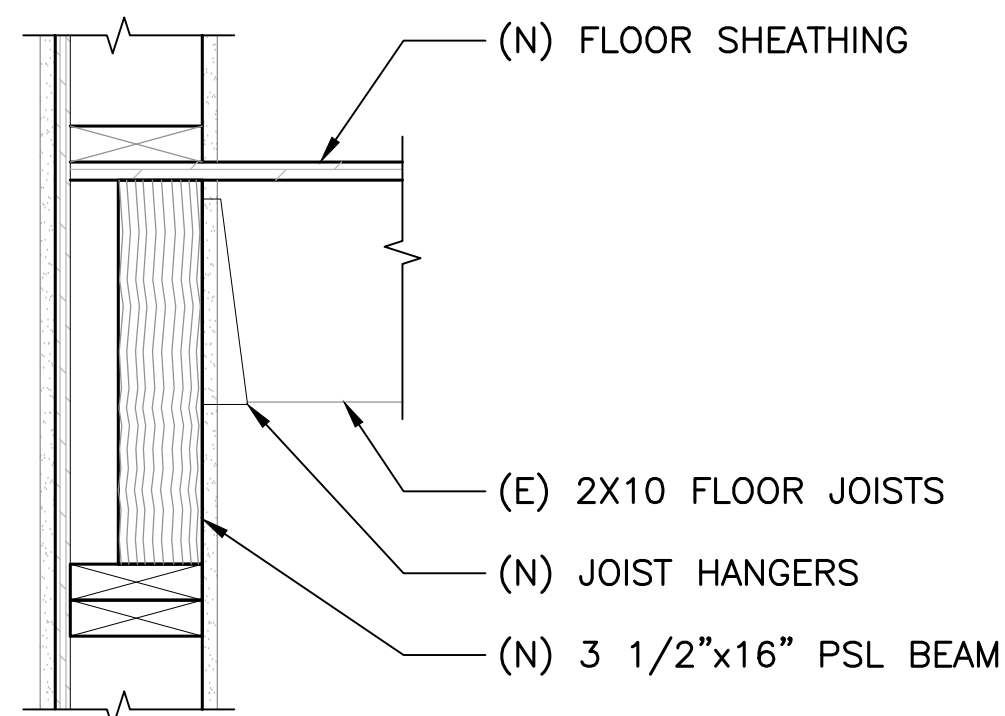
9 FRAMING DETAIL AT FLOOR
1 1/2" = 1'-0"



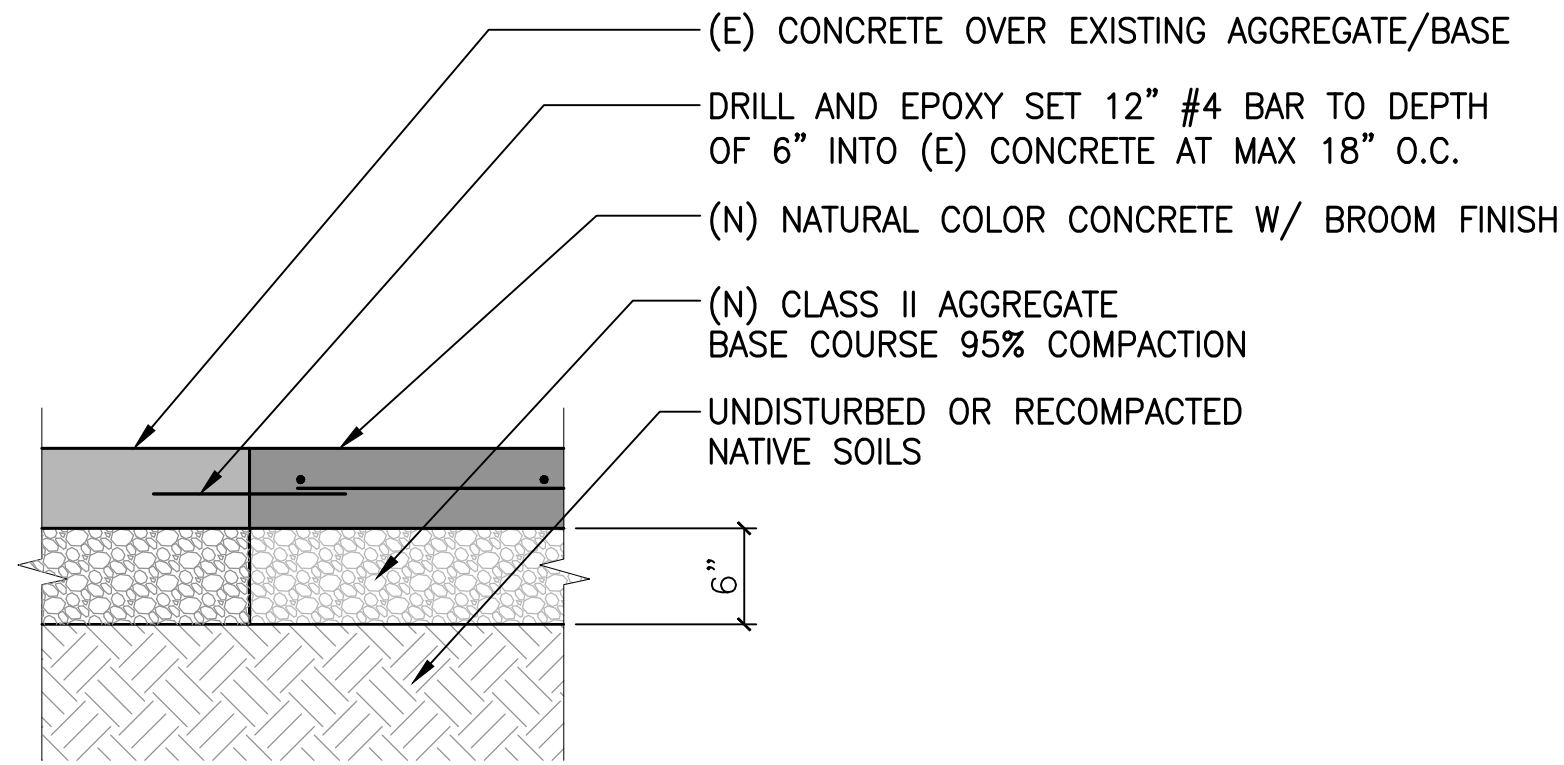
10 FRAMING DETAIL AT (E) ROOF
1 1/2" = 1'-0"



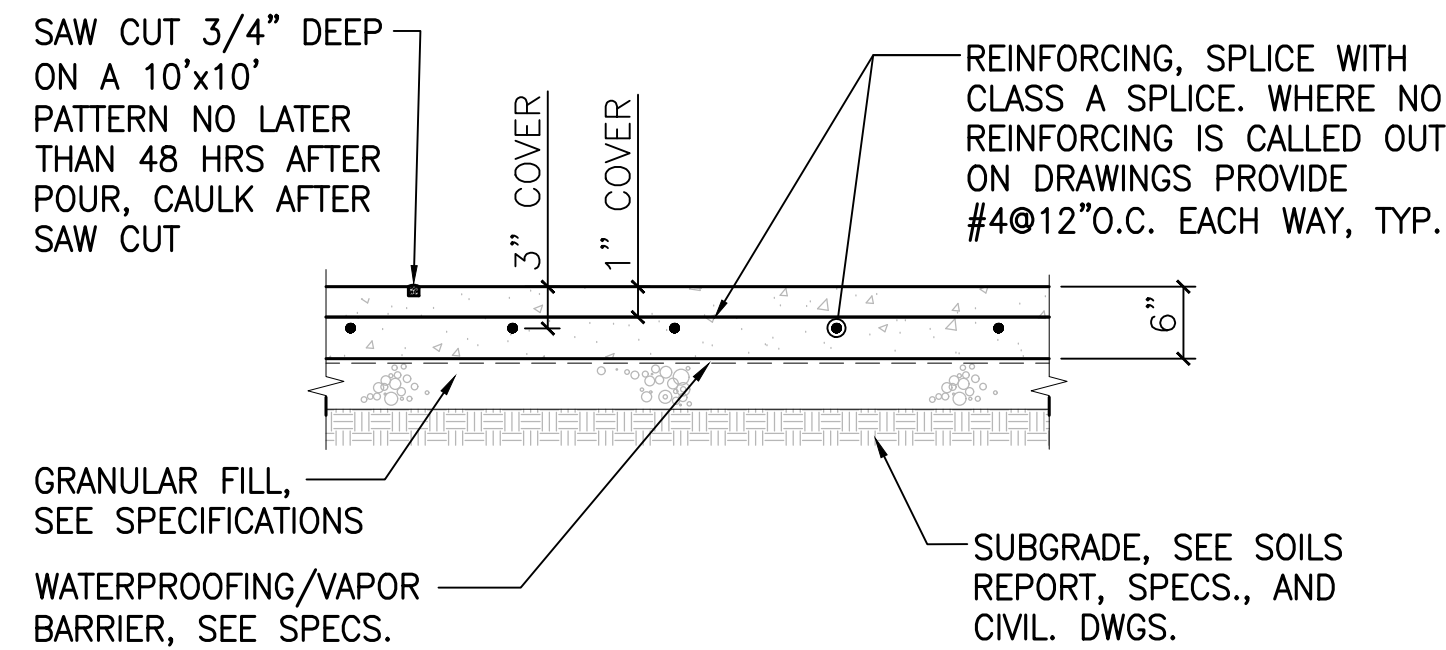
11 HOIST BEAM SUPPORT DETAIL
1 1/2" = 1'-0"



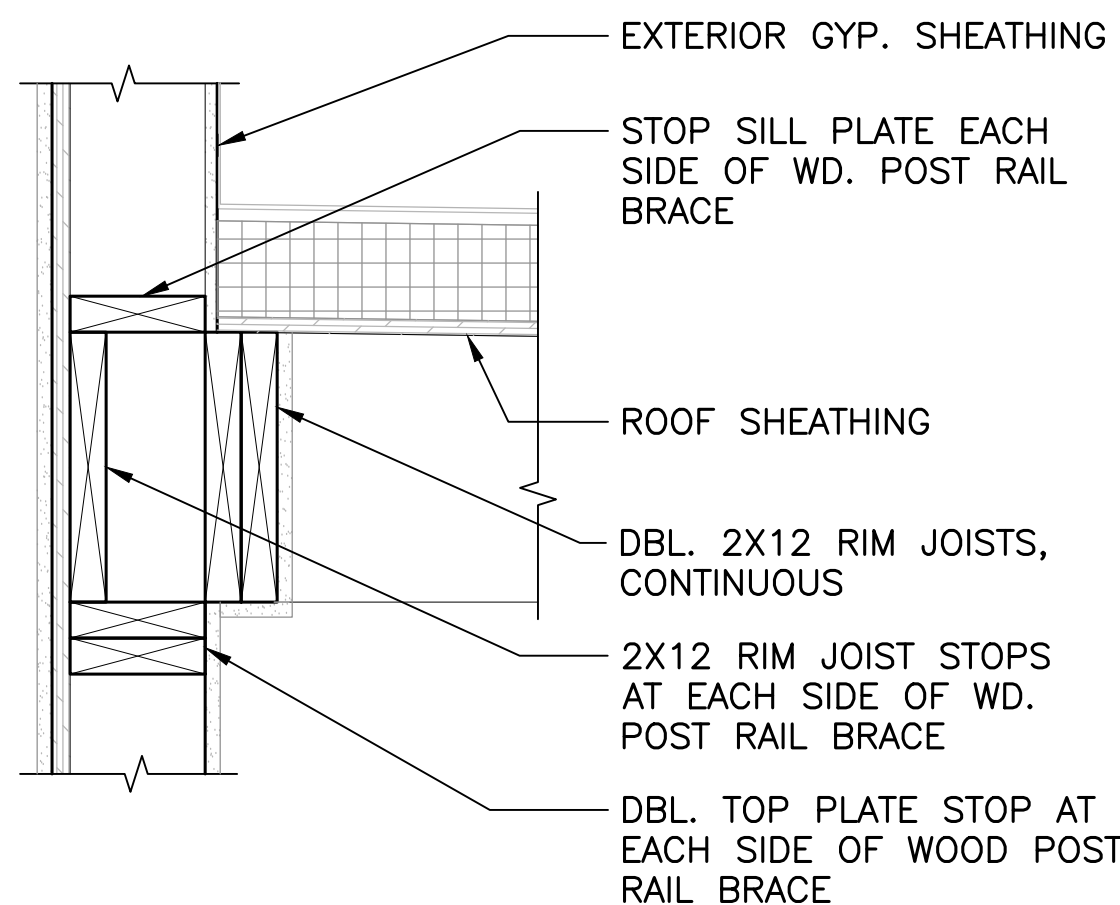
12 FRAMING DETAIL AT FLOOR
1 1/2" = 1'-0"



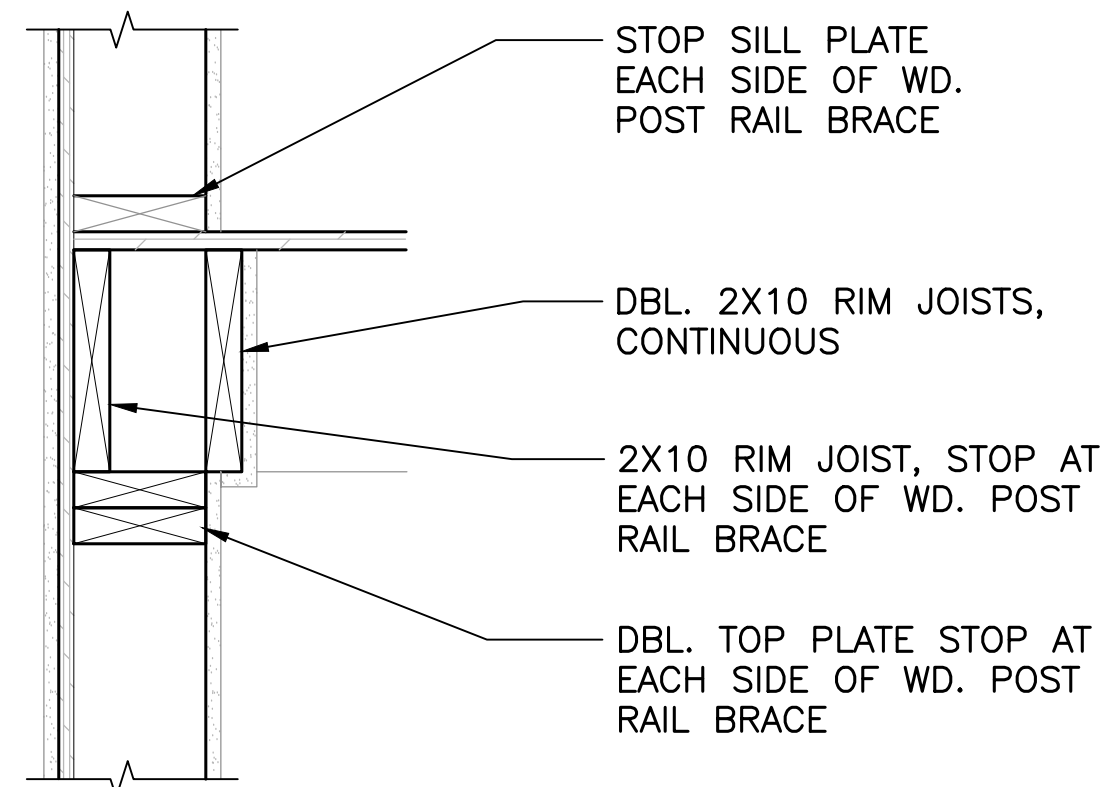
5 TYPICAL (N) TO (E) CONCRETE SLAB
NOT TO SCALE



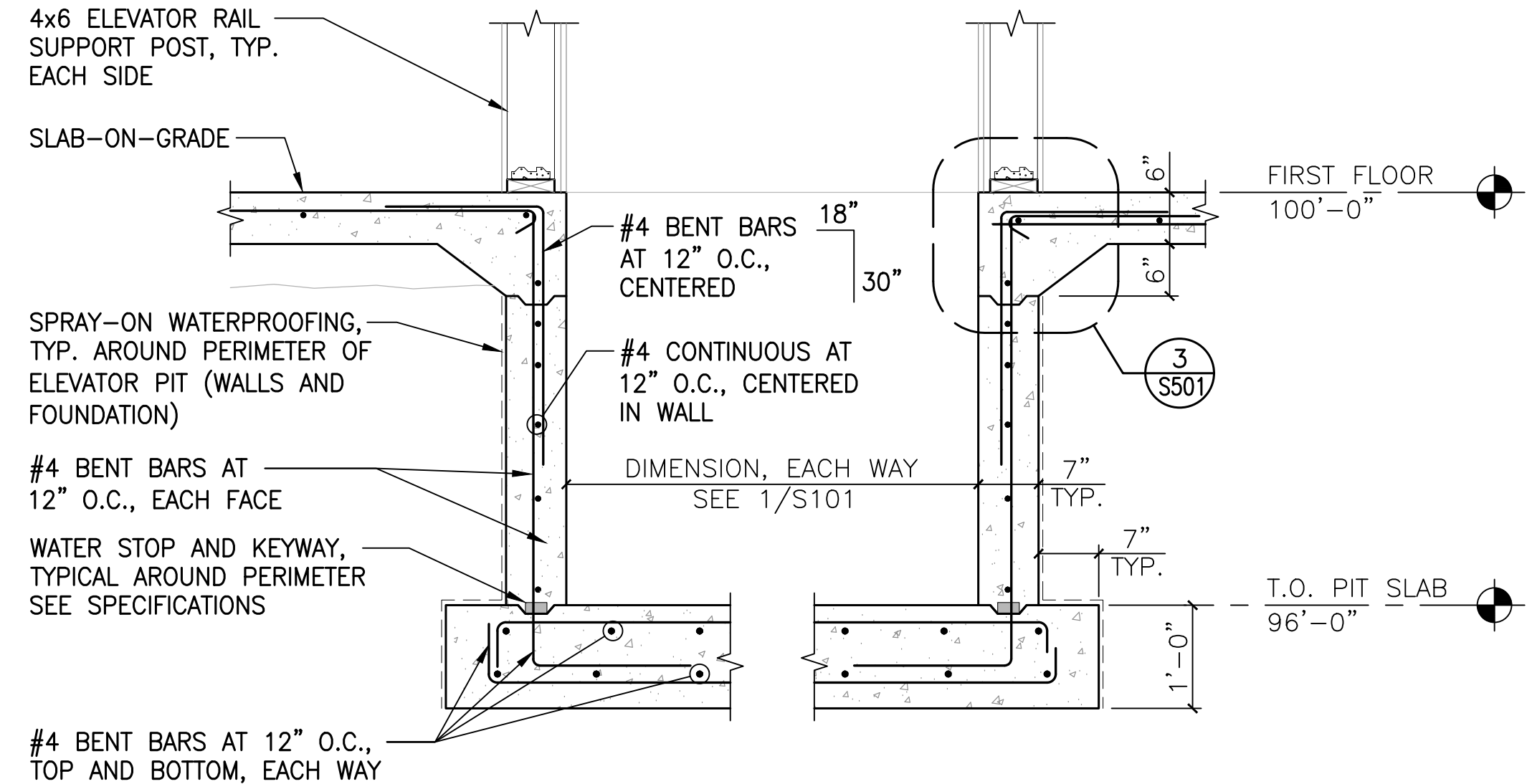
6 TYPICAL SLAB-ON-GRADE
3/4" = 1'-0"



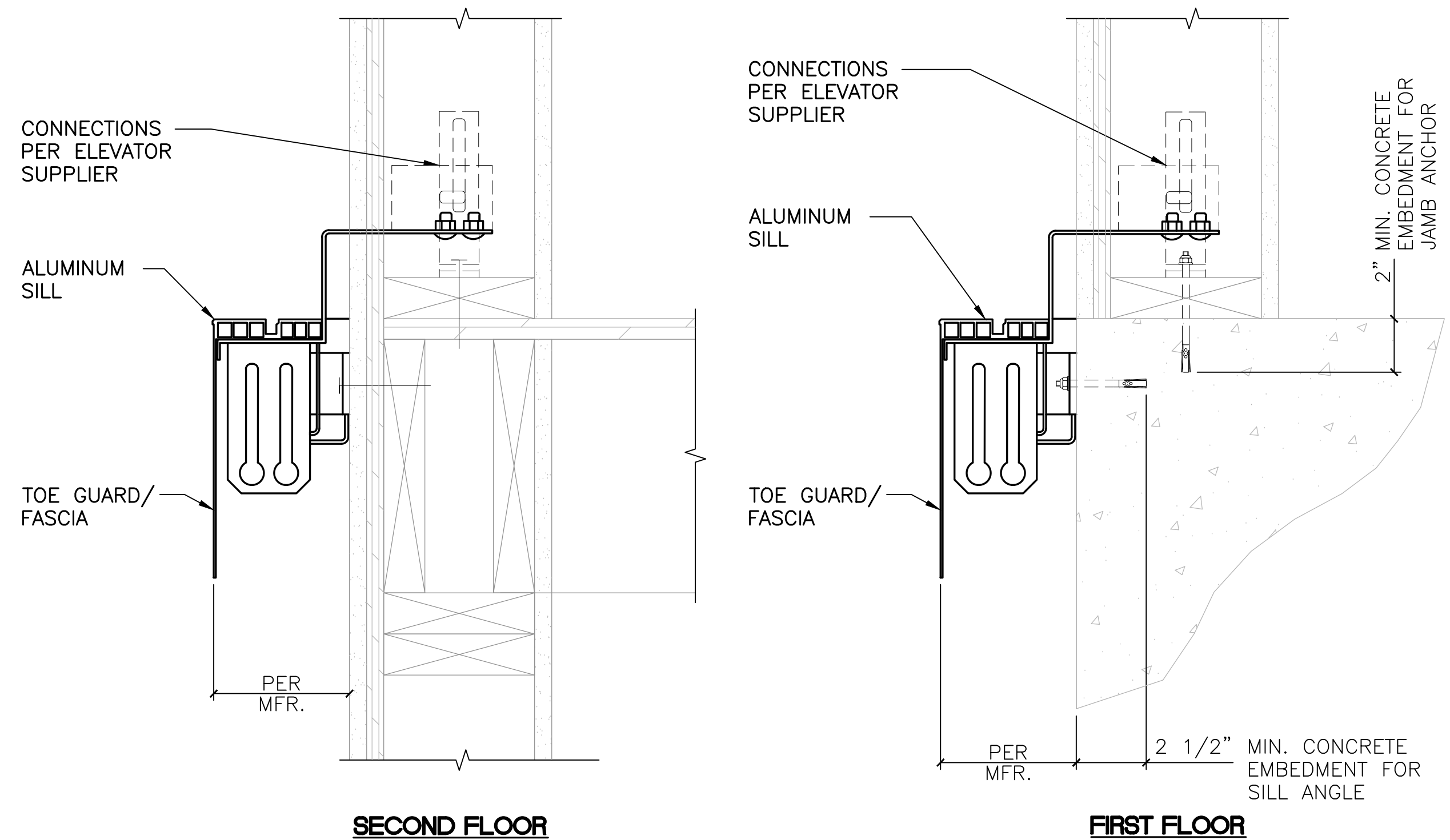
7 FRAMING DETAIL AT (E) ROOF
1 1/2" = 1'-0"



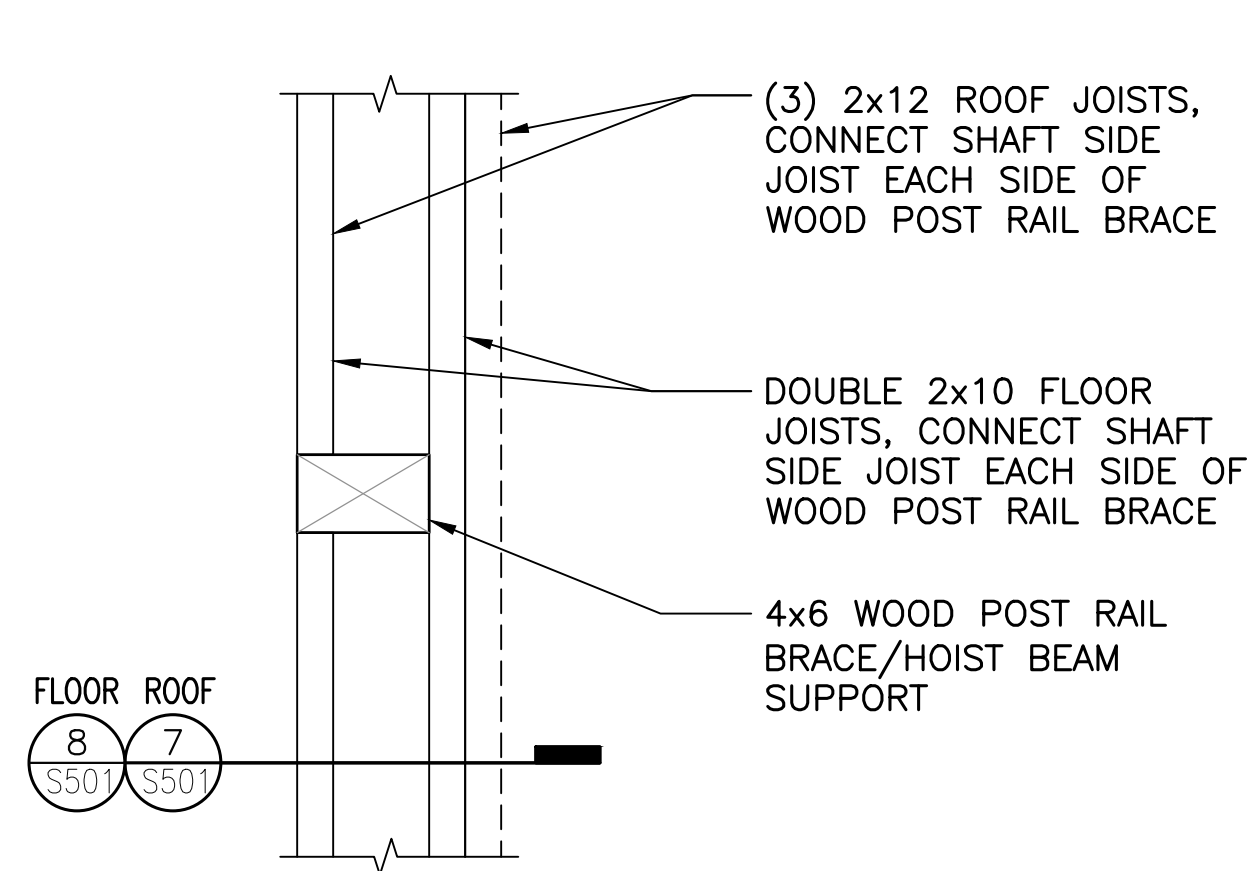
8 FRAMING DETAIL AT FLOOR
1 1/2" = 1'-0"



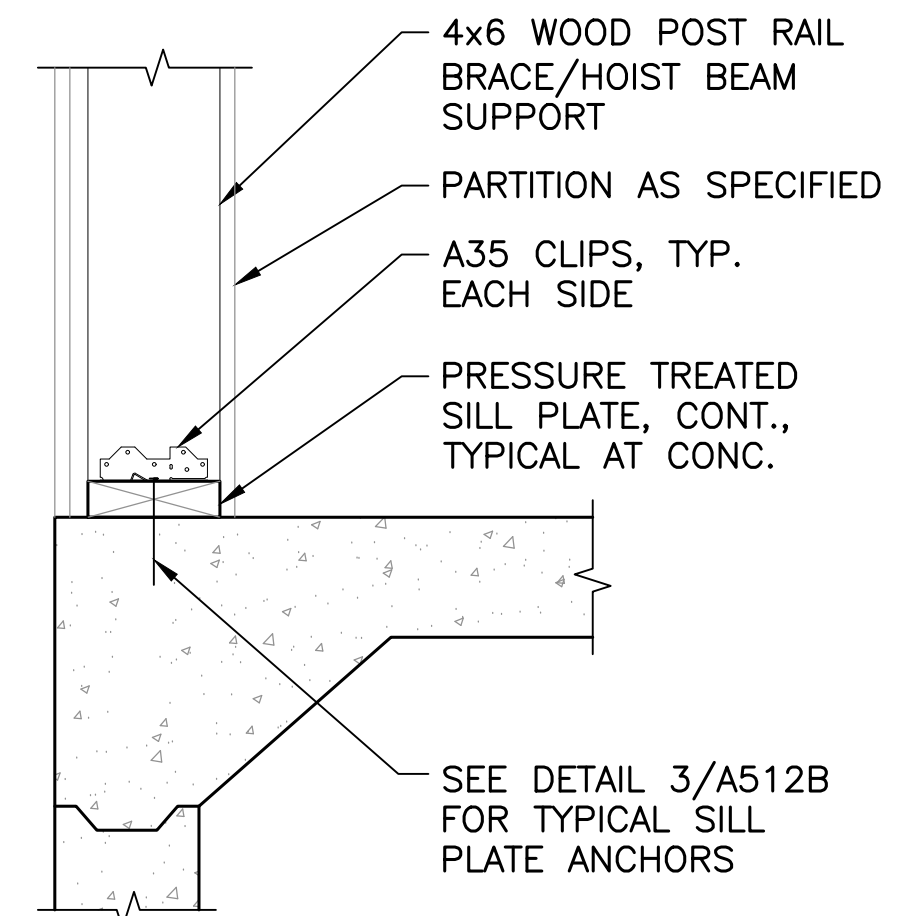
1 ELEVATOR PIT SECTION
3/4" = 1'-0"



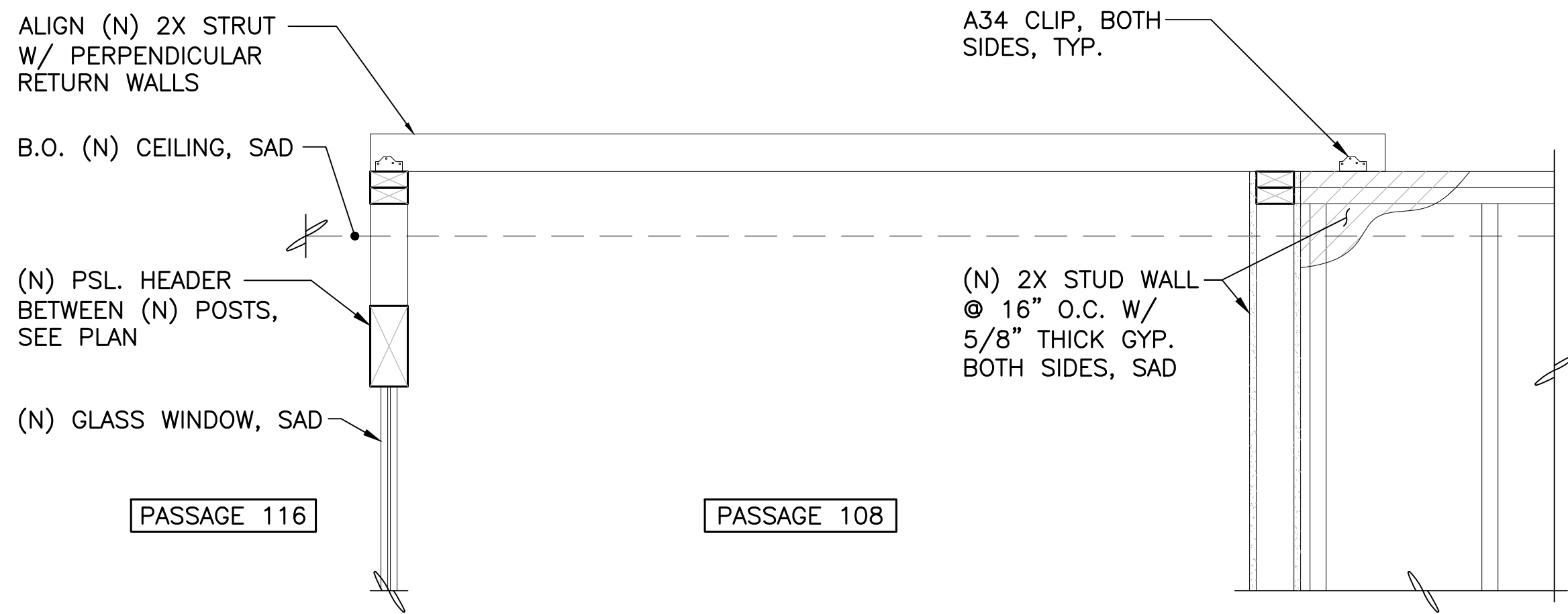
2 THRESHOLD JAMB ANCHOR DETAILS
3" = 1'-0"



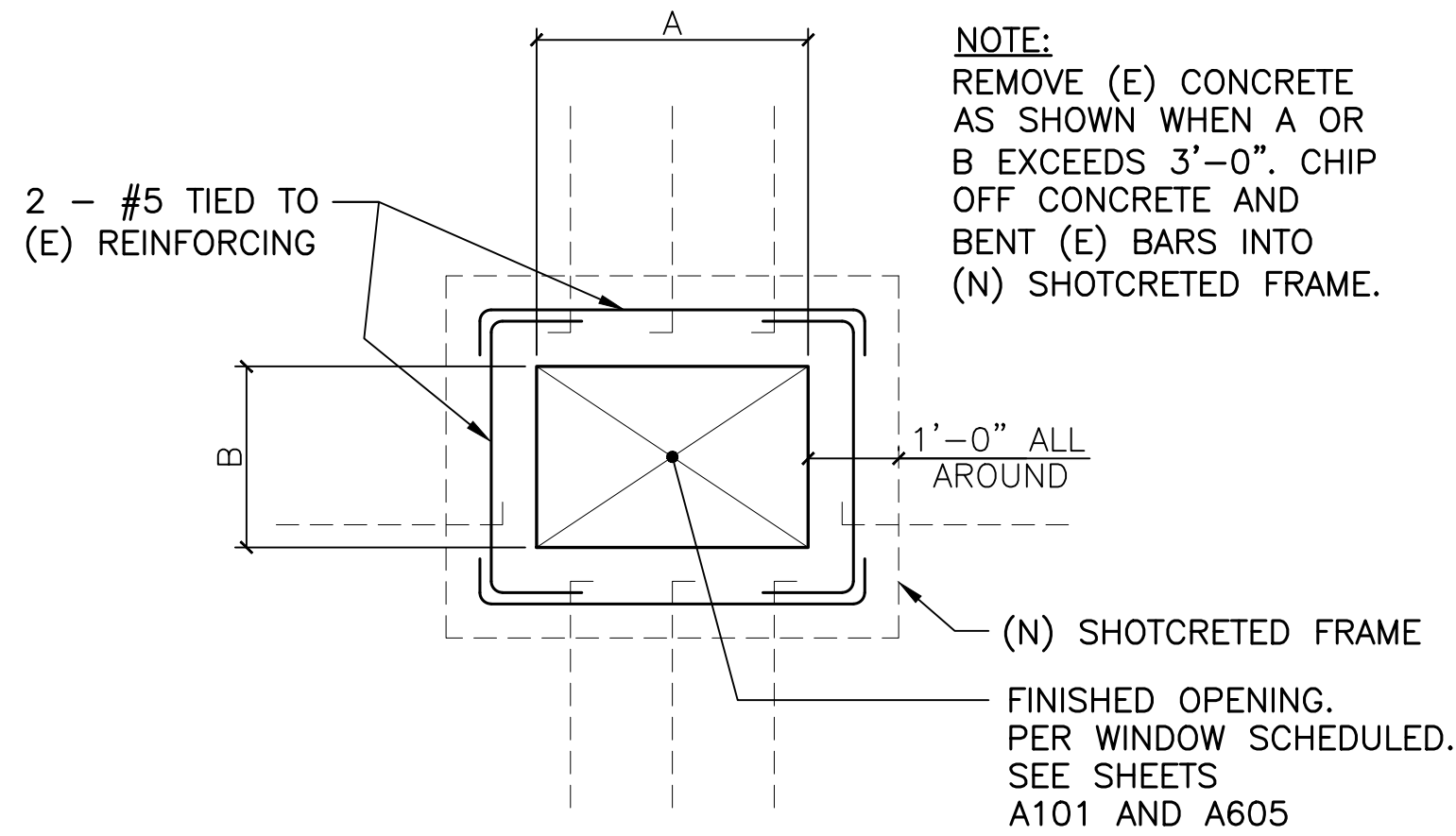
4 FRAMING/RAIL BRACE - PLAN VIEW
1 1/2" = 1'-0"



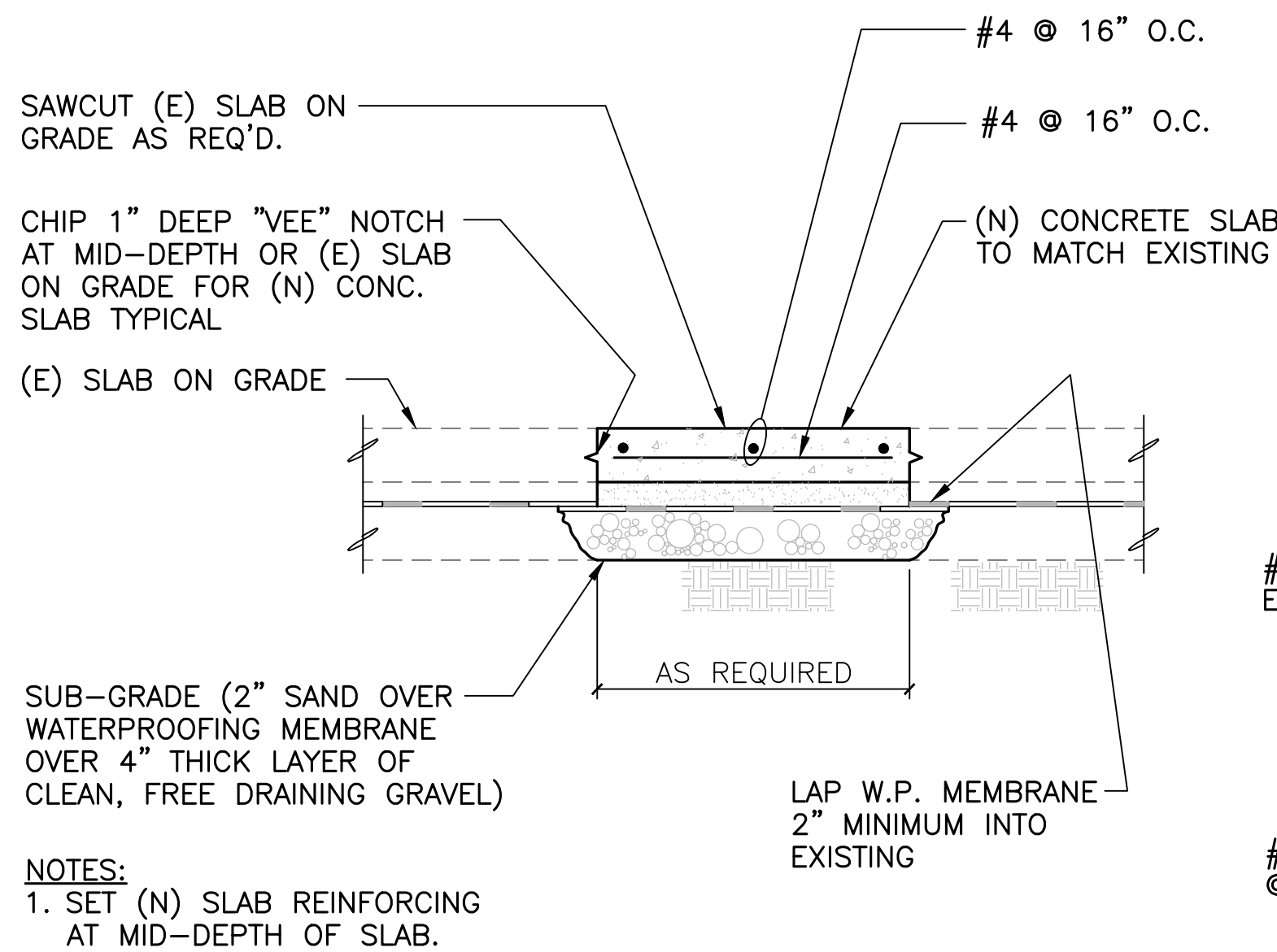
3 ELEVATOR RAIL BRACE DETAIL
1 1/2" = 1'-0"



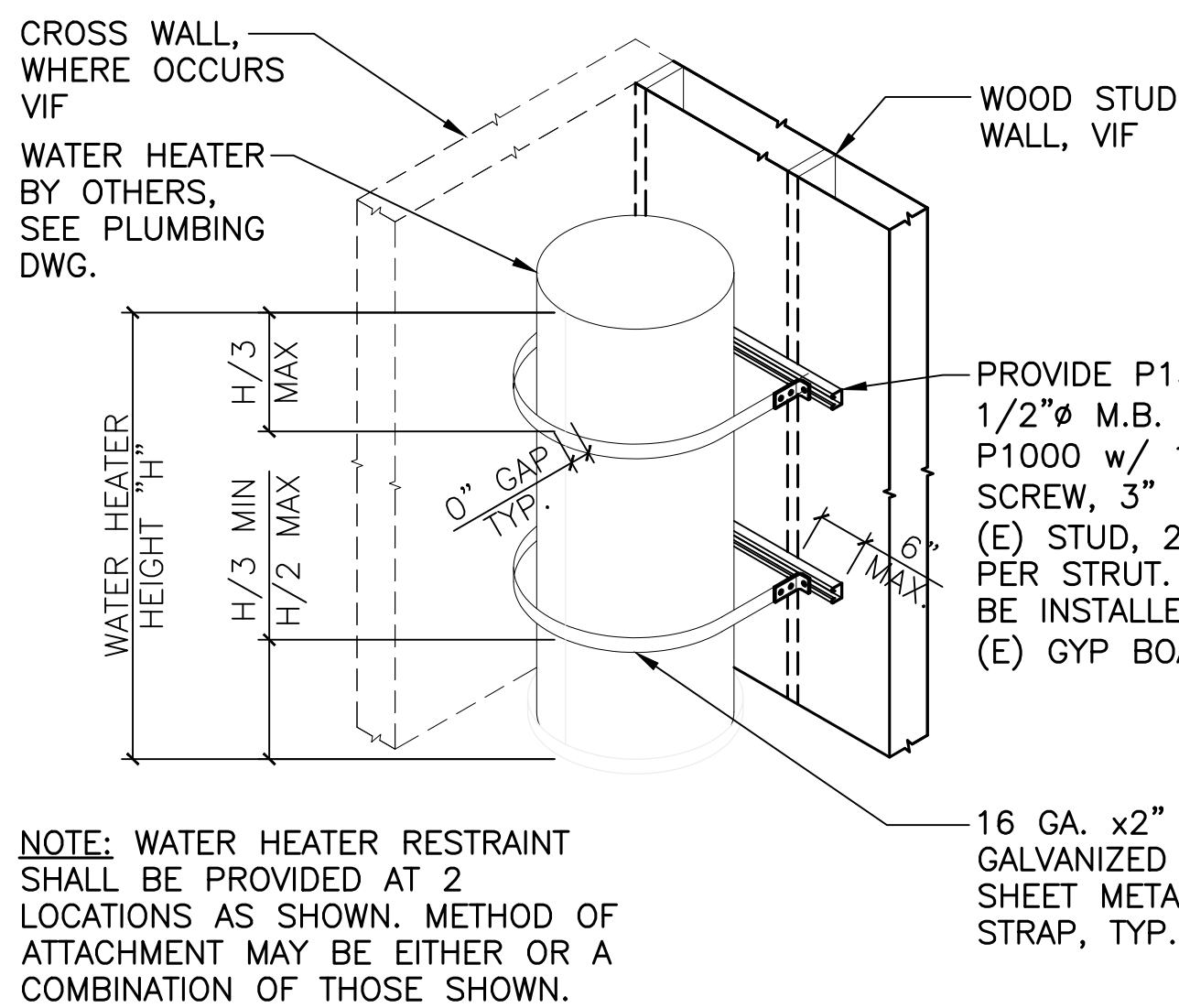
6 PARTITION BRACING SECTION
NOT TO SCALE



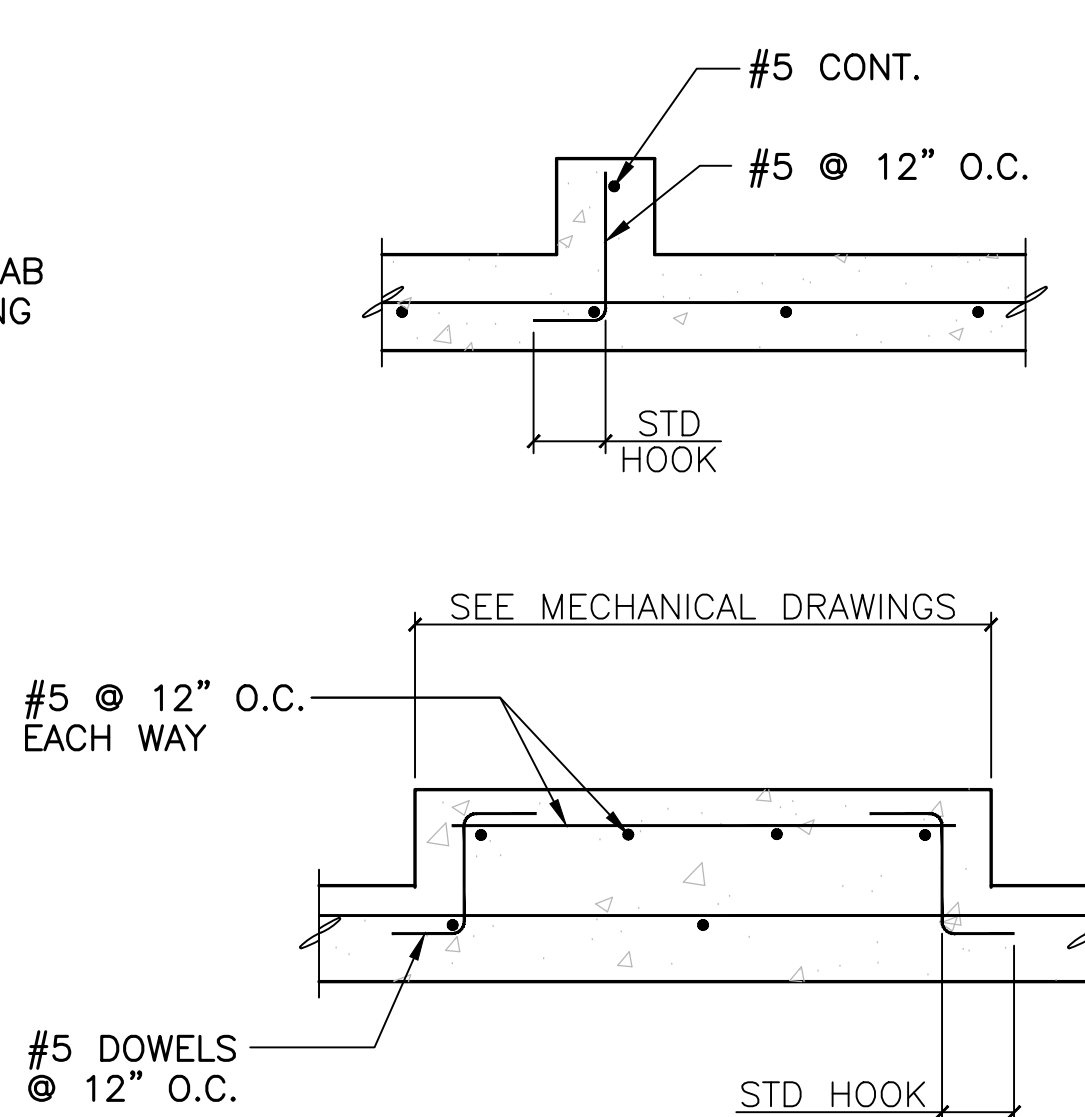
7 (N) OPENING IN (E) REINF. CONCRETE WALL
NOT TO SCALE



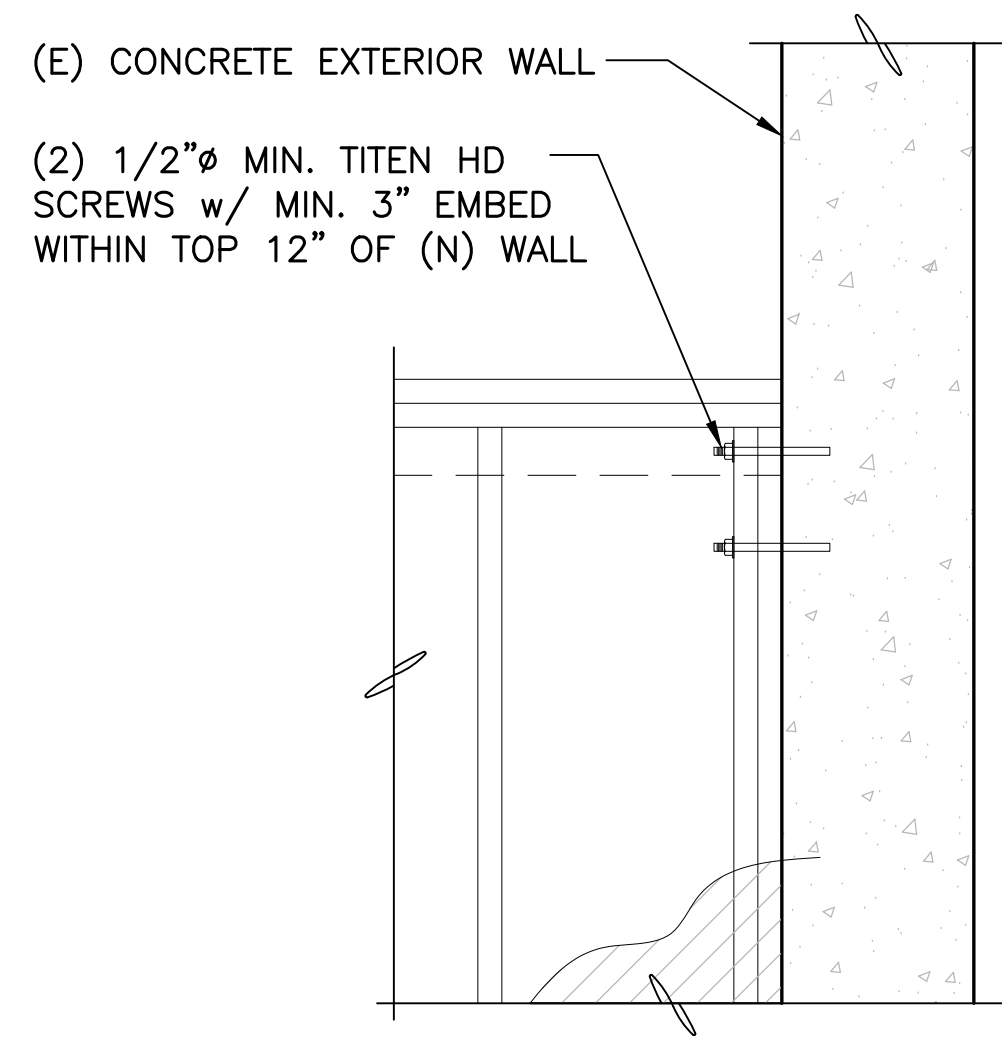
8 SAWCUT AND REPAIR OF (E) SLAB ON GRADE
NOT TO SCALE



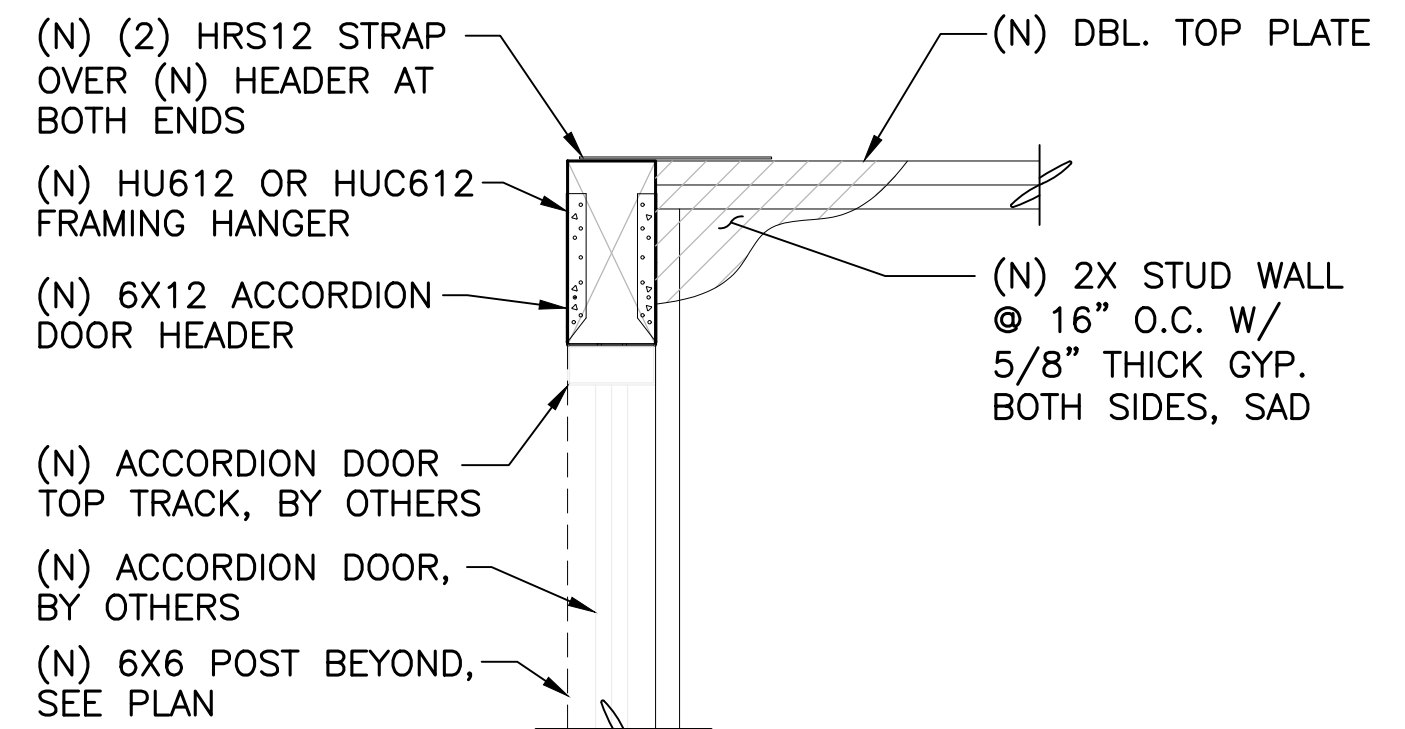
4 WATER HEATER CONNECTION AT (E) WALL
NOT TO SCALE



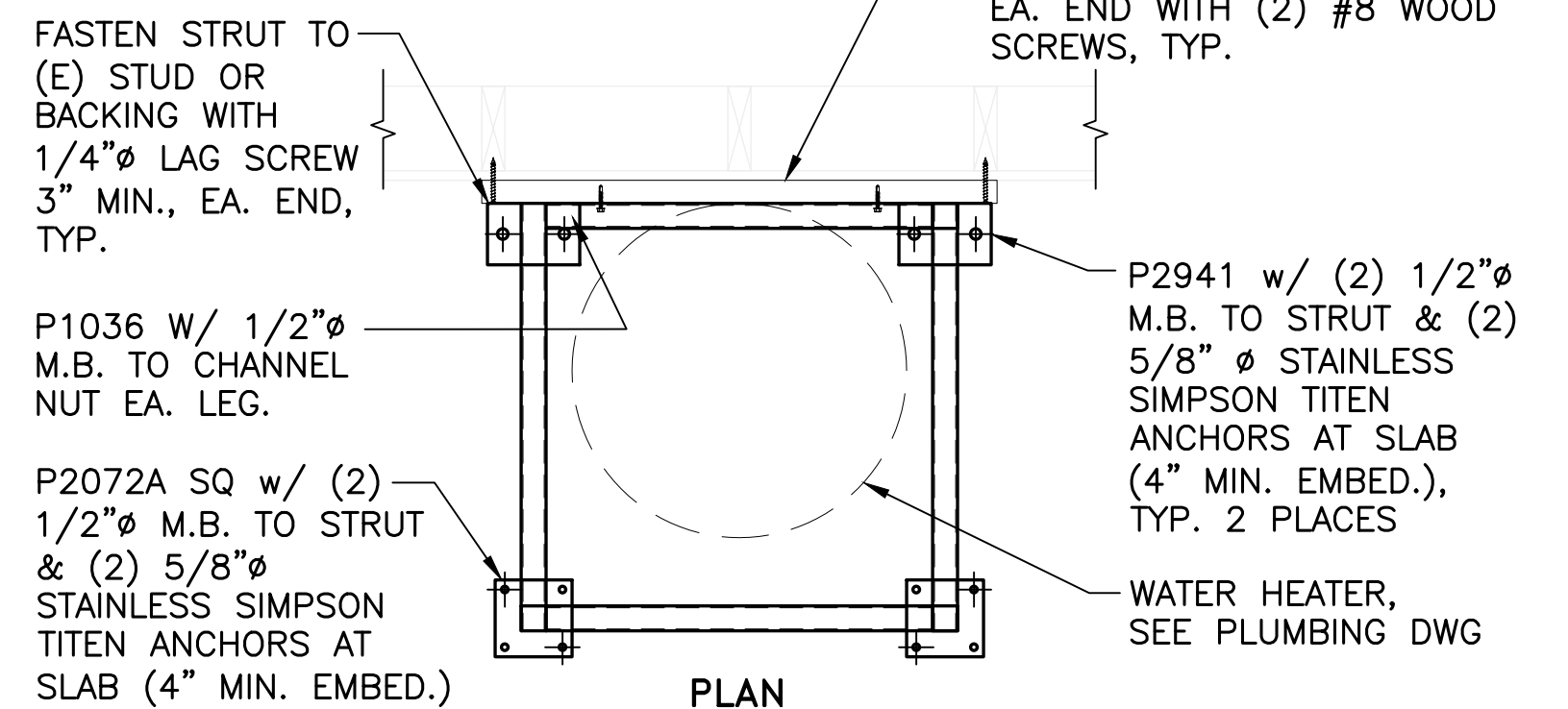
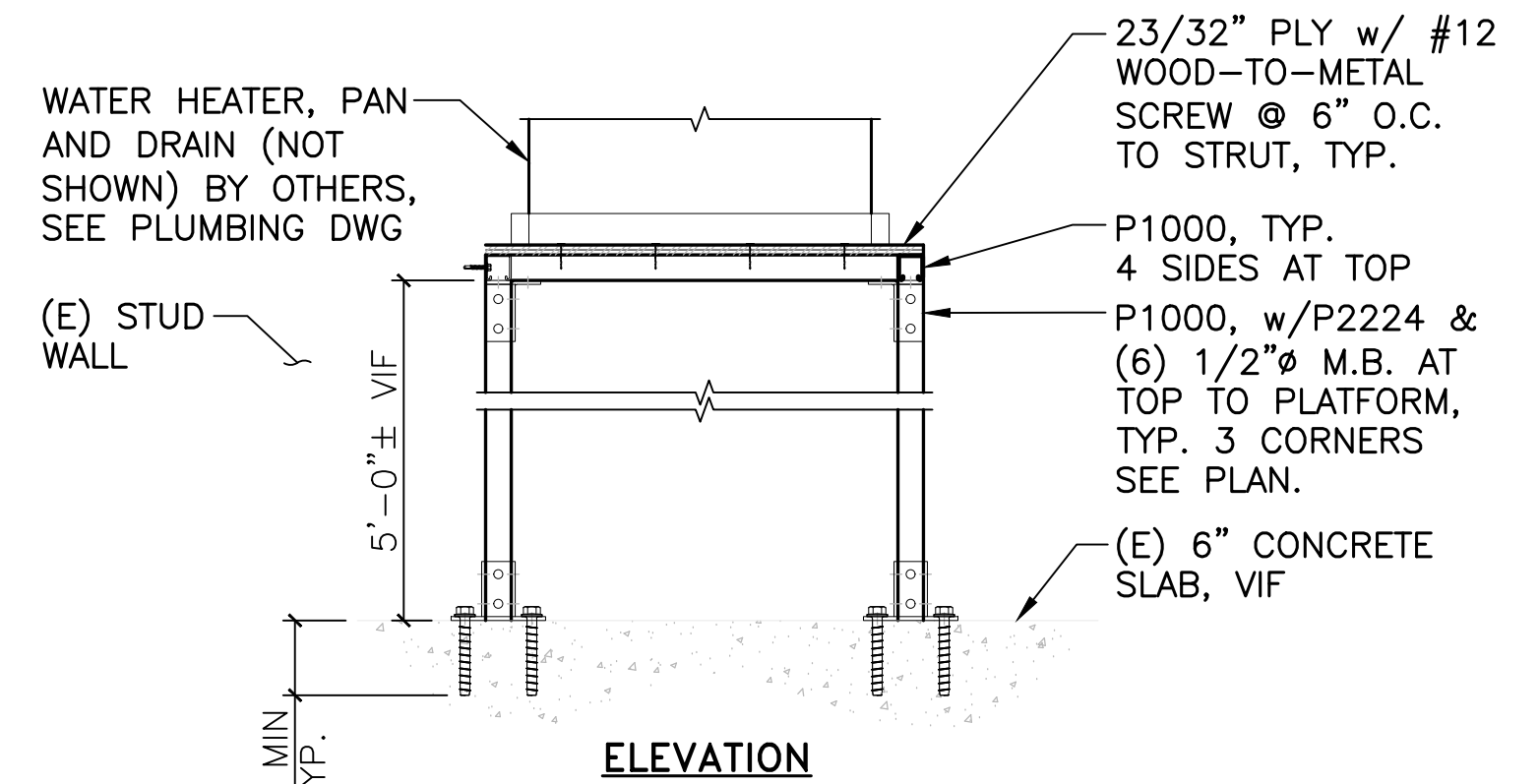
5 CURB AND MECHANICAL PAD, TYPICAL
NOT TO SCALE



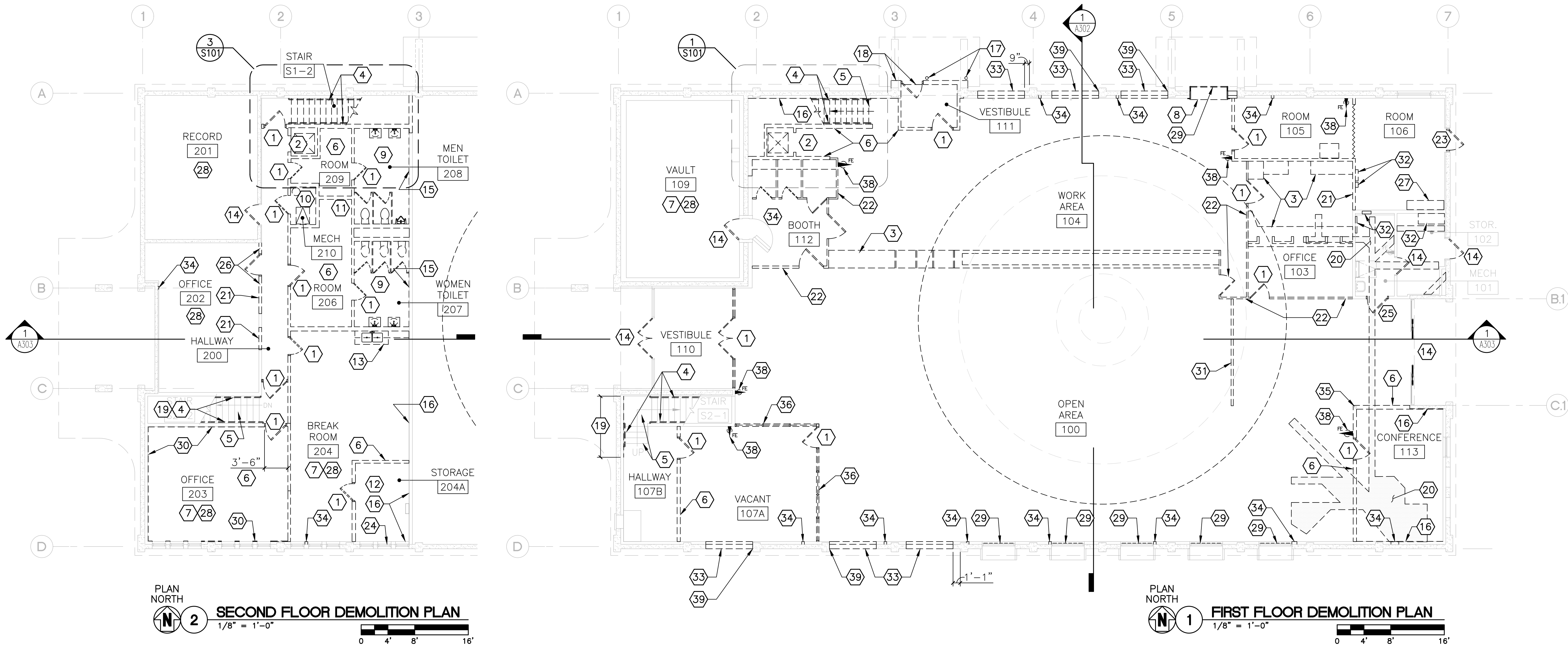
1 (N) WALL TO (E) CONCRETE WALL DETAIL
NOT TO SCALE



2 (N) FOLDING WALL PANEL HEADER
NOT TO SCALE



3 WATER HEATER SUPPORT STAND
NOT TO SCALE



KEYED NOTES:

- 1

(E) DOOR/FRAME AND HARDWARE TO BE DEMOLISHED
- 2

(E) LIFT TO BE DEMOLISHED
- 3

(E) MILLWORK AND/OR COUNTER TO BE DEMOLISHED
- 4

(E) STAIR HANDRAILS TO BE DEMOLISHED
- 5

(E) STAIR LANDING AND TREAD FLOOR FINISHES, NOSING AND WARNING STRIP TO BE REMOVED
- 6

(E) PARTITION WALL TO BE DEMOLISHED, TYP. AS SHOWN
- 7

(E) WALL FINISH TO BE REMOVED
- 8

(E) DRIVE-THROUGH SERVICE WINDOW TO BE DEMOLISHED
- 9

(E) PLUMBING FIXTURES, ACCESSORIES, AND WALL FINISHES IN TOILET TO BE DEMOLISHED
- 10

(E) WATER HEATER TO BE RELOCATED
- 11

(E) COMMUNICATION PANEL TO BE REMOVED
- 12

(E) ROOM TO BE CLEANED OUT BY OWNER PRIOR TO DEMOLITION.
- 13

(E) COUNTER, CABINET AND SINK TO BE DEMOLISHED
- 14

(E) DOOR AND HARDWARE TO BE DEMOLISHED, FRAME TO REMAIN
- 15

REMOVE (E) WALL FINISH AND GYPSUM BOARD ALONG WALL. STUDS TO REMAIN
- 16

REMOVE (E) WALL FINISH. (E) GYPSUM BOARD AND STUDS TO REMAIN
- 17

DEMOLISH EXISTING BOLLARDS DOWN TO BELOW (E) GRADE
- 18

DEMOLISH EXTERIOR VESTIBULE WALLS AND DOOR BACK TO (E) CONCRETE WALLS
- 19

REMOVE EXISTING WOOD PANELING FOR INSTALLATION OF NEW BLOCKING IN EXISTING WALLS FOR NEW RAILING SUPPORT
- 20

TRENCH/DEMOLISH EXISTING FLOOR AS REQUIRED TO INSTALL (N) UNDERGROUND PLUMBING PIPING, COORDINATE DEMO WITH PLUMBING DRAWING P101. EXACT CONFIGURATION AND AMOUNT OF DEMO SHOWN IS DIAGRAMATIC, CONTRACTOR TO VERIFY FINAL REMOVAL
- 21

PROVIDE NEW OPENING IN EXISTING WALL FOR A NEW DOOR AND FRAME
- 22

(E) MILLWORK PARTIAL HEIGHT PARTITIONS TO BE DEMOLISHED INCLUDES ALL PARTIAL HEIGHT DOORS/GATES
- 23

(E) ALUM. GLASS DOOR AND ALUM. FRAME TO BE DEMOLISHED, (E) HOLLOW METAL FRAME AT CONCRETE OPENING TO REMAIN
- 24

REMOVE (E) WINDOW INFILL, PATCH HOLES IN FRAME
- 25

(E) DOOR/FRAME AND HARDWARE TO BE DEMOLISHED. INCREASE HEIGHT OF EXISTING DOOR OPENING FOR A NEW 7'-0" DOOR
- 26

DEMOLISH (E) GYP. BD. EACH SIDE OF (E) WOOD FRAMING, WOOD STUDS TO REMAIN
- 27

(E) EQUIPMENT TO BE REMOVED
- 28

PREP (E) WALL TO RECEIVE NEW FINISHES
- 29

REMOVE EXISTING FILM FROM WINDOWS, AND REMOVE ANY FILM ADHESIVE/RESIDUE

- 30

REMOVE EXISTING FRP PANELS FROM WALL, PREP EXISTING GYP BD. WALLS FOR NEW FINISHES
- 31

CUT OUT PORTION OF FLOOR SLAB AS REQUIRED TO INSTALL NEW RECESSED DOOR TRACK. COORDINATE REQUIRED WIDTH AND DEPTH OF CONCRETE REMOVAL WITH APPROVED DOOR/WALL PANEL MANUFACTURER
- 32

(E) ELECTRICAL AND/OR TELECOM/TELEPHONE PANELS TO BE REMOVED COORDINATE REMOVAL WITH MEP DRAWINGS
- 33

CUT (N) OPENING IN (E) CONCRETE WALL FOR (N) WINDOW. NEW WINDOW TO MATCH EXISTING WIDTH & HEIGHT, AND SILL ELEVATION ALONG GRID LINE "D". SEE DETAIL 7/S502 FOR ADDITIONAL REQUIREMENTS AT (N) OPENING
- 34

PROVIDE (N) OPENING IN (E) STUD WALL FOR NEW WALL ATTACHMENT TO (E) CONCRETE WALL, TYPICAL WHERE (N) WALL ATTACHMENT TO (E) CONCRETE WALL. SEE DETAIL 1/S502
- 35

(E) CORNER POST FRAMING TO REMAIN
- 36

REMOVE (E) INTERIOR STOREFRONT SYSTEM IN ITS ENTIRETY
- 37

(E) VAULT DOOR AND FRAME TO REMAIN
- 38

(E) FIRE EXTINGUISHER MOUNTING BRACKET TO BE DEMOLISHED, TURN OVER ALL (E) FIRE EXTINGUISHERS TO OWNER
- 39

START NEW OPENING FROM FACE OF EXISTING CONC. COLUMN

LEGEND:

- ROOM NAME

###

ROOM NAME AND NUMBER
- (E) WALL TO BE DEMOLISHED
- (E) FINISHES AND GYPSUM BOARD TO BE DEMOLISHED. EXISTING WALL STUDS TO REMAIN.

GENERAL NOTES:

1.

SELECT ITEMS ON THESE PLANS NOTED FOR DEMOLITION HAVE BEEN REMOVED BY AN ASBESTOS REMEDIATION TEAM UNDER A SEPARATE CONTRACT. VERIFY IN FIELD FOR FULL SCOPE OF ITEMS REMOVED.
2.

FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
3.

REMOVE OR RELOCATE ALL ITEMS REQUIRED TO COMPLETE NEW CONSTRUCTION. EXISTING FLEXIBLE DUCT, ELECTRICAL RACEWAYS, LIGHTS, AND OTHER DEVICES WITHIN AREAS OF NEW CONSTRUCTION EXIST AND MAY NOT BE DIRECTLY SHOWN ON THESE DOCUMENTS. COORDINATE ADDITIONAL DEMOLITION REQUIRED WITH MECHANICAL, ELECTRICAL, AND PLUMBING DWGS.
4.

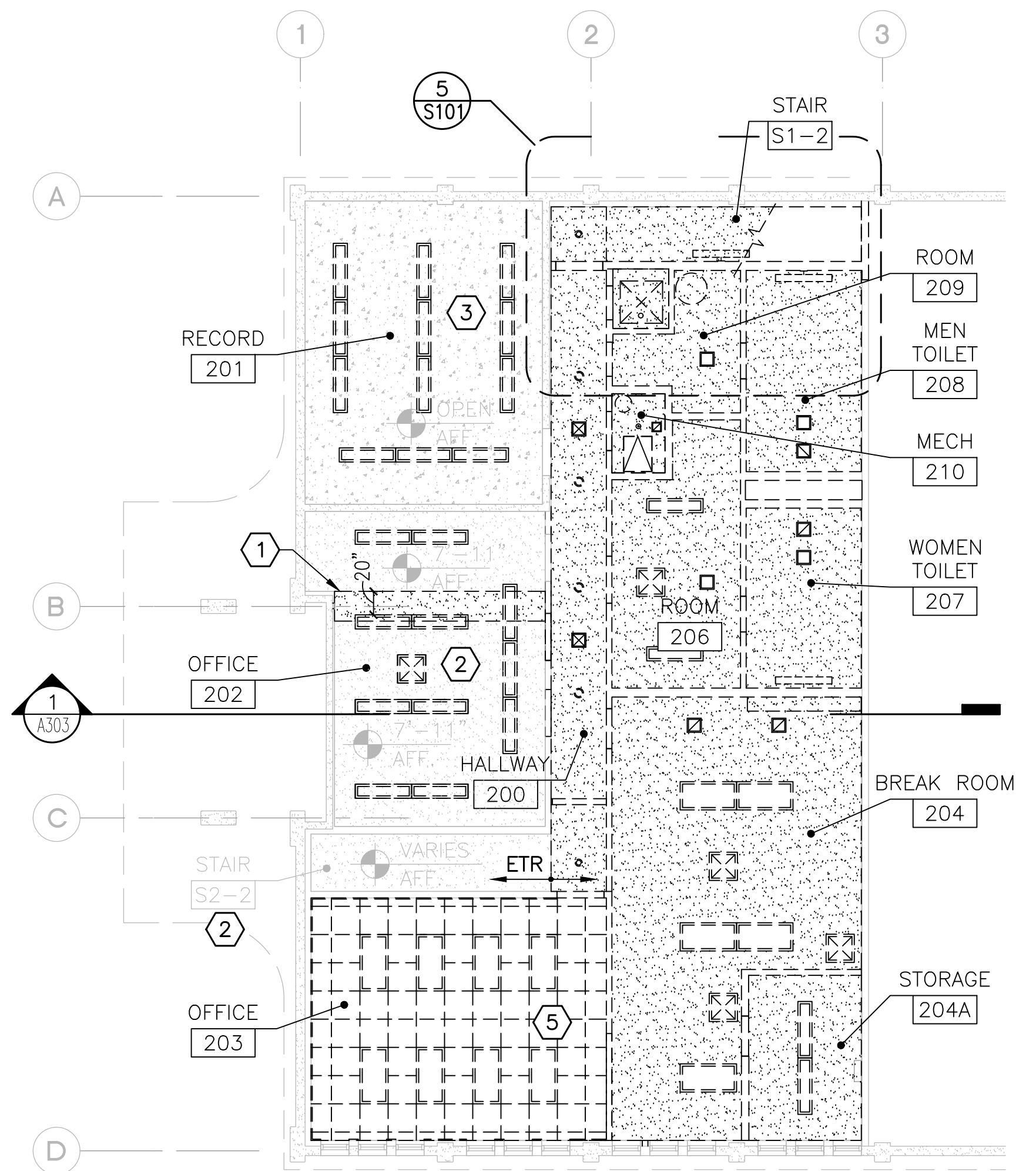
EXISTING DOORS AND FRAMES ARE BEING REPLACED. AT MOST LOCATIONS, HEIGHT OF DOORS ARE INCREASED, RESULTING IN DEMO HEAD/JAMB WORK AT EXISTING DOOR OPENINGS.
5.

NOT ALL ITEMS OF REQUIRED DEMOLITION TO PREPARE THE BUILDING FOR NEW WORK ARE NOTED.
6.

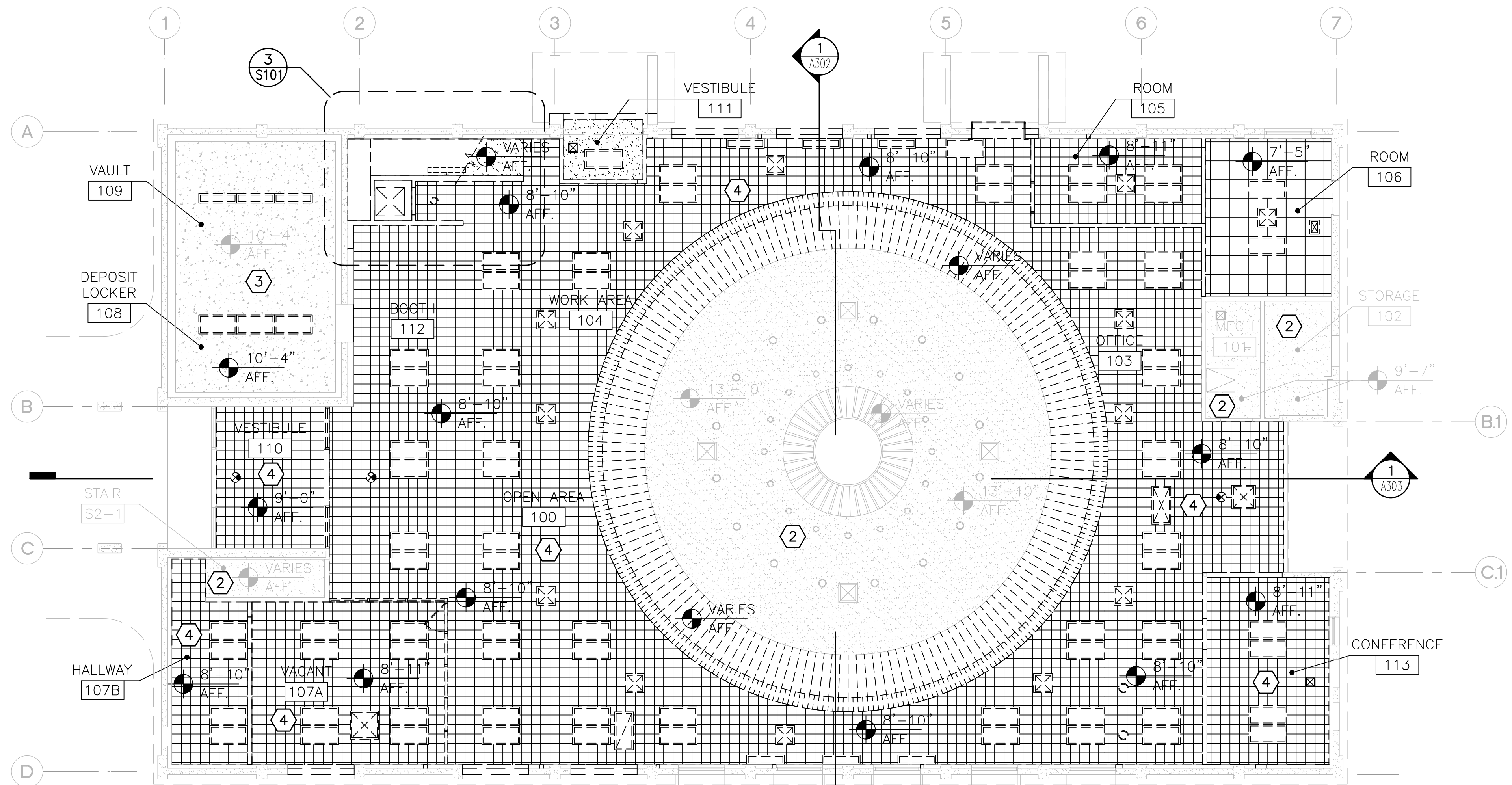
REMOVE ALL EXISTING FLOOR FINISHES AT FIRST AND SECOND FLOORS INCLUDING WALL BASE. PATCH/REPAIR EXISTING SUB-STRATE FLOOR MATERIAL AS REQUIRED FOR NEW FINISHES.
7.

SEE SHEET S101 FOR COMPLETE DEMOLITION INFORMATION FOR NEW ELEVATOR INSTALLATION.
8.

REMOVE ALL WOOD MOLDINGS THROUGHOUT BUILDING FOR NEW CONSTRUCTION WORK.



PLAN NORTH
N
2
SECOND FLOOR
DEMOLITION REFLECTED CEILING PLAN
1/8" = 1'-0"



PLAN NORTH
N
1
FIRST FLOOR
DEMOLITION REFLECTED CEILING PLAN
1/8" = 1'-0"

KEYED NOTES:

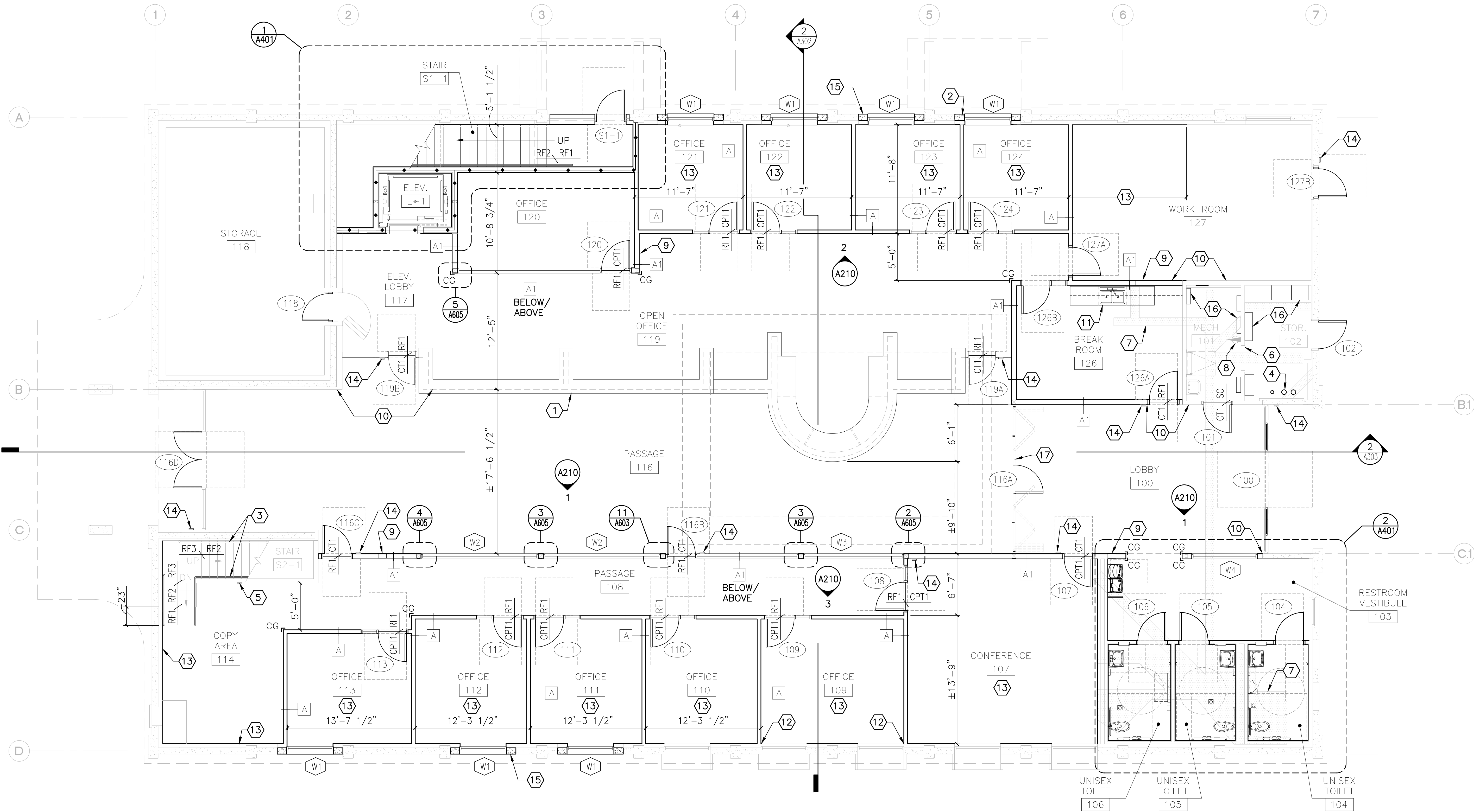
- 1 DEMOLISH EXISTING GYPSUM BOARD (GWB) CEILING AS REQUIRED TO PERFORM FULL SCOPE OF WORK. MINIMIZE GWB DISTURBANCE
- 2 EXISTING GYPSUM CEILING TO REMAIN
- 3 PREP EXISTING CONCRETE CEILING TO RECEIVE NEW PAINT
- 4 DEMOLISH EXISTING 1x1 CEILING TILES OVER EXISTING GYP. BD. SUBSTRATE OVER WOOD FRAMING
- 5 DEMOLISH EXISTING SUSPENDED CEILING ALONG WITH EXISTING GYP. BD. OVER WOOD FRAMING ABOVE SUSPENDED CEILING

LEGEND:

	(E) GYPSUM BOARD AND WOOD SUPPORT FRAMING TO REMAIN
	REMOVE AND DISPOSE OF (E) SUSPENDED CEILING SYSTEM
	REMOVE AND DISPOSE OF (E) CEILING TILE AND WOOD SUPPORT FRAMING
	REMOVE AND DISPOSE OF (E) PLASTER/GYPSUM BOARD AND WOOD SUPPORT FRAMING
	REMOVE AND DISPOSE OF (E) CEILING LIGHT
	REMOVE AND DISPOSE OF (E) CEILING LIGHT
	REMOVE AND DISPOSE OF (E) CEILING LIGHT
	REMOVE AND DISPOSE OF (E) CAN LIGHT
	REMOVE AND DISPOSE OF (E) HVAC COMPONENT
	REMOVE AND DISPOSE OF (E) HVAC COMPONENT
	REMOVE AND DISPOSE OF (E) HVAC COMPONENT
	REMOVE AND DISPOSE OF (E) WIRELESS ACCESS POINT
	REMOVE AND DISPOSE OF (E) EXIT SIGN
EXTR	EXISTING TO REMAIN

GENERAL NOTES:

1. SELECT ITEMS ON THESE PLANS NOTED FOR DEMOLITION HAVE BEEN REMOVED BY AN ASBESTOS REMEDIATION TEAM UNDER A SEPARATE CONTRACT. VERIFY IN FIELD FOR FULL SCOPE OF ITEMS REMOVED.
2. COORDINATE DEMOLITION OF MECHANICAL, ELECTRICAL, AND FIRE PROTECTION SYSTEMS WITH MEP DRAWINGS. REMOVE AND DISPOSE OF OR EXTEND/RELOCATE (E) SYSTEMS AS REQUIRED FOR NEW CONSTRUCTION.
3. EXISTING 2x WOOD FRAMED AND SHEATHED CEILING SYSTEM IS SUSPENDED FROM ROOF FRAMING, EXISTING PARTITIONS AND EXTERIOR WALLS.
4. EXISTING CEILING AREA BELOW 2ND FLOOR IS SHOWN TO BE DEMOLISHED.
5. EXISTING SUSPENDED CEILING AND PLASTER/GYPSUM BOARD OVER 2x WOOD FRAMING ABOVE SUSPENDED CEILING SHALL BE REMOVED IN ROOM 203.
6. SEE SHEET AD101 FOR ALL OTHER DEMOLITION ITEMS NOT NOTED.
7. SEE SHEET S101 FOR COMPLETE DEMOLITION INFORMATION FOR NEW ELEVATOR INSTALLATION.
8. EXISTING FINISHED CEILINGS ARE SUPPORTED BY EXISTING 2X WOOD FRAMING. EXISTING CEILING FINISHES SHALL BE REMOVED IN AREAS OF WORK AND AS SHOWN.



GENERAL NOTES:

1. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
2. REPAIR AND RE-FINISH ANY EXISTING WALLS AND/OR SURFACES DISTURBED BY DEMOLITION, NEW CONSTRUCTION AND/OR DETERIORATION, (MATCH (E), U.N.O.).
3. SEE SHEET G001 FOR TYPICAL LEGEND ITEMS SHOWN ON PLANS.
4. NEW DOORS AND/OR FRAMES AND HARDWARE, PER DOOR CALLOUT TAG, (##), SEE DOOR SCHEDULE A602.
5. NEW WALL TYPE PER WALL TAG —XX, SEE PARTITION TYPES ON SHEET A511.
6. FLOOR FINISH DESIGNATION:
FLOOR FINISH DIVIDER AT DOOR THRESHOLD XXX-XXX
7. NEW WINDOW TAG CALLOUT TAG (XX), SEE SHEET A605.
8. PROVIDE FIRESTOPS AS REQUIRED PER CBC, SEE SPECIFICATION SECTION 07 84 00 - FIRESTOPPING SYSTEMS.
9. CG 48" H. CORNER GUARD, U.N.O. ON DETAILS

KEYED NOTES:

- (1) (N) MILLWORK COUNTER @ 30"/42" A.F.F., SEE ENLARGED PLAN DETAIL 1/A514
- (2) INFILL AT (E) SERVICE WINDOW, SEE DETAIL 8/A501
- (3) (N) 1 1/4 STD. PIPE HANDRAIL, PAINTED, SEE TYPICAL DETAILS ON SHEET A301, INSTALL BLOCKING IN (E) WALLS AS REQUIRED FOR NEW RAILING SUPPORT
- (4) (N) FIRE RISER/ALARM
- (5) PATCH WALL TO MATCH EXISTING ADJACENT WALL WHERE (E) WALL HAS BEEN DEMOLISHED
- (6) CLEAN, PREP, FILL, SAND AND PAINT (E) FRAME
- (7) NEW SLAB INFILL, SEE DETAIL 8/S502. COORDINATE INFILL WITH DEMOLITION OF FLOORING PER AD101
- (8) EXISTING WALL MOUNTED FIRE EXTINGUISHER TO REMAIN. OWNER TO VERIFY EXTINGUISHER IS IN GOOD WORKING CONDITION
- (9) NEW FIRE EXTINGUISHER CABINET. OWNER TO PROVIDE EXTINGUISHER
- (10) ALIGN FACE OF NEW WALL WITH FACE OF EXISTING
- (11) (N) COUNTER AND CABINET, SEE PLAN DETAIL 3/A515
- (12) ALIGN FACE OF GYP BD. WITH FACE OF (E) WINDOW JAMB FACE
- (13) PROVIDE NEW LAYER OF 5/8" GYP. BD. OVER (E) FINISHES ALONG EXTERIOR WALL
- (14) NEW CARD READER LOCATED ON WALL, — LOCATIONS AS SHOWN ON PLAN. OPERABLE HEIGHT OF CARD READER TO BE A MAX. OF 40" A.F.F., SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION
- (15) PAINT CONCRETE SURROUNDING WINDOW OPENINGS PT-8, TYPICAL AT ALL NEW WINDOW OPENINGS IN (E) CONCRETE WALLS
- (16) NEW ELECTRICAL PANEL AND/OR EQUIPMENT, COORDINATE WITH ELECTRICAL DRAWINGS
- (17) FOLDING GLASS PARTITION w/ ACTIVE DOOR LEAF

PLAN
NORTH



1 FIRST FLOOR PLAN

3/16" = 1'-0"

0 4' 8' 12'

Revisions:

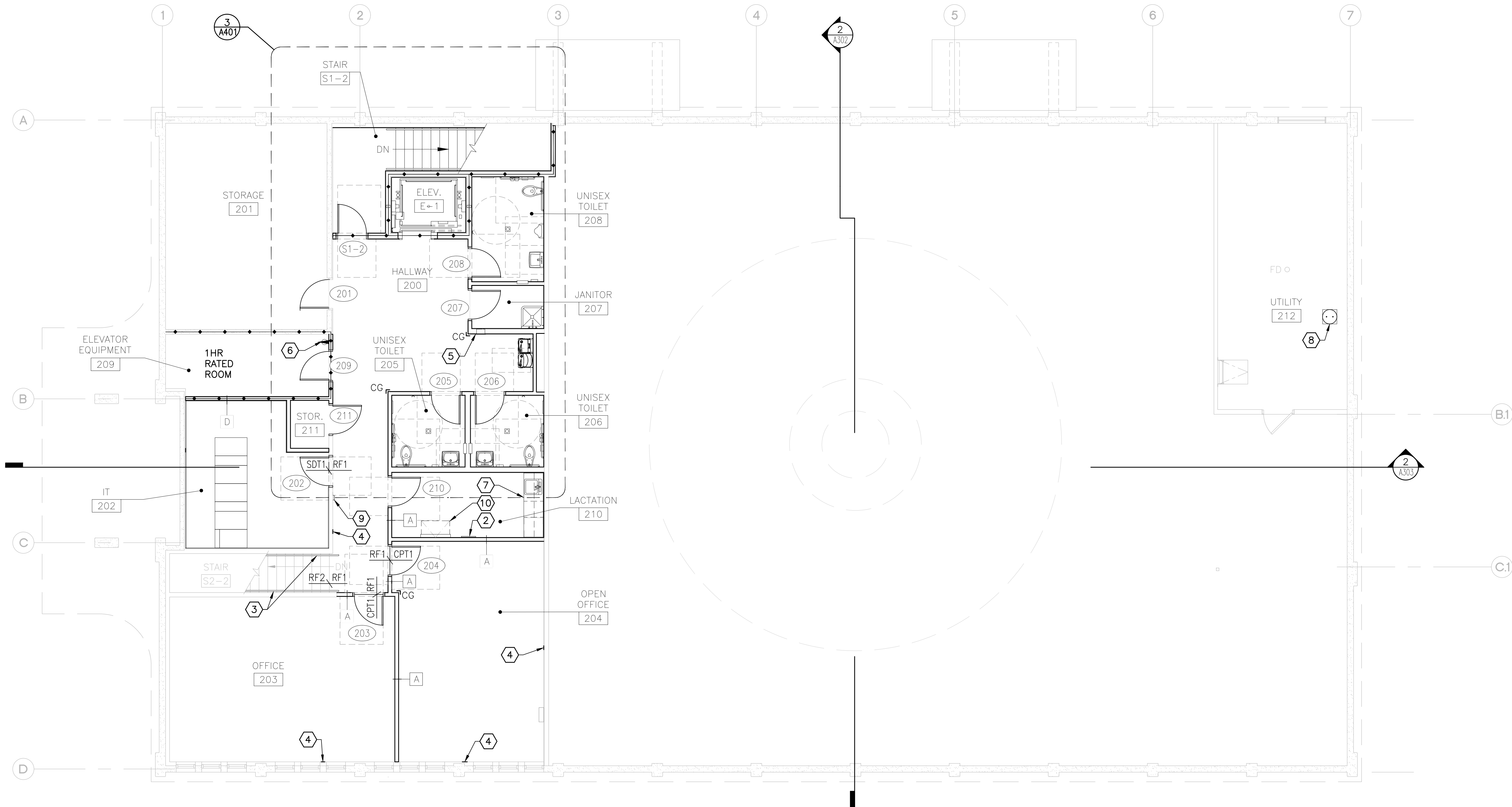
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

FIRST FLOOR PLAN

Sheet Number:

A101



GENERAL NOTES:

1. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
2. REPAIR AND RE-FINISH ANY EXISTING WALLS AND/OR SURFACES DISTURBED BY DEMOLITION, NEW CONSTRUCTION AND/OR DETERIORATION, (MATCH (E), U.N.O.).
3. SEE SHEET G001 FOR TYPICAL LEGEND ITEMS SHOWN ON PLANS.
4. NEW DOORS AND/OR FRAMES AND HARDWARE, PER DOOR CALLOUT TAG, **##**, SEE DOOR SCHEDULE A602.
5. NEW WALL TYPE PER WALL TAG **A**, SEE PARTITION TYPES ON SHEET A511.
6. FLOOR FINISH DESIGNATION:
FLOOR FINISH DIVIDER AT DOOR THRESHOLD **XXX XXX**
8. PROVIDE FIRESTOPS AS REQUIRED PER CBC, SEE SPECIFICATION SECTION 07 84 00 - FIRESTOPPING SYSTEMS
9. **CG** 48" H. CORNER GUARD, U.N.O. ON DETAILS

KEYED NOTES:

- 1 (N) DOOR AND DOOR HARDWARE, SEE DOOR SCHEDULE SHEET A602
- 2 (N) DOOR, FRAME, AND DOOR HARDWARE, SEE DOOR SCHEDULE SHEET A602
- 3 (N) 1 1/4 STD. PIPE HANDRAIL, PAINTED, SEE TYPICAL DETAILS ON SHEET A301, INSTALL BLOCKING IN (E) WALLS AS REQUIRED FOR NEW RAILING SUPPORT
- 4 PATCH WALL TO MATCH EXISTING ADJACENT WALL WHERE (E) WALL HAS BEEN DEMOLISHED
- 5 NEW FIRE EXTINGUISHER CABINET. OWNER TO PROVIDE EXTINGUISHER
- 6 (N) WALL MOUNTED FIRE EXTINGUISHER AND WALL BRACKET
- 7 (N) COUNTER AND CABINET, SEE PLAN DETAIL 1/A515
- 8 (N) WATER HEATER AND STAND, SEE MEP DRAWINGS. SEE STRUCTURAL DRAWINGS FOR SEISMIC SUPPORT
- 9 NEW CARD READER LOCATED ON WALL, **==** LOCATIONS AS SHOWN ON PLAN. OPERABLE HEIGHT OF CARD READER TO BE A MAX. OF 40" A.F.F., SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION
- 10 BABY CHANGING STATION (BCS), SEE MOUNTING HEIGHTS 9/A402



Revisions:

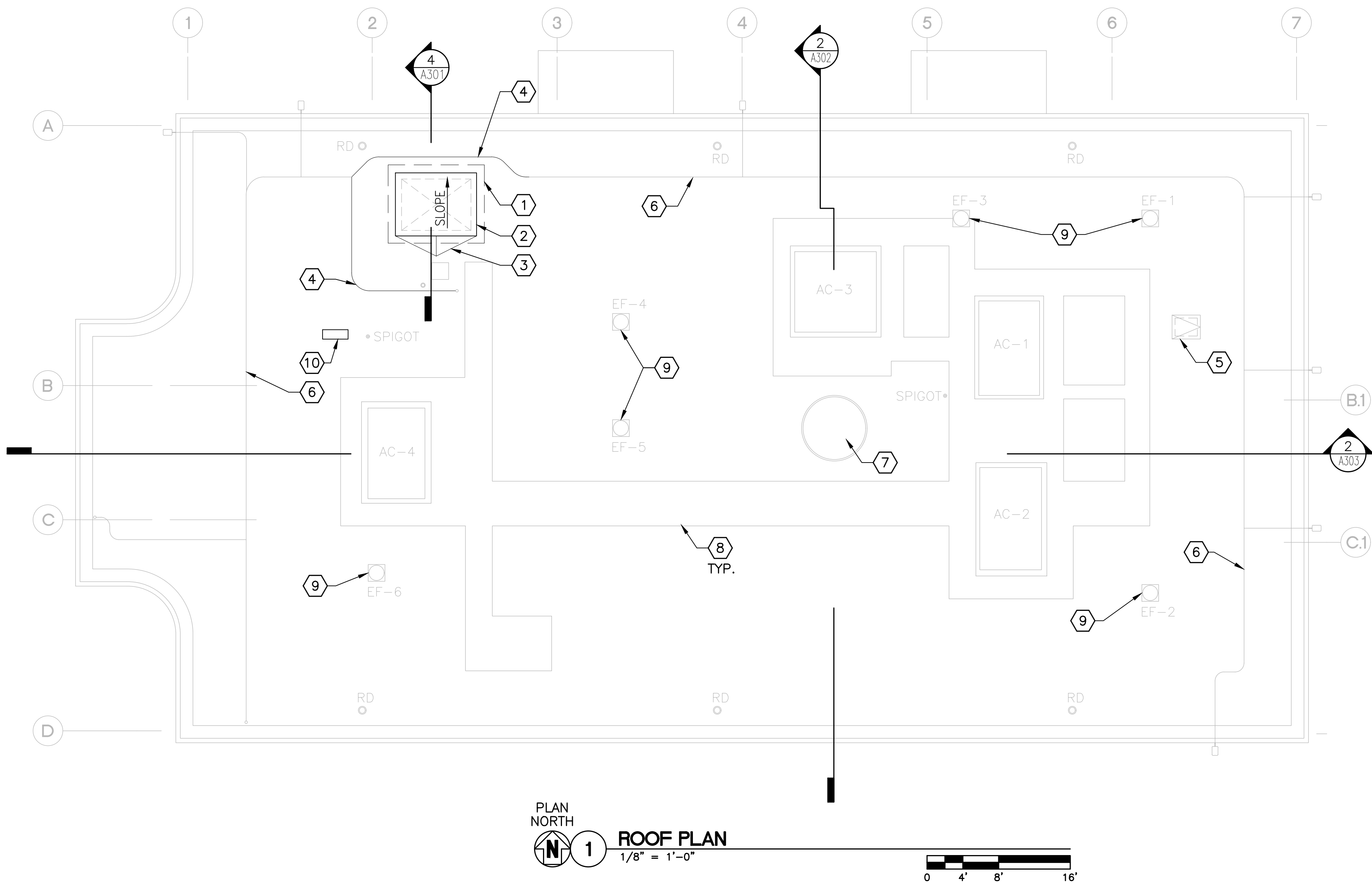
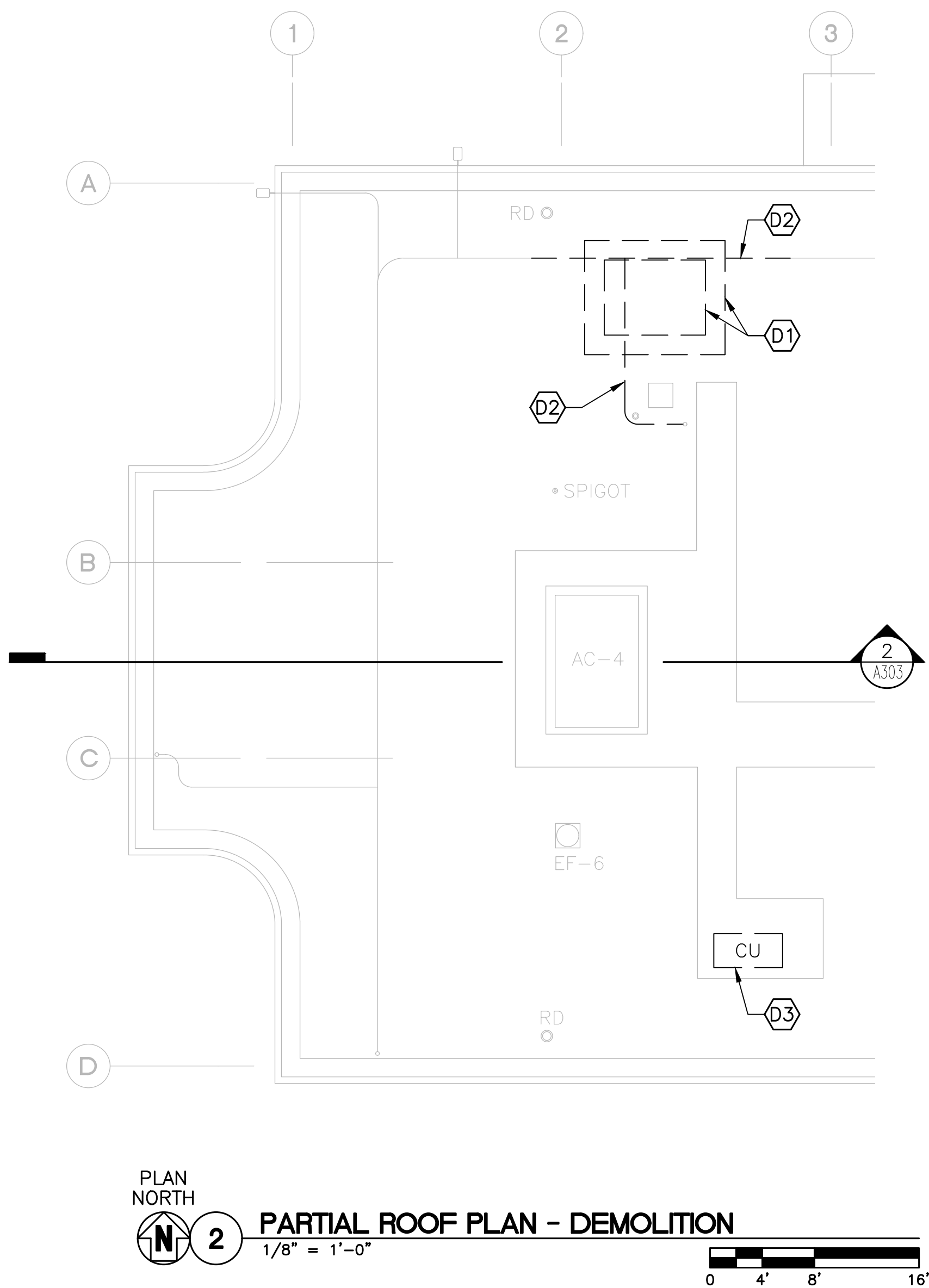
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SECOND FLOOR PLAN

Sheet Number:

A102



GENERAL NOTES:

- EXISTING BUILDING ROOFING SYSTEM IS IN VERY GOOD CONDITION.
- ACCESS TO ROOF IS AVAILABLE VIA ROOF HATCH.
- EXISTING MECHANICAL, ELECTRICAL AND EXHAUST FANS SHALL REMIAN.
- PROVIDE NEW CURBS, DEMOLITION, FLASHING AND ROOF PATCHING FOR NEW VENTS AND EXHAUST FANS.
- PROTECT EXISTING ROOF SURFACES FROM DAMAGE. USE WALKWAY PADS AND PROVIDE ADDITIONAL PROTECTION TO PROTECT EXISTING ROOFING SYSTEM.
- COORDINATE WITH PLUMBING/MECHANICAL DRAWINGS FOR A SERIES OF PIPES PENETRATING THROUGH THE ROOF.

LEGEND:

- RD - (E) ROOF DRAIN
- AC - (E) AIR CONDITIONER
- EF - (E) EXHAUST FAN
- CU - (E) CONDENSING UNIT

DEMOILION KEYED NOTES:

- D1 CUT OPENING IN EXISTING ROOF AND REMOVE PORTION OF EXISTING ROOF FRAMING, ROOF MEMBRANE/INSULATION AND ROOF SHEATHING AROUND NEW OPENING AS REQUIRED FOR ELEVATION OVERRUN. SEE DETAIL 5/S101
- D2 REMOVE EXISTING RACEWAY AS REQUIRED FOR INSTALLATION OF NEW ELEVATOR
- D3 REMOVE EXISTING CONDENSER UNIT AND PIPING

NEW WORK KEYED NOTES:

- 1 PATCH EXISTING ROOF AT ELEVATOR OVER RUN - SEE SECTION 4/A301
- 2 INSTALL NEW ELEVATOR OVERRUN PENTHOUSE ABOVE ELEVATOR, SLOPE ROOFING INSULATION 1/4" PER 12" FOR POSITIVE DRAINAGE. SEE 4/A301
- 3 TAPERED RIGID INSULATION ROOF SADDLE
- 4 RELOCATE EXISTING ELECTRICAL RACEWAY AS SHOWN
- 5 EXISTING ROOF HATCH ACCESS
- 6 EXISTING ELECTRICAL RACEWAY, TYPICAL
- 7 EXISTING SKYLIGHT
- 8 EXISTING ROOF WALKWAY MAT TO REMAIN.
- 9 EXISTING EXHAUST FAN PENETRATION TO REMAIN
- 10 DUCTLESS CONDENSER UNIT, SEE M103

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

ROOF PLAN

Sheet Number:

A103

CITY OF UKIAH
**BANK OF AMERICA
ADA BARRIER REMOVAL**
501 South State St. Ukiah, CA 95482

Revisions:

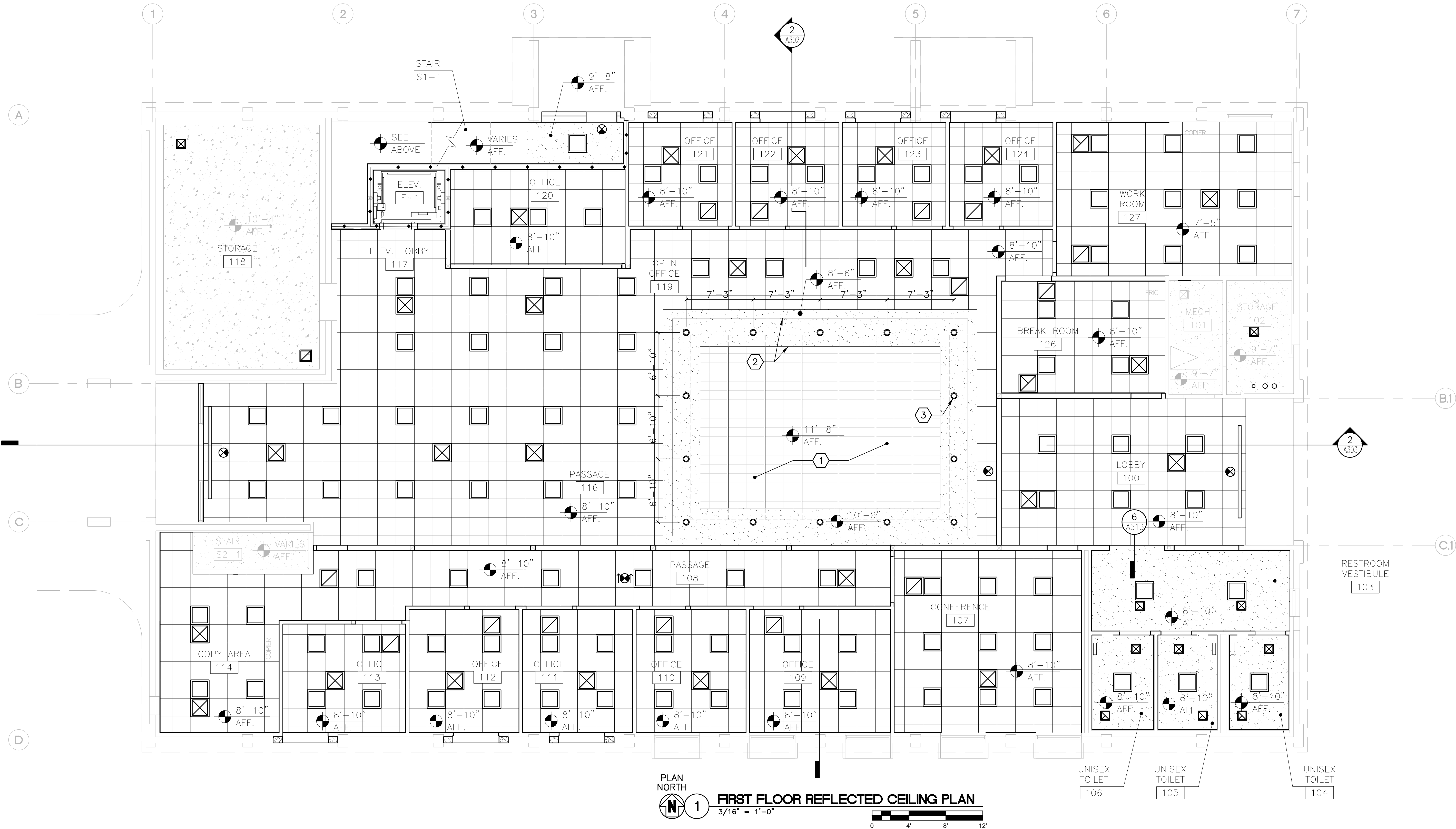
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

FIRST FLOOR
REFLECTED CEILING
PLAN

Sheet Number:

A111



GENERAL NOTES:

- FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
- REPAIR AND RE-FINISH ANY EXISTING WALLS AND/OR SURFACES DISTURBED BY DEMOLITION, NEW CONSTRUCTION AND/OR DETERIORATION, (MATCH (E), U.N.O.).
- SEE SHEET G001 FOR TYPICAL LEGEND ITEMS SHOWN ON PLANS.
- SEE ALL MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR COORDINATION. BRING DISCREPANCIES TO ATTN. OF ARCH/ ENGINEER FOR FINAL DESIGN.
- CENTER ALL CEILING GRIDS IN ROOM U.O.N.
- CENTER ALL CEILING ELEMENTS (SUCH AS LIGHTS, EXHAUST REGISTERS, OCCUPANCY SENSORS, SMOKE DETECTORS, ETC.) IN CEILING TILES U.O.N.

LEGEND:

- 2'x2' ACT AS SCHEDULED
- GYPSUM BOARD CEILING OVER NEW WOOD FRAMING
- NEW CEILING LIGHT
- NEW HVAC EXHAUST
- NEW HVAC SUPPLY DIFFUSER
- NEW HVAC RETURN DIFFUSER
- NEW RECESSED CAN LIGHT
- EXIT SIGN
- NEW HVAC SLOT DIFFUSER

KEYED NOTES:

- (7) TRANSLUCENT PANELS (4'x20'), SEE DETAIL 9/A513
- GYPSUM BOARD SOFFITS OVER WOOD FRAMING, SEE BUILDING SECTIONS ON SHEETS A302 AND A303 FOR DIMENSION LOCATION RELATIVE TO EXISTING SKYLIGHT ABOVE, , TYPICAL ALL SIDES
- RECESSED LIGHTS CENTERED IN SOFFIT, SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

Revisions:

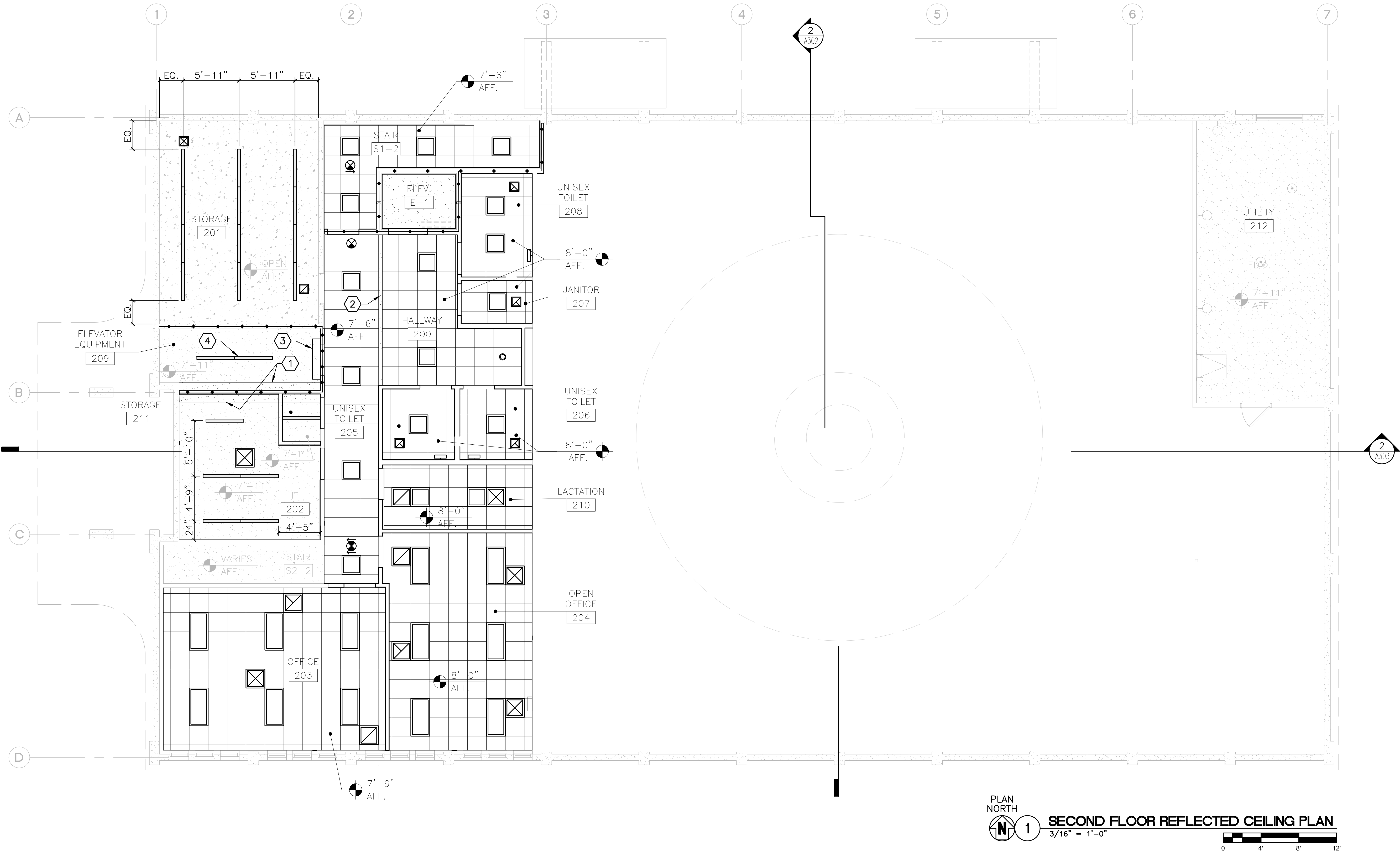
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SECOND FLOOR
REFLECTED CEILING
PLAN

Sheet Number:

A112



SECOND FLOOR REFLECTED CEILING PLAN
3/16" = 1'-0"



GENERAL NOTES:

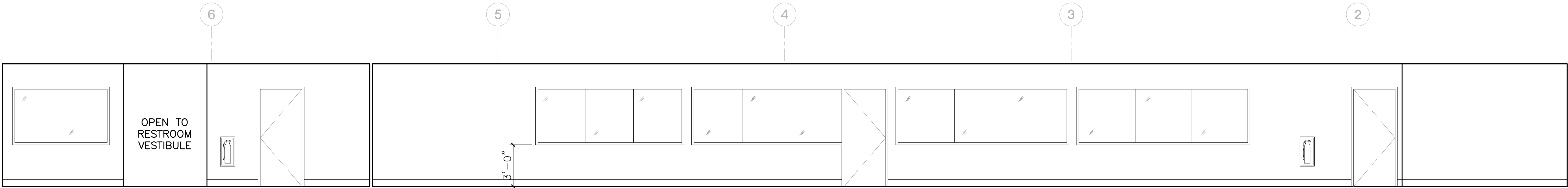
1. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
2. REPAIR AND RE-FINISH ANY EXISTING WALLS AND/OR SURFACES DISTURBED BY DEMOLITION, NEW CONSTRUCTION AND/OR DETERIORATION, (MATCH (E), U.N.O.).
3. SEE SHEET G001 FOR TYPICAL LEGEND ITEMS SHOWN ON PLANS.
4. SEE ALL MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR COORDINATION. BRING DISCREPANCIES TO ATTN. OF ARCH/ ENGINEER FOR FINAL DESIGN.
5. CENTER ALL CEILING GRIDS IN ROOM U.O.N.
6. CENTER ALL CEILING ELEMENTS (SUCH AS LIGHTS, EXHAUST REGISTERS, OCCUPANCY SENSORS, SMOKE DETECTORS, ETC.) IN CEILING TILES U.O.N.

LEGEND:

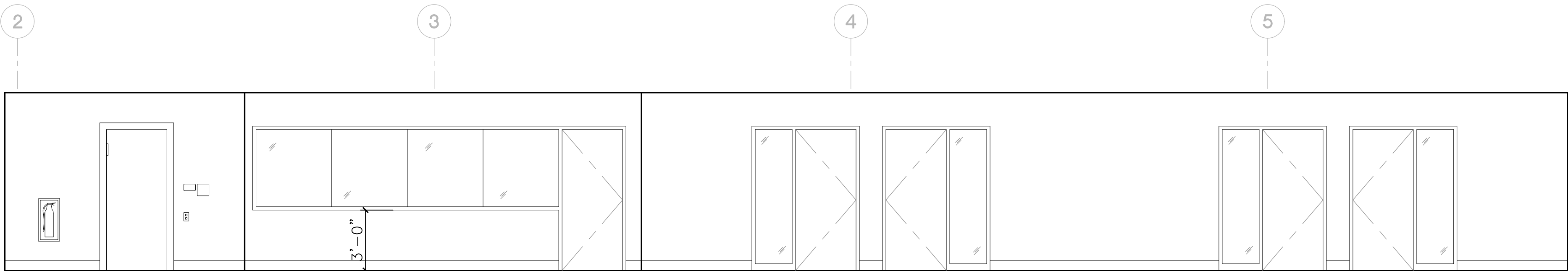
	ACT
	GYPSUM BOARD CEILING OVER NEW/EXISTING WOOD FRAMING
	NEW CEILING LIGHT
	NEW LED SURFACE MOUNT LIGHT
	NEW HVAC EXHAUST
	NEW HVAC SUPPLY DIFFUSER
	NEW HVAC RETURN DIFFUSER
	NEW CAN LIGHT
	EXIT SIGN

KEYED NOTES:

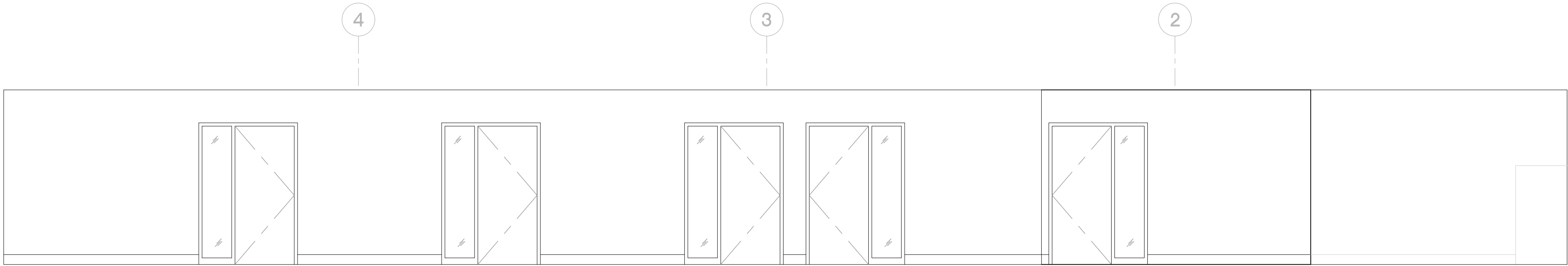
- ① PATCH CEILING TO MATCH EXISTING AFTER INSTALLATION OF NEW RATED WALL
- ② NEW GYPSUM BOARD BULKHEAD (7'-5" AFF) AT CEILING HEIGHT TRANSITION, SEE DETAIL 9/A513
- ③ WALL MOUNTED MINI-SPLIT SYSTEM, COORDINATE w/ HVAC DRAWINGS
- ④ SURFACE MOUNTED LIGHT CENTERED IN ROOM



1 SOUTH WALL - PASSAGE 116
1/4" = 1'-0"



2 NORTH WALL - OPEN OFFICE 119
1/4" = 1'-0"



3 SOUTH WALL - PASSAGE 108
1/4" = 1'-0"

Revisions:

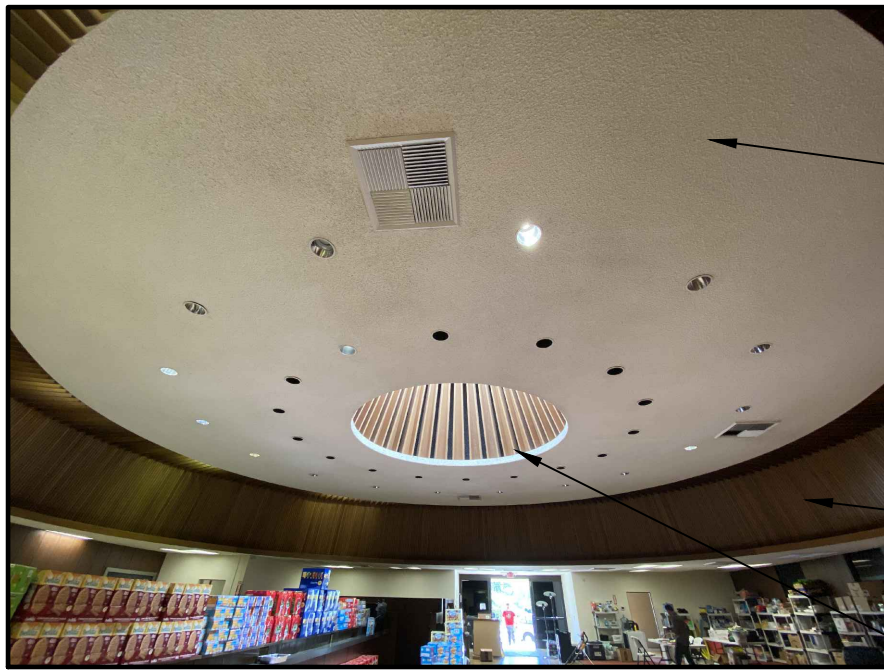
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

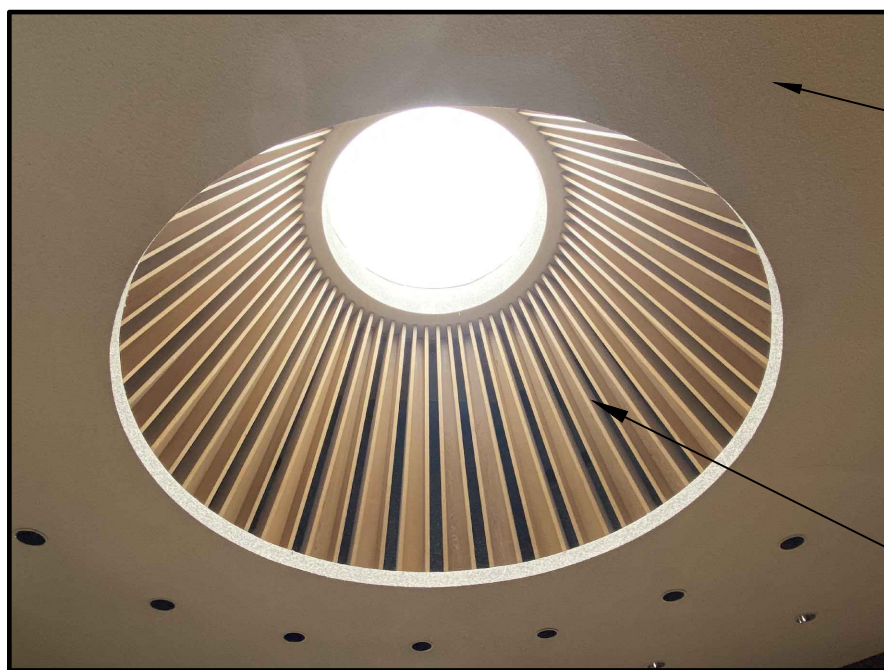
INTERIOR ELEVATIONS

Sheet Number:

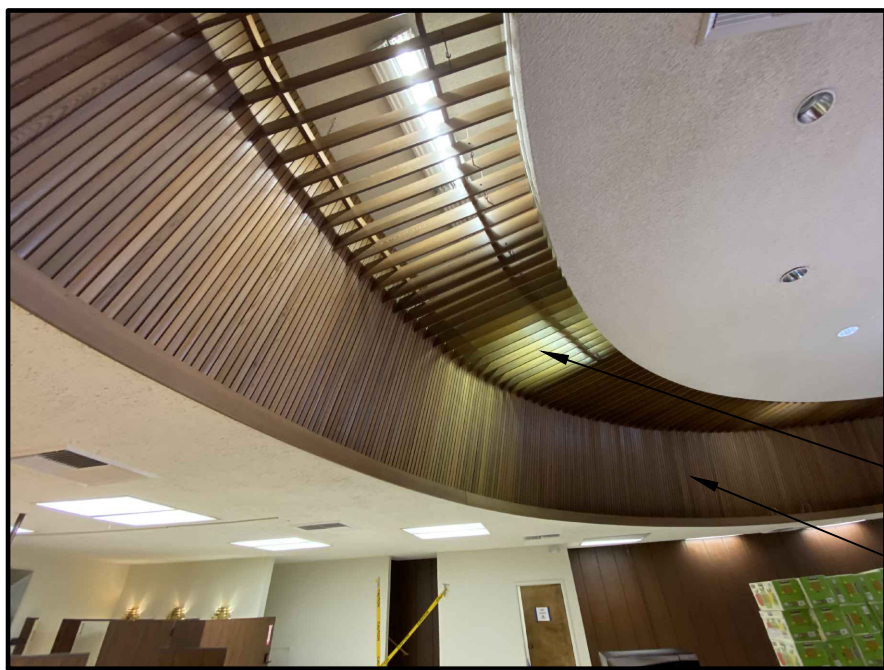
A210



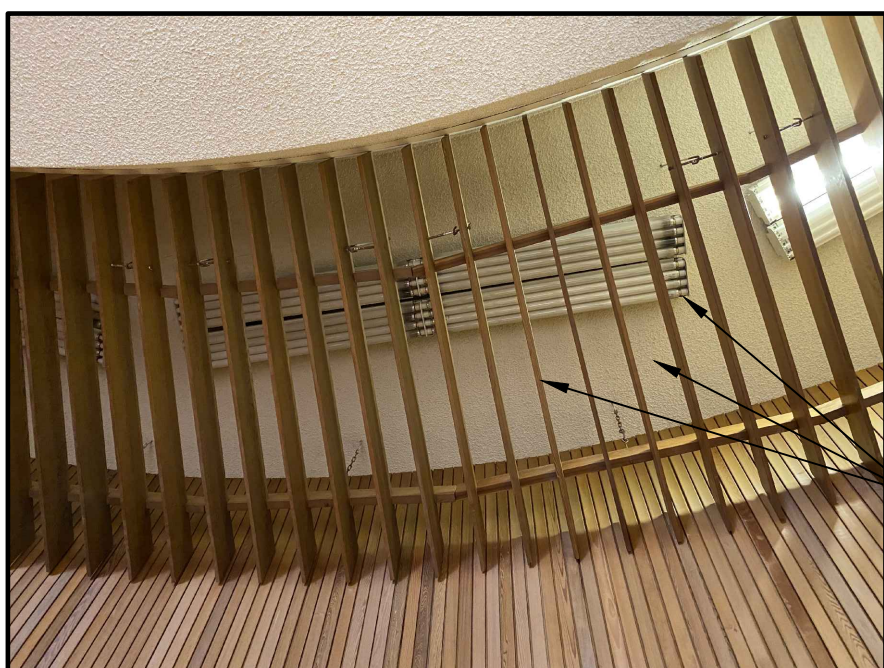
3 EXISTING PHOTO



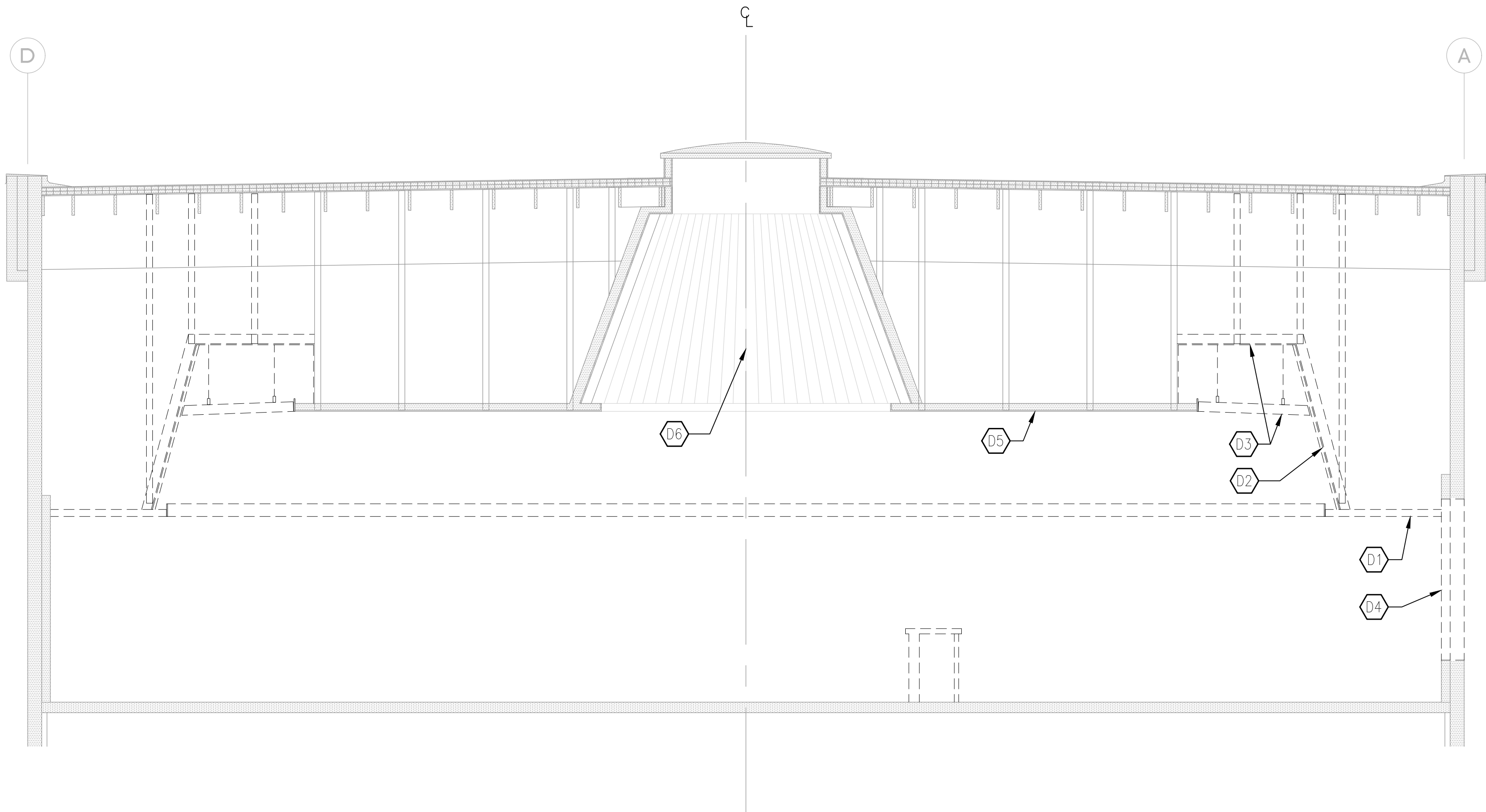
4 EXISTING PHOTO



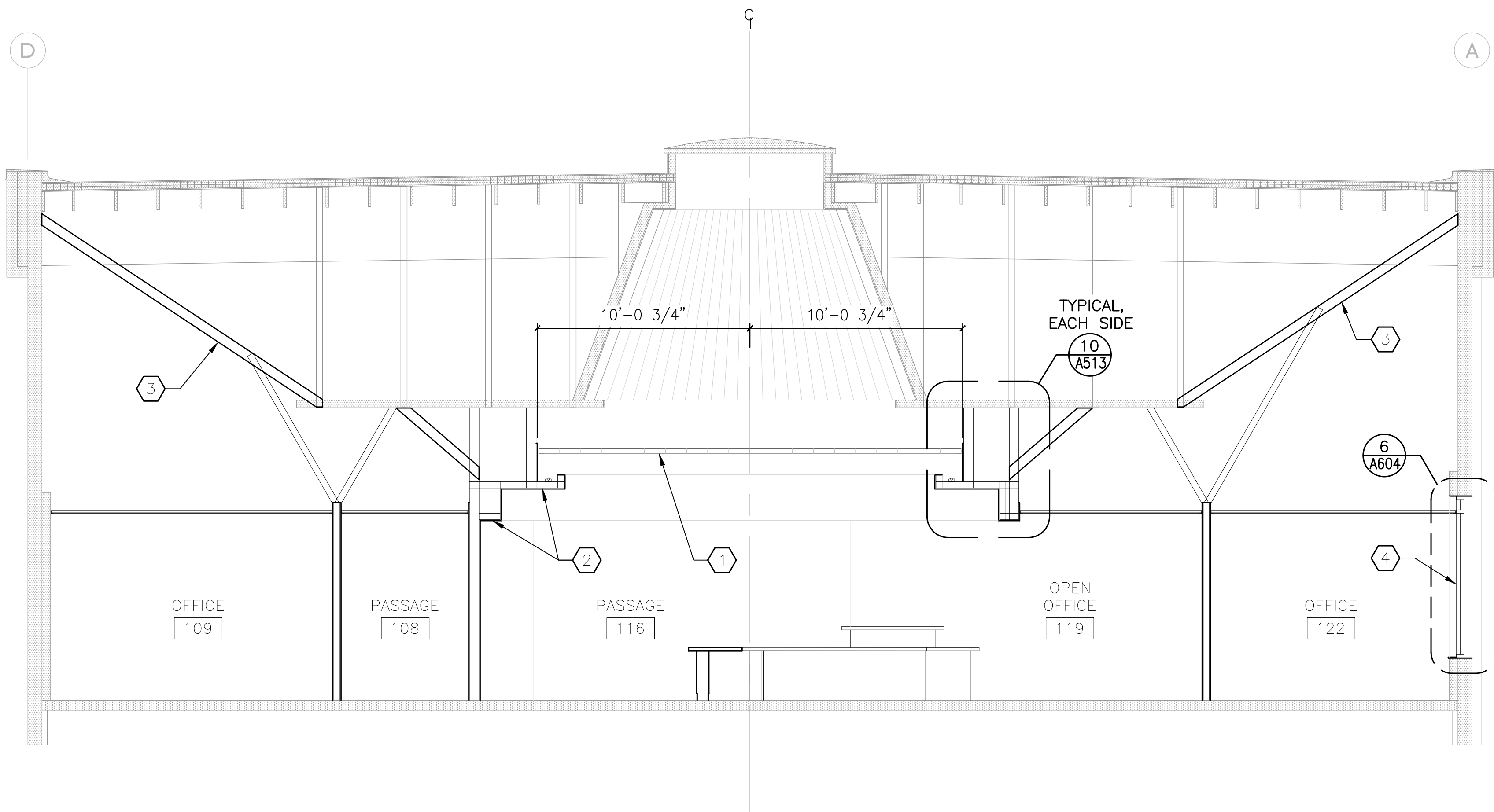
5 EXISTING PHOTO



6 EXISTING PHOTO



1 DEMOLITION BUILDING SECTION - NORTH/SOUTH
1/4" = 1'-0"



2 BUILDING SECTION - NORTH/SOUTH
1/4" = 1'-0"

GENERAL NOTES:

1. FIELD VERIFY ALL EXISTING CONDITIONS, ADDRESS ALL CONCERNS TO AOR PRIOR TO DEMOLITION.
2. SEE STRUCTURAL AND MEP DRAWINGS FOR ADDITIONAL DEMOLITION ITEMS NOT SHOWN.
3. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION/NEW WORK ITEMS NOT NOTED

KEYED NOTES - DEMOLITION

- D1- DEMOLISH EXISTING CEILING AND SUPPORT FRAMING
- D2- DEMOLISH EXISTING DECORATIVE WOOD SLATS AND BACKER WALL, SUPPORT FRAMING, SEE PHOTO 5/A302
- D3- DEMOLISH EXISTING DECORATIVE WOOD SLATS, SOFFIT, LIGHTS AND SUPPORT FRAMING, SEE PHOTO 6/A302
- D4- NEW OPENING IN EXISTING WALL, SEE AD101 FOR ADDITIONAL INFORMATION
- D5- EXISTING CEILING TO REMAIN, SEE PHOTO 3/A302
- D6- EXISTING SKYLIGHT ENCLOSURE TO REMAIN, SEE PHOTO 4/A302

KEYED NOTES - NEW WORK

- 1- TRANSLUCENT CEILING PANELS
- 2- GYPSUM BOARD SOFFITS OVER WOOD FRAMING
- 3- PROVIDE 2x DIAGONAL BRACING w/ A34 CLIPS @ 24" O.C. UP TO (E) JOISTS OR TO CONCRETE WALL, PROVIDE ADDITIONAL BLOCKING AS REQUIRED, TYPICAL AROUND PERIMETER OF EXISTING CEILING
- 4- NEW WINDOW UNIT, TYPICAL. SEE A101 FOR ALL LOCATIONS

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

BUILDING SECTION

Sheet Number:

A302

KEYED NOTES - NEW WORK

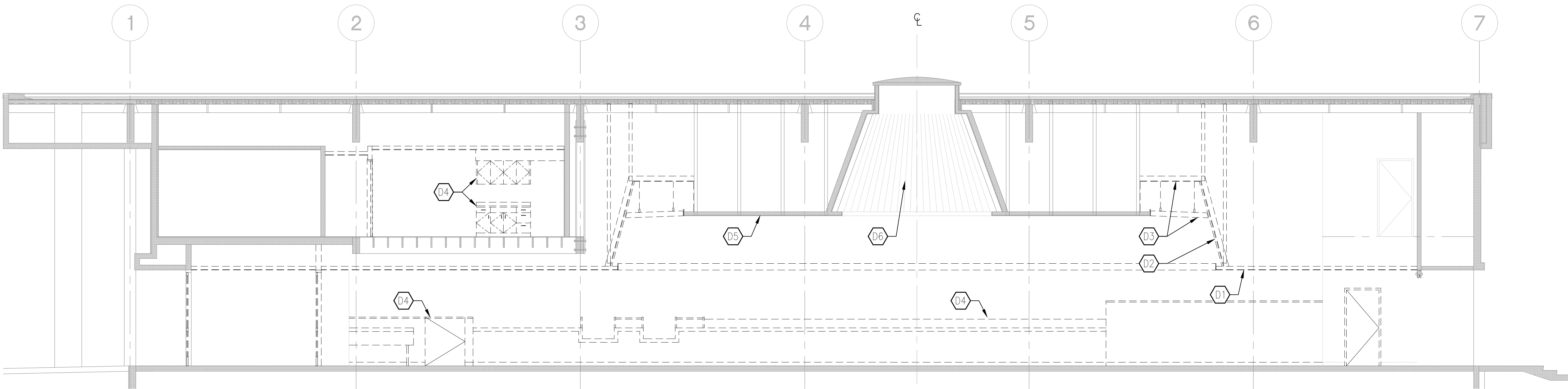
- 1- TRANSLUCENT CEILING PANELS
- 2- GYPSUM BOARD SOFFITS OVER WOOD FRAMING
- 3- PROVIDE 2x DIAGONAL BRACING w/ A34 CLIPS @ 24" O.C. UP TO (E) JOISTS OR TO CONCRETE WALL, PROVIDE ADDITIONAL BLOCKING AS REQUIRED, TYPICAL AROUND PERIMETER OF EXISTING CEILING

KEYED NOTES - DEMOLITION

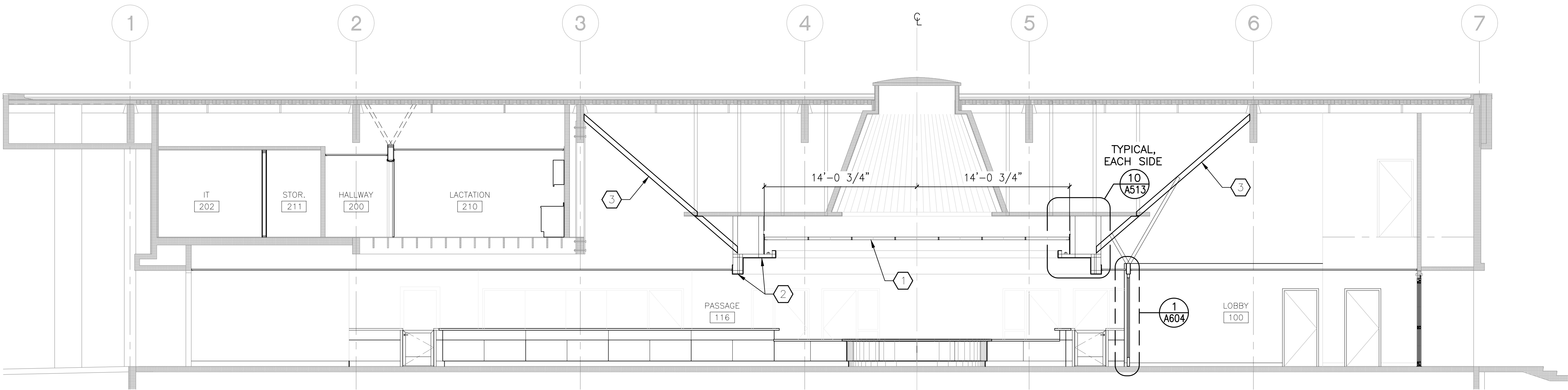
- D1- DEMOLISH EXISTING CEILING AND SUPPORT FRAMING
- D2- DEMOLISH EXISTING DECORATIVE WOOD SLATS AND BACKER WALL, SUPPORT FRAMING, SEE PHOTO 5/A302
- D3- DEMOLISH EXISTING DECORATIVE WOOD SLATS, SOFFIT, LIGHTS AND SUPPORT FRAMING, SEE PHOTO 6/A302
- D4- EXISTING CASEWORK TO BE DEMOLISHED. SEE DEMOLITION PLANS FOR MORE INFORMATION
- D5- EXISTING CEILING TO REMAIN, SEE PHOTO 3/A302
- D6- EXISTING SKYLIGHT ENCLOSURE TO REMAIN, SEE PHOTO 4/A302

GENERAL NOTES:

- 1. FIELD VERIFY ALL EXISTING CONDITIONS, ADDRESS ALL CONCERNS TO AOR PRIOR TO DEMOLITION.
- 2. SEE STRUCTURAL AND MEP DRAWINGS FOR ADDITIONAL DEMOLITION ITEMS NOT SHOWN.
- 3. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION/NEW WORK ITEMS NOT NOTED



1 DEMOLITION BUILDING SECTION - EAST/WEST
3/16" = 1'-0"



2 BUILDING SECTION - EAST/WEST
3/16" = 1'-0"

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

BUILDING SECTION

Sheet Number:

A303

Revisions:

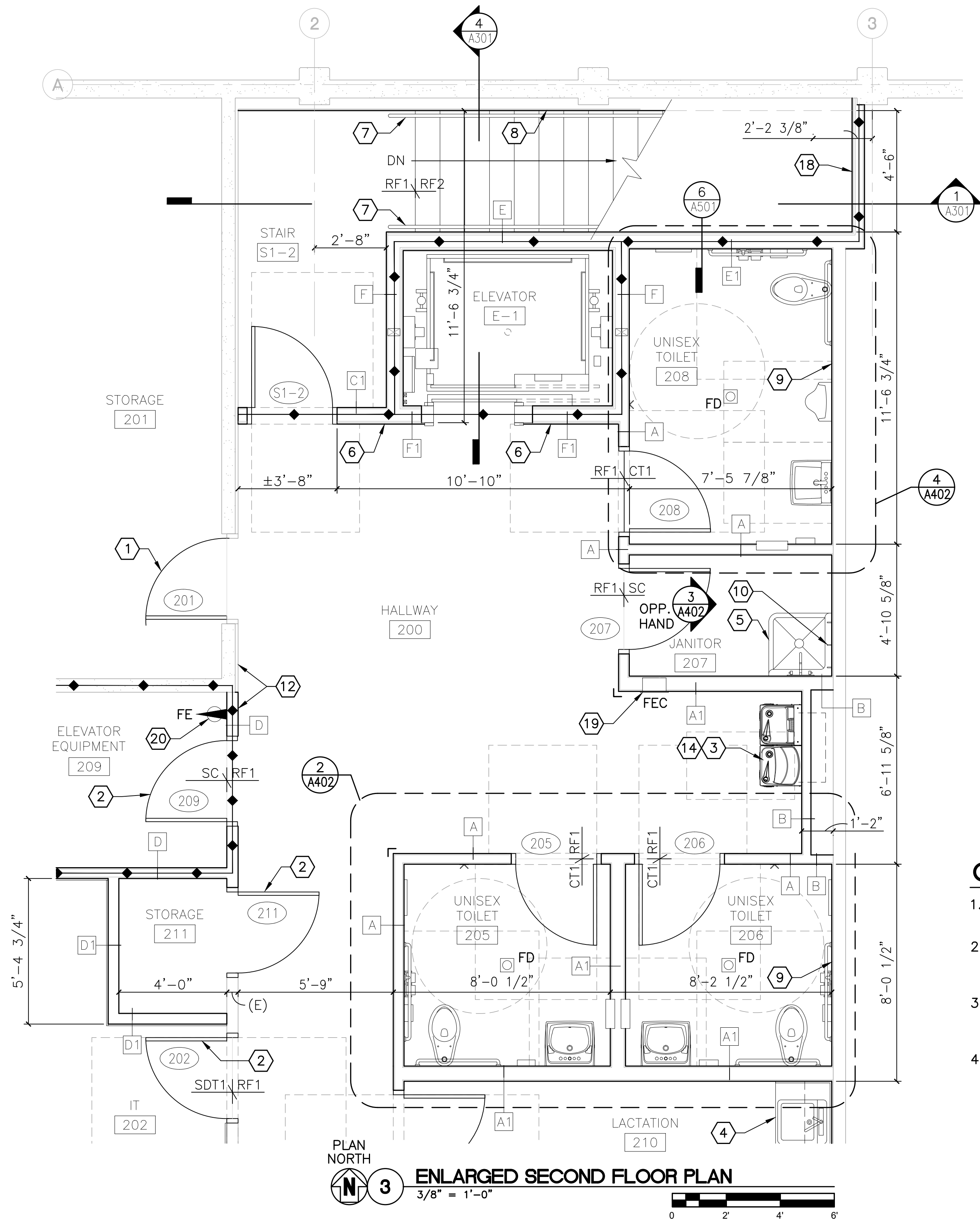
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

ENLARGED FLOOR
PLANS

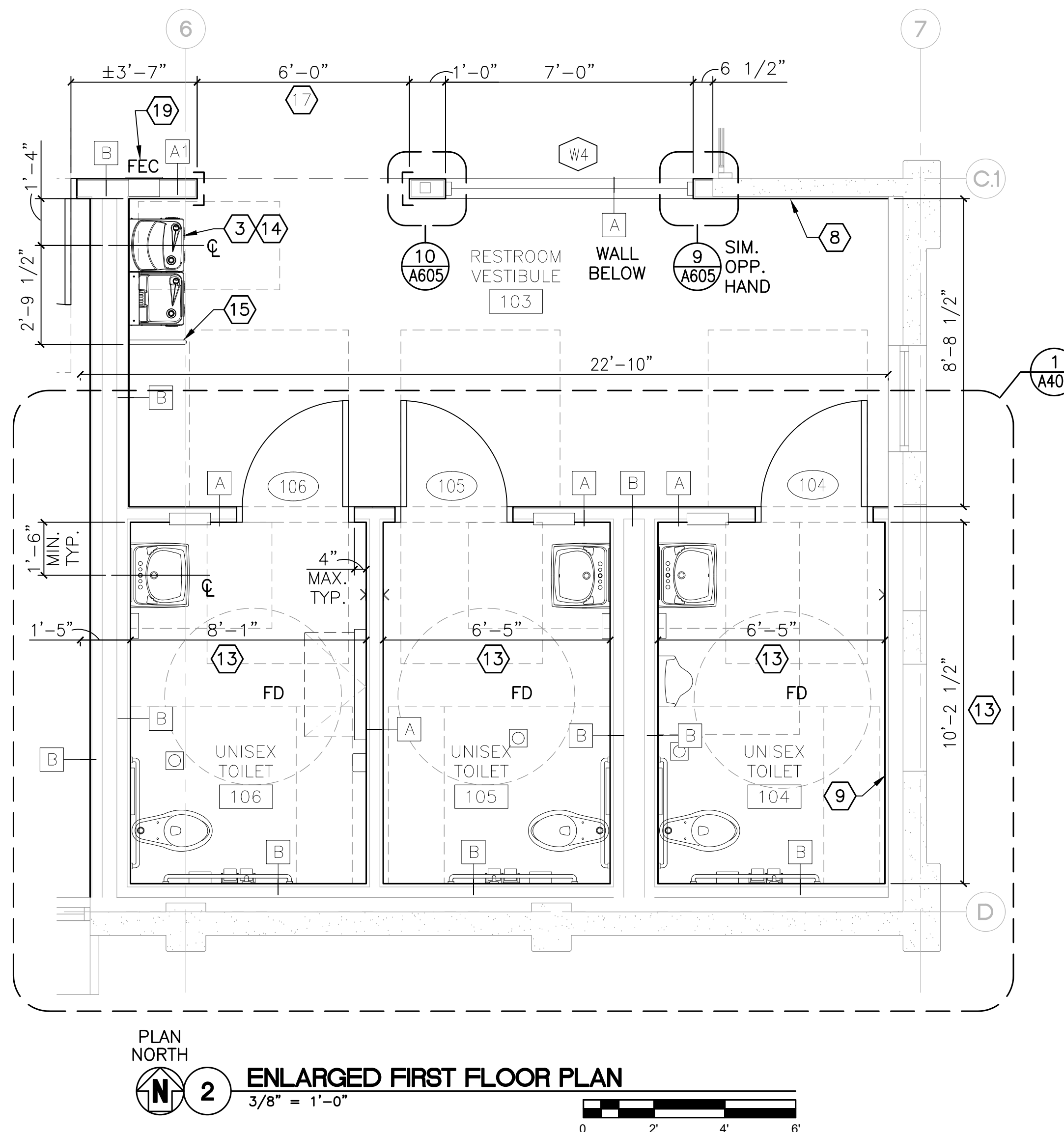
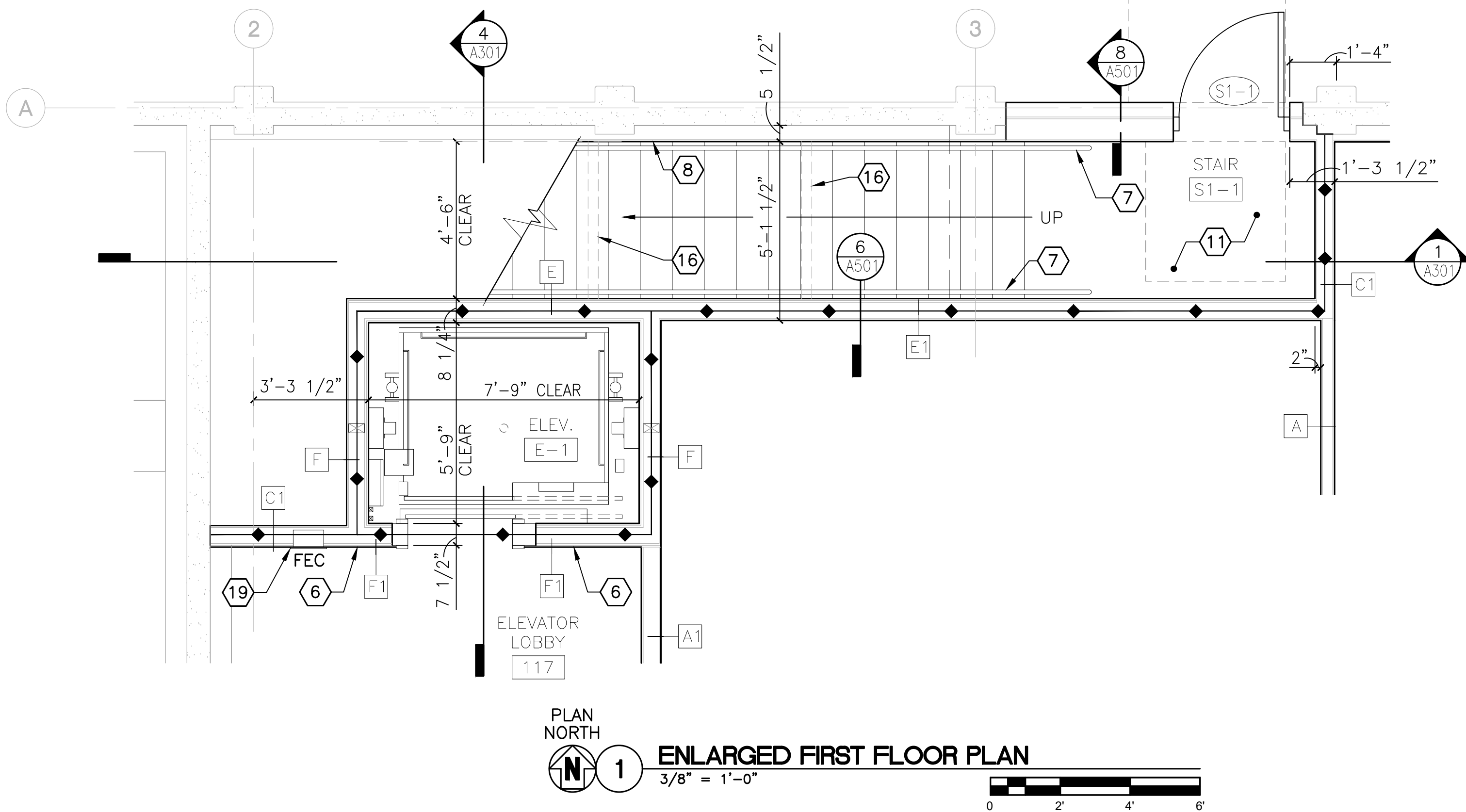
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A401



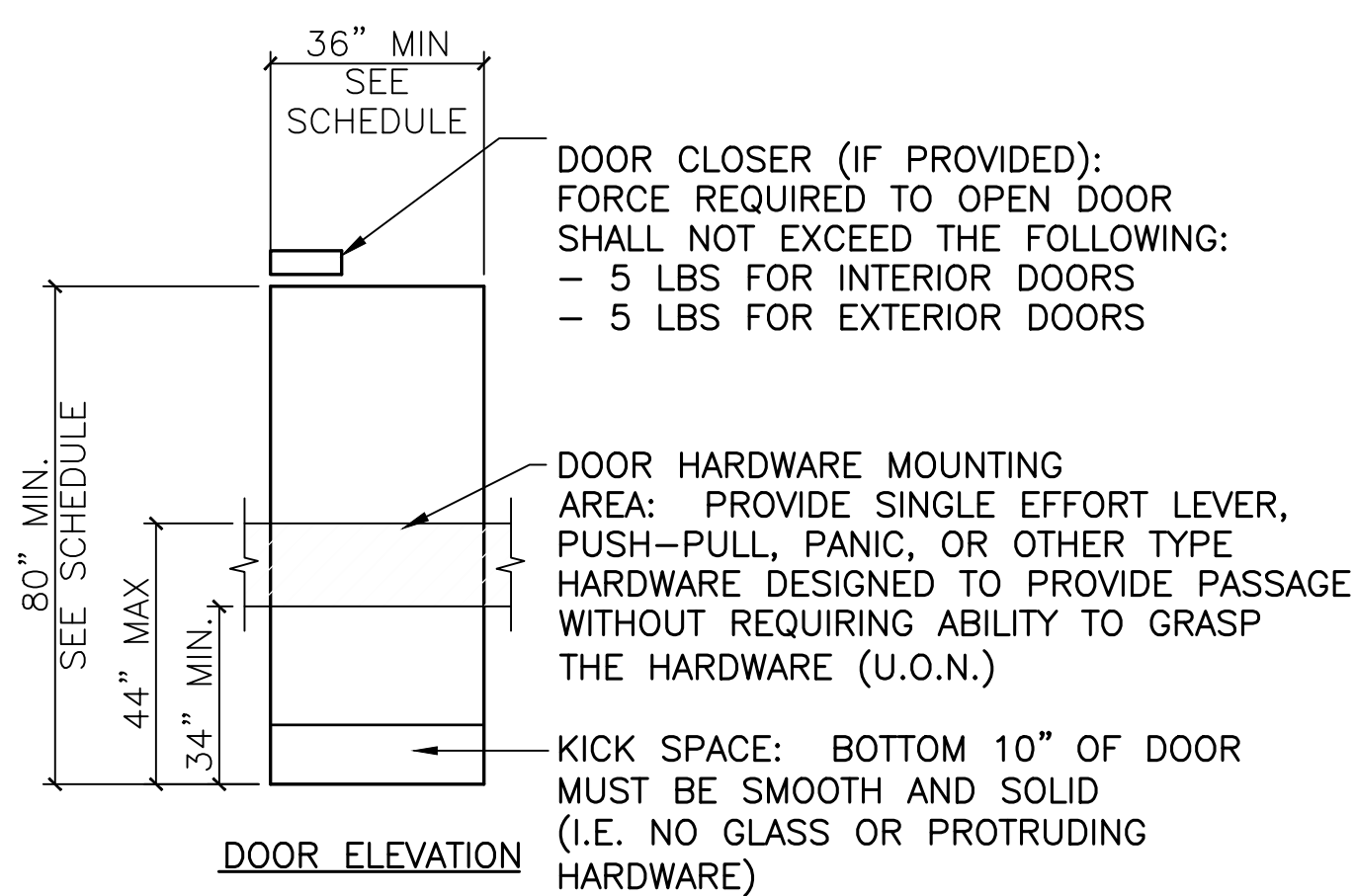
GENERAL NOTES:

1. FOR TOILET ROOM FIXTURE AND ACCESSORY PLANS, SEE SHEET A402.
2. FLOOR FINISH DESIGNATION: FLOOR FINISH DIVIDER AT DOOR THRESHOLD XXX XXX
3. NEW WALL TYPE PER WALL TAG SEE PARTITION TYPES ON SHEET A511.
4. SEE FLOOR PLAN A101 FOR FLOOR SLAB INFILL AT NEW UNDERGROUND PIPING.

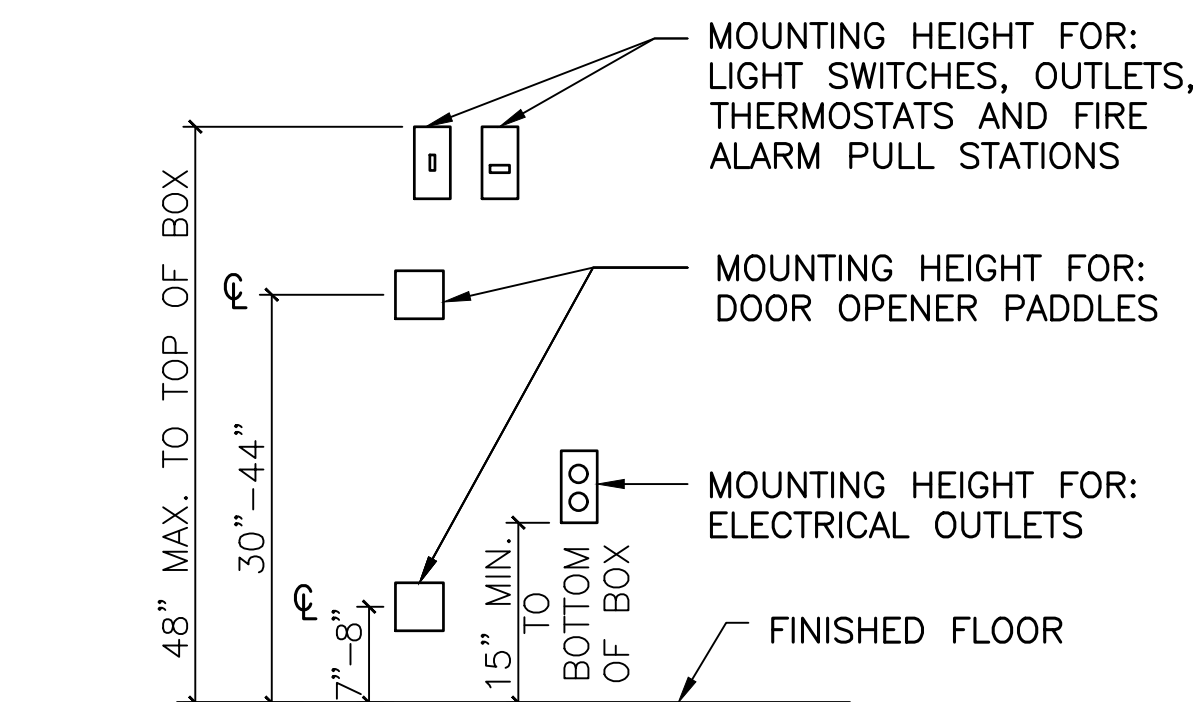


KEYED NOTES:

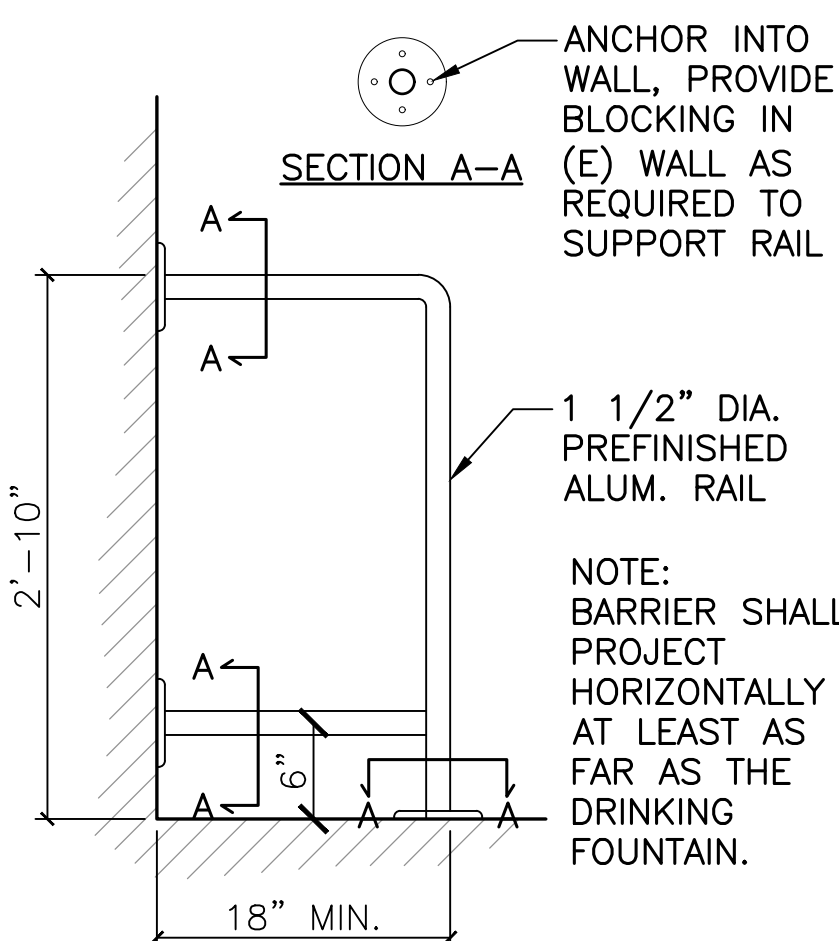
- 1 (N) DOOR AND DOOR HARDWARE, SEE DOOR SCHEDULE SHEET A602
- 2 (N) DOOR, FRAME, AND DOOR HARDWARE, SEE DOOR SCHEDULE SHEET A602
- 3 (N) HI-LO DRINKING FOUNTAIN ADA DRINKING FOUNTAIN, SEE PLUMBING DRAWINGS
- 4 (N) ADA COUNTER AND CABINET, SEE DETAIL 1/A515
- 5 (N) FLOOR SINK, SEE PLUMBING DRAWINGS
- 6 PROVIDE (1) ADDITIONAL LAYER OF 5/8" TYPE "X" GYP. BD. OVER FACE OF WALL AFTER INSTALLATION OF ELEVATOR DOOR IS COMPLETE
- 7 (N) 1 1/4 STD. PIPE HANDRAIL, PAINTED, SEE DETAILS ON SHEET A301
- 8 PROVIDE (1) LAYER OF 5/8" TYPE "X" GYP. BD. OVER (E) GYP. BD. WALL
- 9 PROVIDE (1) LAYER OF 5/8" CEMENT BACKER BD. OVER (E) WOOD STUDS AND/OR (E) GYP. BD.
- 10 PROVIDE MOP STRIP (MS) ALONG BACK WALL. SEE DETAIL 3/A402
- 11 (N) CONCRETE LANDING OVER (E) FLOOR SLAB. (N) LANDING HEIGHT SHALL BE NO GREATER THAN 1/4" ABOVE EXTERIOR PAVING. FLOOR FINISH TO BE RF-1 PER ROOM FINISH SCHEDULE ON SHEET A601.
- 12 ALIGN FACE OF (N) WALL w/ FACE OF (E) WALL
- 13 DIMENSION FROM FACE TO FACE OF FINISHED TILE
- 14 HI-LO DRINKING FOUNTAIN, SEE PLUMBING DWGS.
- 15 PROVIDE 1 1/2" DIA. PROTECTIVE RAILS, FLOOR AND WALL MOUNTED, EACH SIDE OF EXISTING DRINKING FOUNTAIN, ALIGN END OF RAILS, SEE DETAIL 8/A402
- 16 2x4 WOOD STUDS AT 16" O.C. BEARING WALL AT 3RD POINTS ALONG STAIR STRINGER, SEE SECTION 1/A301
- 17 GYPSUM BOARD CASSED OPENING
- 18 SEE DETAILS 4 AND 5/A501 FOR WALL CONSTRUCTION
- 19 NEW FIRE EXTINGUISHER CABINET. OWNER TO PROVIDE EXTINGUISHER
- 20 NEW WALL HUNG BRACKET FOR FIRE EXTINGUISHER.



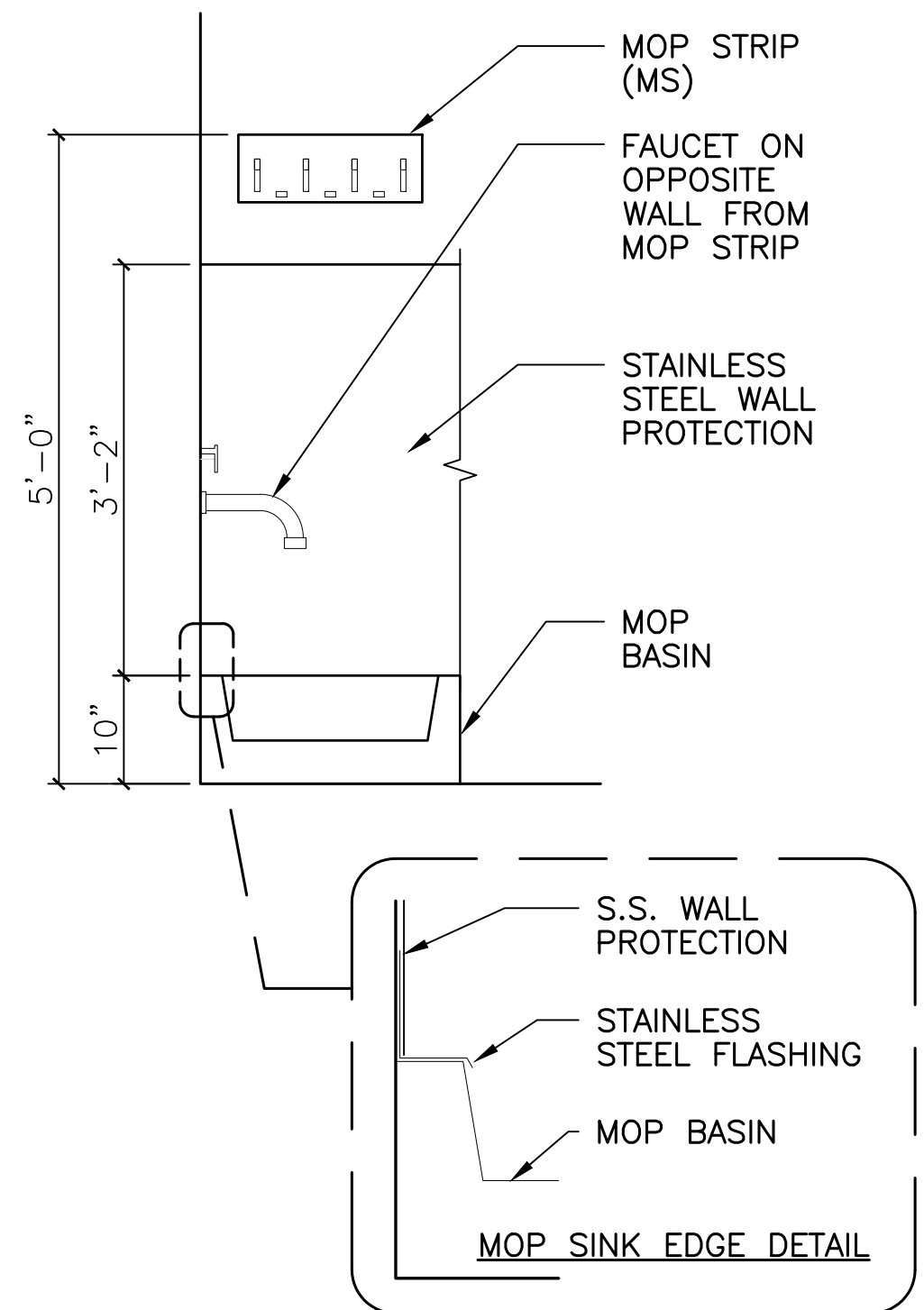
6 DOOR/HARDWARE ACCESSIBILITY REQUIREMENTS - TYPICAL



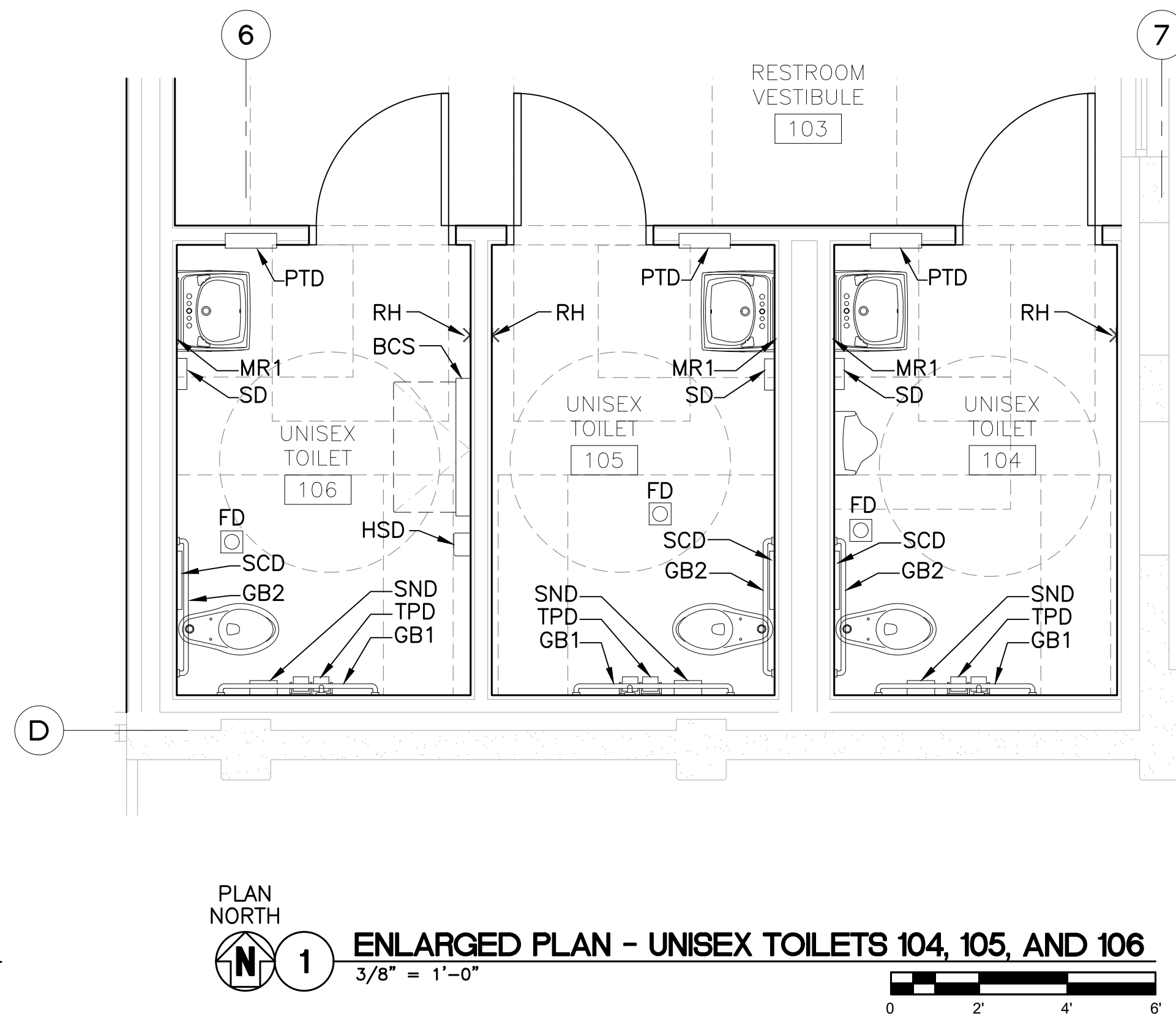
7 MOUNTING HEIGHTS FOR ELECTRICAL ITEMS - TYPICAL



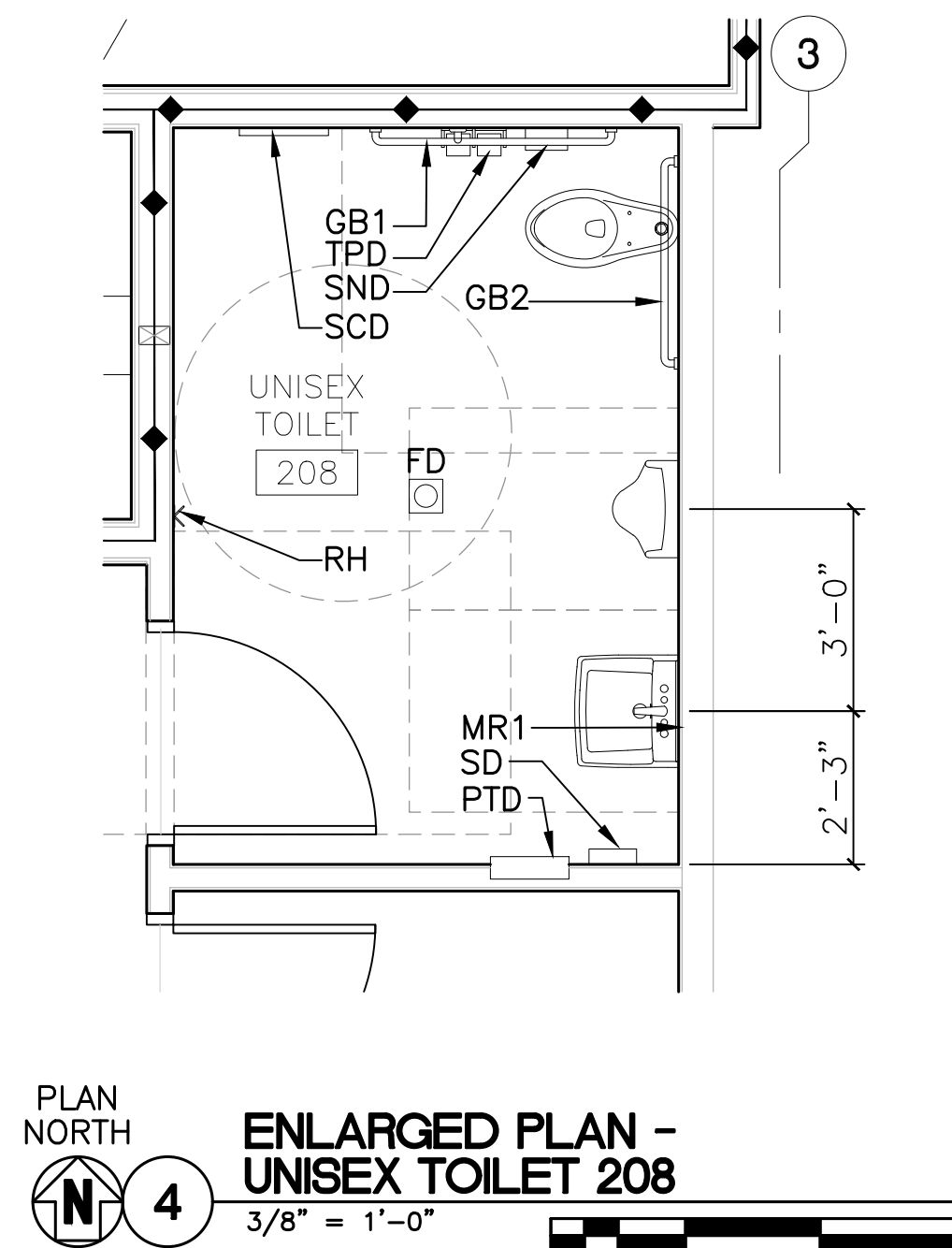
8 PROTECTIVE RAIL



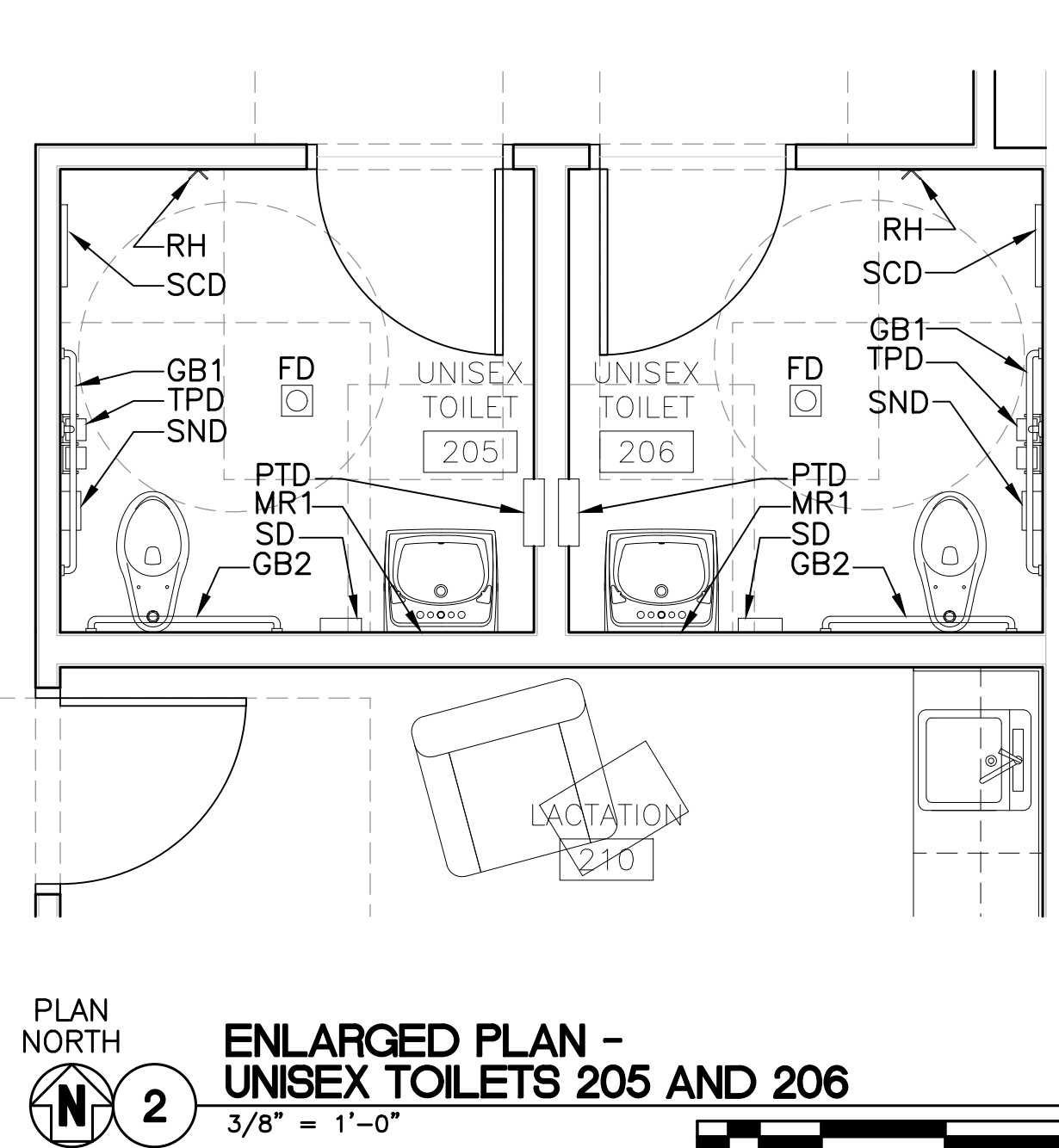
3 MOP SINK TYPICAL DETAIL



1 ENLARGED PLAN - UNISEX TOILETS 104, 105, AND 106



4 ENLARGED PLAN - UNISEX TOILET 208



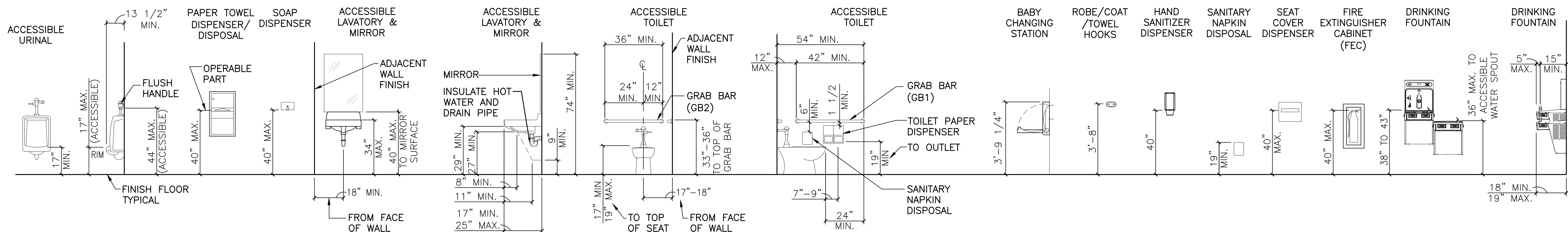
2 ENLARGED PLAN - UNISEX TOILETS 205 AND 206

GENERAL NOTES:

- THE HIGHEST OPERABLE PART ON ALL DISPENSERS SHALL BE NO MORE THAN 40" ABOVE FINISHED FLOOR.
- LEVER/PUSH TYPE LAVATORY CONTROLS WITH SELF CLOSING VALVES (MIN. 10 SECOND OPEN FLOW), 5 LB. MAX. OPERATING FORCE PER CBC 11B-309.
- INSULATE HOT WATER DRAIN PIPE UNDER SINKS. SEE SPECIFICATIONS FOR PLUMBING FIXTURES.
- THE FORCE FOR PUSHING OR PULLING OPEN A DOOR OR GATE TO MEET CBC 11B-404.2.9
- CLEARANCES AT DOORS, DOORWAYS AND GATES TO MEET CBC 11B-404
- BACKING PLATES: PROVIDE STEEL PLATE AND/OR WOOD BACKING AS INDICATED OR AS REQUIRED FOR ALL SIGNAGE, RAILINGS, CABINET, TV, SHELVING, GRAB BARS, TOILET PARTITIONS, TOILET ACCESSORIES, AND OTHER ITEMS FASTENED TO PARTITIONS. COORDINATE INSTALLATION OF BACKING WITH OTHER TRADES.
- FULL HEIGHT TILE IN TOILET ROOM WALLS.
- SEE DETAIL 9/A402 FOR MOUNTING HEIGHTS AND LOCATION FLOOR FIXTURES.
- SEE DETAIL 5/A402 FOR GRAB BAR DETAIL.
- SEE DETAIL 6/A402 FOR DOOR AND HARDWARE ACCESSIBILITY REQUIREMENTS.
- SEE DETAIL 7/A402 FOR ELECTRICAL MOUNTING HEIGHTS.
- SEE DETAIL 2/A511 FOR CEILING DETAIL.
- SEE DETAIL 1/A601 FOR TYPICAL DETAIL AT BASE OF TILED WALL.

LEGEND:

BCS	BABY CHANGING STATION
GB1	GRAB BAR 42" LONG
GB2	GRAB BAR 36" LONG
HSD	HAND SANITIZER DISPENSER
MR1	MIRROR (24" x 36")
MS	MOP STRIP
PTD	PAPER TOWEL DISPENSER/DISPOSAL
RH	ROBE/COAT HOOK
TPD	TOILET PAPER DISPENSER
SD	SOAP DISPENSER (SURFACE MOUNTED)
SCD	RECESSED SEAT COVER DISPENSER
SND	SANITARY NAPKIN DISPOSAL



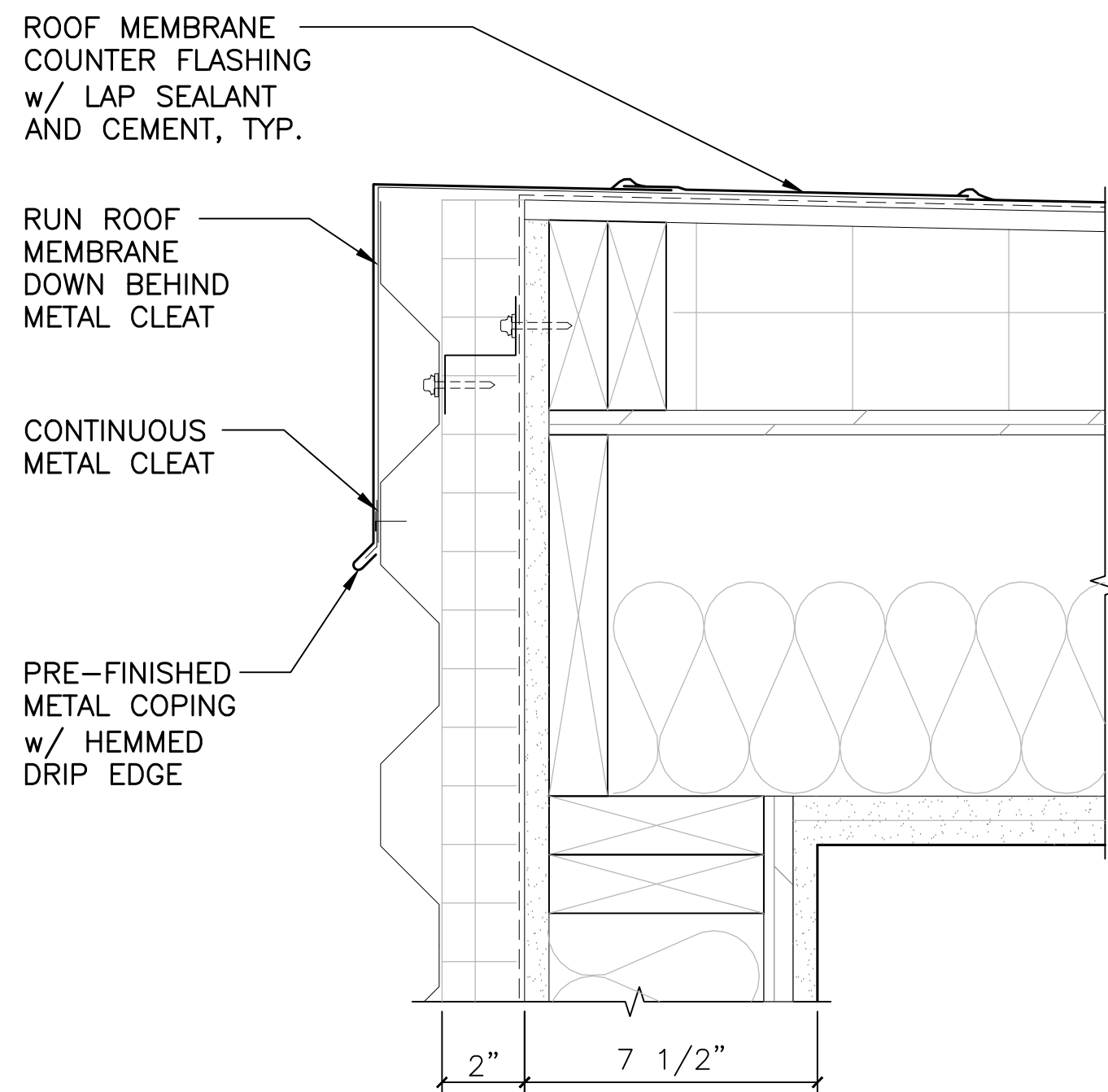
9 TYPICAL ACCESSIBLE MOUNTING HEIGHTS FOR TOILET ROOM PLUMBING FIXTURES AND ACCESSORIES

Revisions:

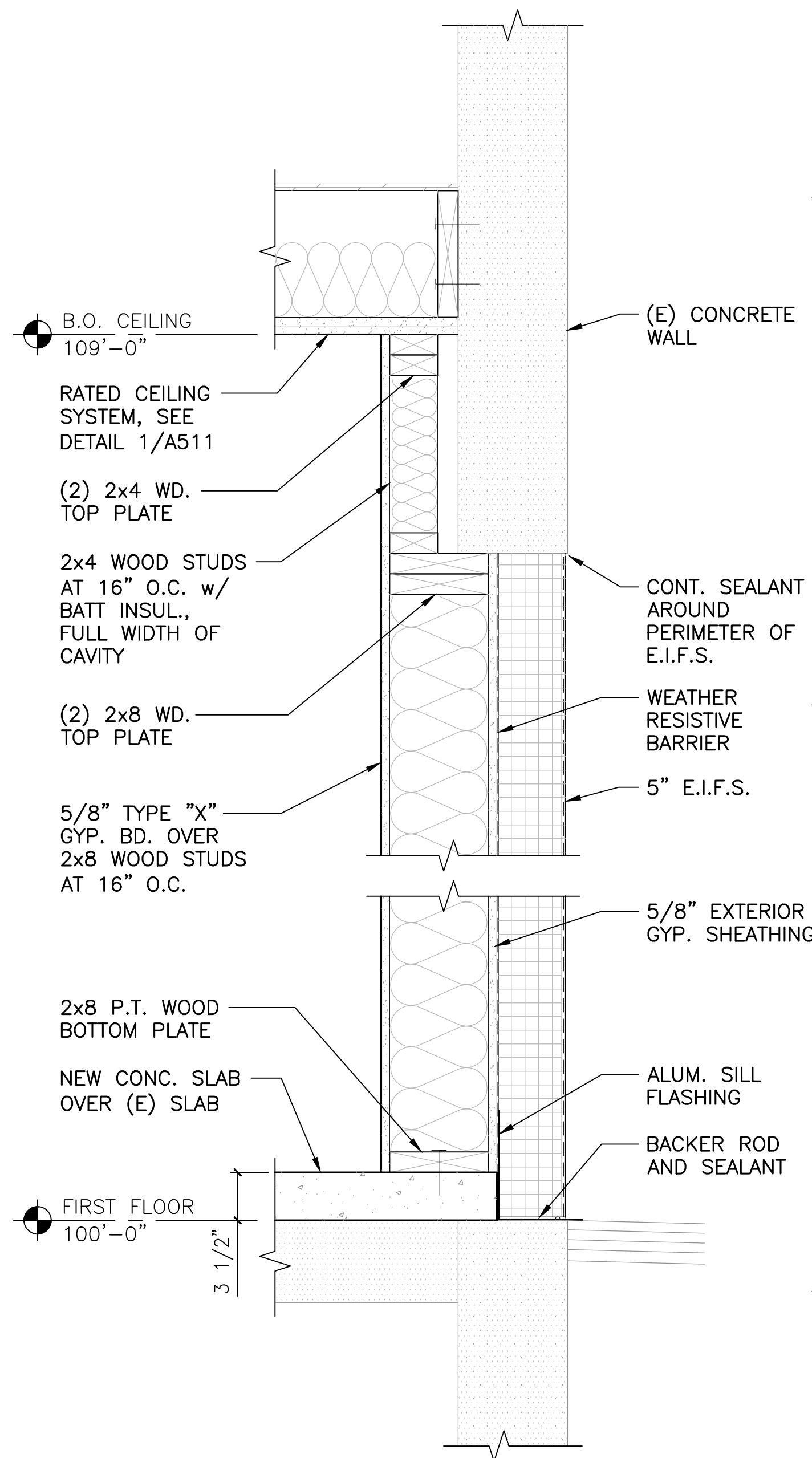
Client Project Number: 000
 APN Number: 000-000-000
 KPA Project Number: 76100
 Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:
ENLARGED TOILET ROOM PLANS AND TYPICAL MOUNTING HEIGHTS

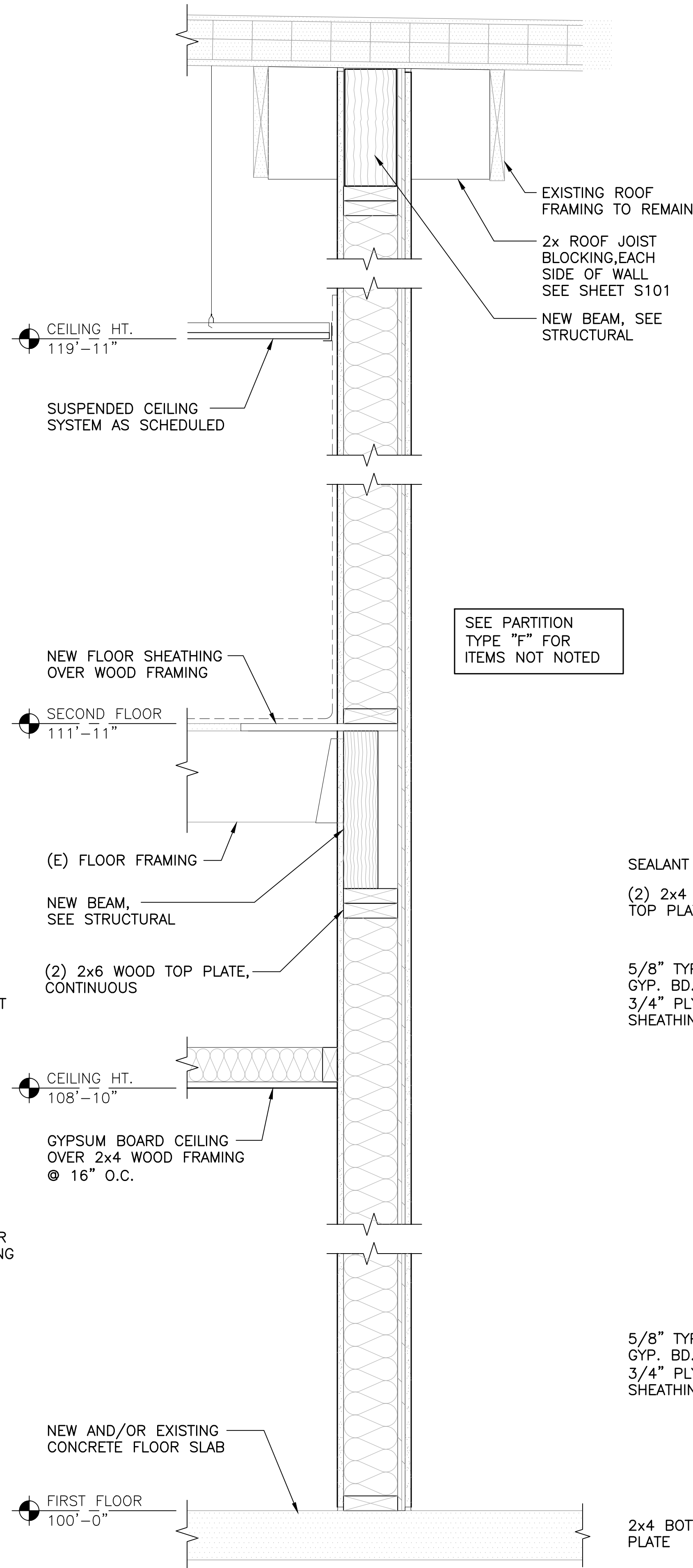
Sheet Number:



7 ROOF EDGE DETAIL
3" = 1'-0"



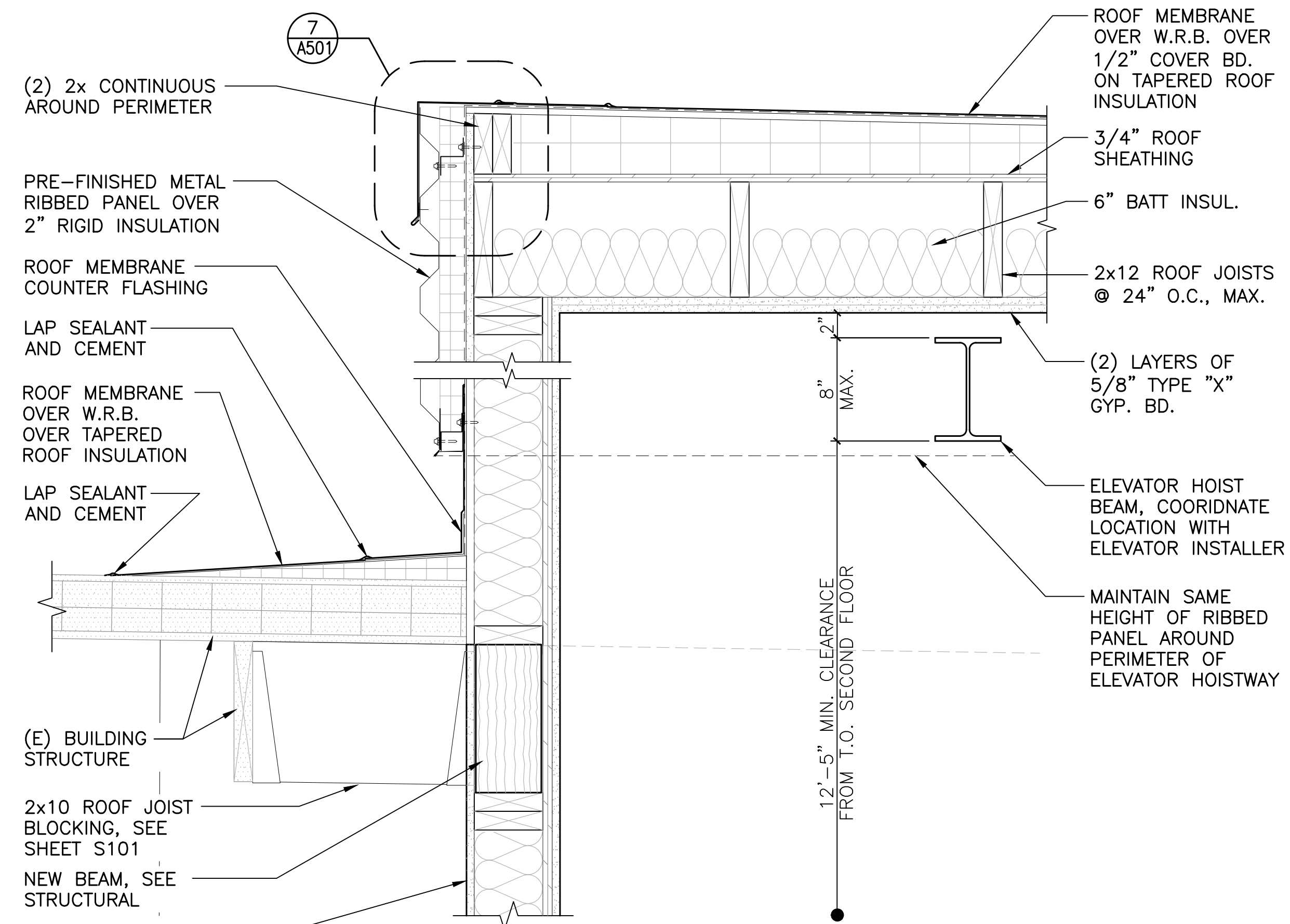
8 WALL INFILL DETAIL • EXTERIOR
1 1/2" = 1'-0"



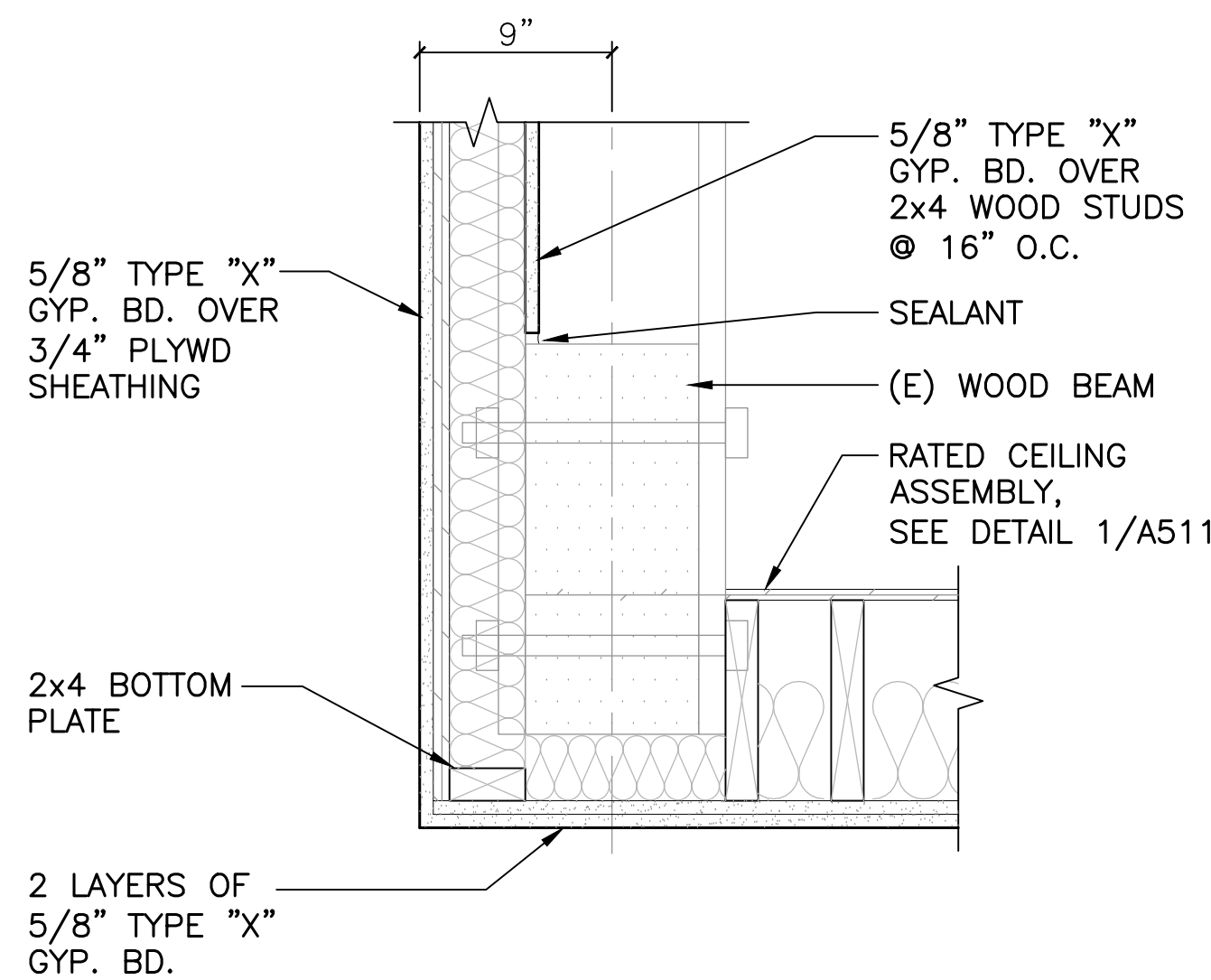
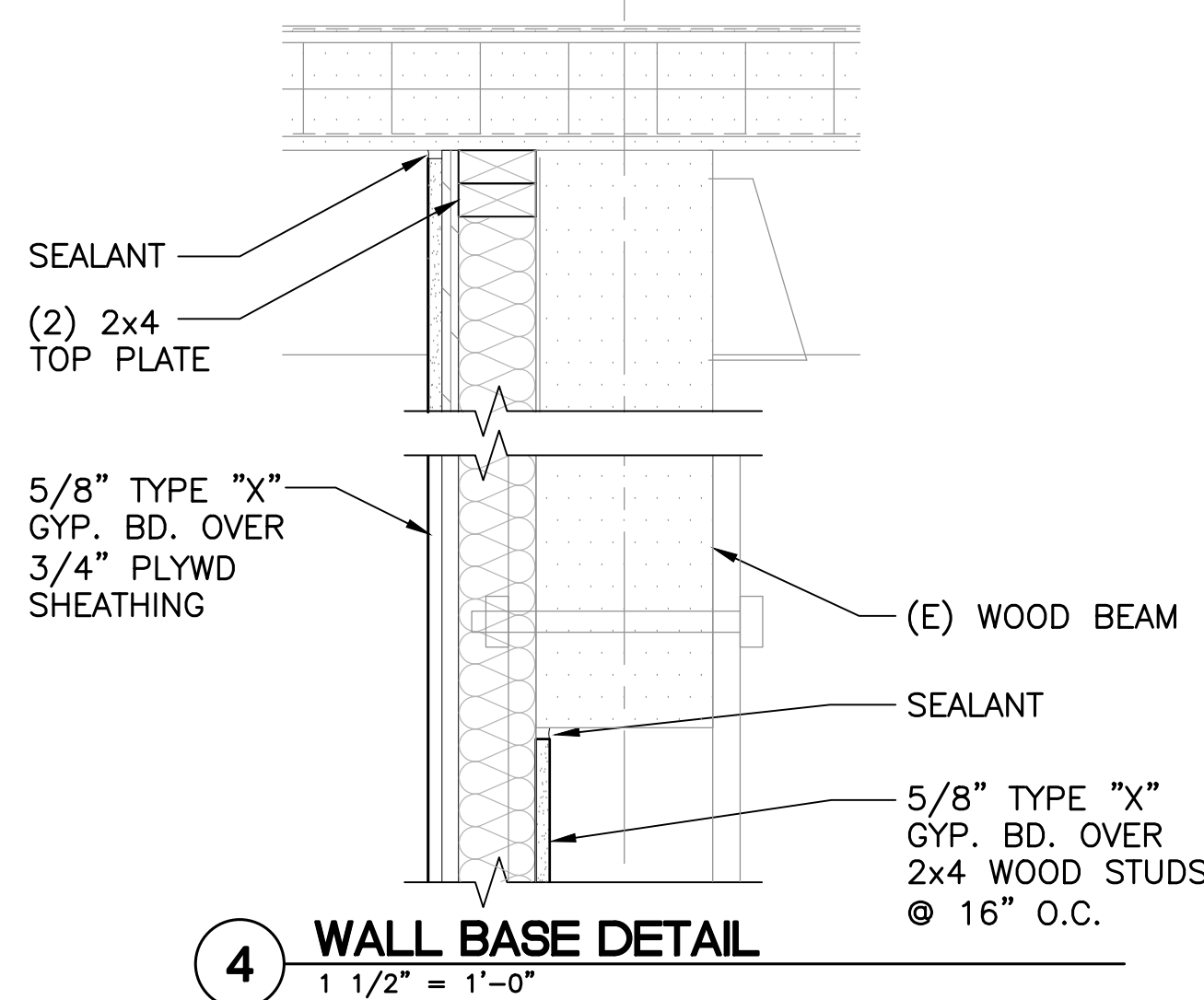
6 WALL SECTION
1 1/2" = 1'-0"

NOTE:
SEE SHEET A401 FOR PARTITION
TYPE DESIGNATION AND SHEET A511
FOR PARTITION TYPES.

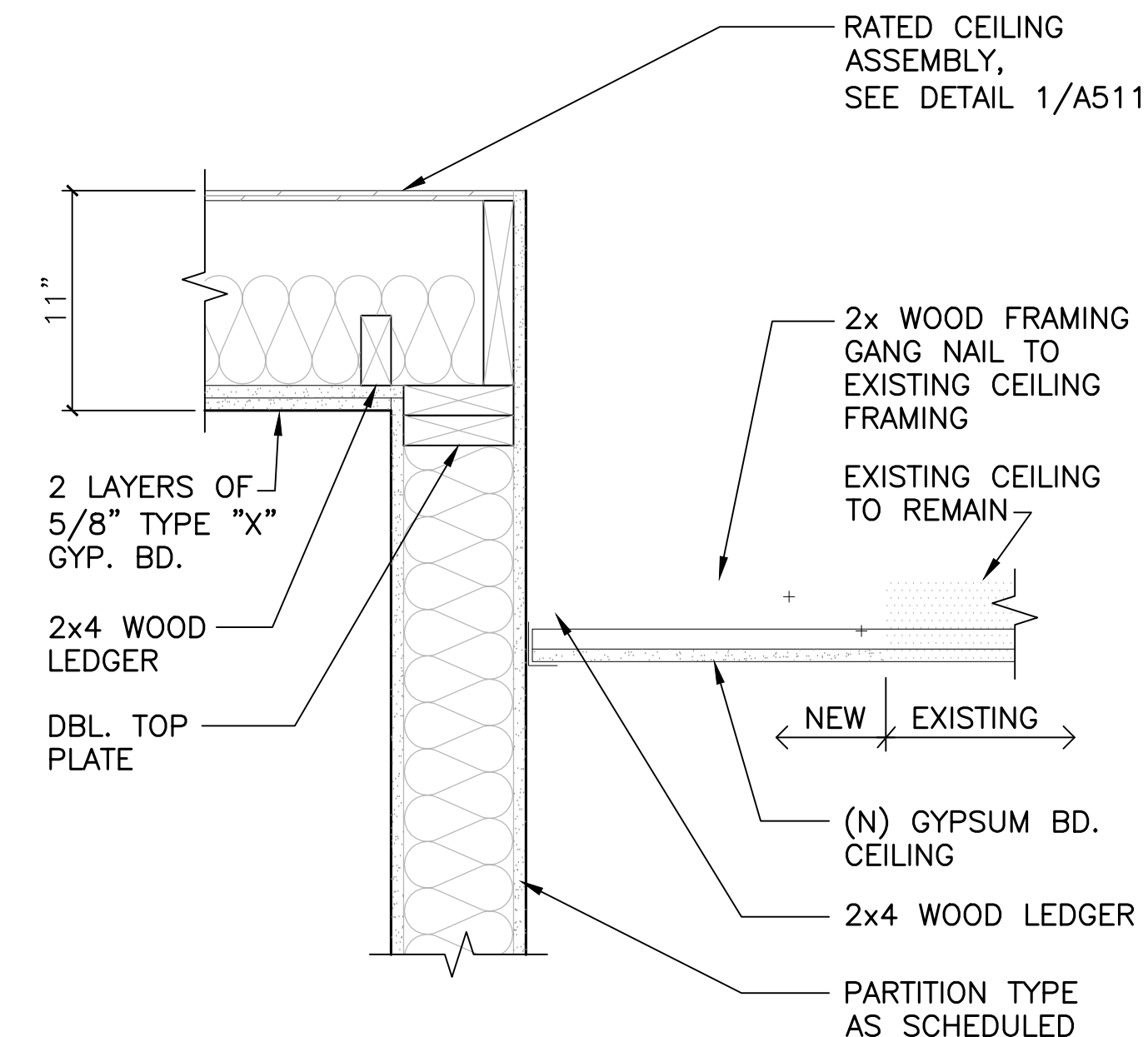
SEE PARTITION
TYPE "F" FOR
ITEMS NOT NOTED



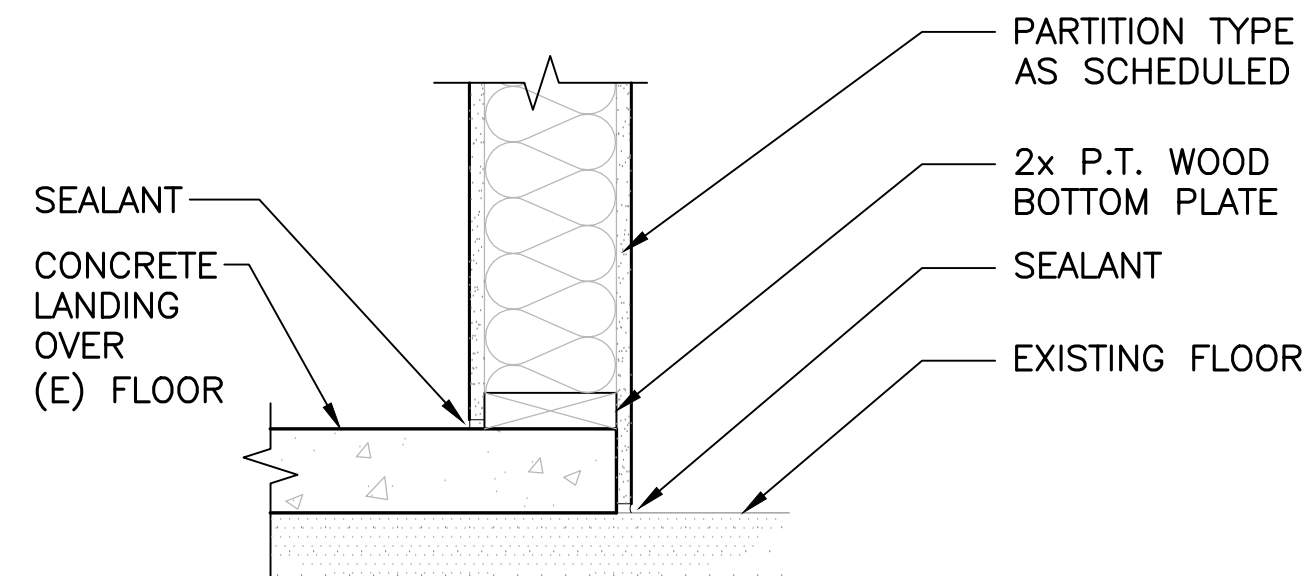
1 ROOF DETAIL AT ELEVATOR SHAFT
1 1/2" = 1'-0"



5 WALL/CEILING DETAIL
1 1/2" = 1'-0"



2 WALL BASE DETAIL
1 1/2" = 1'-0"



3 WALL BASE DETAIL
1 1/2" = 1'-0"

Revisions:

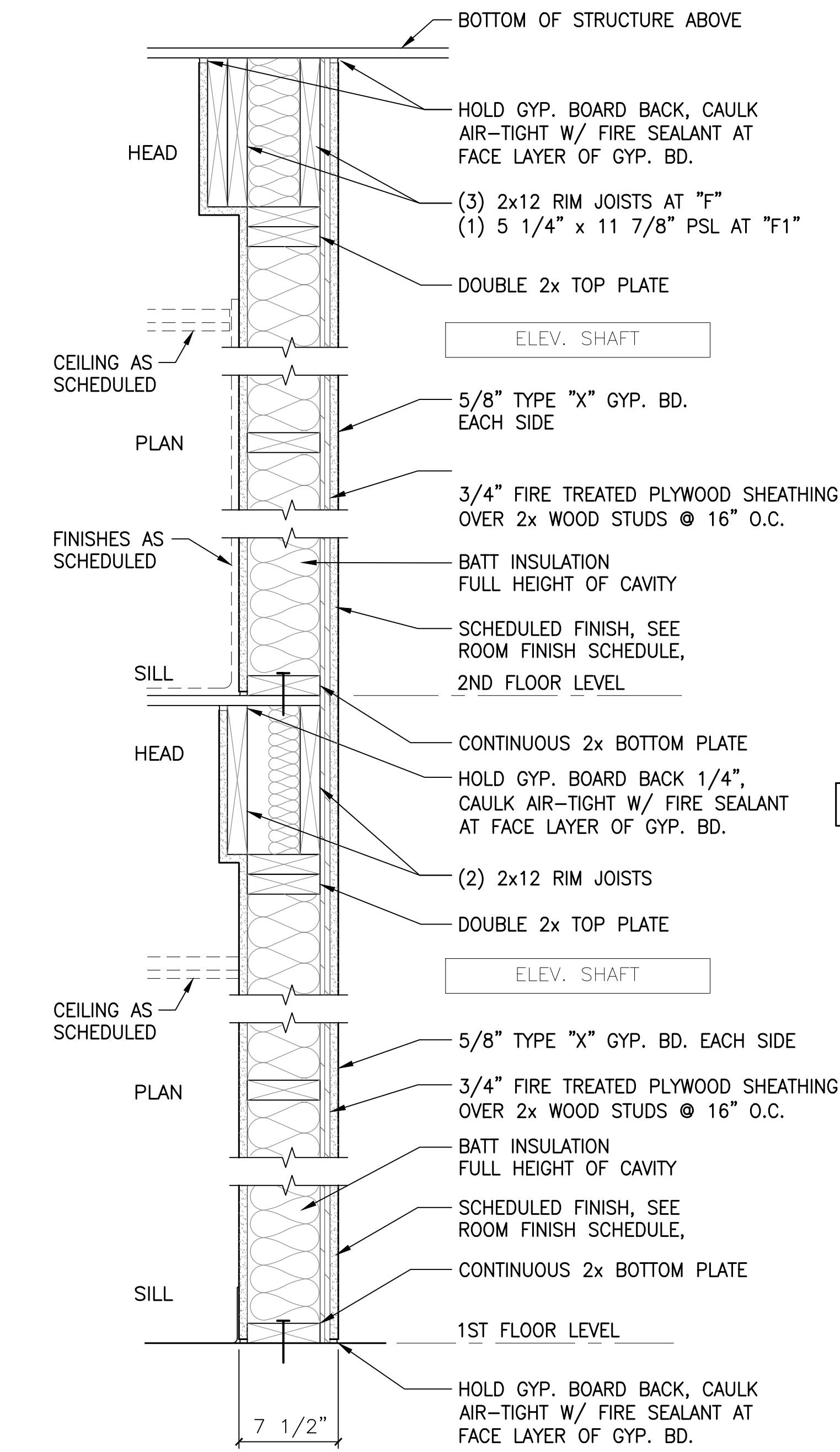
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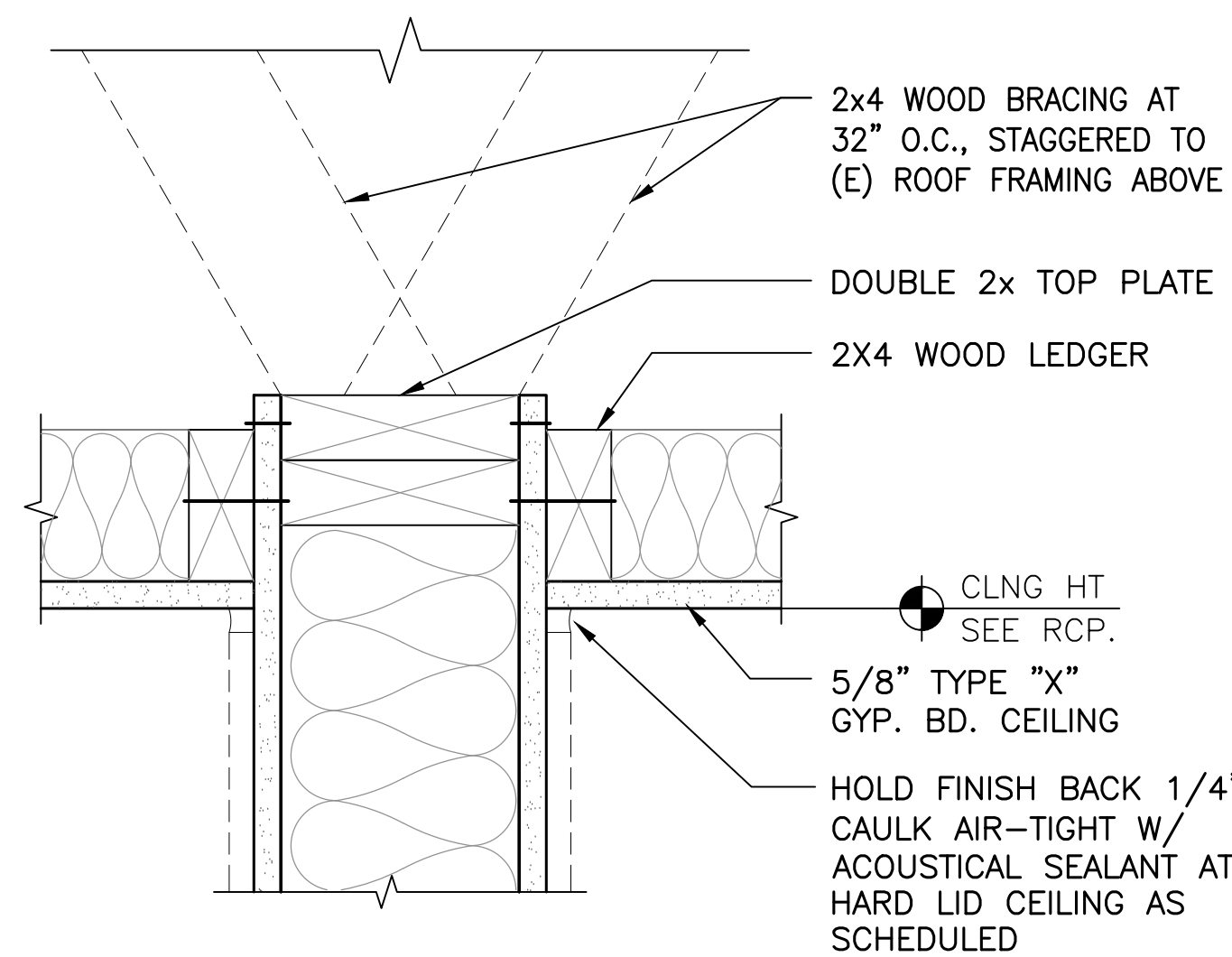
DETAILS

Sheet Number:

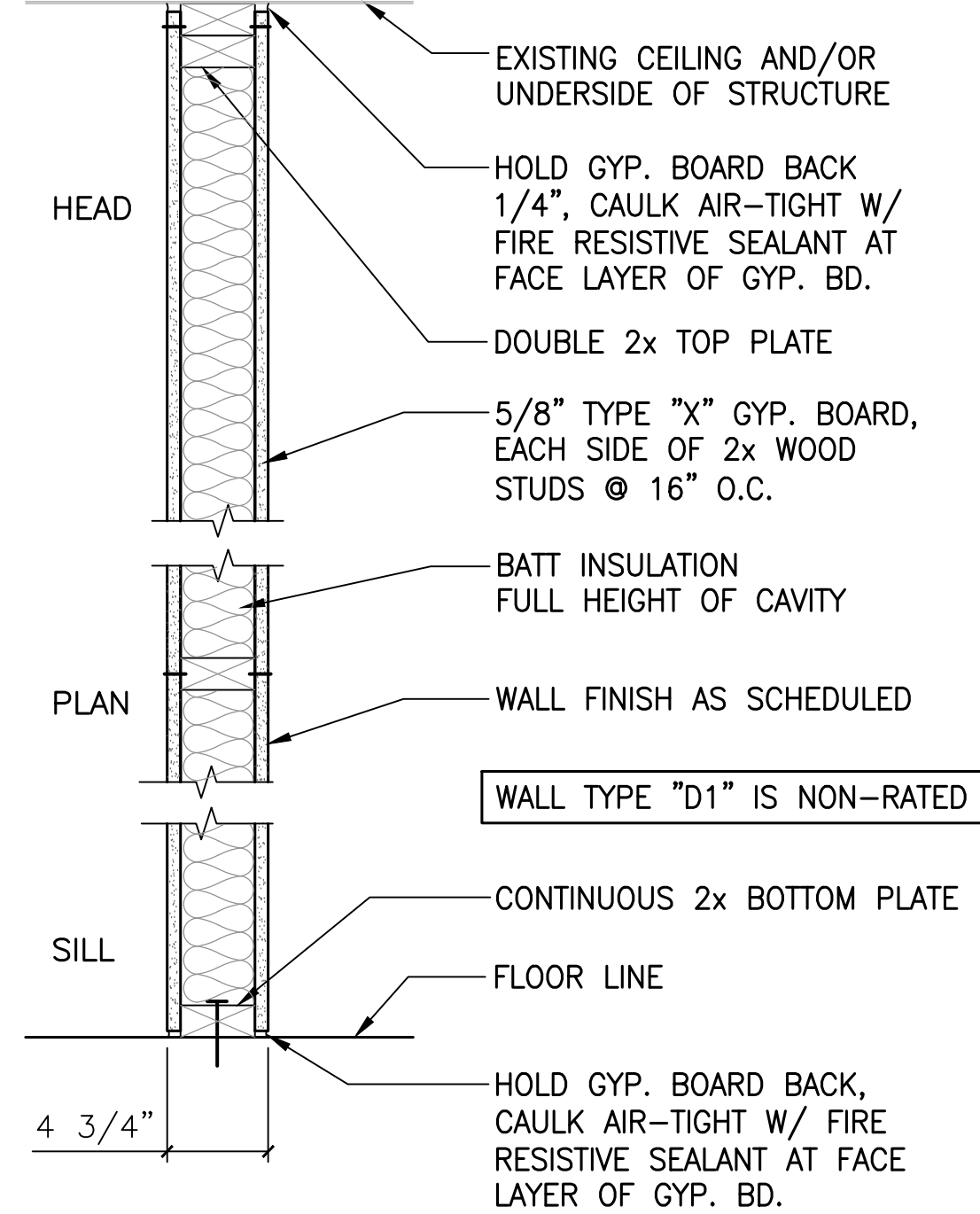
A501



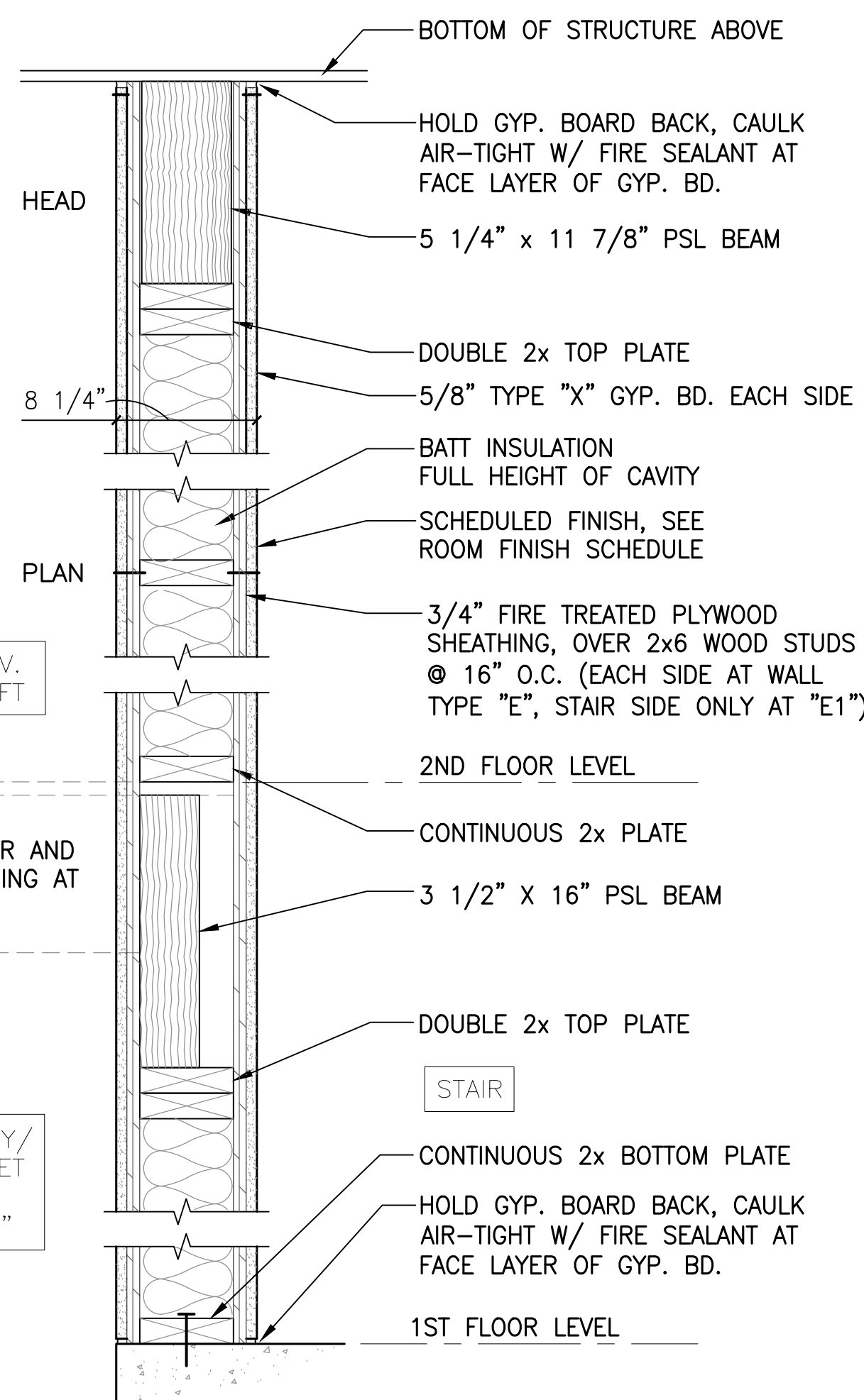
F FI PARTITION TYPE - 1 HOUR
2x6 STUDS @ PARTITION TYPE "F"



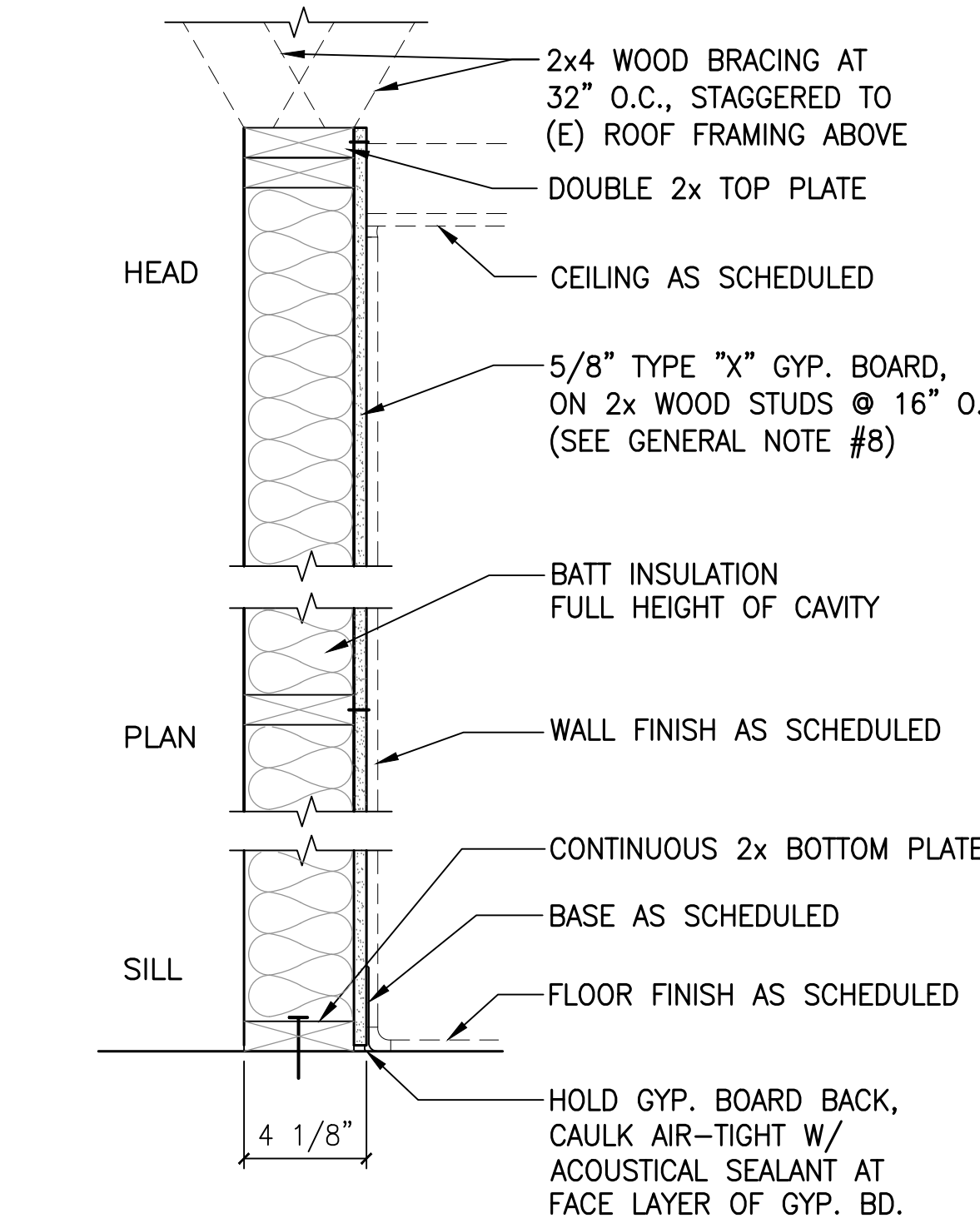
2 TOP OF WALL • HARD LID CEILING
TYPICAL



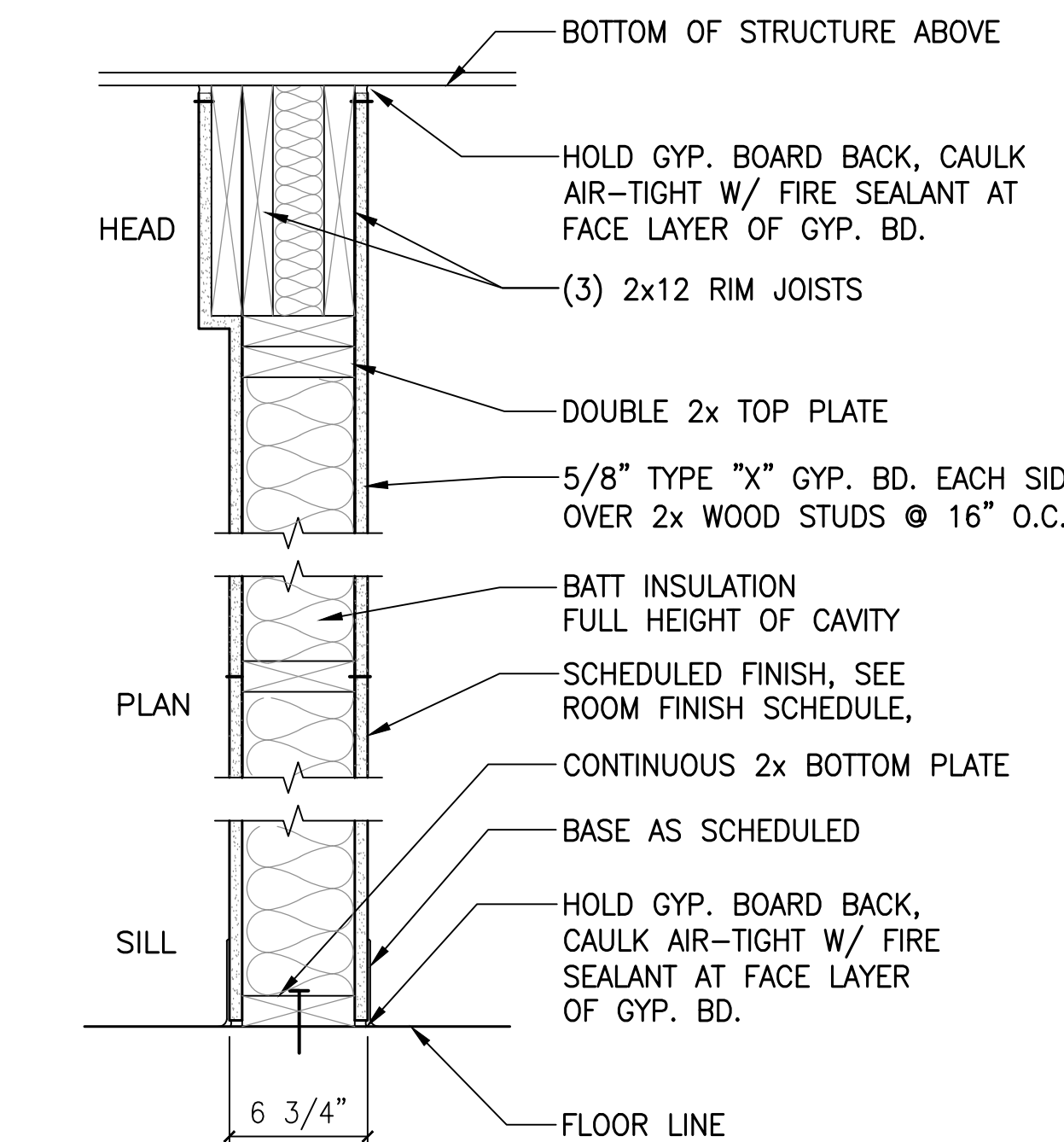
D D1 PARTITION TYPE - 1 HOUR
UL: #314 2x4 STUDS @ PARTITION TYPES



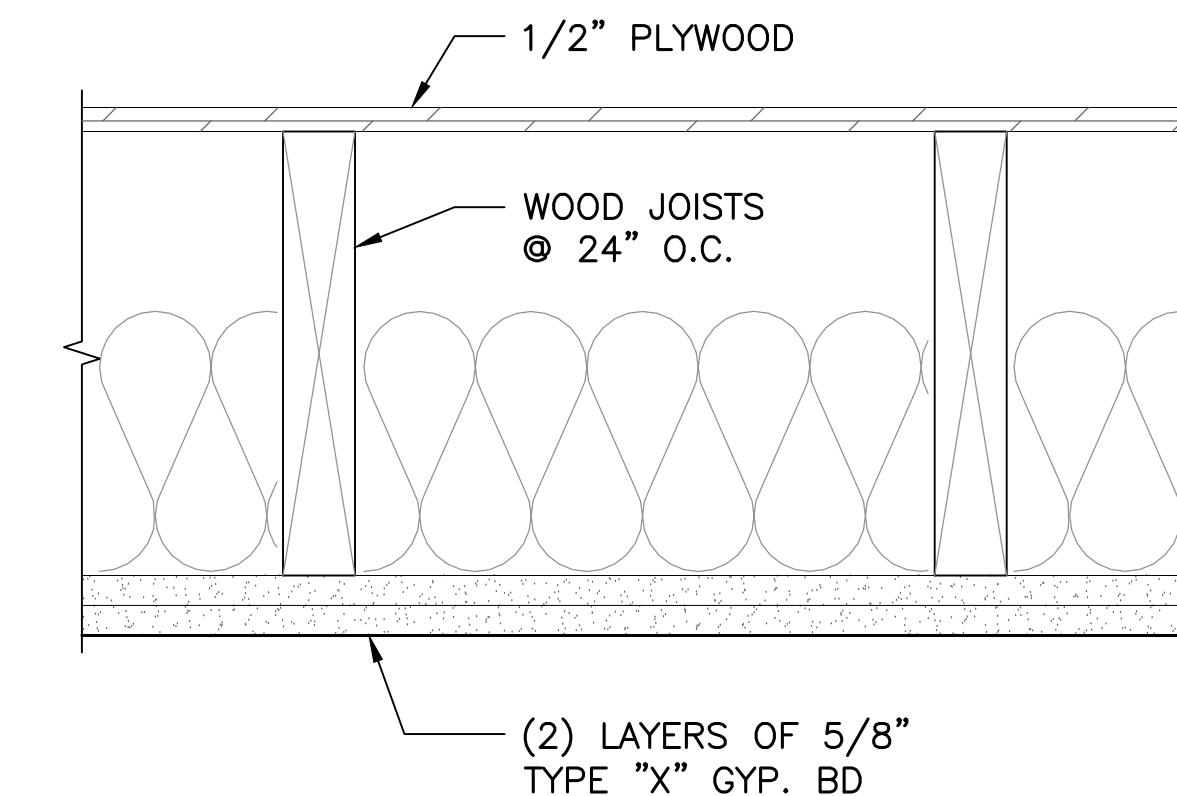
E E1 PARTITION TYPE - 1 HOUR
2x6 STUDS @ PARTITION TYPE "E"



B PARTITION TYPE (S)
2x4 STUDS @ PARTITION TYPE "B"



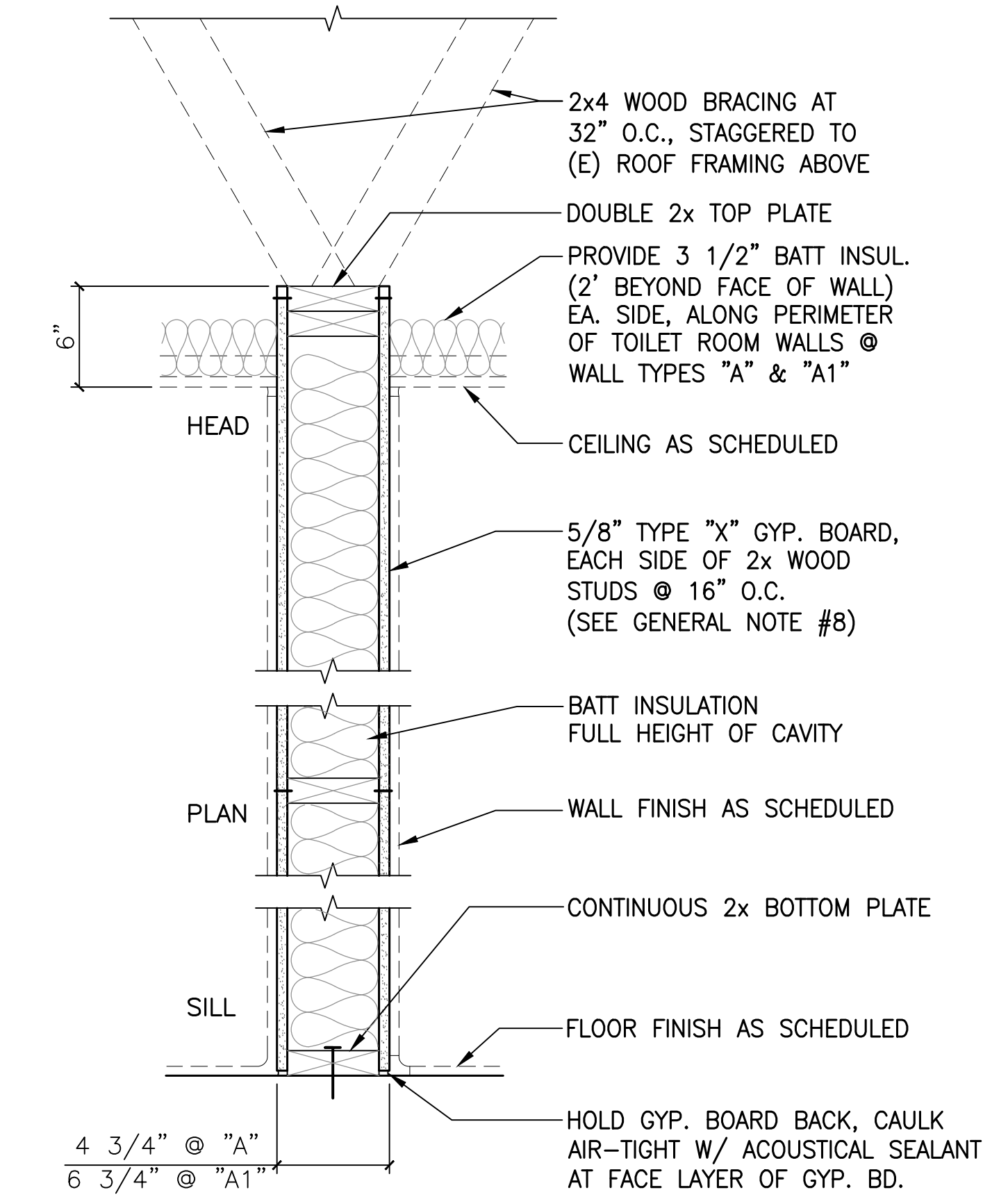
C C1 PARTITION TYPE - 1 HOUR
UL: #314 2x4 STUDS @ PARTITION TYPE "C"
2x6 STUDS @ PARTITION TYPE "C1"



1 1HR RATED CEILING SYSTEM
GA FC 5406 AND RC 2601

PARTITION TYPE NOTES:

- PARTITION TYPES INDICATE FRAMING REQUIREMENTS AND MATERIALS AT THE TOP AND BOTTOM OF STANDARD WALL TYPES. SEE WALL TYPES FOR STUD SIZES AND MATERIAL ASSEMBLIES.
- ALL INTERIOR PARTITIONS SHALL BE FULL HEIGHT TYPE, (U.N.O.)
- LEVELING: PROVIDE LEVELING NON-SHRINK GROUT UNDER ALL NEW STUD WALLS AS REQUIRED TO MAINTAIN $\pm 1/8"$ PER 10' UNDER WALL. TYPICAL AT ALL LOCATIONS.
- GYPSUM BOARD: ALL GYPSUM BOARD SHALL BE 5/8 INCH TYPE X UNLESS OTHERWISE NOTED. SUBSTITUTE 5/8" TYPE X MOISTURE RESISTANT GYPSUM BOARD IN TOILET ROOMS, TOILET ROOM VESTIBULES, JANITOR CLOSETS, PLUMBING SHAFTS AND ALL OTHER LOCATIONS SUBJECT TO MOISTURE. SUBSTITUTE 5/8" CEMENT BACKER BOARD WHERE TILE SHALL BE APPLIED TO WALLS.
- BACKING PLATES: PROVIDE STEEL PLATE AND/OR STUD BACKING AS INDICATED OR AS REQUIRED FOR ALL SIGNAGE, RAILINGS, CABINET, TV, SHELVING, GRAB BARS, TOILET PARTITIONS, TOILET ACCESSORIES, AND OTHER ITEMS FASTENED TO PARTITIONS. COORDINATE INSTALLATION OF BACKING WITH OTHER TRADES.
- NON FIRE-RATED CONSTRUCTION: ALL NON FIRE-RATED CONSTRUCTION SHALL BE BUILT AS REQUIRED FOR ONE-HOUR FIRE RESISTANCE. EXCEPT THAT RECESSED ITEMS AND PENETRATIONS MAY PASS THROUGH THIS PARTITION UNPROTECTED, PROVIDE SEALANT OR CAULK AROUND PENETRATIONS.
- TAPE AND FLOAT JOINTS (GYPSUM BOARD) ABOVE CEILINGS, TYPICAL.
- DIMENSIONS SHOWN ON PARTITION TYPES ARE BASE MATERIALS, FINISHES THAT CONTAIN THICKNESS ARE NOT SHOWN. SEE ROOM FINISH SCHEDULE SHEET A601 FOR SCHEDULED FINISHES, UNLESS NOTED OTHERWISE (UNO).
- ALL WET LOCATIONS (TOILET ROOMS), APPLY CONTINUOUS FILLET BEAD OF SEALANT VERTICALLY WHERE NEW PARTITION WALL ABUTS EXISTING EXTERIOR WALL.
- PROVIDE PRESSURE TREATED BOTTOM PLATE AT ALL CONCRETE LOCATIONS.



A A1 PARTITION TYPE (S)
2x4 STUDS @ PARTITION TYPE "A"
2x6 STUDS @ PARTITION TYPE "A1"

Revisions:

Client Project Number: 000
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KPA Project Number: 76100
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Sheet Title:

PARTITION TYPES

Sheet Number:

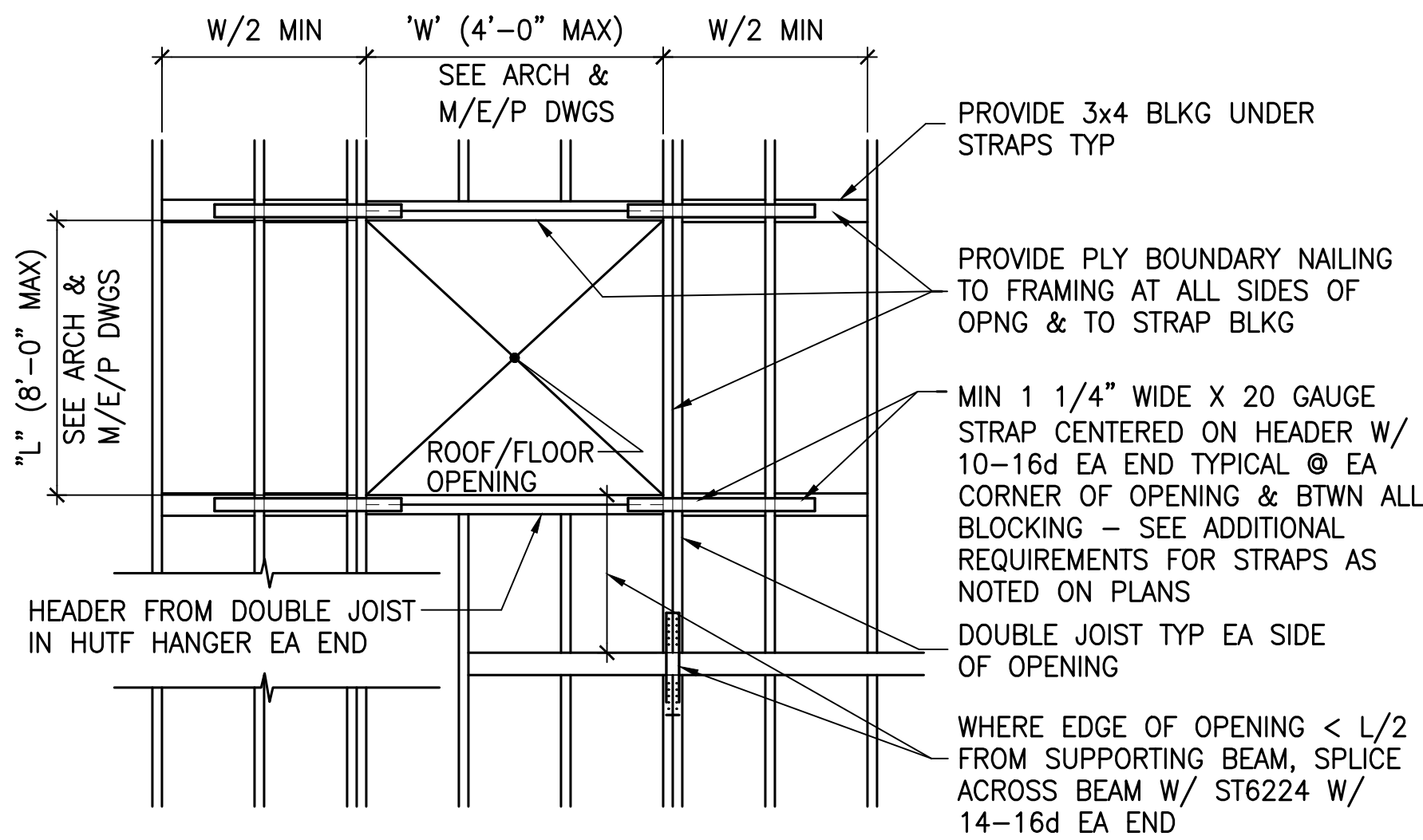
A511

MARK	NOMINAL STRUCT I PLYWD THICKNESS	COMMON NAIL SIZE (1)	NAIL SPACING			REMARKS (SEE NOTES BELOW)
			⊙ DIAPH BOUND.	⊙ CONT. EDGES	OTHER EDGES	
◊B	ROOF: 19/32" FLOOR: 1 1/8"	10d	4"	4"	6"	(2)

NOTES:

- COMMON NAILS ONLY – NO SINKERS ALLOWED. 10d SHALL HAVE 1 1/2" MIN PENETRATION INTO FRAMING & BLOCKING.
- NAILING AT INTERMEDIATE MEMBERS SHALL BE 10" O.C. ⊙ FLOORS, 12" O.C. ⊙ ROOF.
- WHERE NAIL SPACING 3" OR LESS O.C., FRAMING & BLOCKING AT THOSE PANEL EDGES SHALL BE 3x MIN – STAGGER NAILS.
- PLYWOOD SHALL BUTT TIGHT ON 2x FRAMING AND BLOCKING.
- MINIMUM WIDTH OF PLYWOOD 24".

4 ROOF/FLOOR DIAPHRAGM SCHEDULE

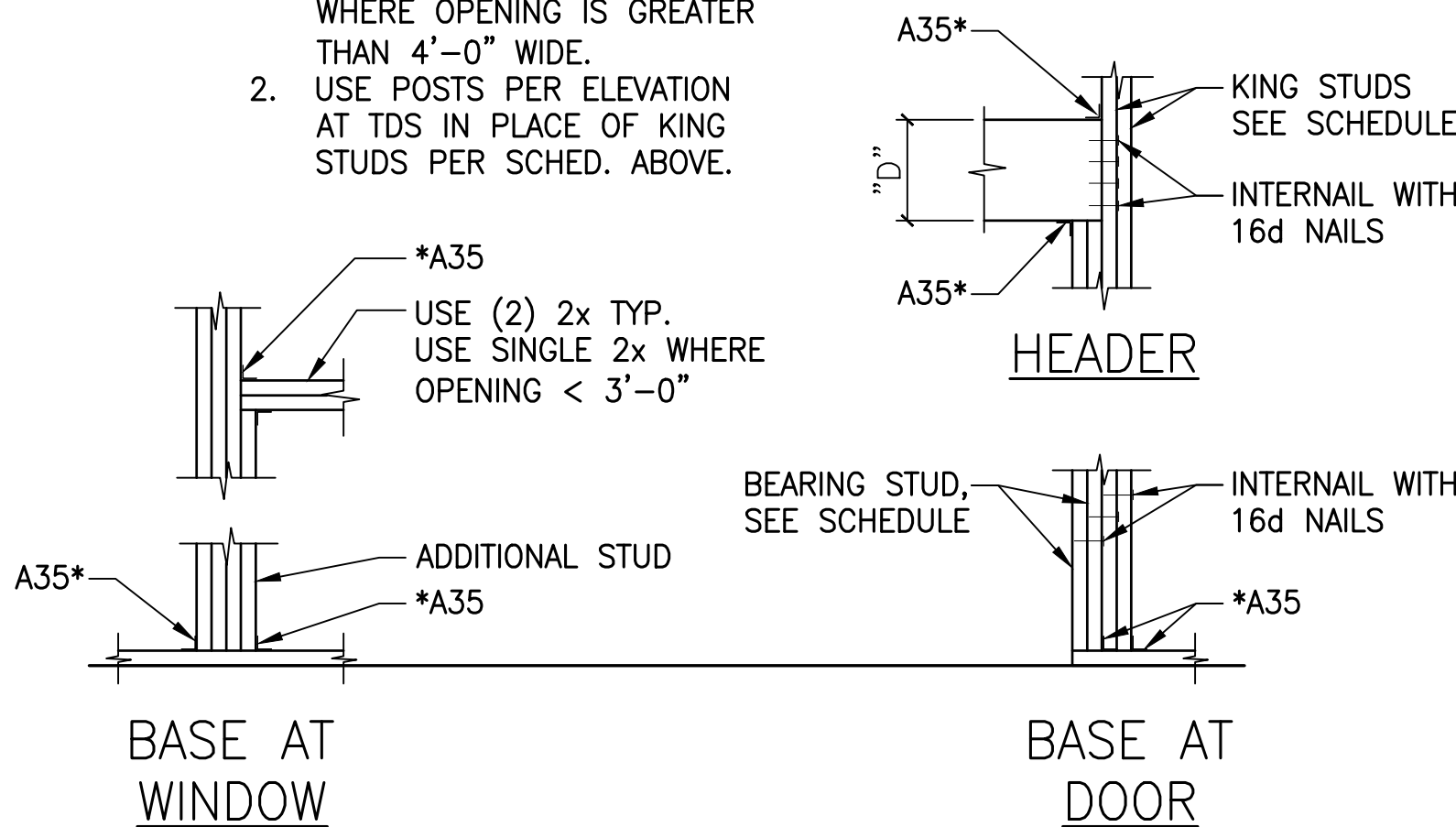


5 TYPICAL FLOOR /ROOF OPENING DETAILS

HEADER SCHEDULE			
OPENING WIDTH	"D"	NO. OF BEARING STUDS REQ.	NO. OF KING STUDS REQ.
<= 5'-0"	7 1/4"	1	2
5'-0" TO 7'-0"	7 1/4"	1	2
7'-0" TO 10'-0"	7 1/4"	1	3
>= 10'-0"	SEE PLAN	SEE PLAN	3

NOTES:

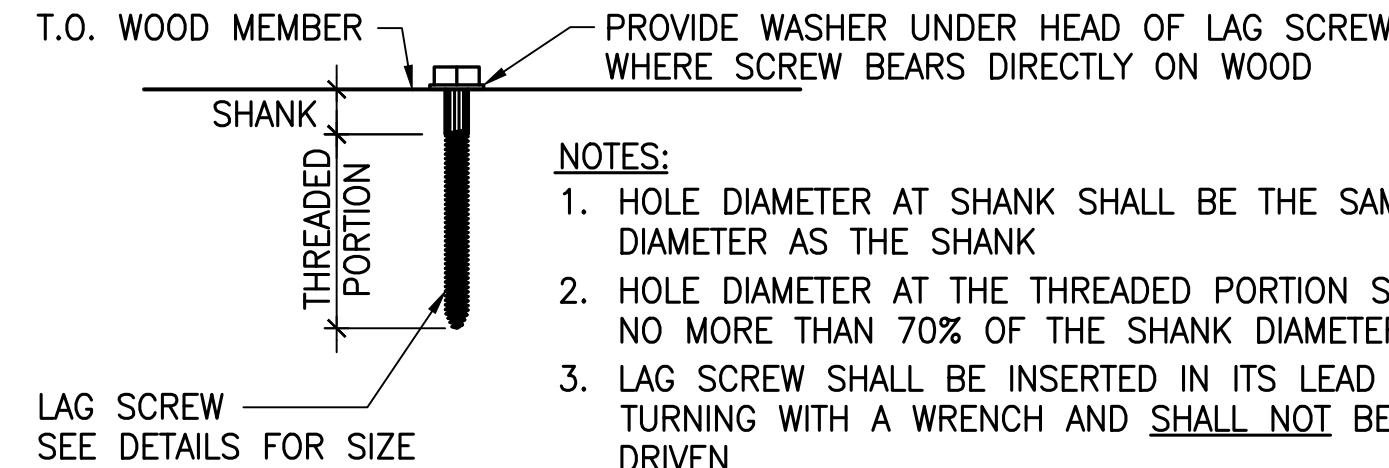
- *PROVIDE A35 CLIP ANGLES WHERE OPENING IS GREATER THAN 4'-0" WIDE.
- USE POSTS PER ELEVATION AT TDS IN PLACE OF KING STUDS PER SCHED. ABOVE.



6 TYPICAL WALL OPENING FRAMING

- ALL WOOD SCREWS SHALL BE ROLLED THREAD WOOD SCREWS WITH LENGTH AS REQUIRED TO PROVIDE MINIMUM PENETRATION OF TEN TIMES THE SCREW DIAMETER INTO THE MAIN MEMBER.

- TYPICAL LAG SCREWS SHALL BE AS NOTED:



NOTES:

- HOLE DIAMETER AT SHANK SHALL BE THE SAME DIAMETER AS THE SHANK
- HOLE DIAMETER AT THE THREADED PORTION SHALL BE NO MORE THAN 70% OF THE SHANK DIAMETER
- LAG SCREW SHALL BE INSERTED IN ITS LEAD HOLE BY TURNING WITH A WRENCH AND SHALL NOT BE HAMMER DRIVEN
- LUBRICANT SHALL BE USED TO EASE INSTALLATION OF SCREW INTO LEAD HOLE
- UNLESS NOTED OTHERWISE LAG SCREW LENGTH SHALL BE AS REQUIRED TO PROVIDE MINIMUM PENETRATION OF EIGHT TIMES THE SCREW DIAMETER INTO THE MAIN MEMBER

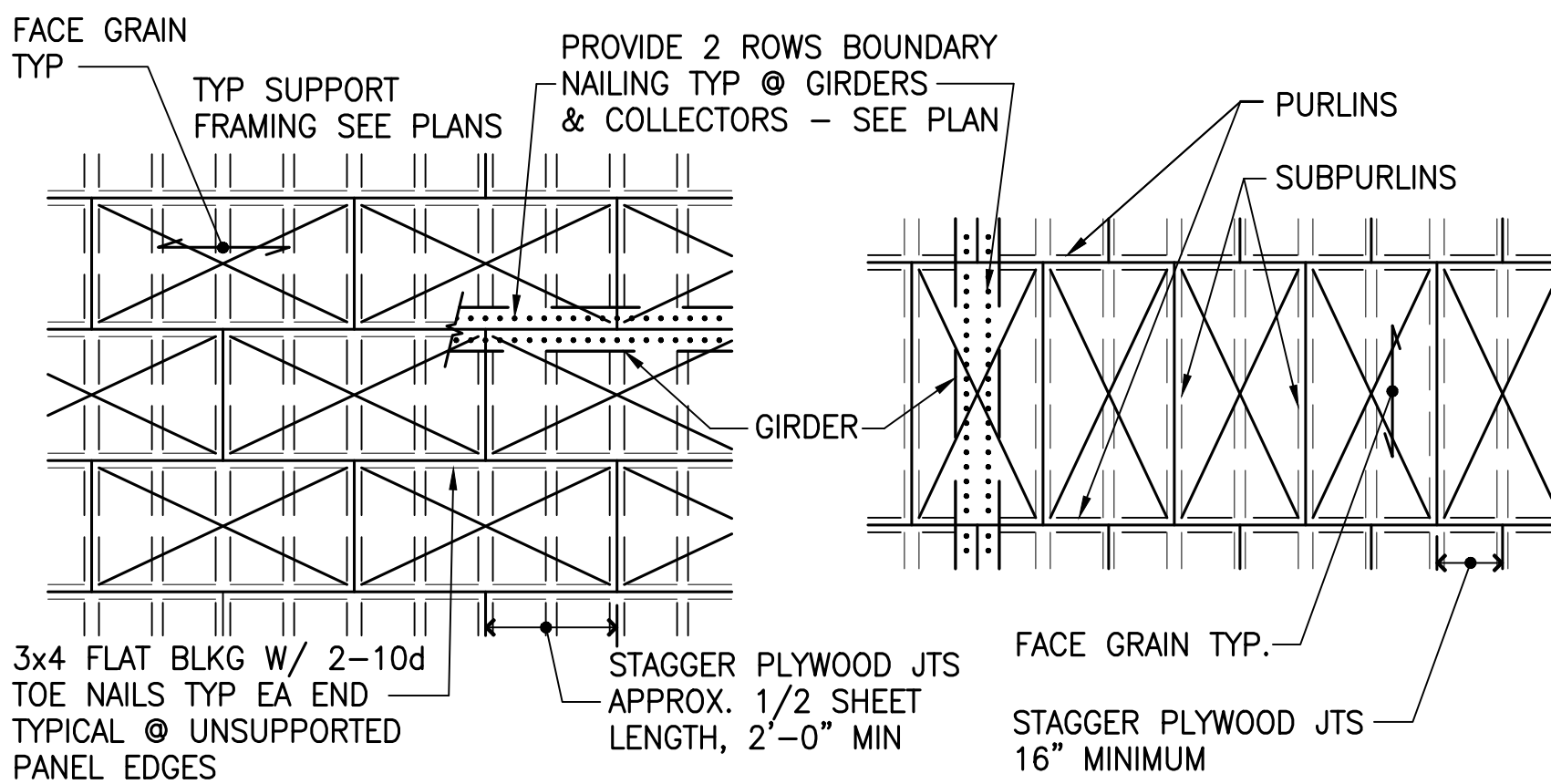
1 TYPICAL FRAMING NOTES - CONTINUED

MARK	PLYWOOD STRUCT I EXTERIOR	NAILING		FNDN SILLS		BLKG	BOTTOM PLATES		REMARKS
		SIZE 1)	SPACING ⊙ PANEL EDGE 2)	SIZE	BOLTING	SIMPSON ANCHOR	SIZE	REQ'D (4) ATTACHMENT	
▽	15/32" ONE SIDE	10d	4"	2x	5/8"⌀ ⊙ 32" O.C.	A35 ⊙ 16" O.C.	2x	2 ROWS 20d ⊙ 8" O.C.	3) 3x STUDS REQ'D.

NOTES:

- COMMON NAILS ONLY – NO SINKERS ALLOWED. 10d SHALL HAVE 1 1/2" MIN PENETRATION.
- NAIL SPACING ⊙ INTERMEDIATE STUDS IS 12" O.C. PROVIDE SOLID BLKG TO MATCH REQ'D STUD THICKNESS AT ALL UNSUPPORTED EDGES OF SHEATHING.
- ALL STUDS SPACED ⊙ 16" O.C. MAX. PROVIDE 3x STUDS WHERE NOTED.
- PREDRILL ⊙ 90% x NAIL DIAMETER AS REQ'D. TO PREVENT WOOD SPLITTING. PREPARE LAG SCREW HOLES PER DETAIL THIS SHEET.
- ANCHOR BOLTS SHALL BE GALVANIZED AND TERMINATED WITH A STANDARD BOLT HEAD OR HOOKED WITH A 90° BEND WITH AN INSIDE DIAMETER EQUAL TO 3 BOLT DIAMETERS PLUS AN EXTENSION OF 1 1/2 BOLT DIAMETERS. THE BOLTS SHALL BE EMBEDDED BELOW TOP OF SLAB.
- WHERE PLY IS APPLIED ON BOTH FACES OF WALL STUDS & NAIL SPACING IS LESS THAN 6" O.C. ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT STUDS & NAILS SHALL BE STAGGERED.
- PLYWOOD SHALL BUTT TIGHT ON MIN. 2x FRAMING AND BLOCKING.
- MINIMUM DIMENSION OF PLYWOOD PIECE IS 24".
- WHERE WALL IS ON A CONCRETE CURB, EMBED ALL BOLTS AND HOLDDOWNS IN SLAB BELOW THE CURB.

2 SHEAR WALL SCHEDULE AND NOTES



TYPICAL FLOOR/ROOF SHEATHING

NOTES:

- EDGE DISTANCE OF NAILS IN JOISTS & PLYWOOD SHEETS SHALL NOT BE LESS THAN 3/8" MINIMUM.
- PROVIDE REQ'D. EDGE BLOCKING AS SHOWN ABOVE. THIS BLOCKING IS NOT SHOWN ON FRAMING PLANS.
- SEE SCHEDULE BELOW FOR PLYWOOD THICKNESS AND NAILING REQUIREMENTS.

3 DIAPHRAGM LAYOUT PLANS

- ALL NEW LUMBER SHALL BE AS NOTED BELOW:

- SILLS ON CONCRETE: PRESSURE TREATED DOUGLAS FIR NO. 1 OR BETTER.
- STUDS AND PLATES: DOUGLAS FIR NO. 1 OR BETTER.
- POSTS: DOUGLAS FIR NO. 1 OR BETTER.
- BLOCKING: DOUGLAS FIR NO. 2 OR BETTER.
- JOISTS AND PLANKS: DOUGLAS FIR NO. 1 OR BETTER.
- BEAMS, STRINGERS, AND HEADERS: DOUGLAS FIR NO. 1 OR BETTER.
- NON-LOAD BEARING PARTITIONS, CEILING FRAMING, AND MISCELLANEOUS NON-STRUCTURAL FRAMING: DOUGLAS FIR NO. 2 OR BETTER.

- ALL NEW PLYWOOD SHALL BE STRUCTURAL I WITH EXTERIOR GLUE. MINIMUM THICKNESS SHALL BE 15/32" FOR WALLS, 1 1/8" FOR FLOORS, AND 19/32" FOR ROOFS, U.N.O.
- ALL NEW FRAMING IN CONTACT WITH FOUNDATION OR SLABS TO BE PRESSURE TREATED.
- SOLID BLOCKING SHALL BE 2x UNLESS OTHERWISE NOTED. BLOCKING SHALL BE FULL DEPTH OF MEMBERS, STUDS, JOISTS, ETC. EVEN THOUGH NOT SHOWN ON DRAWINGS. WALLS SHALL BE BLOCKED AS REQUIRED BY PLYWOOD NAILING AND OPENING DETAILS AND ADDITIONALLY WALLS BETWEEN 8 AND 12 FEET HIGH SHALL HAVE 1 ROW OF BLOCKING AT MID-HEIGHT. WALLS OVER 12 FEET HIGH SHALL HAVE A ROW OF BLOCKING AT 1/3 AND AT 2/3 OF HEIGHT. JOISTS SHALL BE BLOCKED AS REQUIRED BY PLYWOOD NAILING DETAILS AND ADDITIONALLY AT 8'-0" SPACING TYPICAL.

SOLID BLOCKING AT 4'-0" MAX. SPACING SHALL BE PROVIDED BETWEEN ALL EXTERIOR AND ALL INTERIOR BEARING WALLS AND FIRST 2 INTERIOR FLOOR OR ROOF JOISTS EXCEPT WHERE JOISTS FRAME INTO WALL.

ALL WALL, ROOF OR FLOOR PLY SHALL BE NAILED TO ALL BLOCKS WITH 4-10d MINIMUM.

- BEAMS, JOISTS AND PURLINS SHALL ONLY BE CUT AS SHOWN ON THE DRAWINGS OR AS APPROVED IN WRITING BY THE ENGINEER-OF-RECORD. WHERE PERMITTED, HOLES THROUGH THE MEMBER SHALL NOT EXCEED 1/6 THE DEPTH OF THE MEMBER IN SIZE AND SHALL BE LOCATED IN THE MIDDLE 1/3 OF THE MEMBER DEPTH. NOTCHES SHALL BE NO GREATER THAN 1/10 OF THE MEMBER DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE MEMBER SPAN. HOLES OR NOTCHES ARE NOT PERMITTED WITHIN 2 TIMES THE MEMBER DEPTH FROM ANY MEMBER SUPPORT. ADJACENT HOLES OR NOTCHES SHALL BE SPACED AT A DISTANCE NOT LESS THAN 1 1/2 X MEMBER DEPTH.
- ALL BOLTS, WASHERS, NUTS, FRAMING CLIPS. NAILING, ETC. IN PRESSURE TREATED SILL PLATES AND FRAMING MEMBERS TO BE HOT-DIP GALVANIZED, TYPICAL.

- UNLESS OTHERWISE NOTES, PROVIDE FOLLOWING NAILING (COMMON WIRE NAILS)

- JOISTS OR RAFTERS TO SIDES OF STUDS
8" JOISTS OR LESS _____ 3-16d
10" & 12" JOISTS _____ 4-16d
- JOISTS OR RAFTERS AT ALL BEARINGS
TOE NAILS, EACH SIDE _____ 2-10d 1)
CEILING JOISTS, LAPS OVER PARTITIONS, FACE NAIL _____ 3-16d
CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL _____ 3-16d
BLOCKING BETWEEN JOISTS OR RAFTERS-
TO JOISTS OR RAFTERS- TOE NAILS, EACH SIDE, EACH END _____ 2-10d 1)
TO JOISTS OR RAFTERS BEARINGS- TOE NAILS, EACH SIDE _____ 2-10d 1)
BLOCKING BETWEEN STUDS, EACH END _____ 2-10d TOE NAILS
OR 2-16d END NAIL _____ 2-8d
- BRIDGING TO JOIST, TOE NAILS, EACH END _____ 2-8d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL _____ 20d AT 16" O.C.
TOP AND BOTTOM PLATE TO STUD, END NAIL _____ 2-16d
STUD TO SOLE PLATE, TOE NAIL _____ 4-8d
DOUBLED STUDS, FACE NAIL _____ 16d AT 24" O.C.
DOUBLE TOP PLATES, FACE NAIL _____ 16d AT 16" O.C.
DOUBLE JOISTS/RAFTERS, FACE NAIL _____ 2-16d AT 12" O.C.
RIBBONS TO STUDS
1x RIBBONS _____ 2-8d
2x RIBBONS _____ 2-16d
STUD TO CONTINUOUS HEADER, TOE NAIL _____ 4-8d
HEADER TP JAMB STUD/POST, EACH END _____ 4-20d END NAILS
OR 3-10d TOEN EA FACE _____ 2-8d
- 1x BRACE TO EACH STUD AND PLATE, FACE NAIL _____ 2-8d
1x8 SHEATHING OR LESS TO EACH BEARING, FACE NAIL _____ 3-8d
WIDER THAN 1x8 SHEATHING TO EACH BEARING, FACE NAIL _____ 3-8d
2x PLANK OR T&G DECKING _____ 2-16d AT EACH BEARING

- PLYWOOD NON-STRUCTURAL 2)
SUBFLOOR (/UNDERLAYMENT), ROOF AND WALL SHEATHING TO FRAMING:
1/2" AND LESS _____ 6d 3)
5/8" - 3/4" _____ 8d OR 6d 3)
7/8" - 1" _____ 8d 3)
1 1/8" - 1 1/4" _____ 10d OR 8d 3)
PANEL SIDING (NON-STRUCTURAL, TO FRAMING)
1/2" OR LESS _____ 6d 4)
5/8" _____ 8d 4)

NOTES:

- WHEN POSSIBLE, NAILS DRIVEN PERPENDICULAR TO GRAIN SHALL BE USED INSTEAD OF TOE NAILS.
- NAILS SPACED AT 6" O.C. PANEL EDGES, 10" O.C. ⊙ INTERMEDIATE FLOOR SUPPORTS AND 12" O.C. AT INTERMEDIATE ROOF SUPPORTS.
- USE DEFORMED SHANK NAILS.
- USE HOT-DIP GALVANIZED SIDING OR CASING NAILS.
- ALL NAILS SHALL BE COMMON NAILS CONFORMING TO ASTM F1667 AND SHALL HAVE MINIMUM PENETRATION INTO MAIN MEMBER AS NOTED BELOW.
 - 20d - 1 7/8" PENETRATION
 - 16d - 1 5/8" PENETRATION
 - 12d & 10d - 1 1/2" PENETRATION
 - 8d - 1 3/8" PENETRATIONWHERE MINIMUM PENETRATION CANNOT BE ACHIEVED PROVIDE 1/4"⌀ SIMPSON SDS SCREWS WITH MINIMUM 3" PENETRATION INTO MAIN MEMBER IN LIEU OF NAILS.

1 TYPICAL FRAMING NOTES

Revisions:

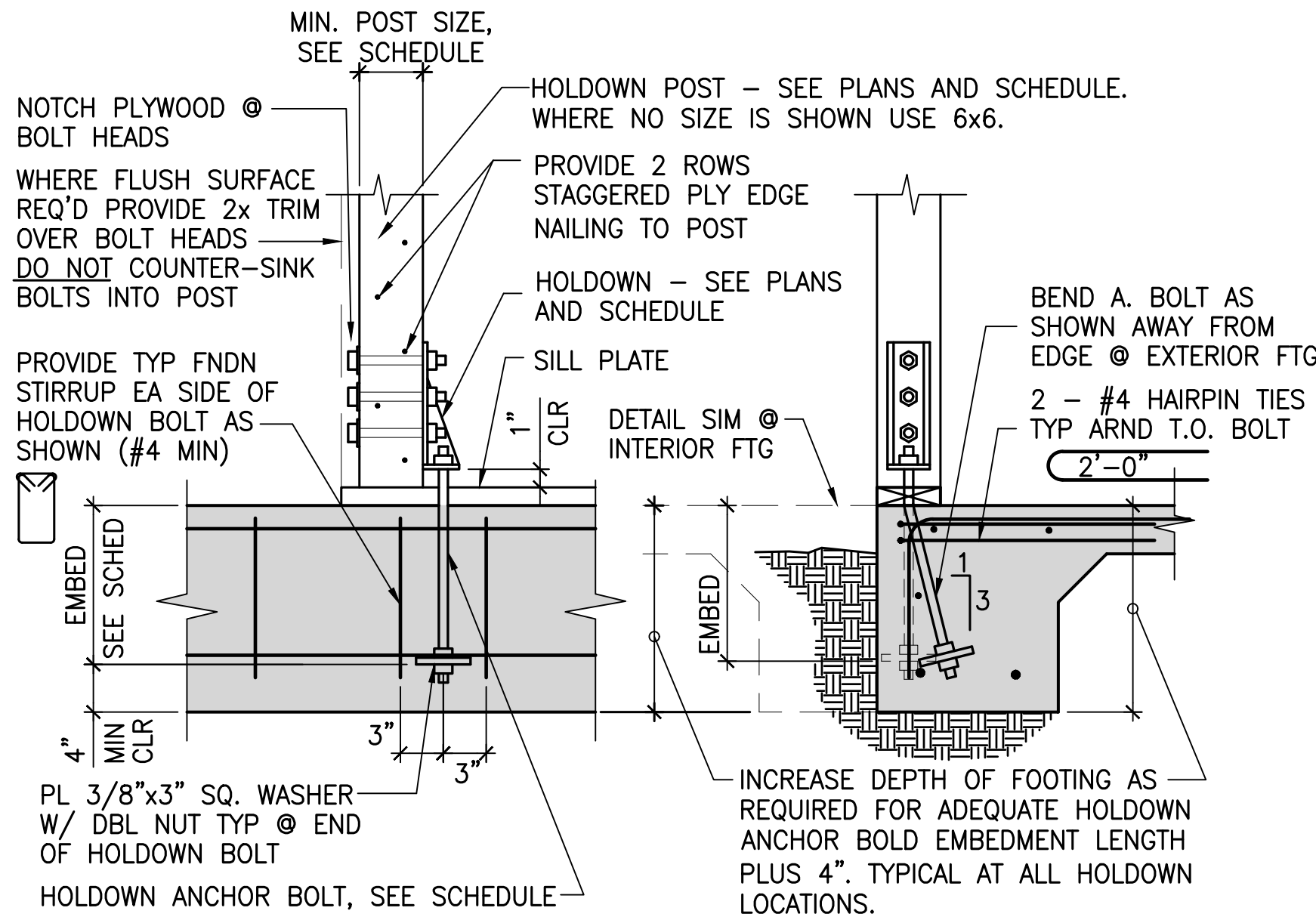
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Sheet Title:

TYPICAL WOOD
FRAMING DETAILS

Sheet Number:

A512A

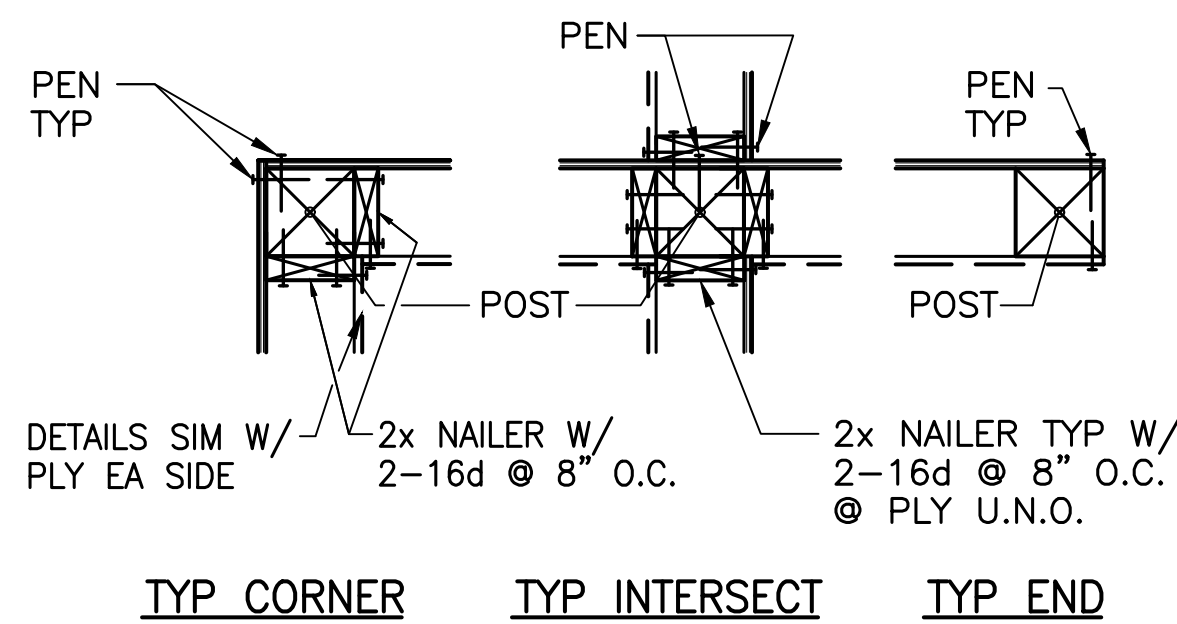


PLAN SYMBOL (1)	FOUNDATION HOLDOWN				FLOOR HOLDOWN		MIN POST SIZE (6)
	HOLDOWN TYPE @ FNDN	HOLDOWN ANCHOR BOLT SIZE	ANCHOR BOLT EMBED DEPTH (4)	CONN TO HOLDOWN POST (2)	HOLDOWN TYPE (5) @ FLOORS	CONN TO HOLDOWN POST (2)	
	HDU5	5/8"Ø	12"	14 SDS 1/4"Ø X 2 1/2" LONG	FTA5	2-3/4"Ø	4x

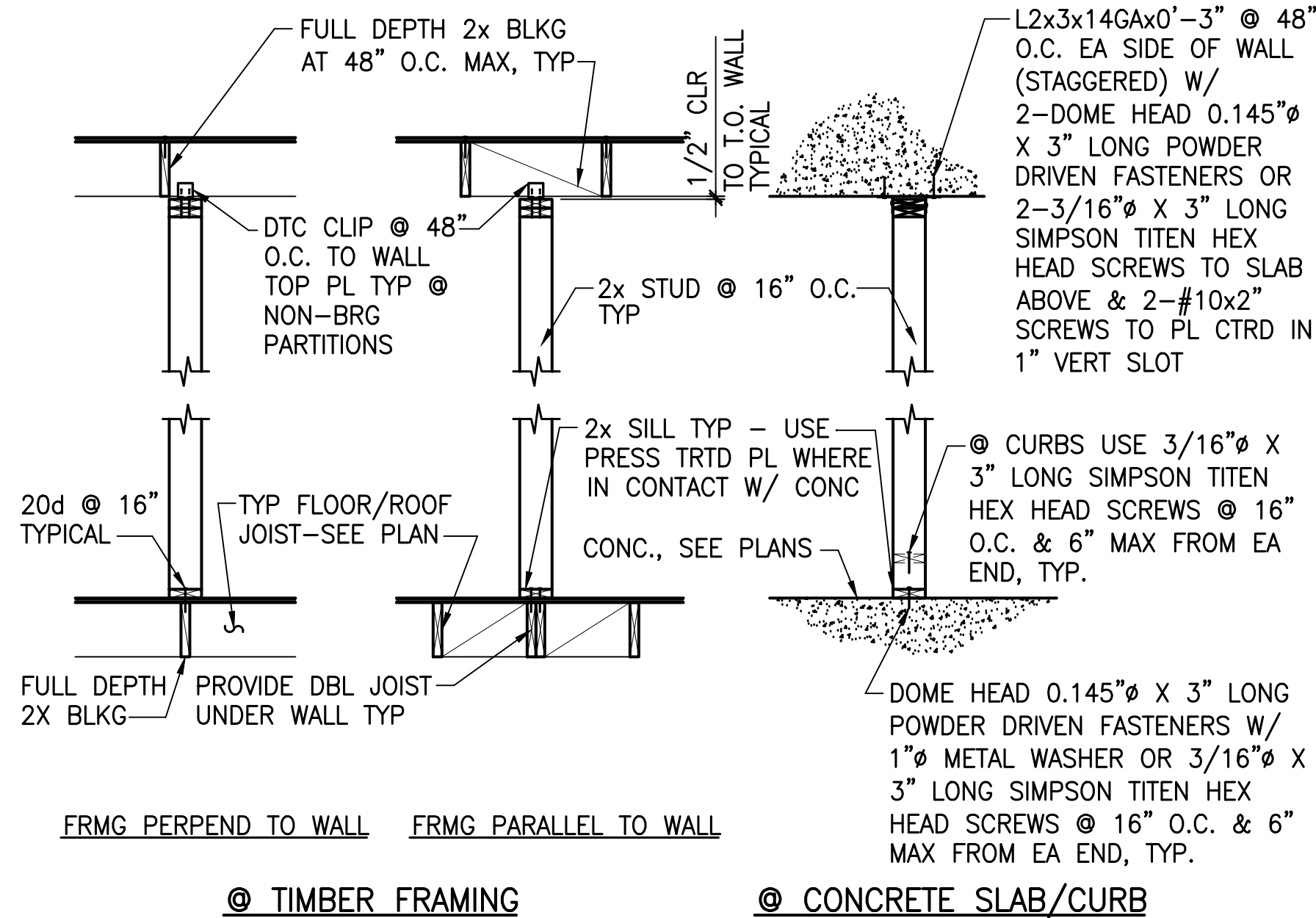
NOTES:

1. SEE PLANS FOR LOCATIONS OF HOLDOWNS.
2. DO NOT COUNTERSINK HOLDOWN BOLT HEADS INTO POSTS.
3. INSTALL ALL HOLDOWNS PER MANUFACTURER'S SPECIFICATIONS.
4. BOLTS SHALL BE EMBEDDED BELOW CURBS - DO NOT COUNT CURB HEIGHT FOR EMBEDMENT.
5. A PAIR OF HOLDOWNS MAY BE USED IN LIEU OF FTA ANCHORS NOTED. USE SAME SIZE AS NOTED FOR FOUNDATION.
6. USE SAME WIDTH POST AS WALL WIDTH - TYPICAL

4 TYPICAL HOLDDOWN DETAIL AND SCHEDULE

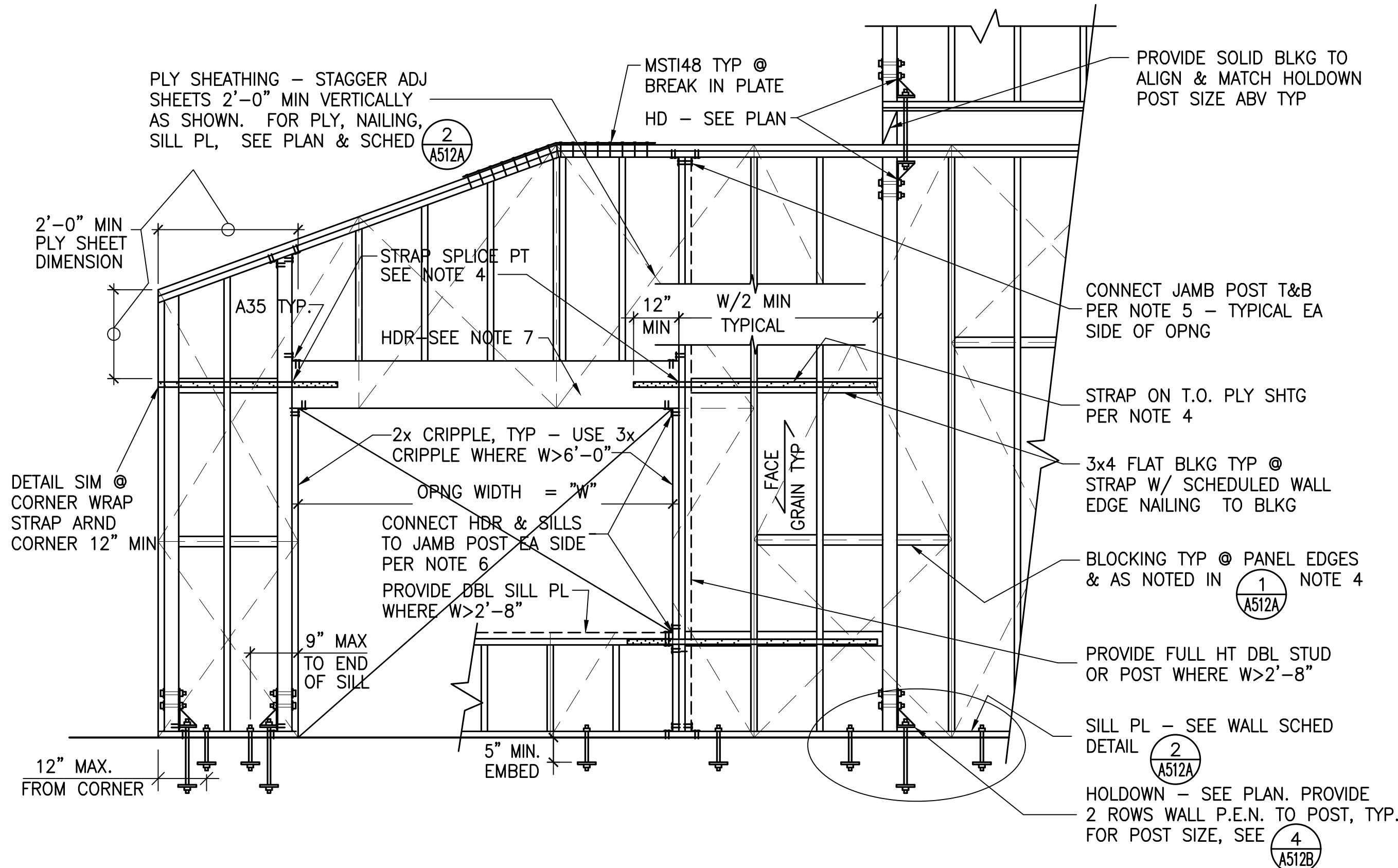


5 TYPICAL WALL INTERSECTIONS

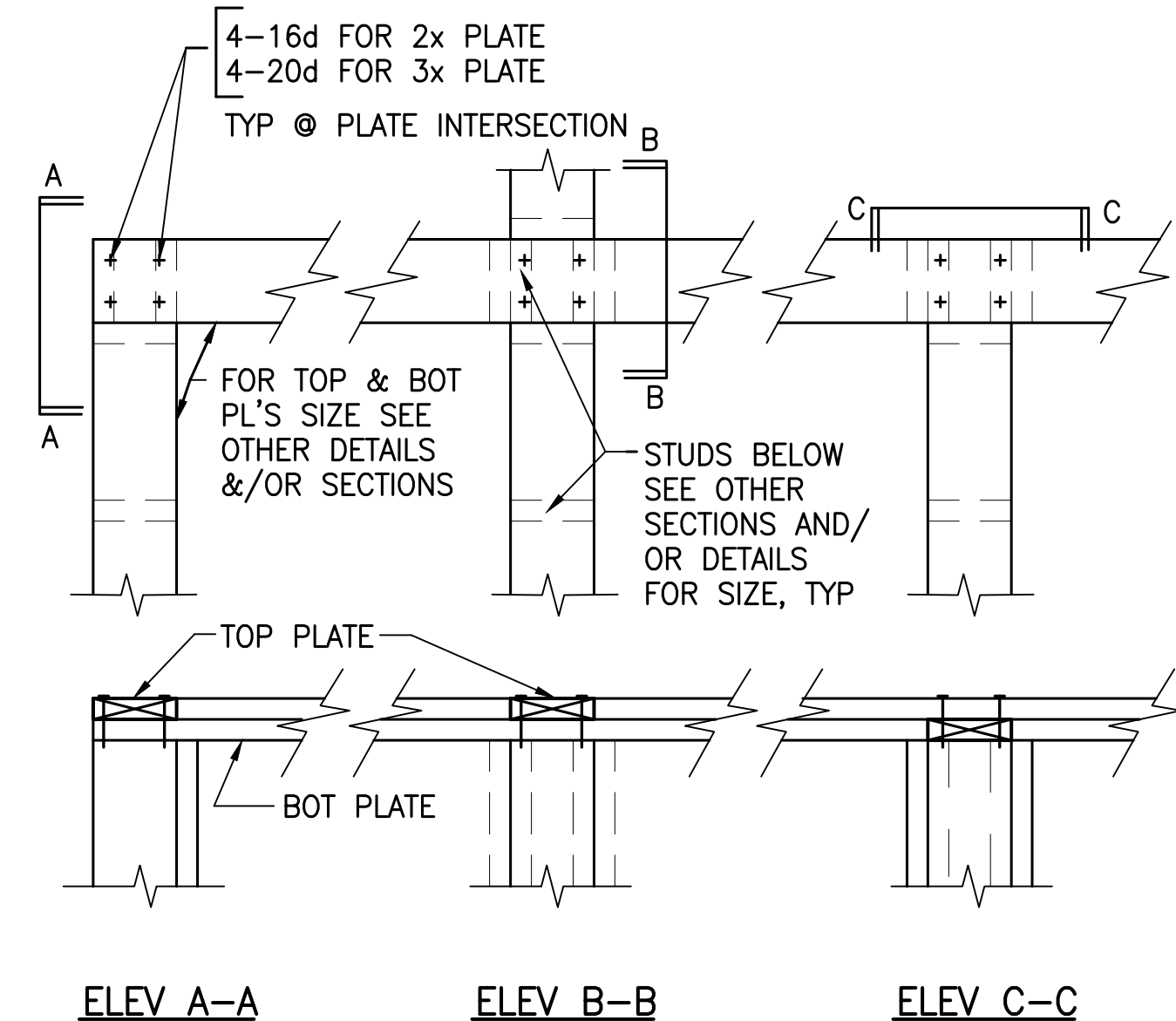


3 TYPICAL DETAIL AT NON-BEARING STUD PARTITIONS

- TYPICAL WALL FRAMING NOTES:
1. LOCATE MECH OPENINGS IN NON-SHEAR WALLS WHERE POSSIBLE.
 2. MECH OPENINGS IN SHEAR WALLS TO BE LOCATED 1'-6" MIN. FROM HOLD DOWN ANCHOR LOCATIONS.
 3. ALL NAILING NOT SHOWN IS PER NAILING SCHEDULE OR AS DETAILED ELSEWHERE.
 4. PROVIDE STRAPS @ T&B CORNERS OF ALL WALL OPENINGS PER THE FOLLOWING SCHEDULE:
 - OPNG < 4'-0" WIDE: CS20 STRAP W/ MIN 10-8d EA SIDE OF SPLICE PT
 - OPNG > 4'-0" WIDE: CS16 STRAP W/ MIN 16-8d EA SIDE OF SPLICE PT
 5. CONNECT JAMB POSTS T&B AS FOLLOWS:
 - W<4'-0" WIDE: TOEN PER SCHED
 - W<8'-0" WIDE: A23 CLIP T&BSEE DRAWINGS FOR OTHER CONDITIONS
 6. CONNECT HDRS & SILLS TO JAMB POSTS EA SIDE AS FOLLOWS:
 - W<4'-0" WIDE: NAIL PER SCHED
 - W<6'-0" WIDE: A35 CLIP 1 SIDE OF POST
 - W<8'-0" WIDE: A35 CLIP EA SIDE OF POSTSEE DRAWINGS FOR OTHER CONDITIONS
 7. UNLESS OTHERWISE SHOWN ON PLAN, PROVIDE HEADERS @ T.O. OPNGS AS FOLLOWS:
 - W<4'-0" WIDE: HDR DEPTH = 6" NOM
 - W<6'-0" WIDE: HDR DEPTH = 8" NOM
 - W<8'-0" WIDE: HDR DEPTH = 12" NOMHEADERS TO BE SOLID TIMBERS W/ THICKNESS SAME AS WALL STUDS.



1 TYPICAL SHEAR WALL FRAMING DETAIL (SIM. • NON-BEARING WALLS)



2 TYPICAL INTERSECTION OF TOP PLATES

Revisions:

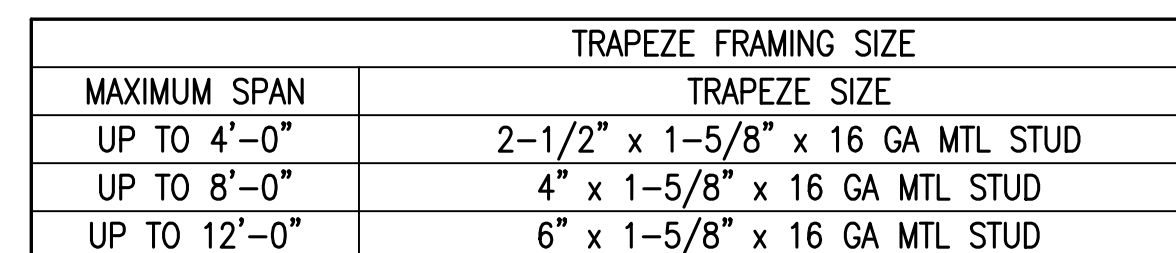
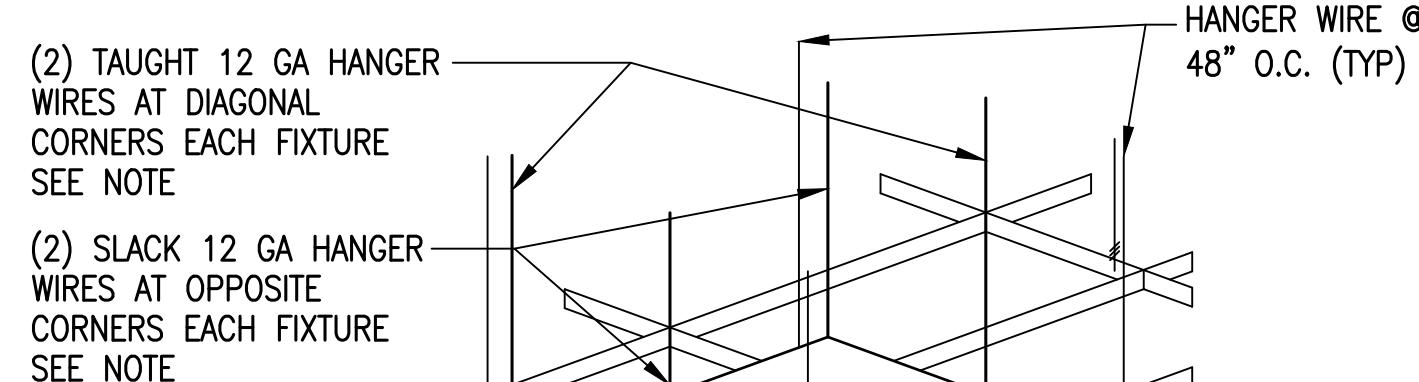
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Sheet Title:

TYPICAL WOOD
FRAMING DETAILS

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A512B



SEE TYPICAL CEILING PERIMETER DETAIL BELOW

FIXED SIDES OF CEILING:
ATTACH PERIMETER MEMBER TO
WALL STUDS @ 16" O.C. (TYP)

FREE SIDES OF CEILING:
MAINTAIN 3/4" CLEARANCE BETWEEN
CEILING AND WALL. (TYP)

PROVIDE INTERCONNECTING STRUT
BETWEEN FREE SIDE RUNNERS
WHERE DIST. FROM WALL TO 1ST RUNNER
EXCEEDS 12". (TYP) SEE DETAIL BELOW

1/2 GRID DIST.
MAX. (TYP.)
TO BRACING
WIRES

12'-0"

FIXED SIDE

FREE SIDE

CROSS FURRING @
24" O.C. MAX (TYP.)

MAIN RUNNERS
@ 48" O.C. (TYP.)

12 GA. HANGER WIRES
@ 48" O.C. EACH WAY
MAX. (TYP.)

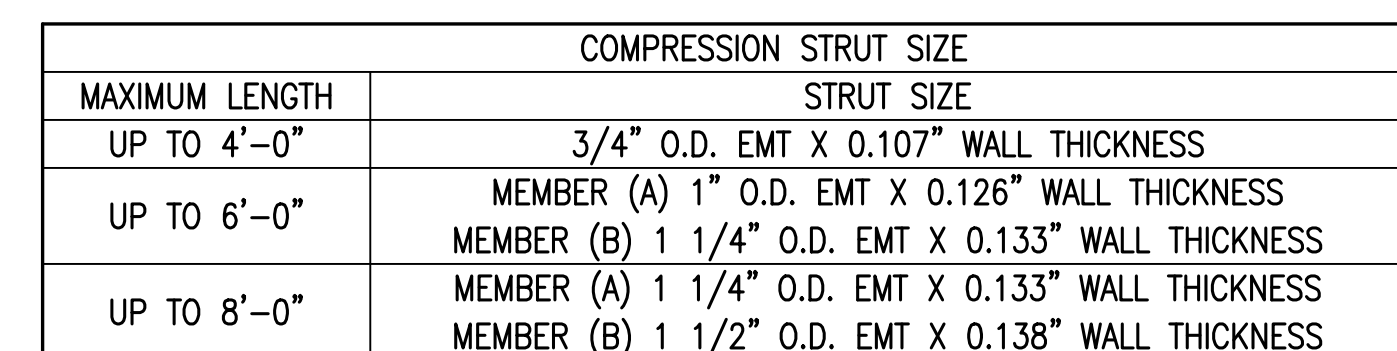
12 GA. HANGER WIRES
@ PERIMETER (TYP.)
8" MAX. OR 1/4 OF
LENGTH OF RUNNER
WHICHEVER IS LESS

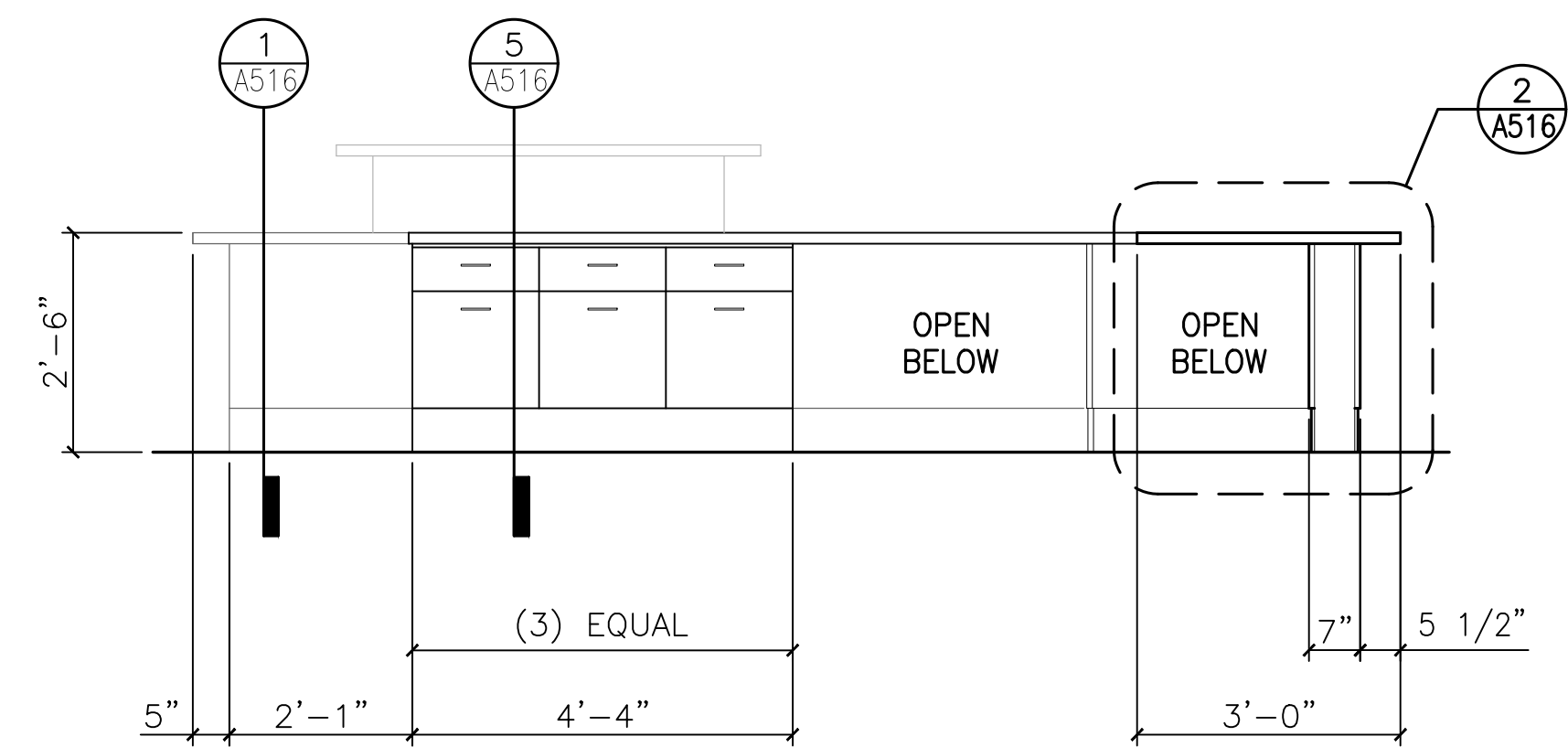
90.0" (TYP)

4 DIAGONAL BRACING WIRES
AND COMPRESSION STRUT
@ 12' x 12' GRID, MAX.

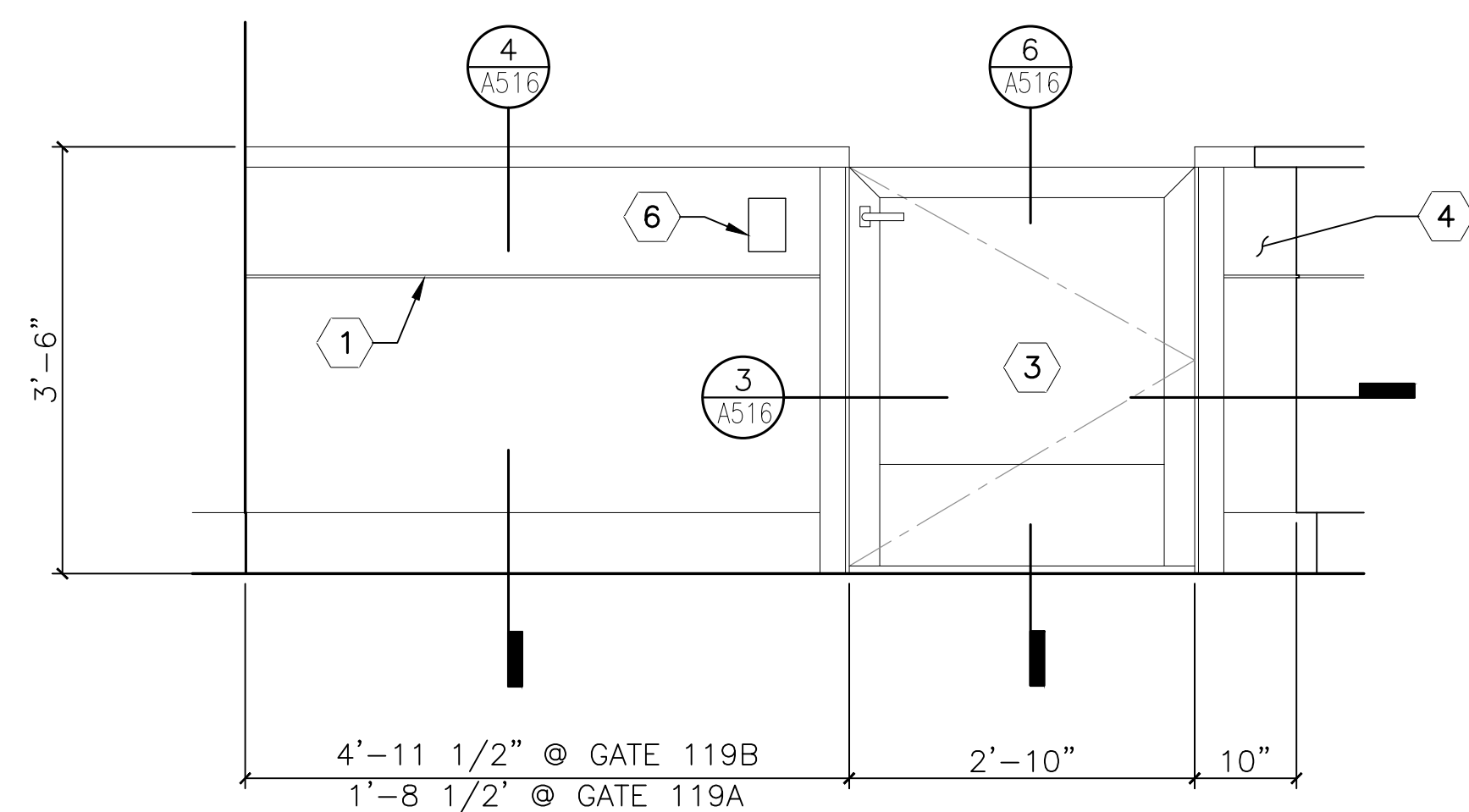
SEE AXON OF GRID
BRACING BELOW

TYPICAL ROOM PLAN

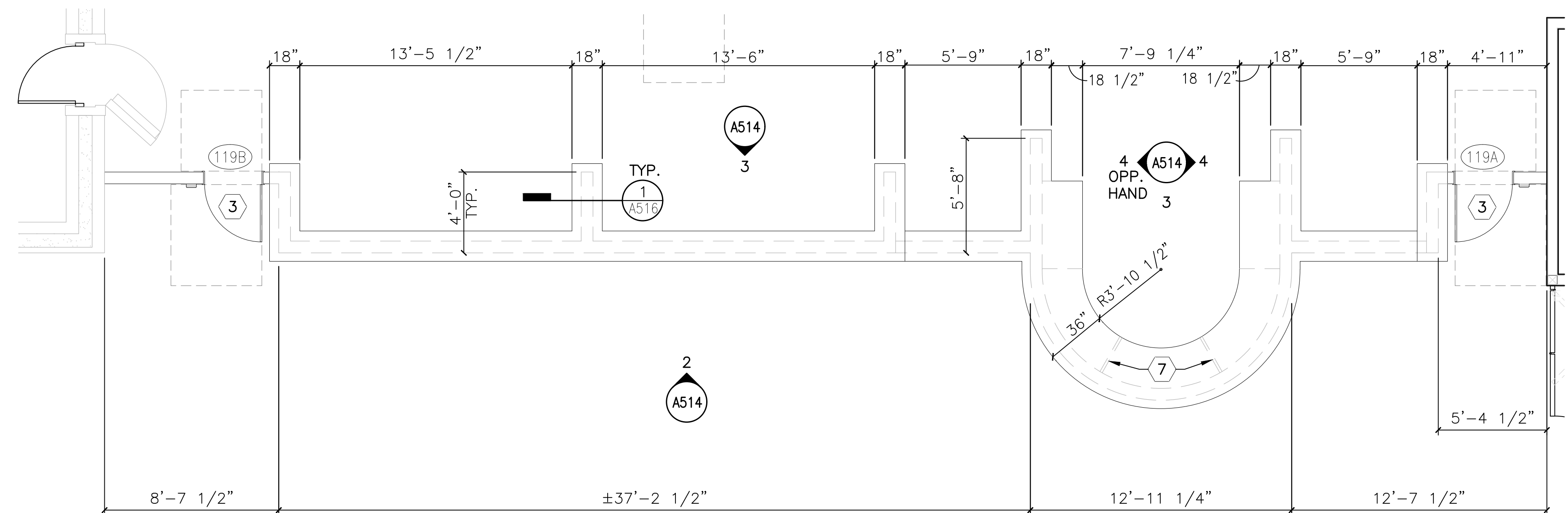




4 MILLWORK COUNTER ELEVATION
1/2" = 1'-0"

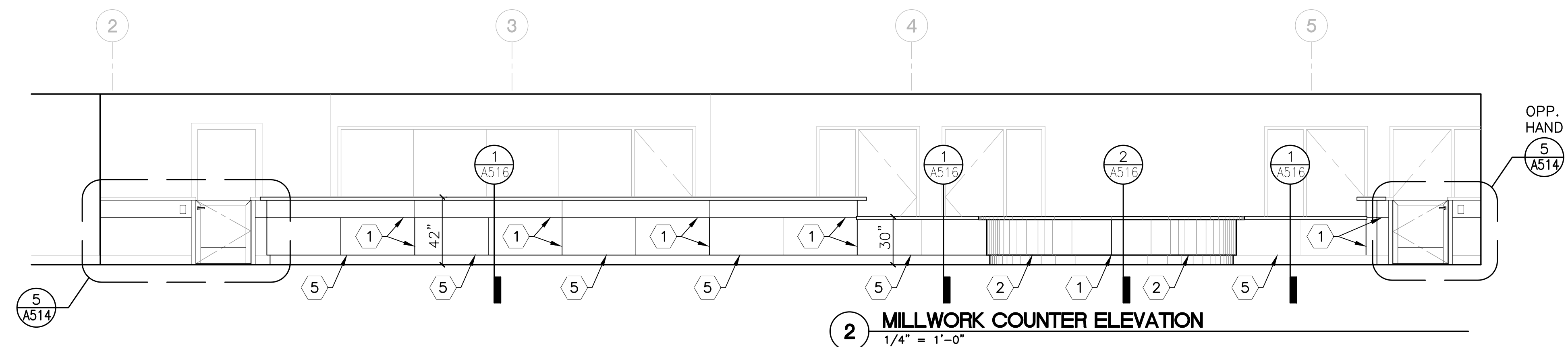


5 MILLWORK GATE ELEVATION
3/4" = 1'-0"

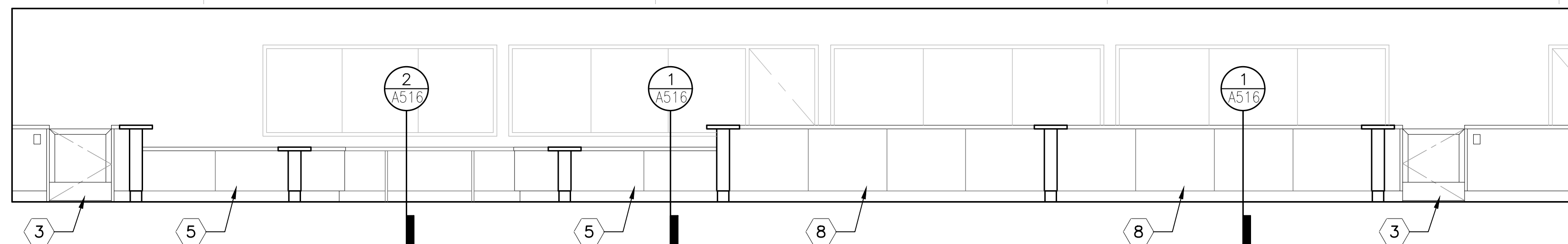


PLAN
NORTH

 1 **ENLARGED MILLWORK COUNTER PLAN**
1/4" = 1'-0"



2 MILLWORK COUNTER ELEVATION
1/4" = 1'-0"



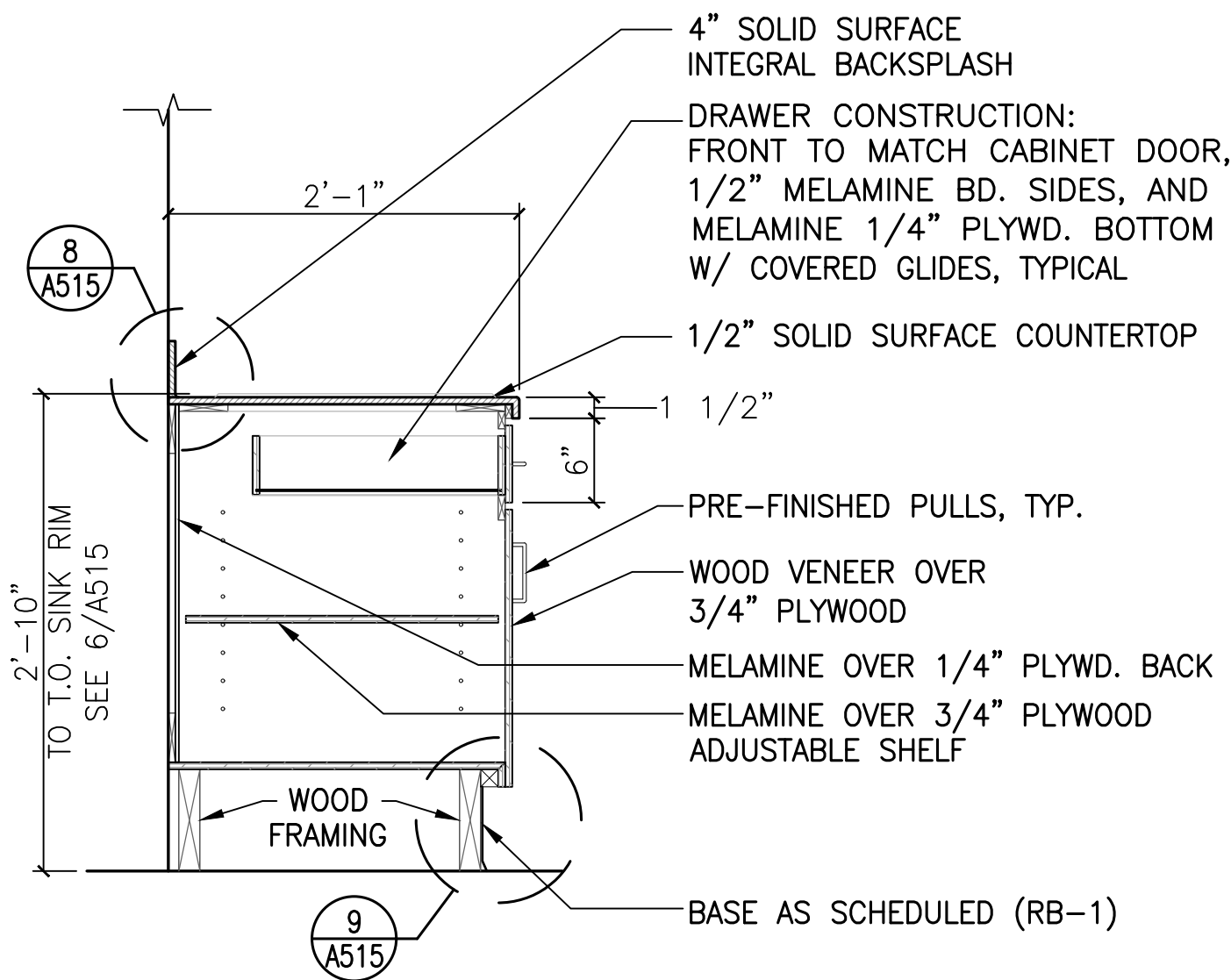
3 MILLWORK COUNTER ELEVATION

KEYED NOTES:

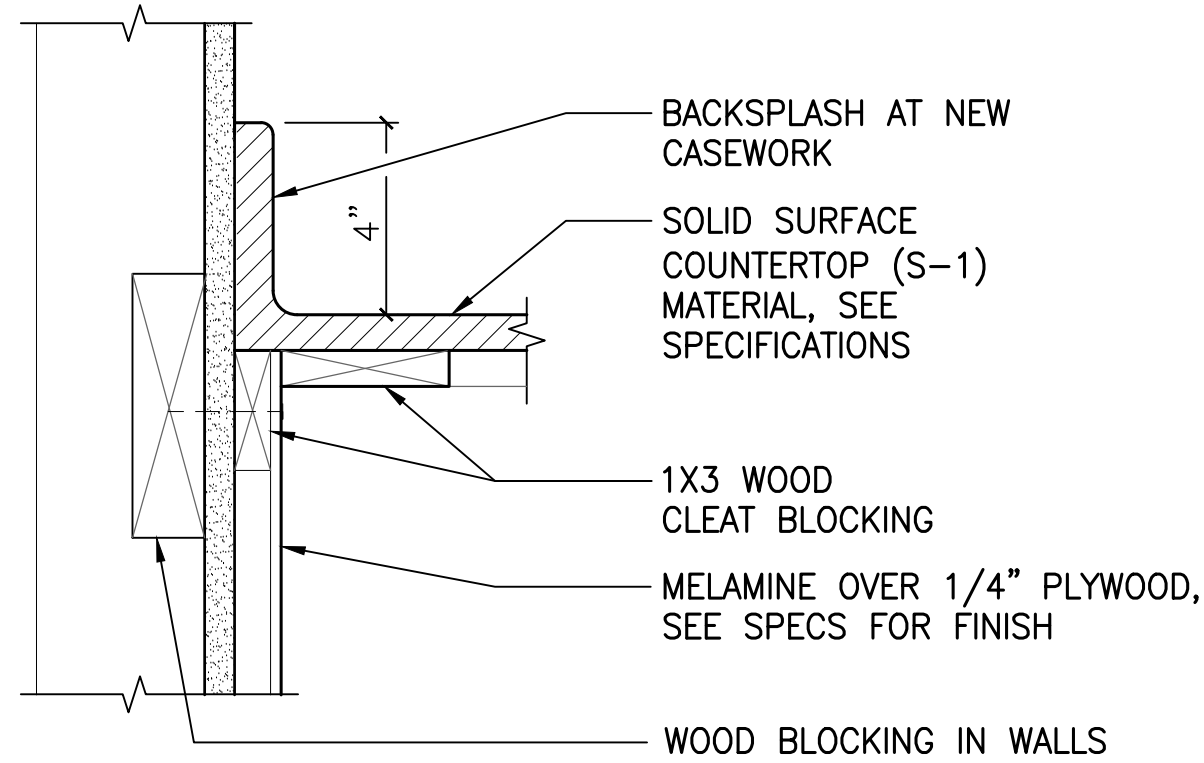
- 1- 1/4" REVEAL IN PANEL
- 2- (3) EQUAL PANELS (BUTT JOINT) FROM CENTER REVEAL
- 3- 34"w. x 40"h. WOOD VENEER DOOR (ST-1) WITH HEAVY DUTY SPRING HINGES, SEE HARDWARE SPECIFICATIONS
- 4- WOOD VENEER OVER (1) LAYER OF 3/4" PLYWOOD EACH SIDE OF 2x6 WOOD STUDS
- 5- (2) EQUAL PANELS (BUTT JOINT)
- 6- CARD READER, COORDINATE w/ ELECTRICAL DRAWINGS
- 7- COUNTERTOP SUPPORT DIVIDERS, (3) EQUAL SPACES: WOOD VENEER OVER (2) LAYERS OF 3/4" PLYWOOD, ATTACH END OF SUPPORT DIVIDERS TO FLOOR w/ CLIP ANGLES, SEE DETAIL 2/A516
- 8- (4) EQUAL PANELS (BUTT JOINT)

GENERAL NOTES:

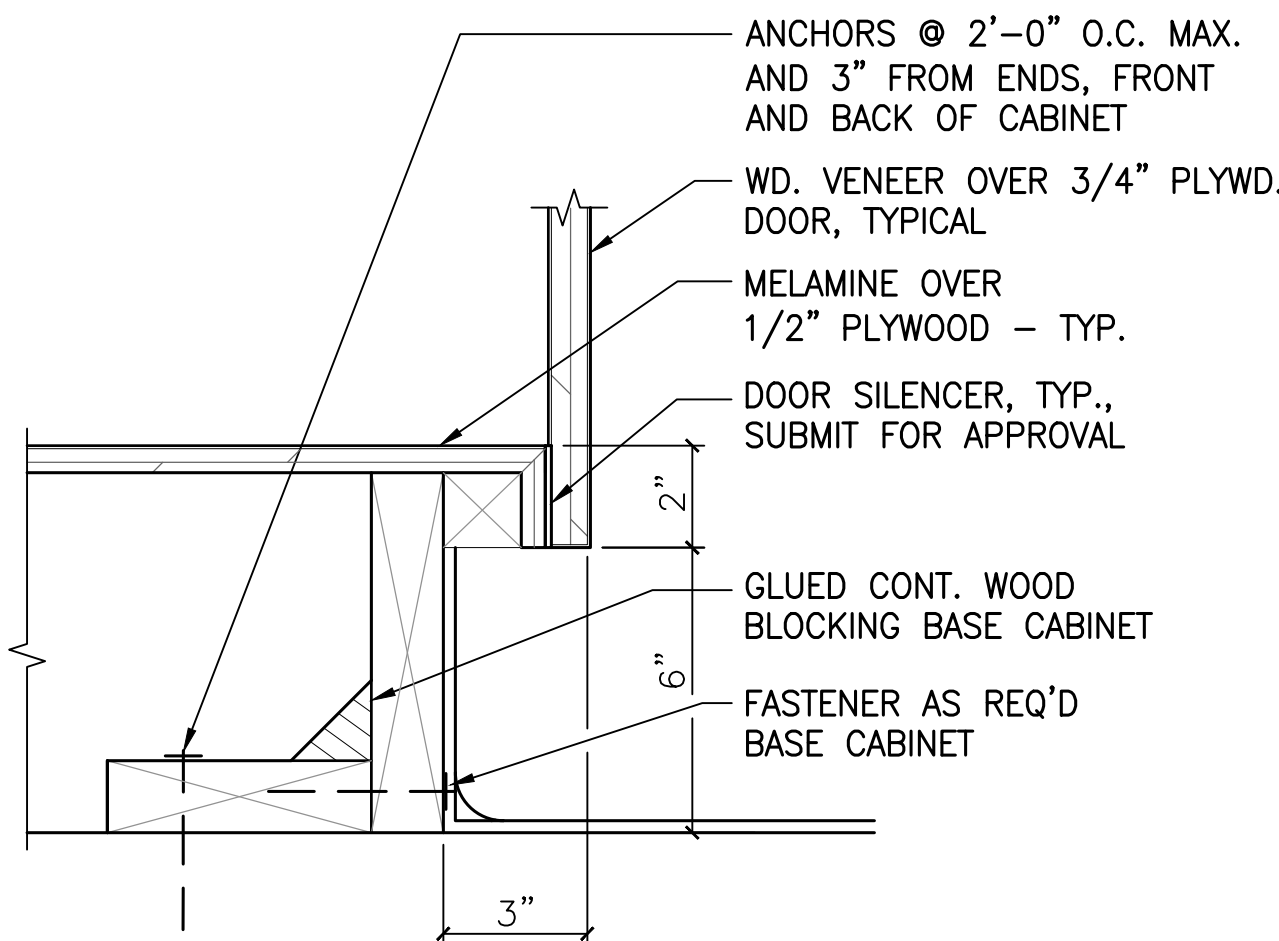
1. SEE SPECIFICATION SECTION 09 06 00 SCHEDULE FOR FINISHES FOR ALL FINISH DESIGNATIONS.
2. HALF HEIGHT DOOR AND CASEWORK WITH WOOD VENEER TO RECEIVE STAIN (ST-1) FINISH.
3. ALL EXPOSED WOOD SURFACES TO BE WOOD VENEER WITH STAIN (ST-1).
4. PROVIDE MITERED EDGES AT COUNTER WALL CORNERS, TYPICAL AT OUTSIDE AND INSIDE CORNERS.
5. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CASEWORK PRODUCTION AND INSTALLATION.



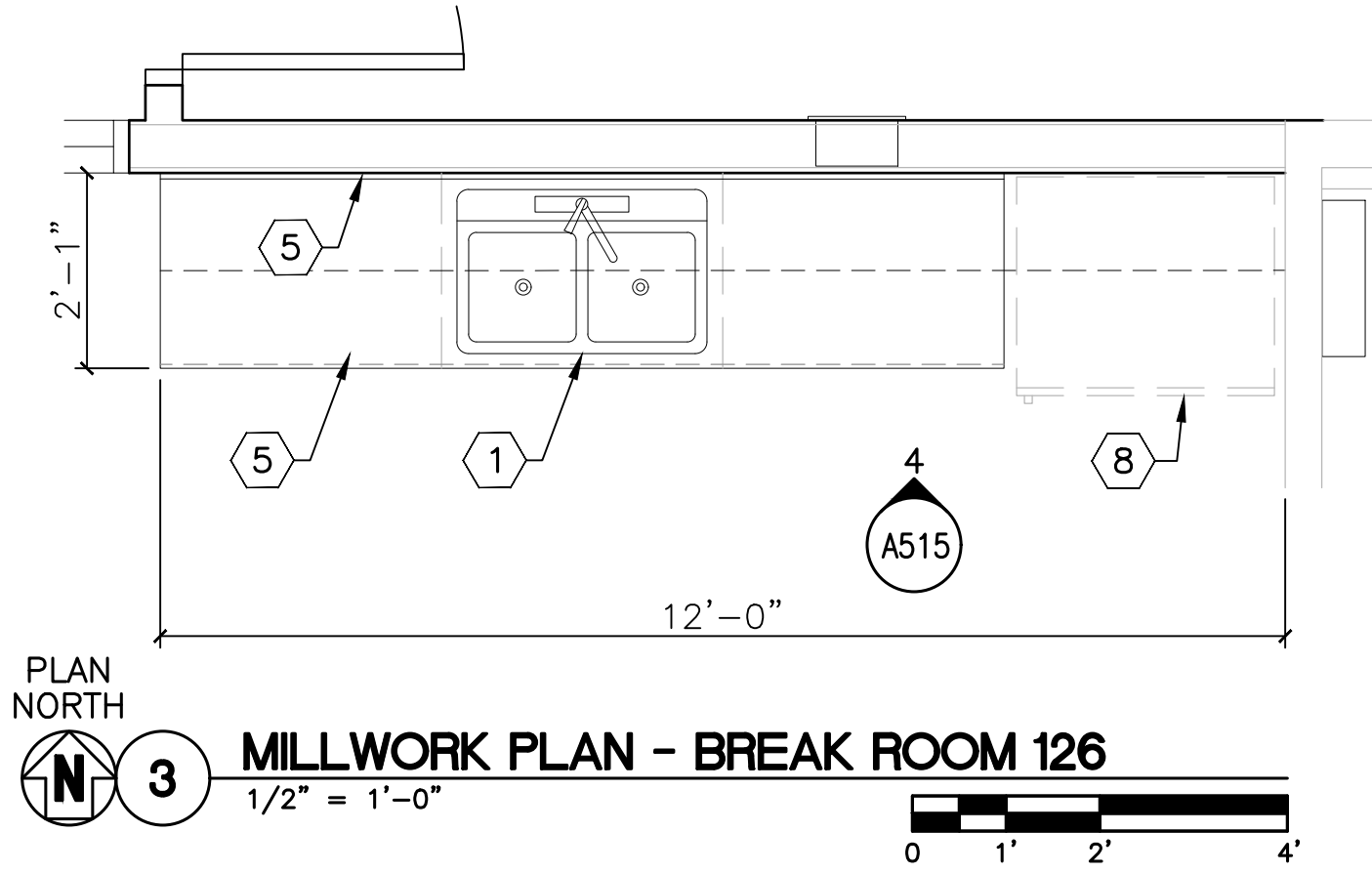
7 BASE CABINET W/ DRAWER AND SHELF
NOT TO SCALE



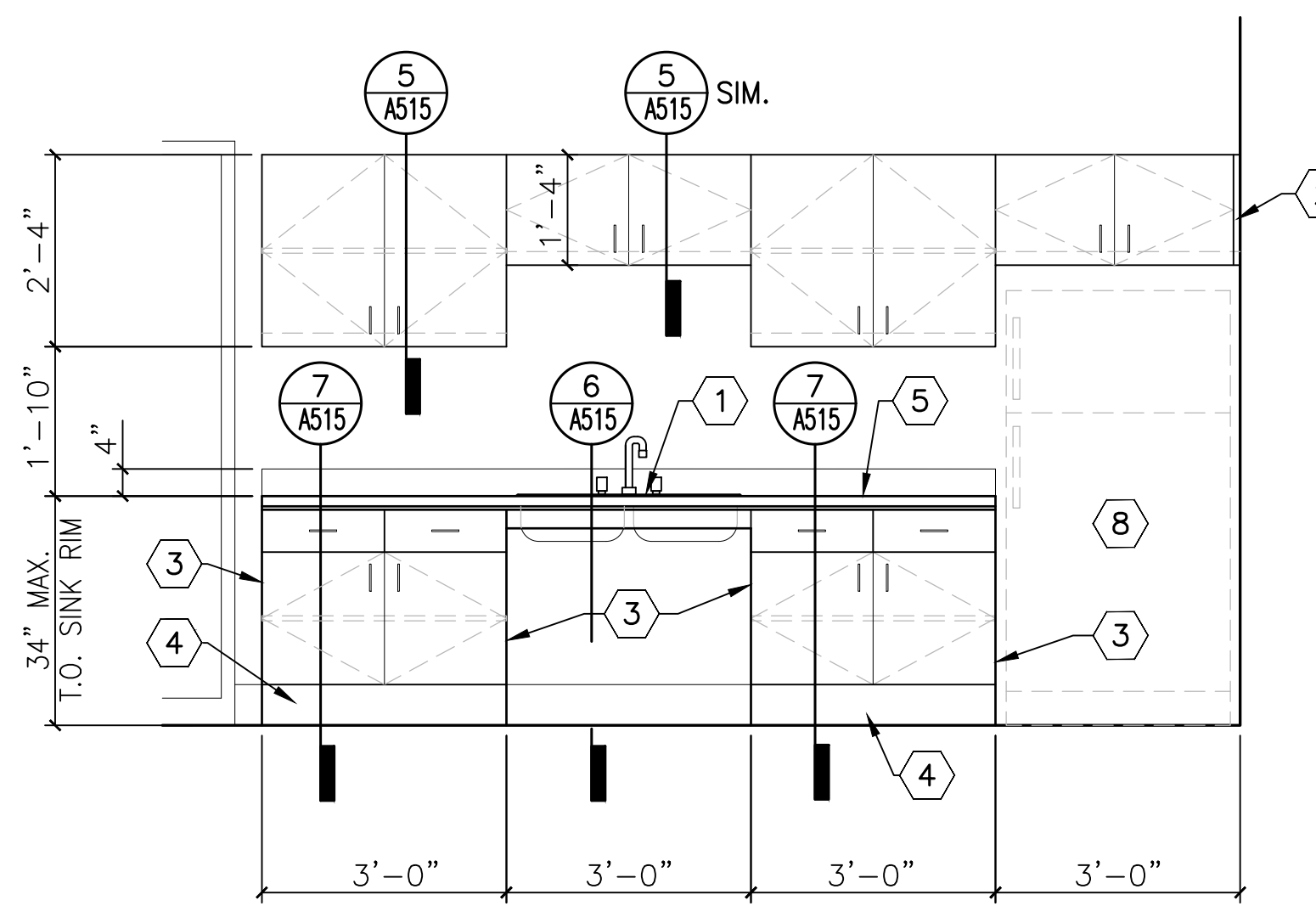
8 BACK OF COUNTER ANCHORAGE
NOT TO SCALE



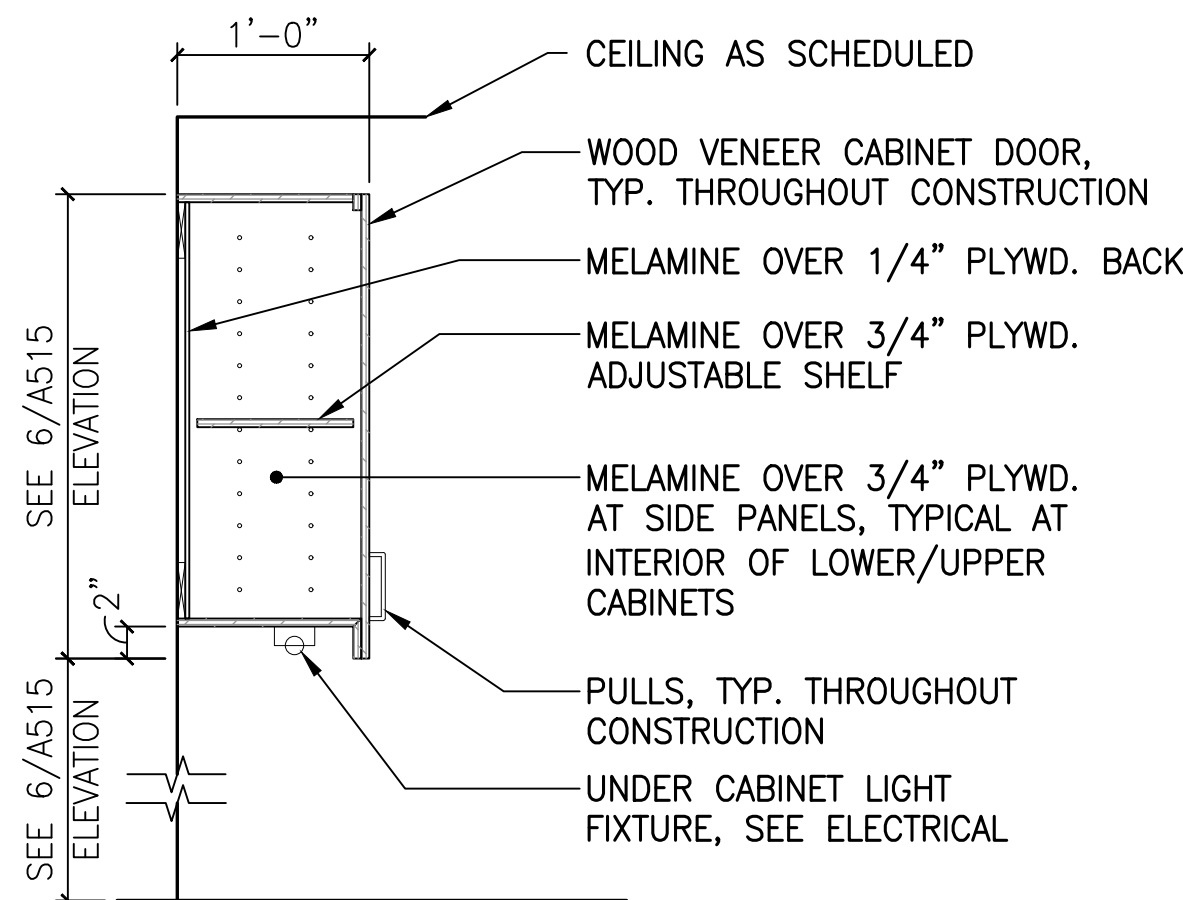
9 BASE CABINET ANCHORAGE
NOT TO SCALE



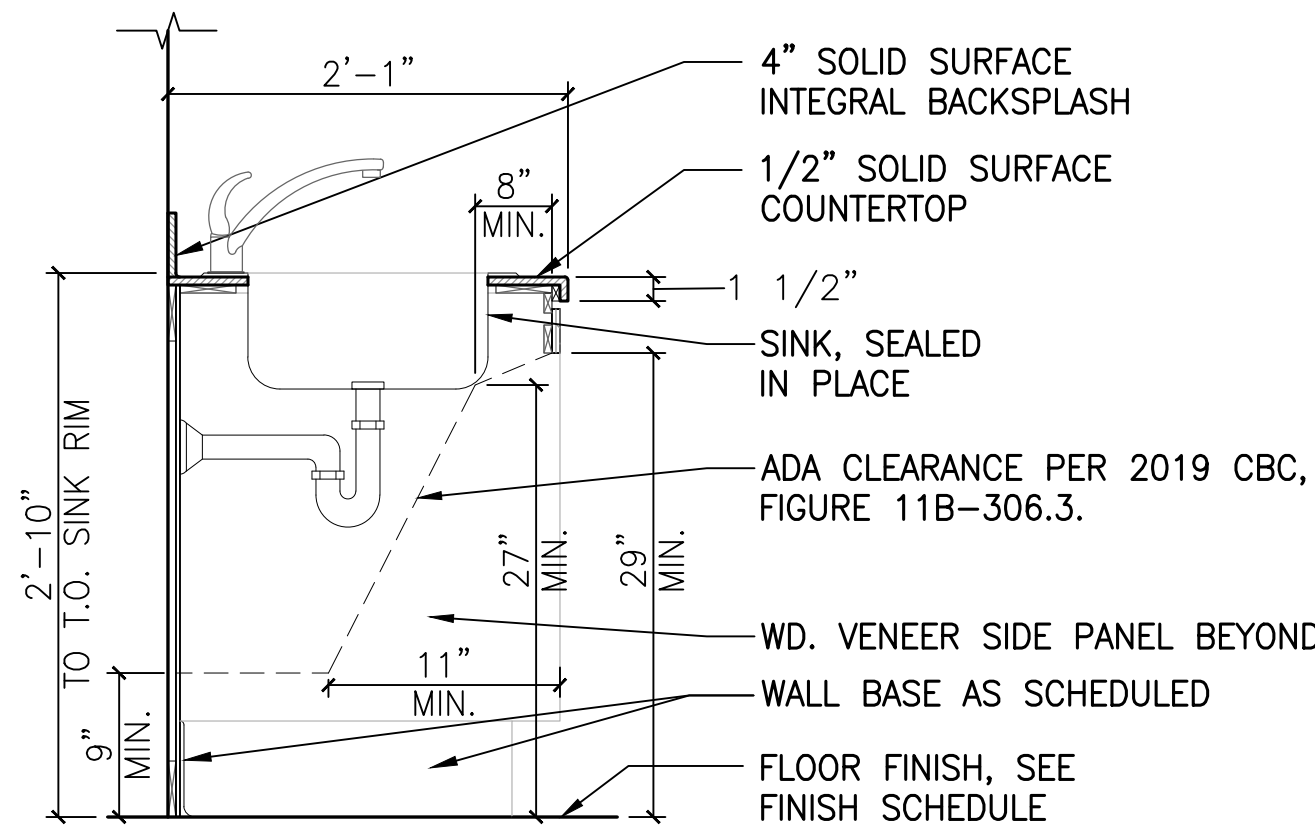
3 MILLWORK PLAN - BREAK ROOM 126
1/2" = 1'-0"



4 MILLWORK ELEVATION - BREAK ROOM 126
1/2" = 1'-0"



5 CABINETRY SECTION - UPPERS
1" = 1'-0"



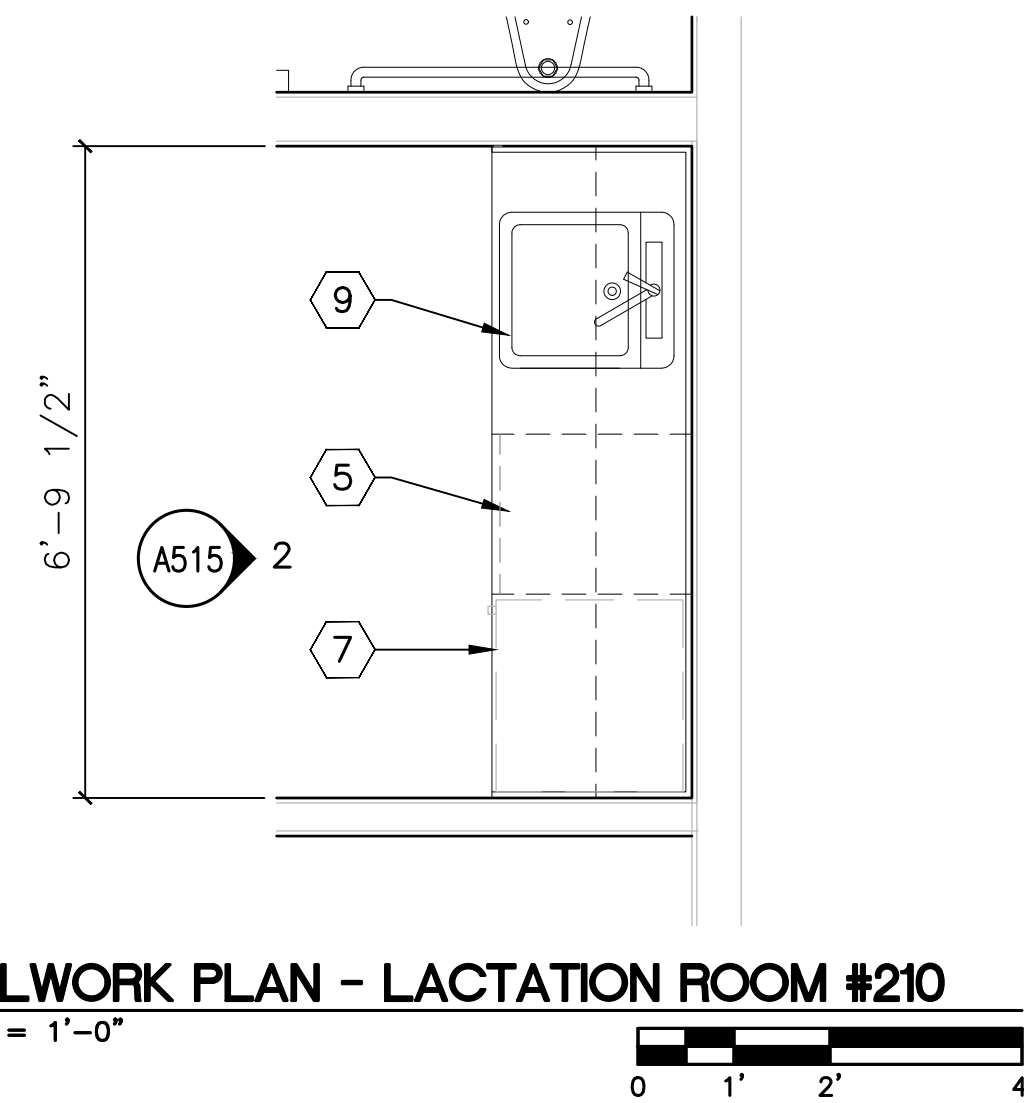
6 COUNTERTOP W/ SINK
NOT TO SCALE

GENERAL NOTES:

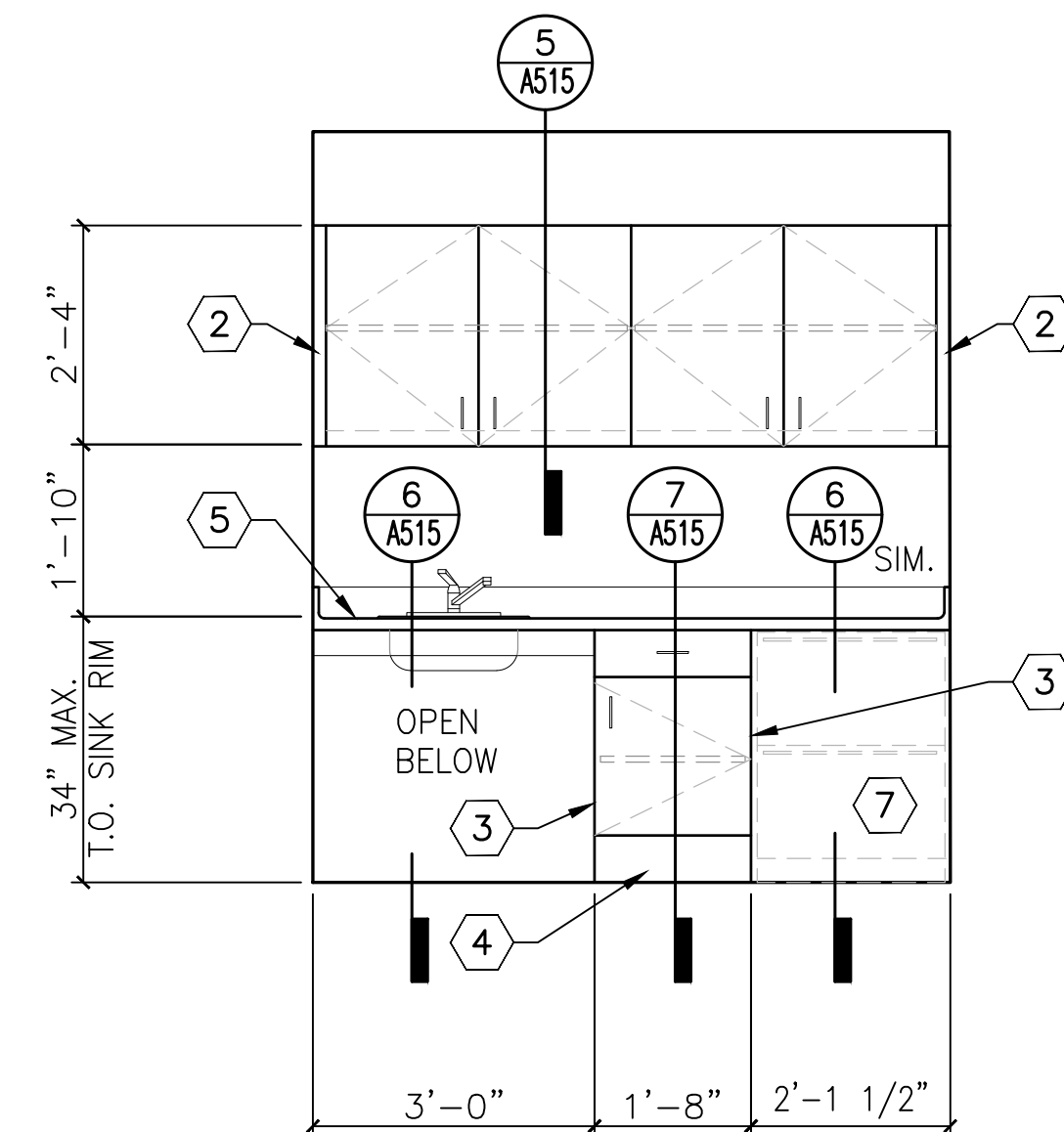
- SEE SPECIFICATION SECTION 09.06.00 SCHEDULE FOR FINISHES FOR ALL FINISH DESIGNATIONS.
- CASEWORK WITH WOOD VENEER TO RECEIVE STAIN (ST-1) FINISH.

KEYED NOTES:

- STAINLESS STEEL DOUBLE BOWL SINK WITH ACCESSIBLE CONNECTION, SEE PLUMBING DRAWINGS
- FILLER PANEL AT END OF UPPER CABINET
- WOOD VENEER OVER PLYWOOD END PANEL
- 6" RUBBER BASE (RB-1)
- SOLID SURFACE COUNTERTOP (S-1) WITH INTEGRAL 4"H. SOLID SURFACE (S-1) BACK AND/OR SIDE SPLASH
- UNDERCOUNTER REFRIGERATOR, N.I.C.
- FULL HEIGHT REFRIGERATOR, N.I.C.
- STAINLESS STEEL SINGLE BOWL SINK WITH ACCESSIBLE CONNECTION, SEE PLUMBING DRAWINGS



1 MILLWORK PLAN - LACTATION ROOM #210
1/2" = 1'-0"



2 MILLWORK ELEVATION - LACTATION ROOM #210
1/2" = 1'-0"

Revisions:

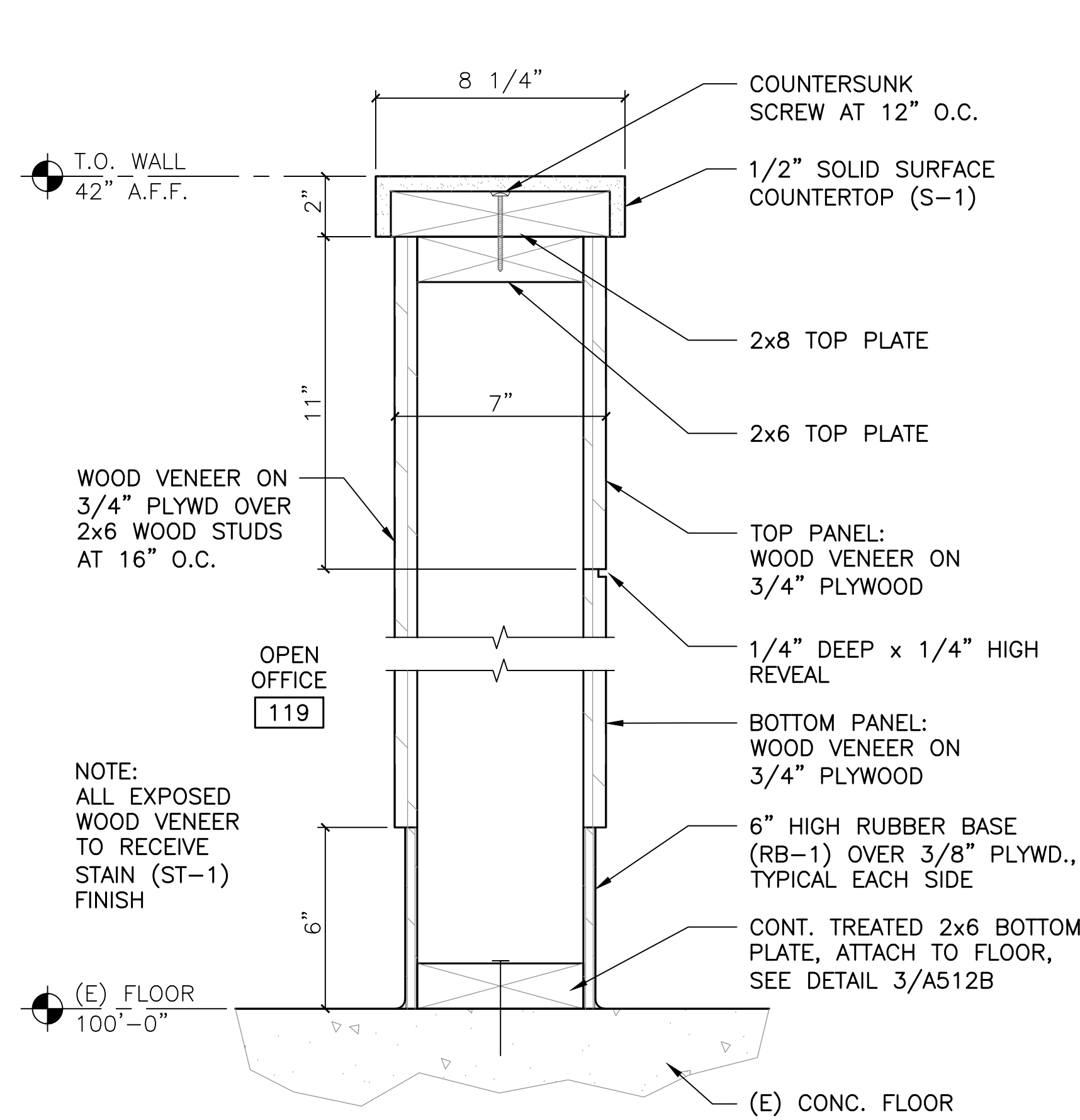
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

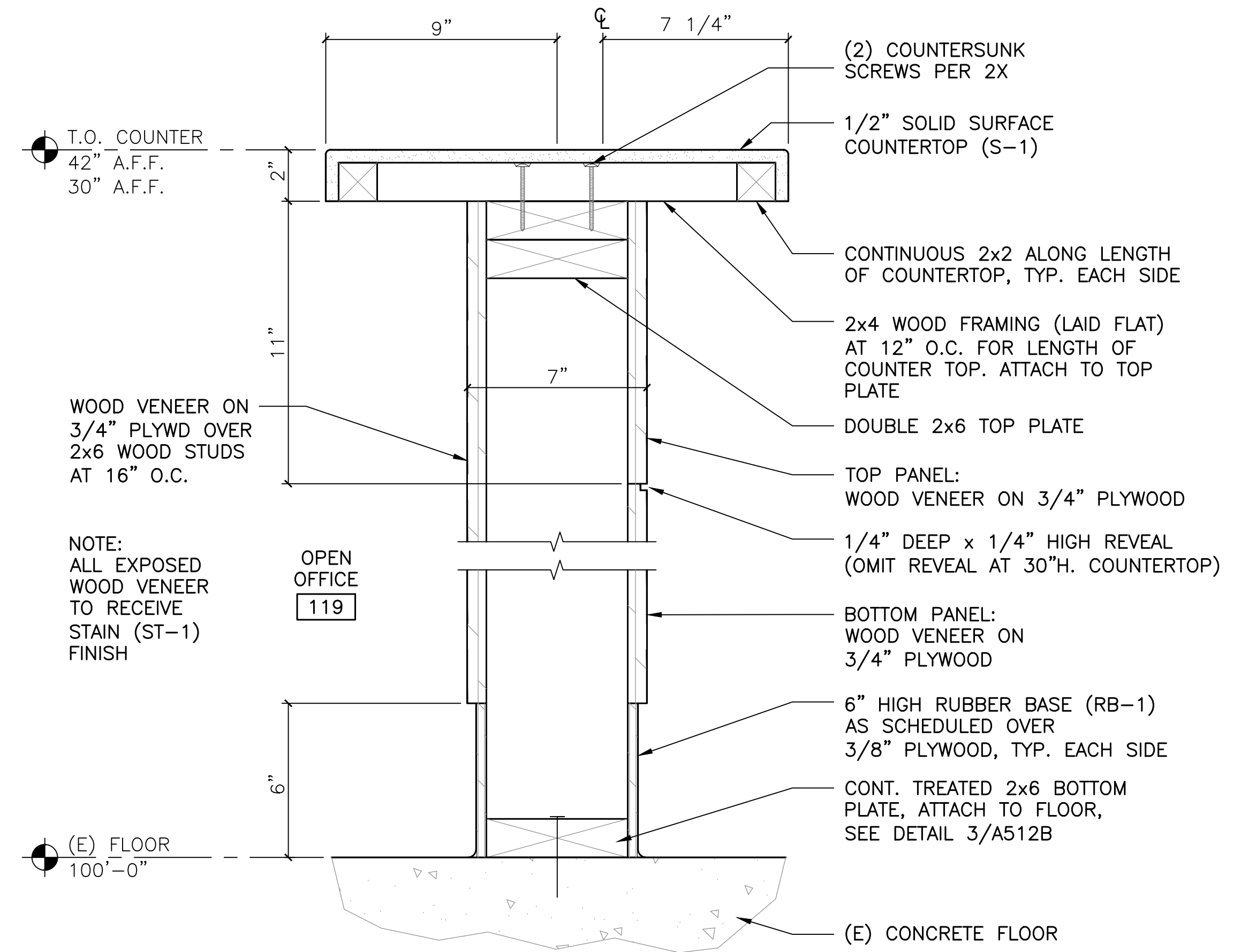
MILLWORK PLANS,
ELEVATIONS AND
DETAILS

Sheet Number:

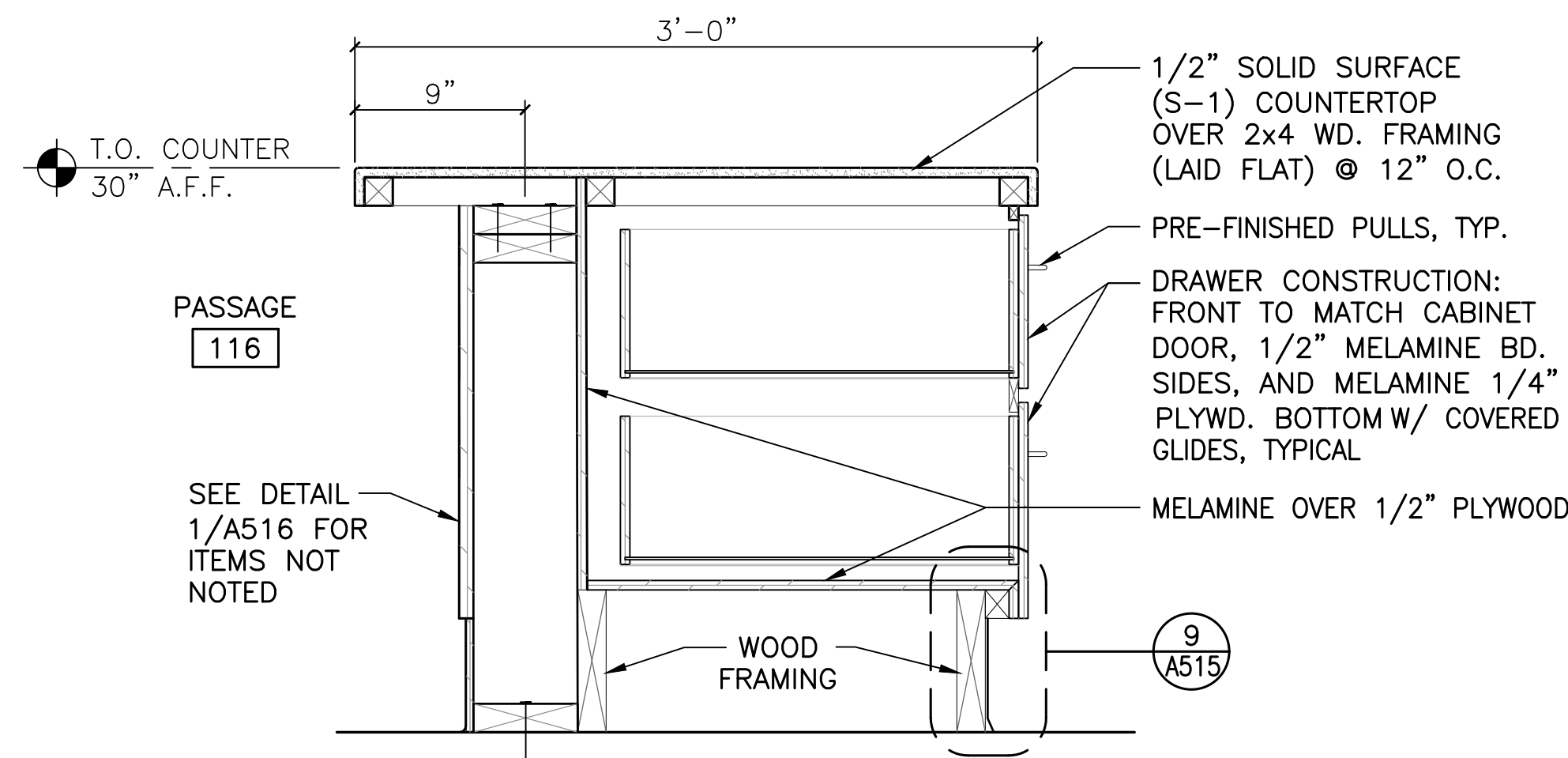
A515



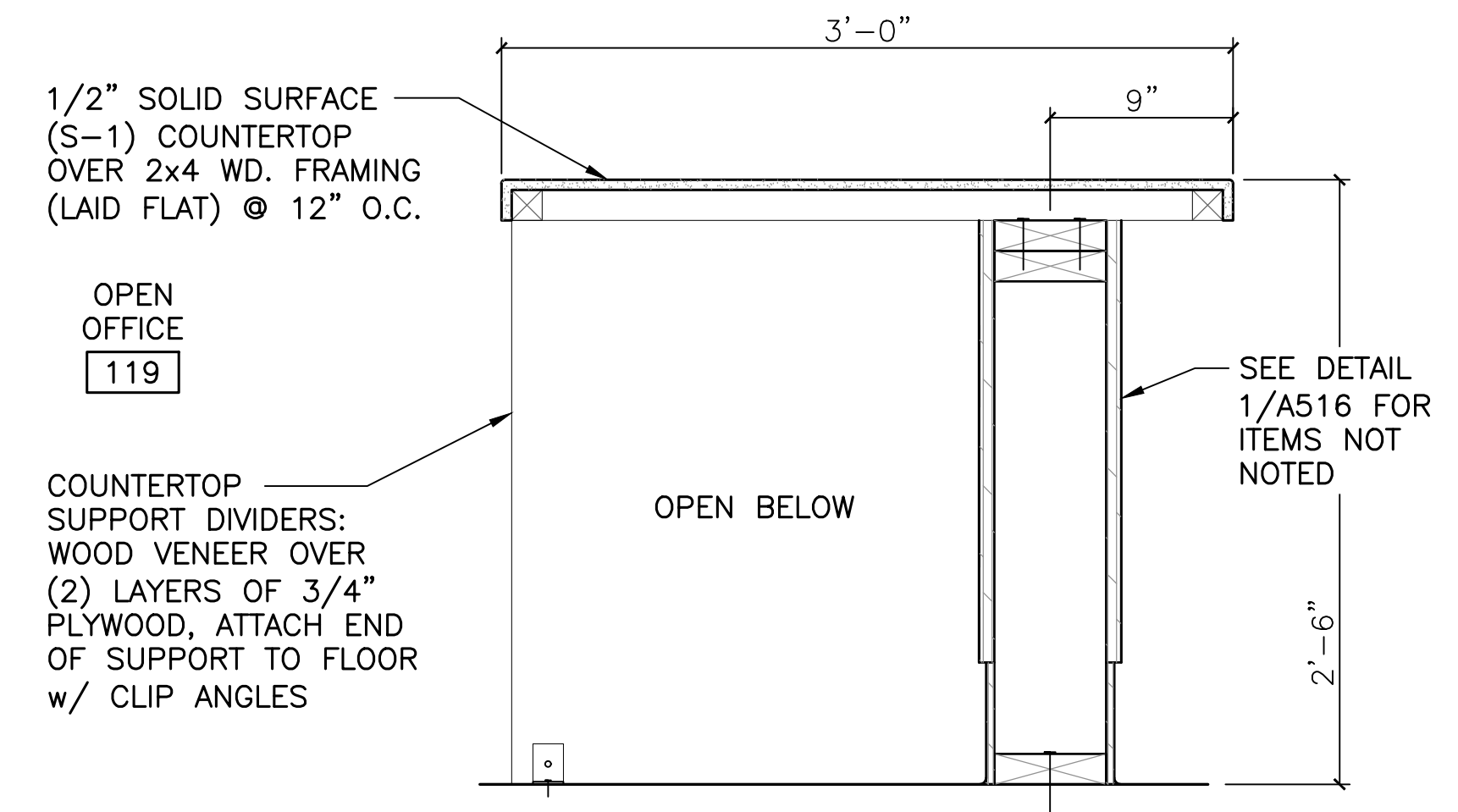
4 MILLWORK COUNTER SECTION
3" = 1'-0"



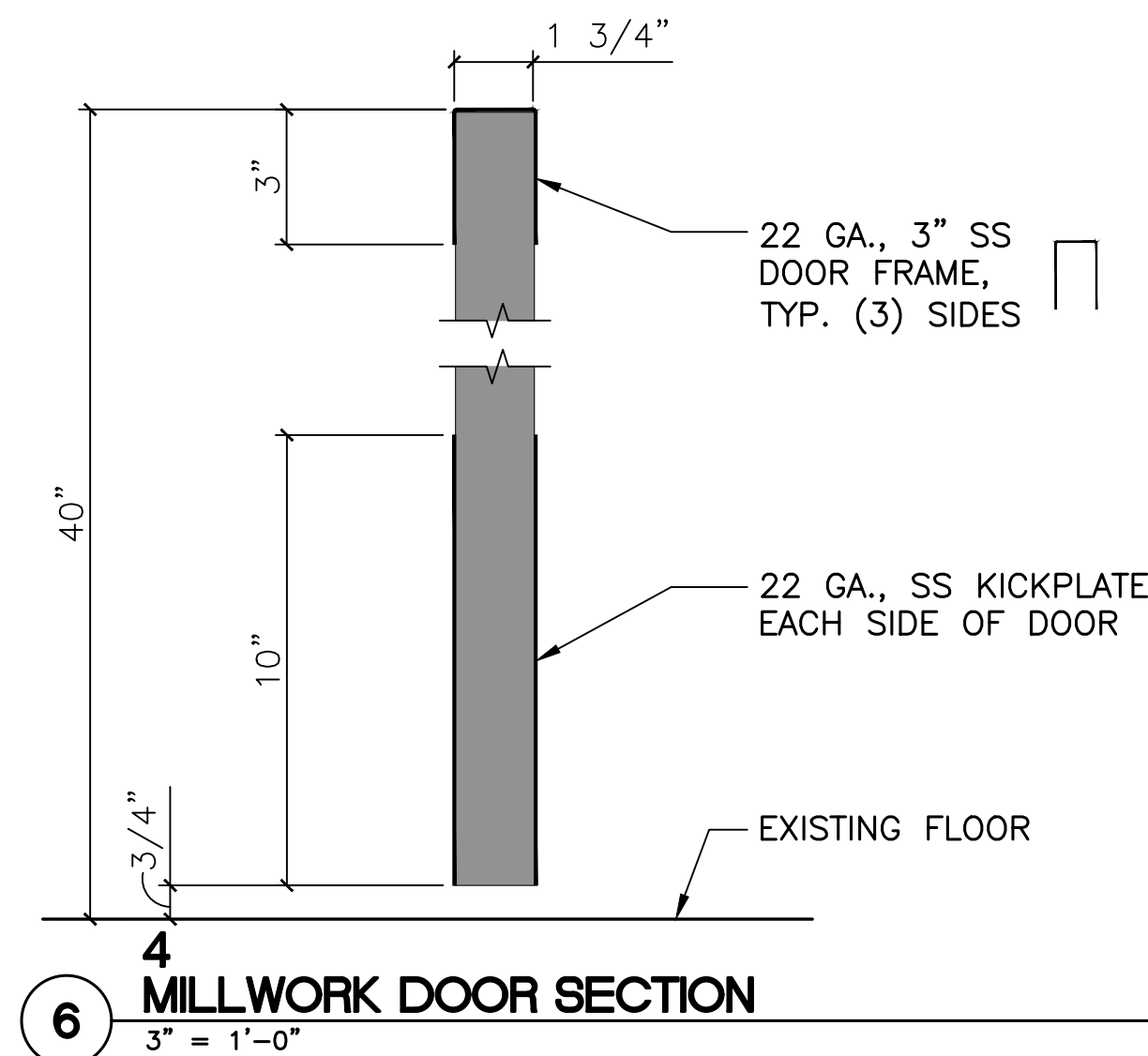
1 MILLWORK COUNTER SECTION
3" = 1'-0"



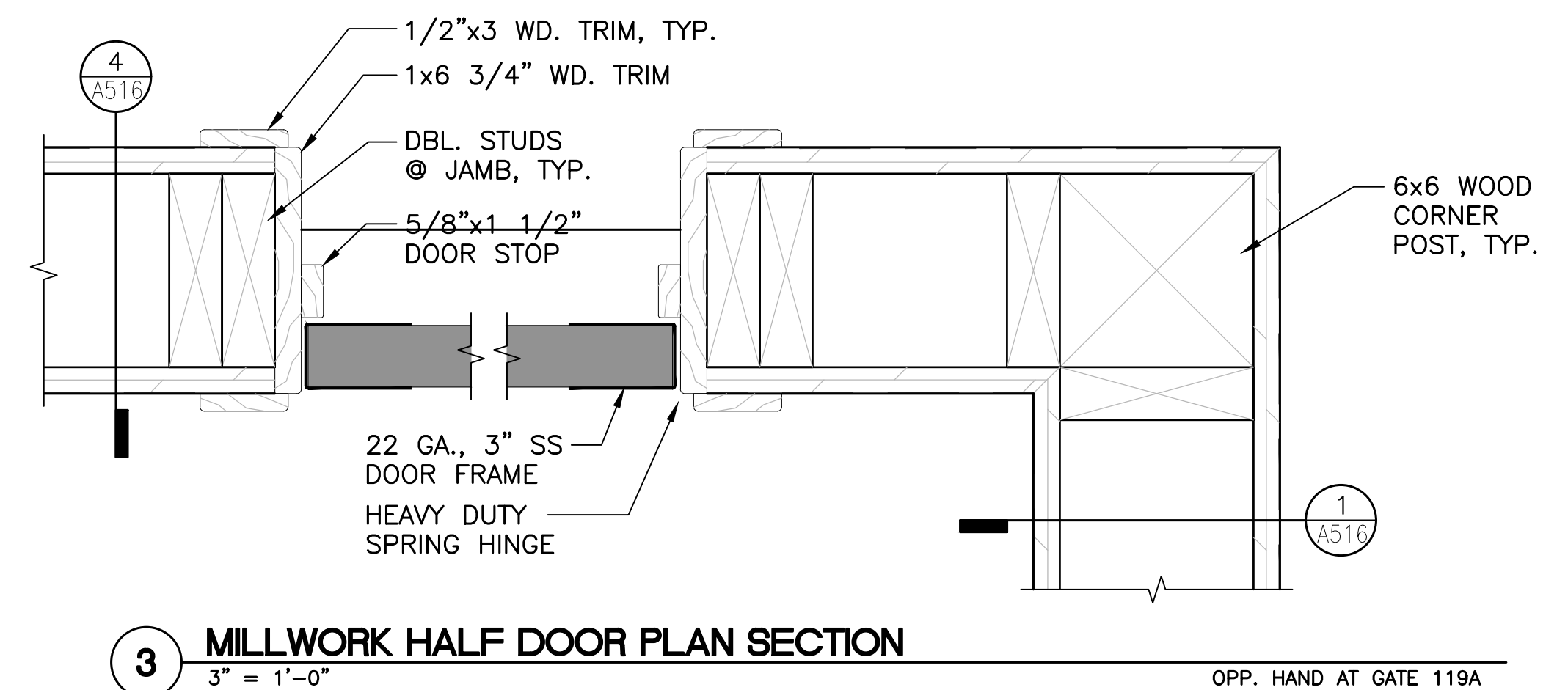
5 COUNTERTOP SECTION - BASE CABINET
1 1/2" = 1'-0"



2 COUNTERTOP SECTION - OPEN BELOW
1 1/2" = 1'-0"



6 MILLWORK DOOR SECTION
3" = 1'-0"



3 MILLWORK HALF DOOR PLAN SECTION
3" = 1'-0"

OPP. HAND AT GATE 119A

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

MILLWORK
COUNTER DETAILS

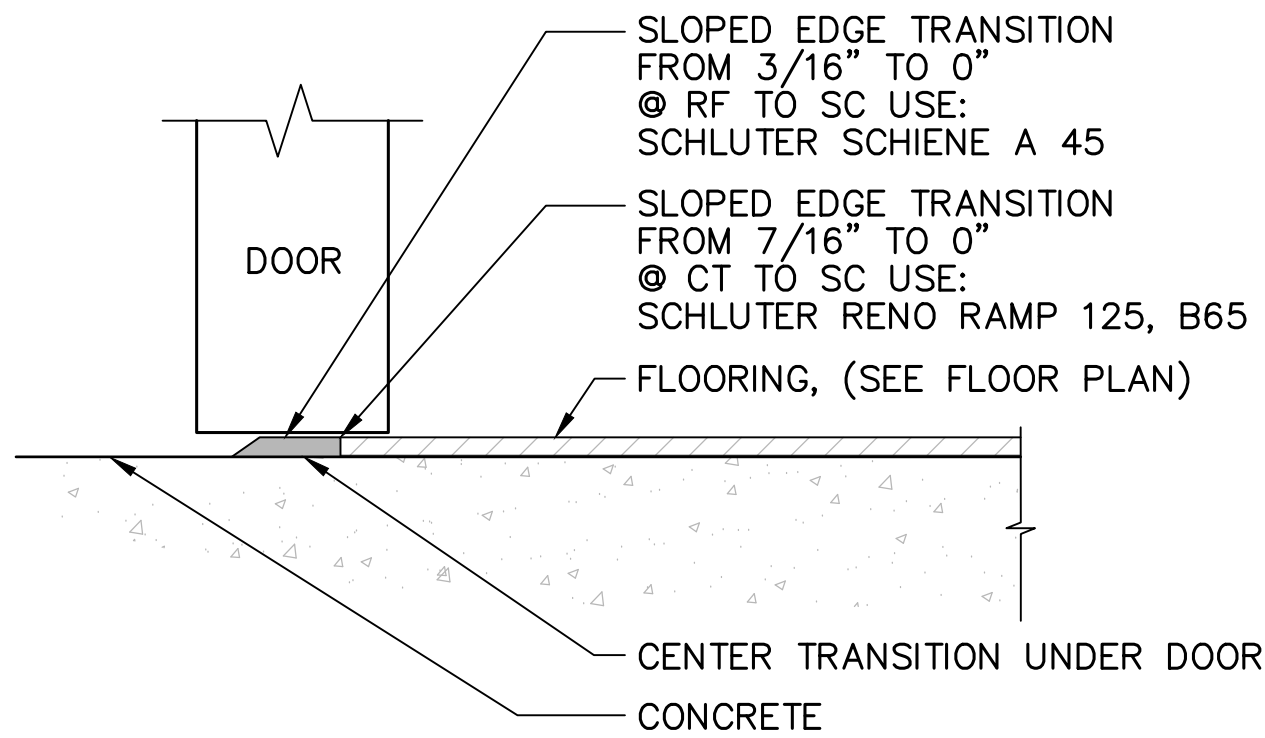
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A515

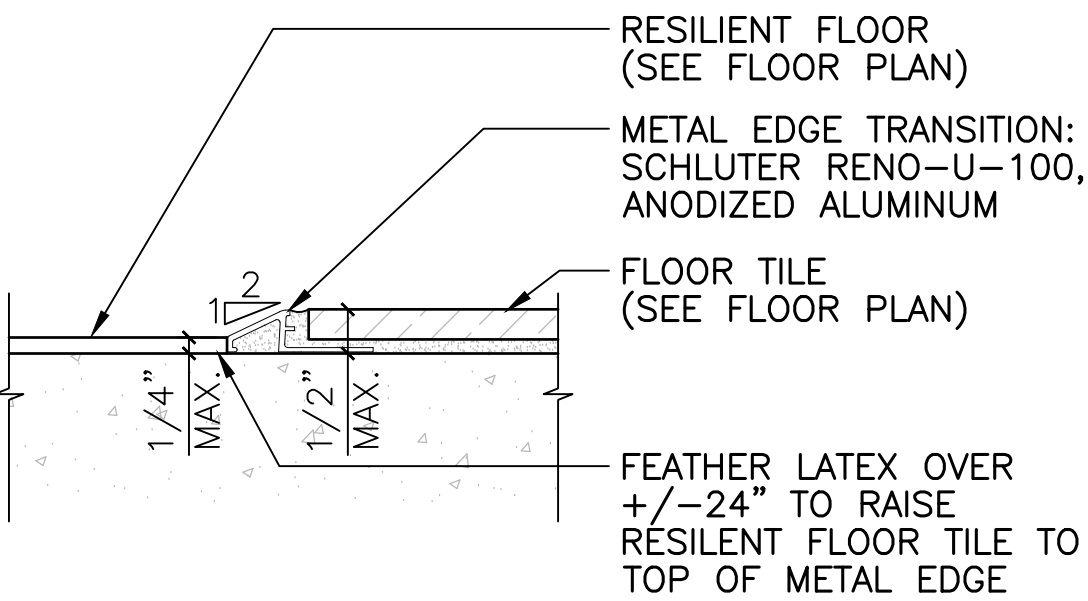
ROOM FINISH SCHEDULE REMARKS	
SEE SECTION 09 06 00 FOR ADDITIONAL FINISH NOTES AND MATERIAL INFORMATION	
1	SEE REFLECTED CEILING PLAN FOR VARIOUS MATERIALS AND HEIGHTS.
2	CERAMIC WALL TILE TO BE INSTALLED ON WALL DIRECTLY BEHIND DRINKING FOUNDATION ONLY (CT-3). WALL BASE WILL BE RB-1. SEE PLANS FOR ADDITIONAL INFORMATION.
3	ALL EXISTING AND NEWLY INSTALLED GWB ON CEILING TO BE PAINTED PT-1.
4	PRE-MANUFACTURED STAINLESS STEEL (SS) WALL GUARD @ MOP SINK PER PLUMBING DRAWINGS AND SPECIFICATIONS. SEE DETAIL 3/A402
5	STAIR TREAD AND RISER FINISH SHALL BE RF-2 AS PER "SCHEDULE FOR FINISHES" IN SPECIFICATION SECTION 09 06 00 OR U.N.O.
6	IIN TOILET ROOMS, ONLY INSTALL CT-B WALL BASE ON PAINTED WALLS. TILED WALL WILL BE FULL TILE WITH CT-2 TILE.
7	PATCH WINDOW FRAMES, REPAINT FRAMES TO MATCH EXISTING ADJACENT FRAMES.
8	STAIR S-2 INTERMEDIATE LANDING FLOORING IS RF-3.

ABBREVIATION LIST:

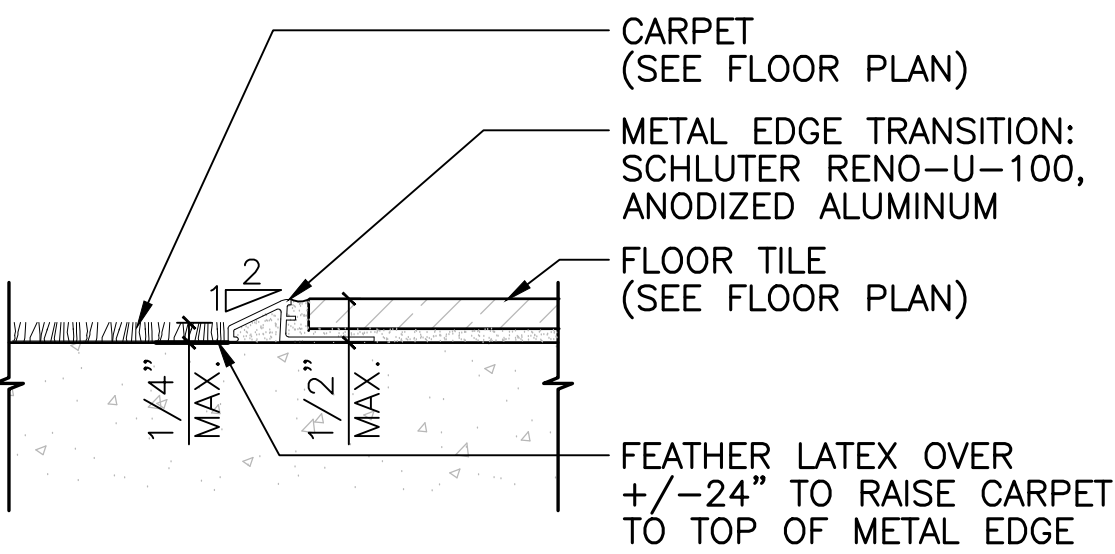
XXX\XXX	FLOOR MATERIAL TRANSITION (AS SHOWN ON PLANS)
ACT	ACOUSTIC CEILING TILE
CCT	CONCRETE
CPT	CARPET TILE
CT	CERAMIC/PORCELAIN TILE
EXP	EXPOSED TO STRUCTURE
ETR	EXISTING TO REMAIN
FE	FIRE EXTINGUISHER-WALL MOUNTED BRACKET
FEC	FIRE EXTINGUISHER CABINET
GRT	GROUT
GWB	GYPSUM WALL BOARD
PT	PAINT
RF	RESILIENT FLOORING (RUBBER TILE)
RB	6" RESILIENT BASE (RUBBER)
S	SOLID SURFACE
SC	SEALED CONCRETE
SDT	STATIC DISSIPATIVE TILES
SS	STAINLESS STEEL



3 TRANSITION - LVT TO CONCRETE
6" = 1'-0"



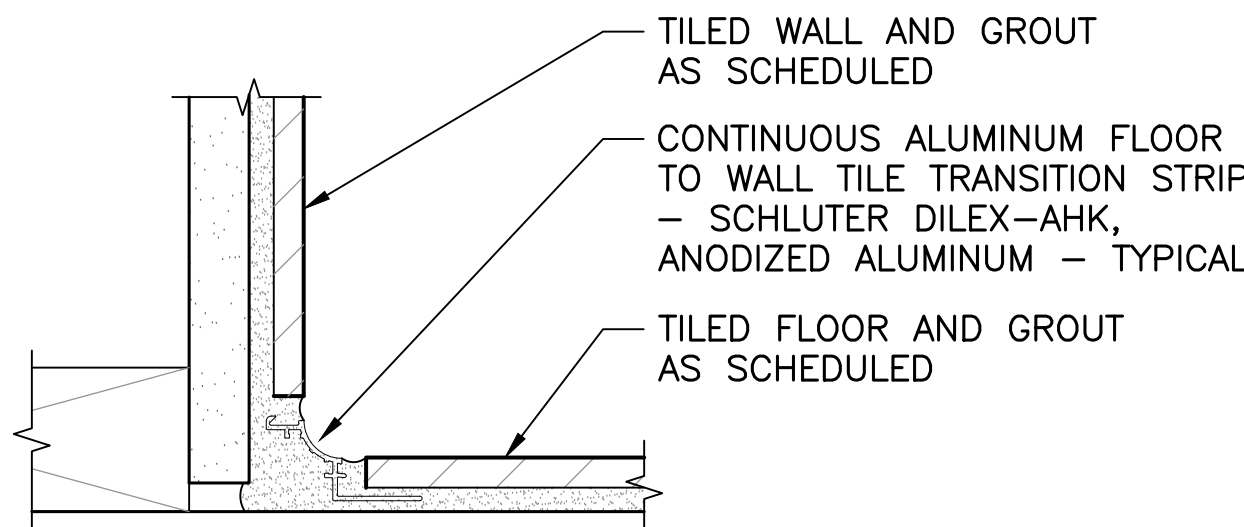
4 TRANSITION - LVT TO TILE
6" = 1'-0"



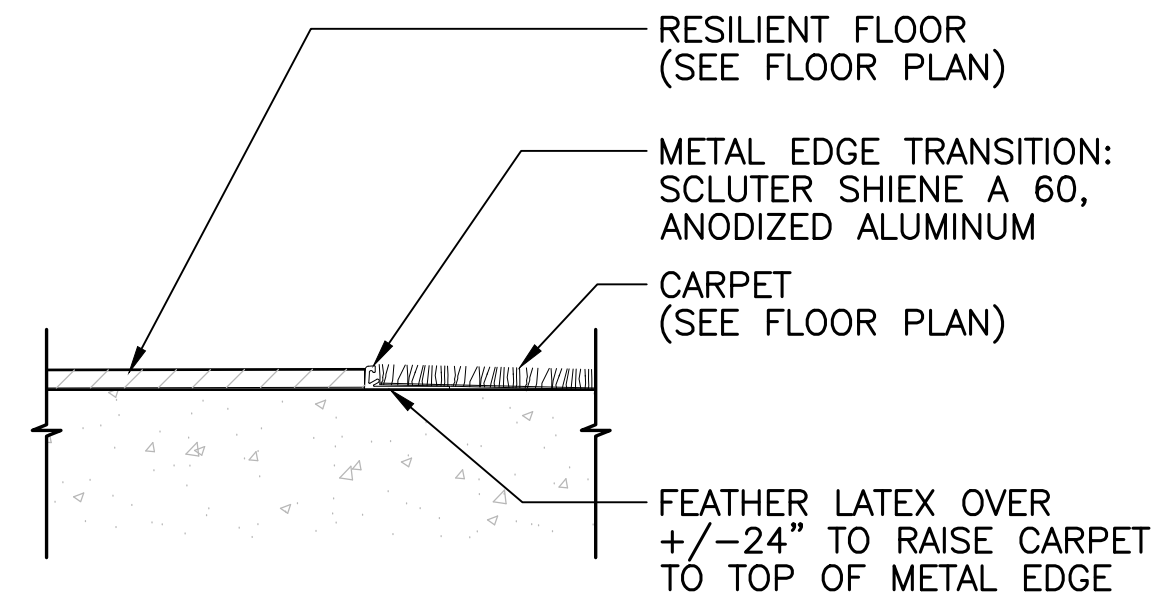
5 TRANSITION - TILE TO CARPET
6" = 1'-0"

GENERAL NOTES:

- SEE SPECIFICATION SECTION 09 06 00 FOR MATERIAL/FINISH SELECTIONS.
- ALL GWB WALLS TO BE PAINTED (PT-2) UNLESS OTHERWISE NOTED. INSTALL WALL BASE (RB-1) ON ALL EXPOSED GWB.
- ALL GYPSUM BOARD CEILINGS TO BE PAINTED PT-1 U.N.O., SEE REFLECTED CEILING PLANS.
- ALL ACOUSTICAL CEILINGS TO BE ACT-1 WITH SUSPENSION SYSTEM TYPE 1 U.N.O. SEE REFLECTED CEILING PLANS - SHEET A111.
- SEE PAINT SPECIFICATION SECTION 09 90 00 FOR ALL PAINT FINISH AND APPLICATION INFORMATION.
- ALL PENETRATIONS IN ACOUSTIC CEILING OR DRYWALL FOR PIPES (OR ANY SIMILAR PENETRATION) SHALL HAVE A PROPERLY FITTED ALUMINUM ESCUTCHEON.
- ALL WALL PENETRATIONS (DUCTWORK, PIPING, CONTROLS, CONDUITS, ETC.) AT RATED WALLS MUST BE SEALED WITH NON-COMBUSTIBLE MATERIAL U.N.O.
- CERAMIC TILE (CT-1) TO BE USED WITH GROUT (GRT-1).
- CERAMIC TILE (CT-2 & CT-3) TO BE USED WITH GROUT (GRT-2).
- ALL INTERIOR HOLLOW METAL DOOR FRAMES, INTERIOR HOLLOW METAL DOORS, & HANDRAILS ARE TO BE PAINTED PT-3 AS PER "SCHEDULE FOR FINISHES" IN SPECIFICATION SECTION 09 06 00 OR U.N.O.
- ALL EXTERIOR HOLLOW METAL DOORS TO BE PAINTED P-4 AND EXTERIOR HOLLOW METAL DOOR FRAMES TO BE PAINTED PT-5 AS PER "SCHEDULE FOR FINISHES" IN SPECIFICATION SECTION 09 06 00 OR U.N.O.
- PREPARE EXISTING FLOOR FOR INSTALLATION OF NEW FINISHES PER "SCHEDULE FOR FINISHES" IN SPECIFICATION SECTION 09 06 00 OR U.N.O. FINISH FLOOR BY OTHERS.



1 BASE OF TILED WALL
6" = 1'-0" TYPICAL AT BASE OF WALL AND FLOOR



2 TRANSITION - LVT TO CARPET
6" = 1'-0"

ROOM FINISH SCHEDULE									
ROOM NO.	ROOM NAME	FLOOR	BASE	WALL				CEILING	REMARKS
				NORTH	EAST	SOUTH	WEST		
				FINISH	FINISH	FINISH	FINISH	MATERIAL/FINISH	
100	LOBBY	CT-1	RB-1	PT-2	-	PT-2	-	ACT-1	-
101	MECHANICAL	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-
102	STORAGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-
103	RESTROOM VESTIBULE	CT-1	RB-1	PT-2	PT-2	PT-2	CT-3	GYP/PT-1	2
104	UNISEX TOILET	CT-1	CT-B	CT-2	PT-2	CT-2	CT-2	GYP/PT-1	6
105	UNISEX TOILET	CT-1	CT-B	CT-2	CT-2	CT-2	PT-2	GYP/PT-1	6
106	UNISEX TOILET	CT-1	CT-B	CT-2	PT-2	CT-2	CT-2	GYP/PT-1	6
107	CONFERENCE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
108	PASSAGE	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
109	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
110	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
111	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
112	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
113	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
114	COPY AREA	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	5, 8
116	PASSAGE	CT-1	RB-1	PT-2	PT-2	PT-2	PT-2	VARIES	1
117	ELEVATOR LOBBY	RF-1	RB-1	PT-2	PT-2	-	PT-2	ACT-1	-
118	STORAGE	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ETR/PT-1	-
119	OPEN OFFICE	RF-1	RB-1	PT-2	PT-2	-	PT-2	VARIES	1
120	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
121	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
122	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
123	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
124	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
126	BREAK ROOM	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
127	WORK ROOM	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
200	HALLWAY	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	2
201	STORAGE	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ETR/PT-1	-
202	IT ROOM	SDT-1	RB-1	PLWD/PT-2	PLWD/PT-2	PLWD/PT-2	PLWD/PT-2	ETR/PT-1	3
203	OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	7
204	OPEN OFFICE	CPT-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	7
205	UNISEX TOILET	CT-1	CT-B	PT-2	PT-2	CT-2	CT-2	ACT-2	6
206	UNISEX TOILET	CT-1	CT-B	PT-2	CT-2	CT-2	PT-2	ACT-2	6
207	JANITOR	SC	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-2	4
208	UNISEX TOILET	CT-1	CT-B	CT-2	CT-2	PT-2	PT-2	ACT-2	6
209	ELEVATOR EQUIPMENT	SC	RB-1	PT-2	PT-2	PT-2	PT-2	ETR/PT-1	3
210	LACTATION	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	-
211	STORAGE	RF-1	RB-1	PT-2	PT-2	PT-2	PT-2	PT-1	-
212	UTILITY	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-
S1-1	STAIR	RF-1/RF-2	RB-1	PT-2	PT-2	PT-2	PT-2	PT-1	5
S1-2	STAIR	RF-1/RF-2	RB-1	PT-2	PT-2	PT-2	PT-2	ACT-1	5
S2-1	STAIR	RF-1/RF-2	RB-1	PT-2	PT-2	PT-2	PT-2	PT-1	5, 8
S2-2	STAIR	RF-1/RF-2	RB-1	PT-2	PT-2	PT-2	PT-2	PT-1	5, 8

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

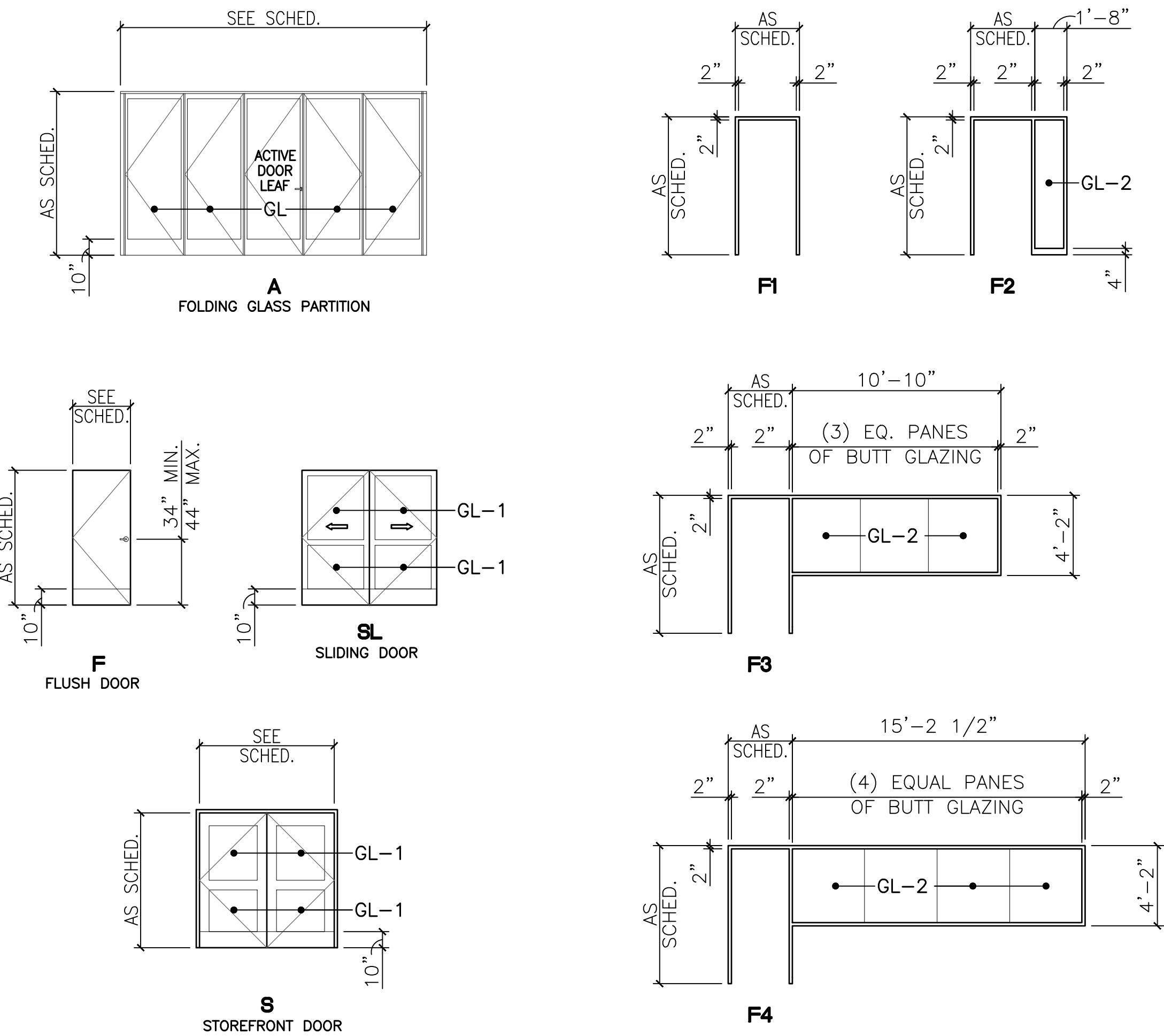
Sheet Title:

FINISH SCHEDULE

Sheet Number:

A601

DOOR AND FRAME MATERIALS/ABBREVIATIONS			
DOOR AND FRAMES			
AL	ALUMINUM	HM	HOLLOW METAL
CONC	CONCRETE	M	MODIFIED EXISTING DOOR OPENING
E	EXISTING DOOR OPENING	N	NEW DOOR OPENING
EXPD	EXPOSED	PF	PRE-FINISHED
ETR	EXISTING TO REMAIN	PT	PAINT
F	FLUSH	ST	STAIN
GL	GLAZING -- SEE SPECIFICATIONS	SS	STAINLESS STEEL
HF	HALF DOOR/GATE		
REMARKS			
1. INCREASE HEIGHT OF (E) OPENING FOR NEW DOOR AND FRAME. 2. EXISTING FRAME TO REMAIN AT (E) CONCRETE WALL OPENING. 3. EXISTING STOREFRONT TO REMAIN, REPLACE DOORS ONLY. 4. CLEAN, PREP, FILL, SAND, PAINT (E) FRAME. 5. PROVIDE 1" UNDERCUT AT DOOR BOTTOM. 6. SLIDING DOOR TO MATCH EXISTING DOOR THAT HAS BEEN REMOVED. SEE SPECIFICATION SECTION 08 42 29 SLIDING AUTOMATIC ENTRANCES. 7. ALUMINUM FINISH COLOR TO MATCH ADJACENT EXISTING FRAMING. 8. EXTERIOR SIDE OF HOLLOW METAL DOOR AND FRAME COLOR PER ARCHITECT SELECTION. 9. PROVIDE 10" SS KICKPLATE AT BOTTOM OF DOOR. 10. NEW DOOR FRAME TO BE INSTALLED WITHIN EXISTING DOOR FRAME. FIELD VERIFY WIDTH AND HEIGHT OF OPENING, PRIOR TO FABRICATION. 11. VERIFY EXISTING WALL AND FRAME MEET 45 MIN. FIRE RATING. 12. DOOR HARDWARE AND GLAZING SHOWN IN SPECIFICATION SECTION 10 22 39 -- FOLDING GLASS PARTITIONS.			
GENERAL NOTES			
1. SEE SPECIFICATION SECTION 09.06.00 "SCHEDULE FOR FINISHES" FOR ALL FINISH DESIGNATIONS. 2. SEE SPECIFICATION SECTION 08.71.00 FOR DOOR HARDWARE SET DESIGNATIONS. 3. SEE SPECIFICATION SECTION 08.41.13 FOR ALUMINUM-FRAMED ENTRANCES AND STOREFRONT INFORMATION AND HARDWARE. 4. MAXIMUM OPENING FORCE SHALL BE 5 POUNDS. 5. FIELD VERIFY ALL DIMENSIONS AND DOOR ORIENTATIONS PRIOR TO FABRICATION. 6. THRESHOLDS PER CBC 11B-302 & 11B-303. 7. PAINT NEW/EXISTING HOLLOW METAL DOORS AND FRAMES AS SCHEDULED. 8. EXTERIOR DOORS AND FRAMES MAY HAVE DIFFERENT INTERIOR/EXTERIOR COLORS. CONFIRM W/ ARCHITECT, AND SPEC. SECTION. 9. KNOCK-DOWN HOLLOW METAL FRAMES ARE ACCEPTABLE AT (E) OPENINGS, WHERE FRAME WRAPS AROUND HEAD AND JAMB. 10. SEE SPECIFICATION SECTION 08 42 29 -- SLIDING AUTOMATIC ENTRANCES FOR SLIDING DOOR INFORMATION AND HARDWARE			



2 DOOR TYPES
NO SCALE

1 FRAME TYPES
NO SCALE

DOOR AND HARDWARE SCHEDULE																		
DOOR NO.	ROOM NAME	DOOR						FRAME						HARD WARE	LABEL	REMARKS	OPENING	
		SIZE		TYPE	PANEL MAT'L	GLASS	DOOR FINISH	TYPE	MAT'L	HEAD DETAIL	JAMB DETAIL	MISC. DETAIL	FRAME FINISH					
		WIDTH	HEIGHT															
100	OPEN AREA	7'-0"	7'-0"	SL	AL	GL-1	PF	ETR	ETR	-	-	-	ETR	2	-	3, 6, 7	E	
101	MECH	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	SIM. 4/A603	SIM. 5/A603	-	PT-3	10	-	1	M	
102	STORAGE	3'-4"	6'-8"	F	HM	-	PT-3, 4	F1	HM	-	-	-	PT-3, 5	5	-	2, 4, 8	E	
104	UNISEX TOILET	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
105	UNISEX TOILET	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
106	UNISEX TOILET	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
107	CONFERENCE	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	14	-	8	N	
108	PASSAGE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	10,12/A603	2/A605	PF	14	-	-	N	
109	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
110	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
111	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
112	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
113	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
116A	LOBBY	15'-11"	8'-6"	A	AL	GL	PF	-	AL	1/A604	2/A604	-	PF	15	-	12	N	
116B	PASSAGE	3'-0"	7'-0"	F	WD	-	ST-1	F3	AL	6/A603	11,12/A603	7/A605	PF	13	-	-	N	
116C	PASSAGE	3'-0"	7'-0"	F	WD	-	ST-1	F1	AL	4/A604	13/A603	-	PF	13	-	-	N	
116D	VESTIBULE	(2) 3'-0"	7'-0"	S	AL	GL-1	PF	ETR	ETR	-	-	-	ETR	AL-1	-	3, 7	E	
118	STORAGE	3'-0'	7'-0"	F	WD	-	ST-1	F1	SS	3/A604	3/A604	-	PF	10	45 MIN.	10, 11	E	
119A	OPEN OFFICE	2'-10"	3'-4 1/2"	F	WD	-	ST-1	-	-	-	7/A514	6/A514	-	13	-	9	HF	
119B	OPEN OFFICE	2'-10"	3'-4 1/2"	F	WD	-	ST-1	-	-	-	7/A514	6/A514	-	13	-	9	HF	
120	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F4	AL	14/A603	12,13/A603	5,11/A605	PF	3	-	-	N	
121	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
122	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
123	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
124	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	8/A603	9/A603	10/A603	PF	3	-	-	N	
126A	BREAK ROOM	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	13	-	8	N	
126B	BREAK ROOM	3'-0"	7'-0"	F	WD	-	ST-1	F2	AL	4/A604	7/A603	-	PF	6	-	-	N	
127A	WORK ROOM	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	7	-	-	N	
127B	WORK ROOM	3'-0"	6'-8"	F	HM	-	PT-3, 4	F1	HM	-	-	-	PT-3, 5	12	-	8, 10	E	
201	STORAGE	3'-0"	6'-8"	F	WD	-	ST-1	ETR	ETR	-	-	-	PT-3	1	45 MIN.	2, 4, 11	E	
202	IT	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	SIM. 4/A603	SIM. 5/A603	-	PT-3	13	-	-	N	
203	OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	8	-	-	N	
204	OPEN OFFICE	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	5/A603	5/A603	-	PT-3	8	-	-	N	
205	UNISEX TOILET	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
206	UNISEX TOILET	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
207	JANITOR	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	10	-	-	N	
208	UNISEX TOILET	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
209	ELEVATOR EQUIPMENT	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	SIM. 4/A603	SIM. 5/A603	-	PT-3	1	60 MIN.	-	N	
210	LACTATION	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	4	-	5	N	
211	STORAGE	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	SIM. 4/A603	SIM. 5/A603	-	PT-3	1	-	-	N	
S1-1	STAIR	3'-0"	7'-0"	F	HM	-	PT-3, 4	F1	HM	1/A603	2/A603	3/A603	PT-3, 5	11	-	8	E	
S1-2	STAIR	3'-0"	7'-0"	F	WD	-	ST-1	F1	HM	4/A603	5/A603	-	PT-3	6	60 MIN.	-	N	

Revisions:

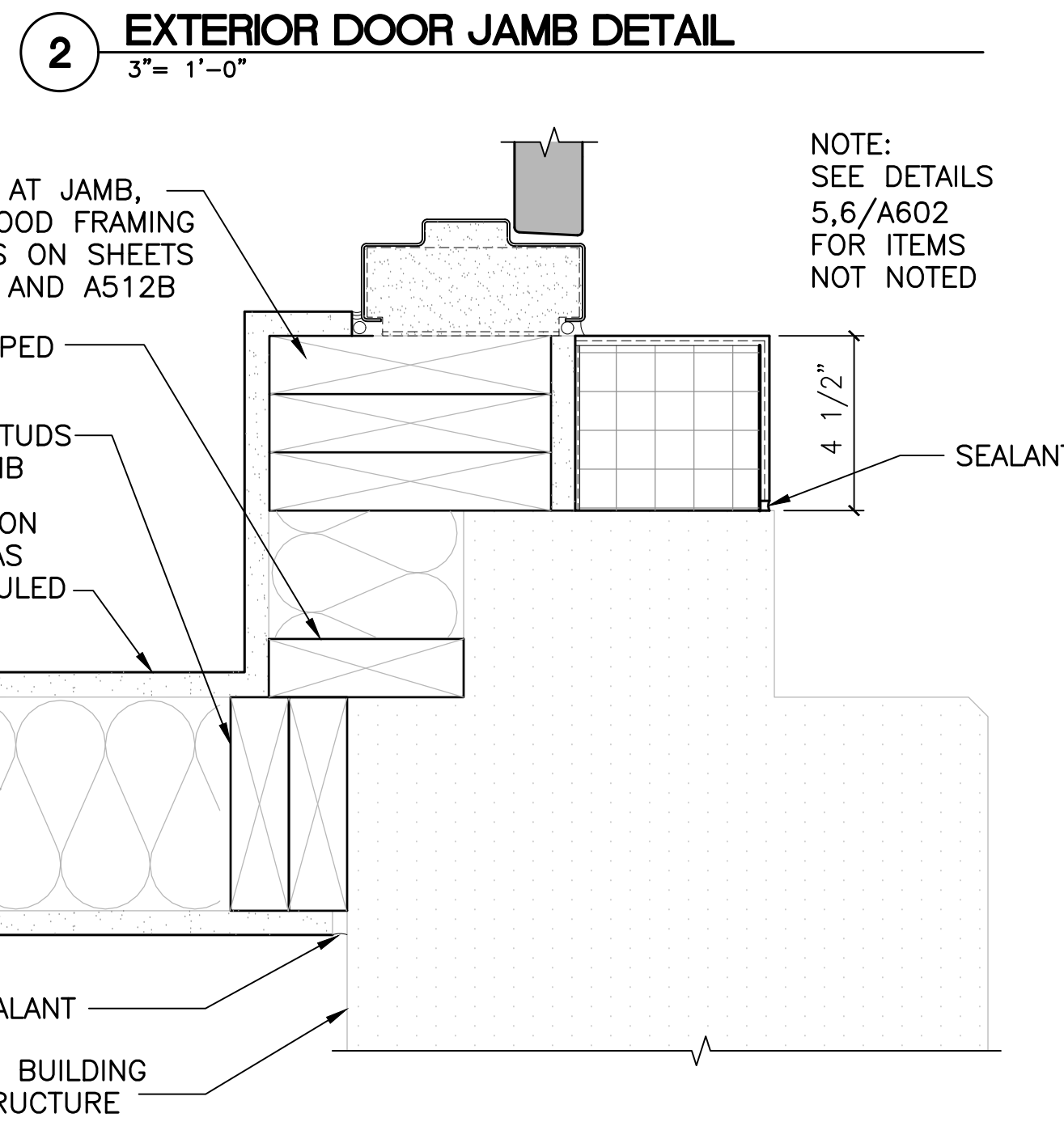
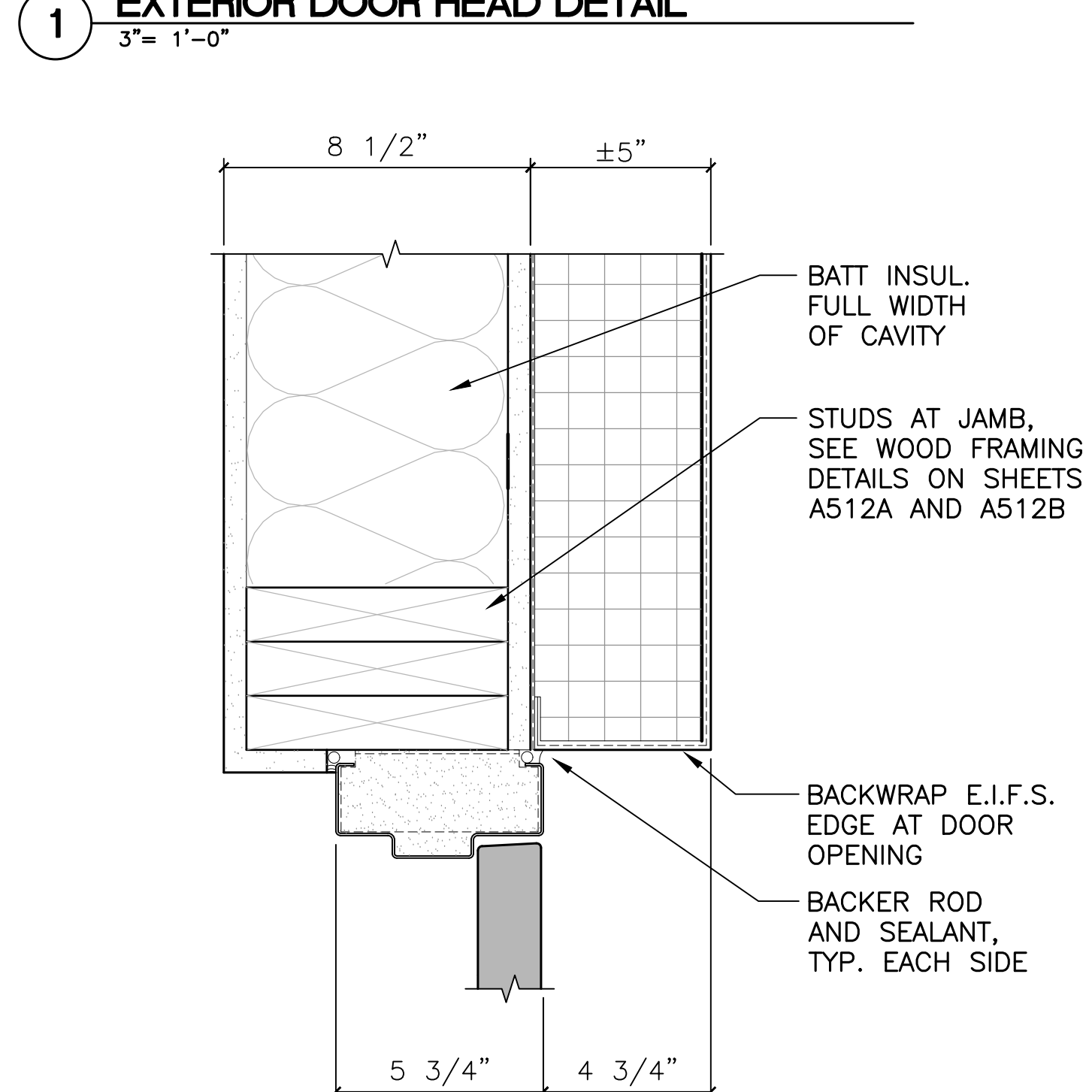
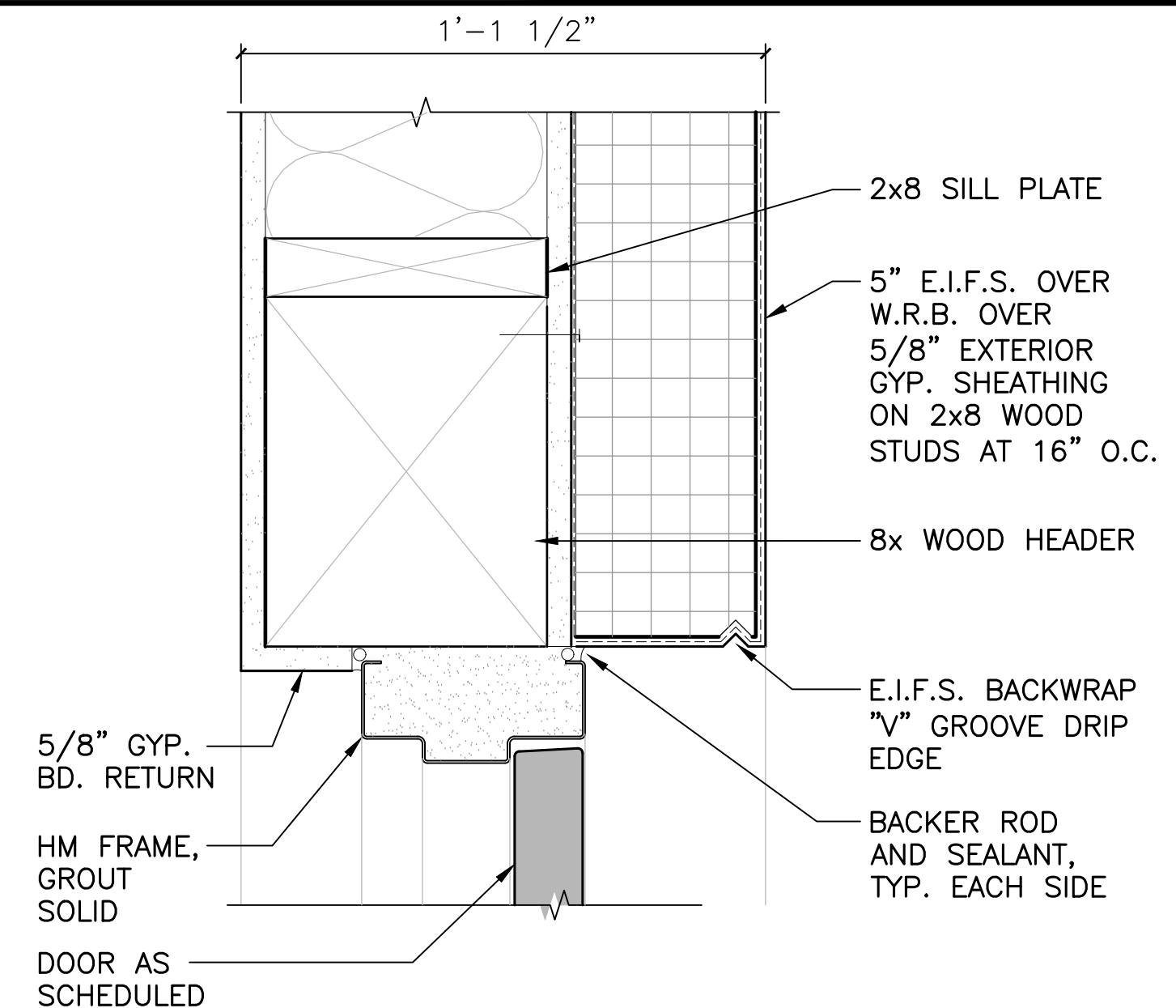
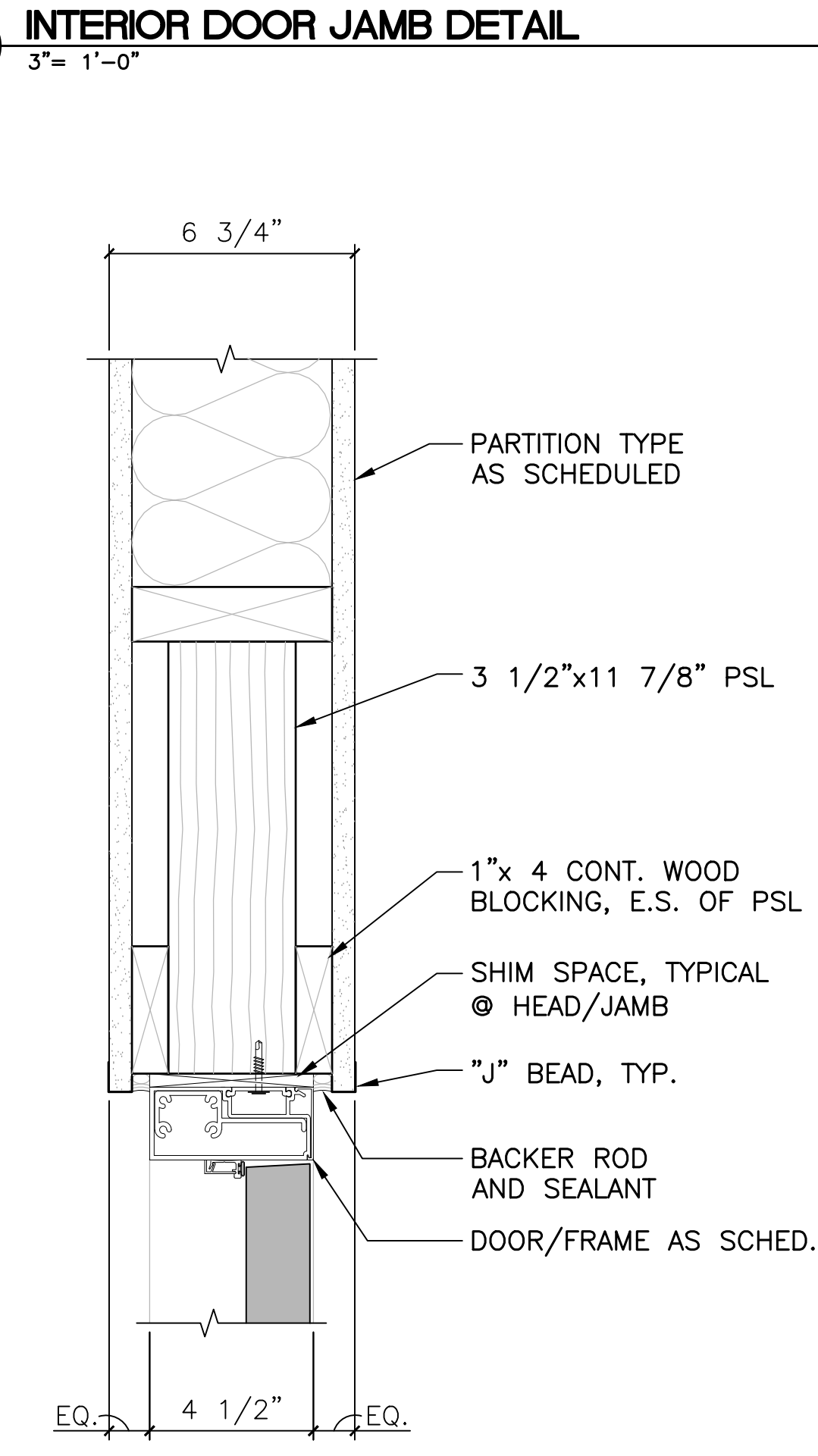
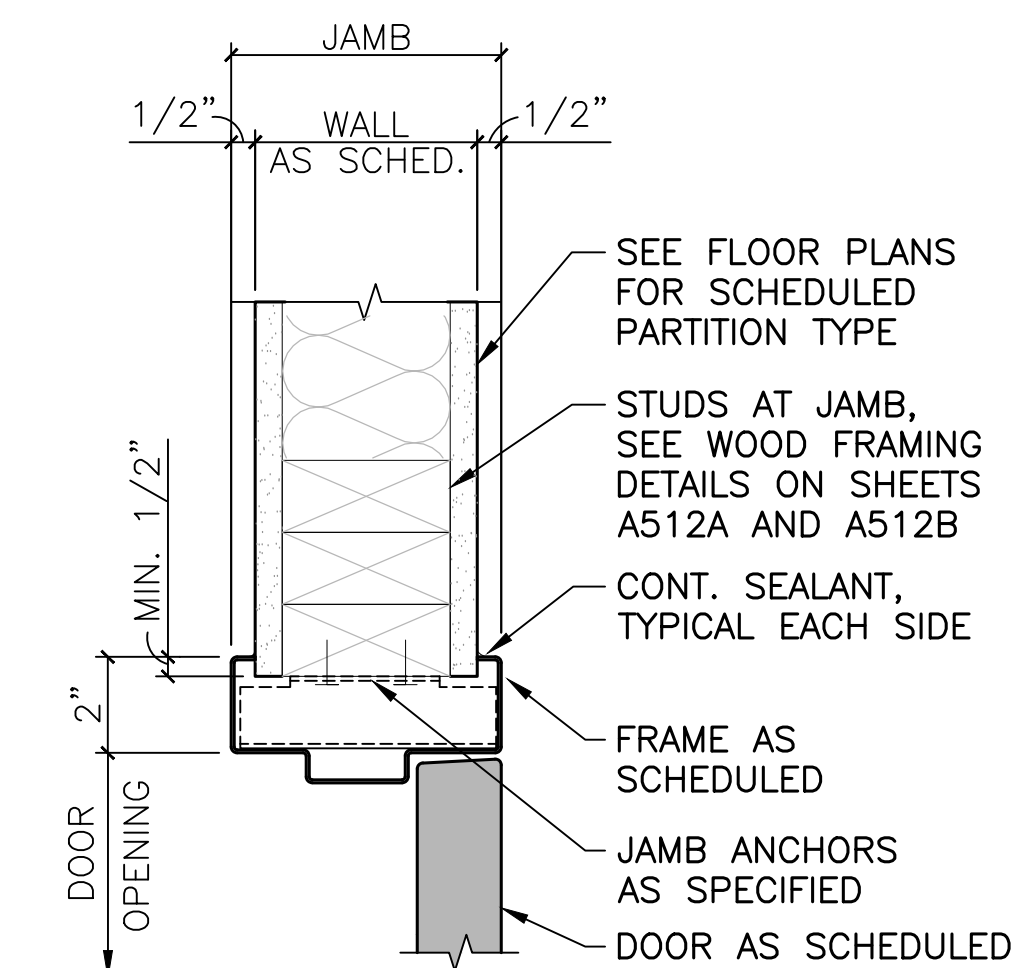
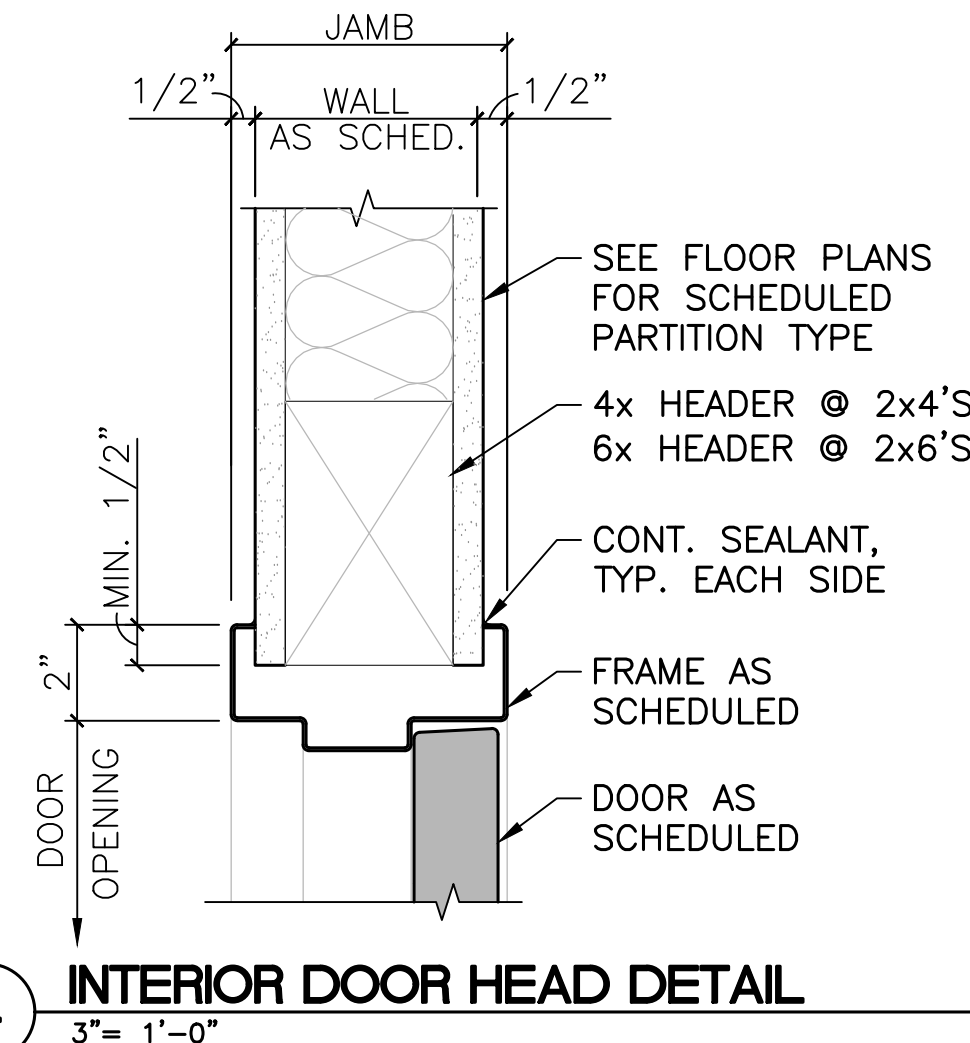
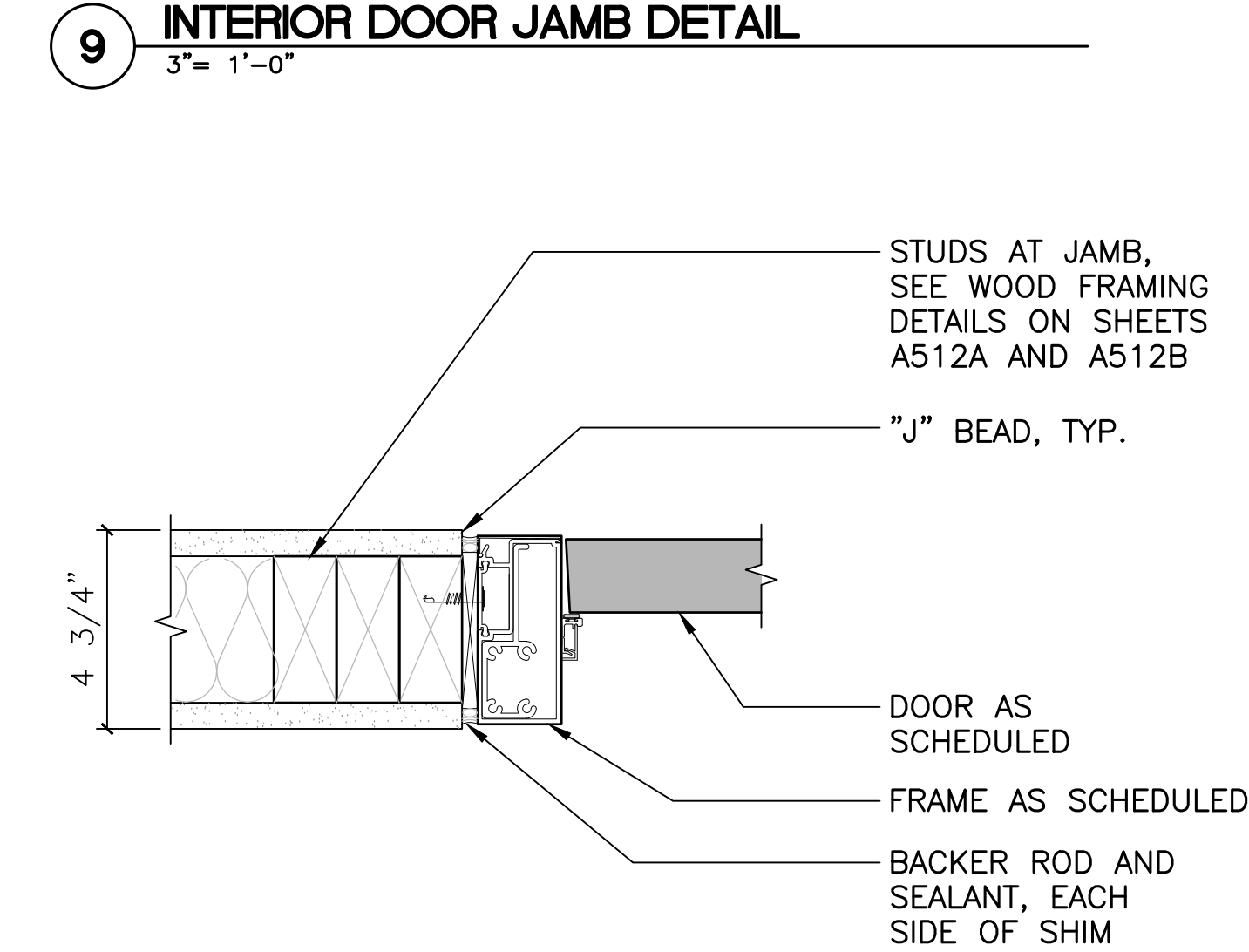
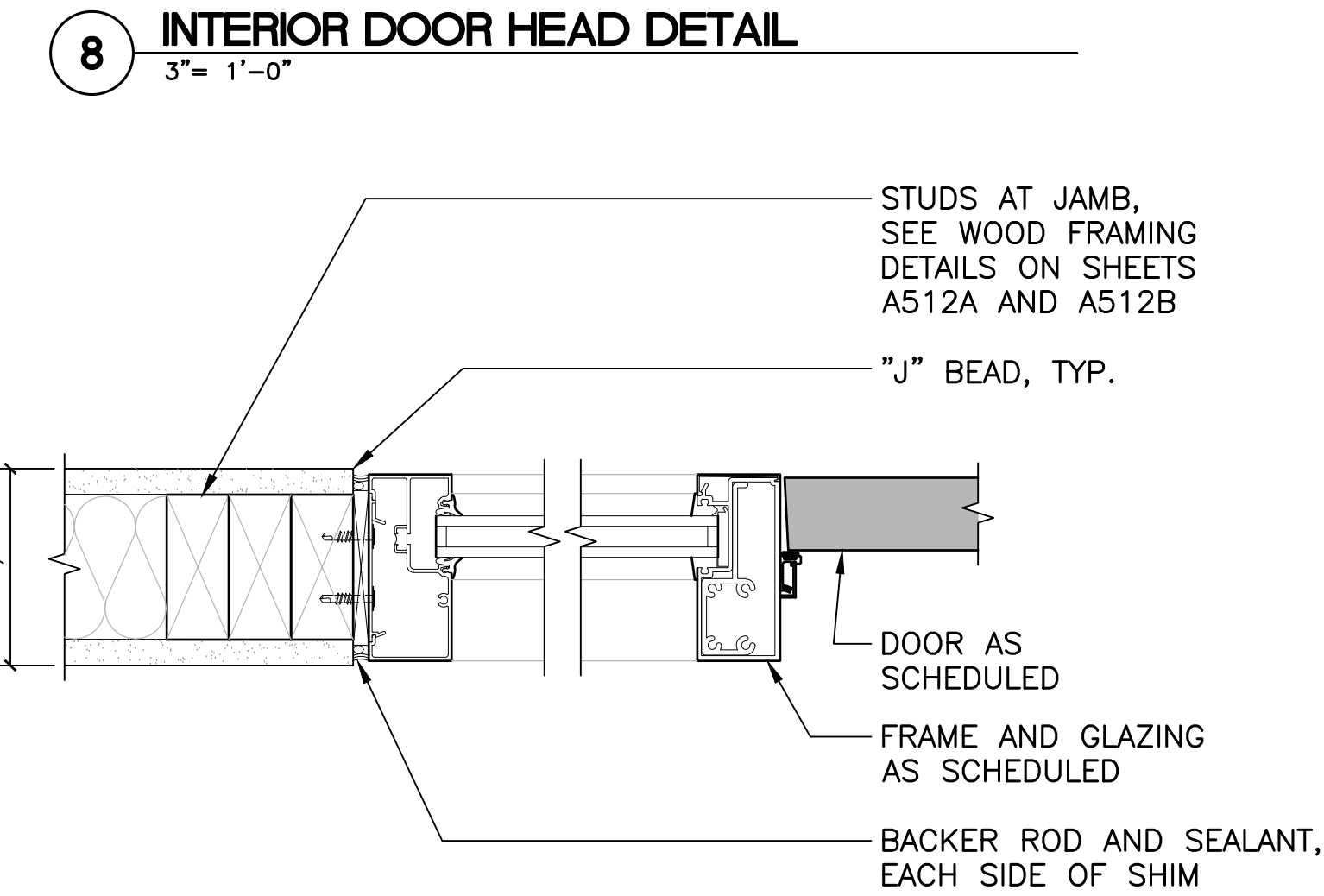
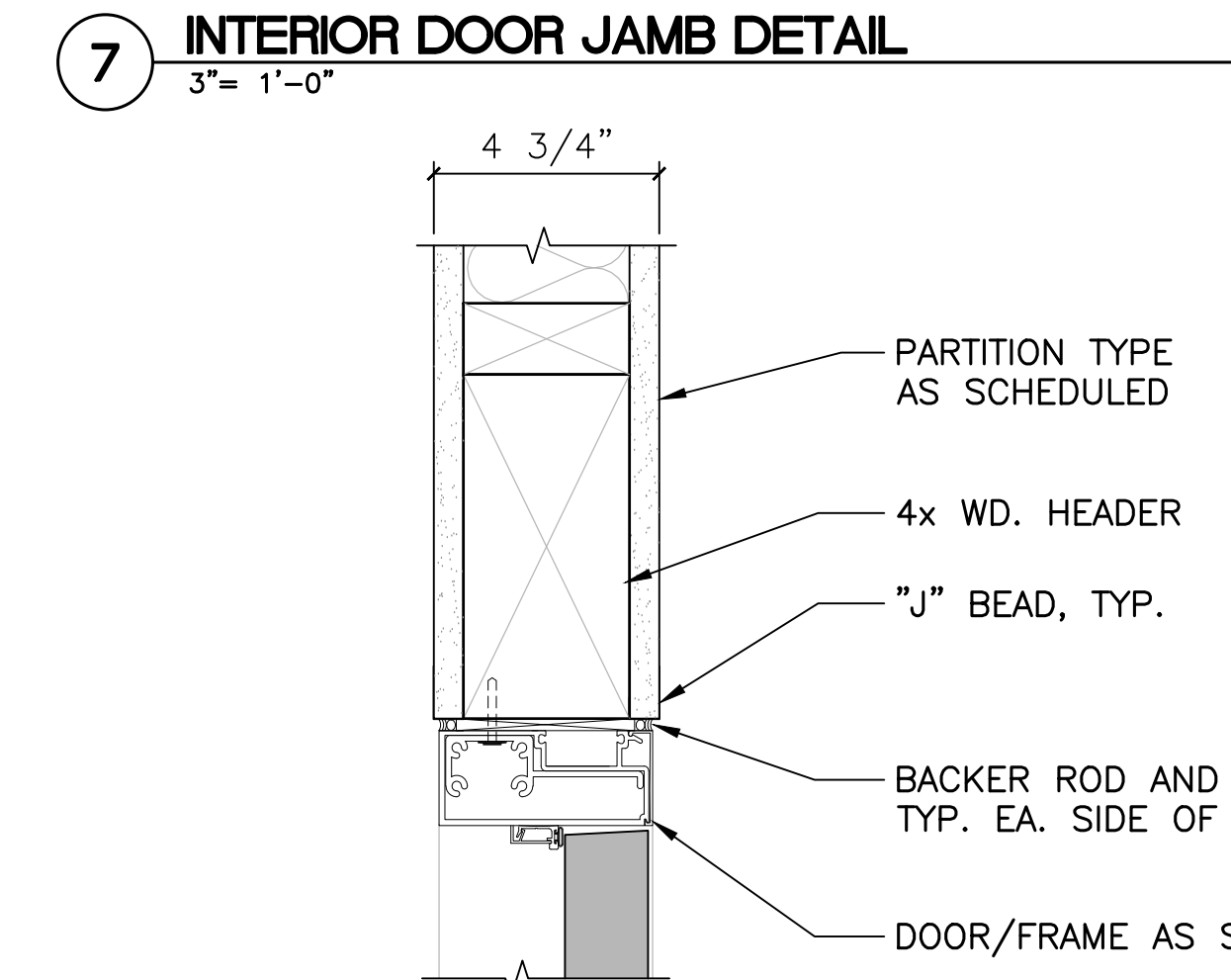
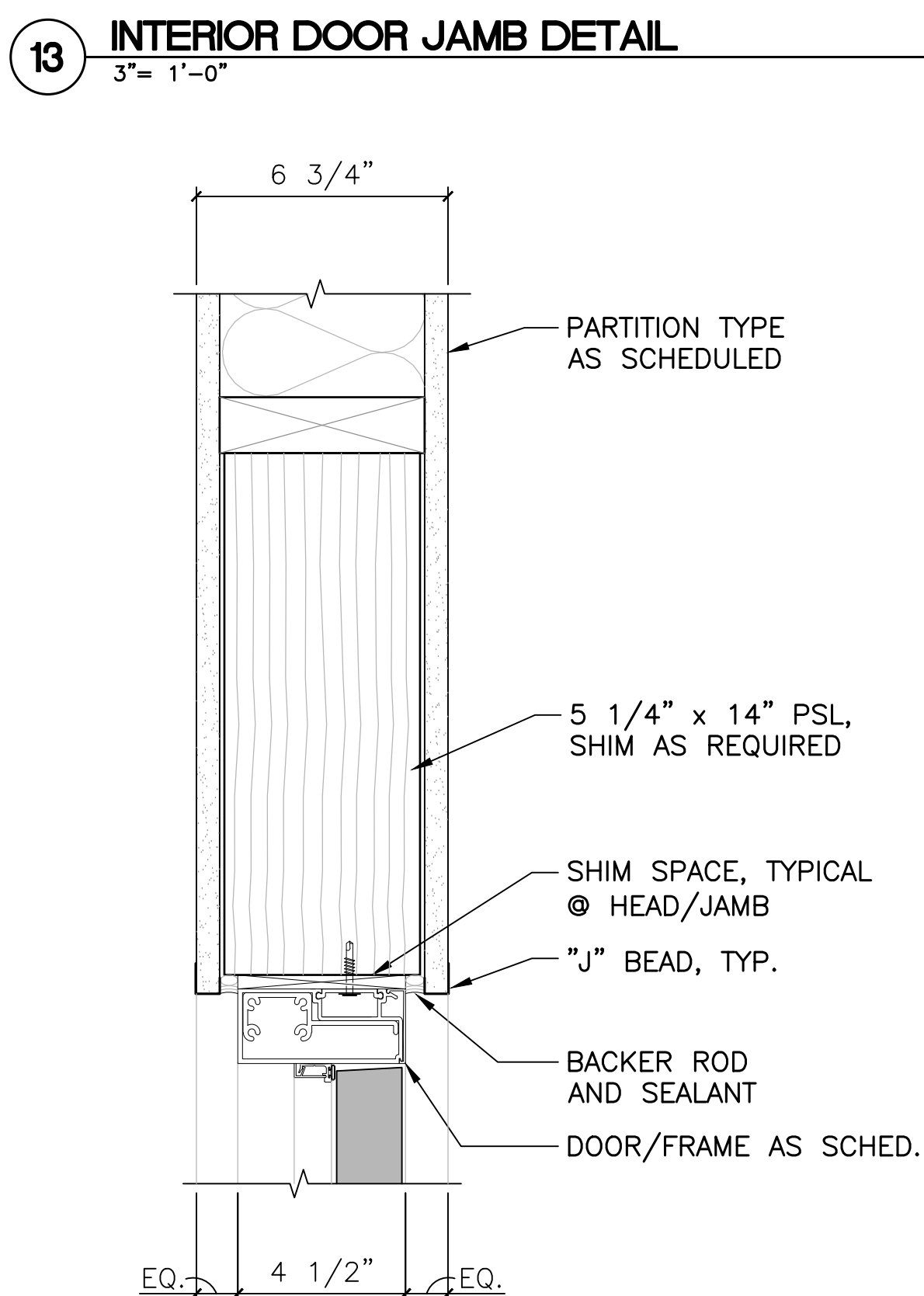
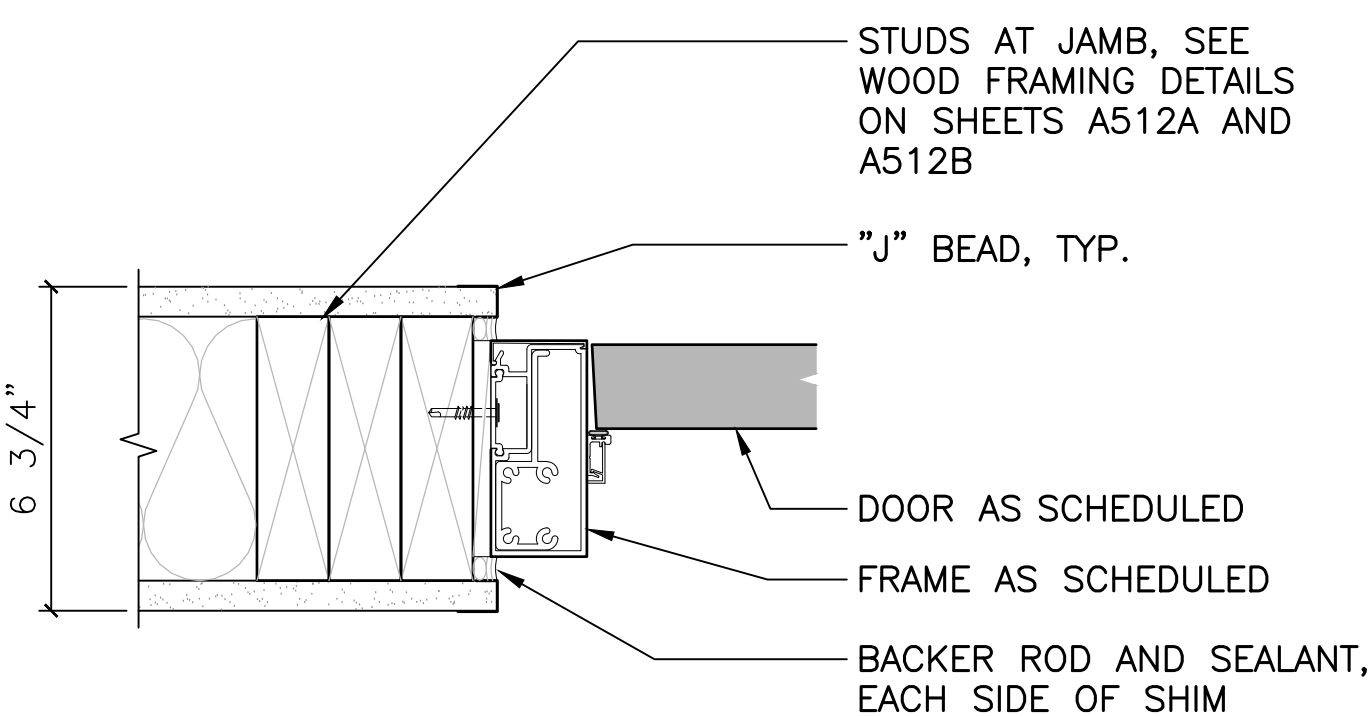
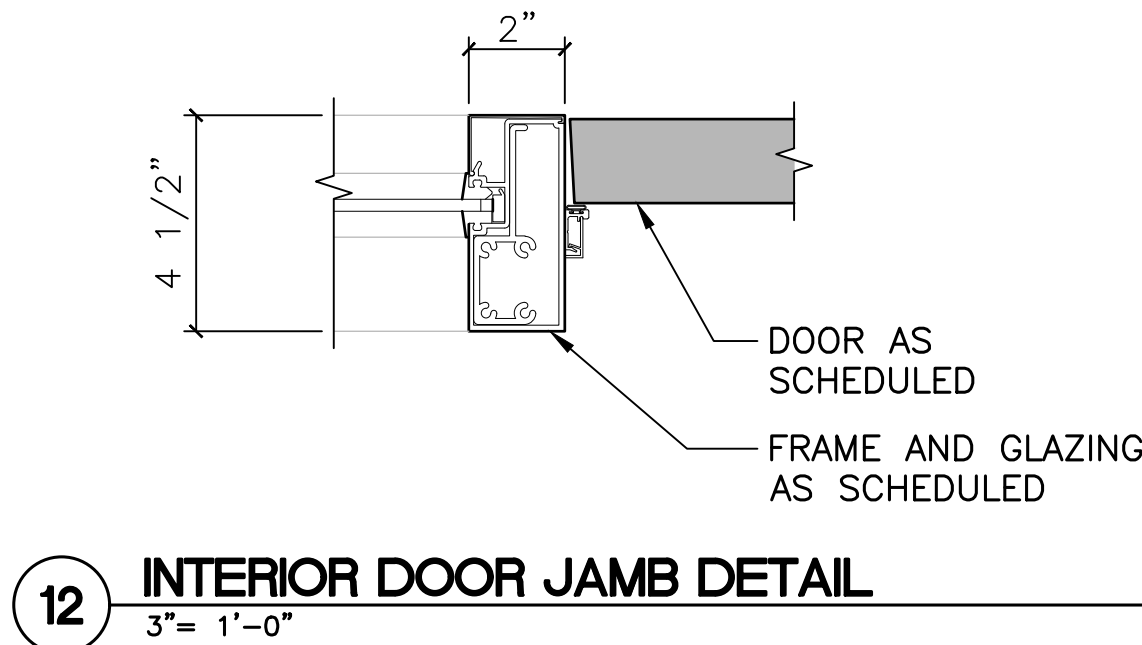
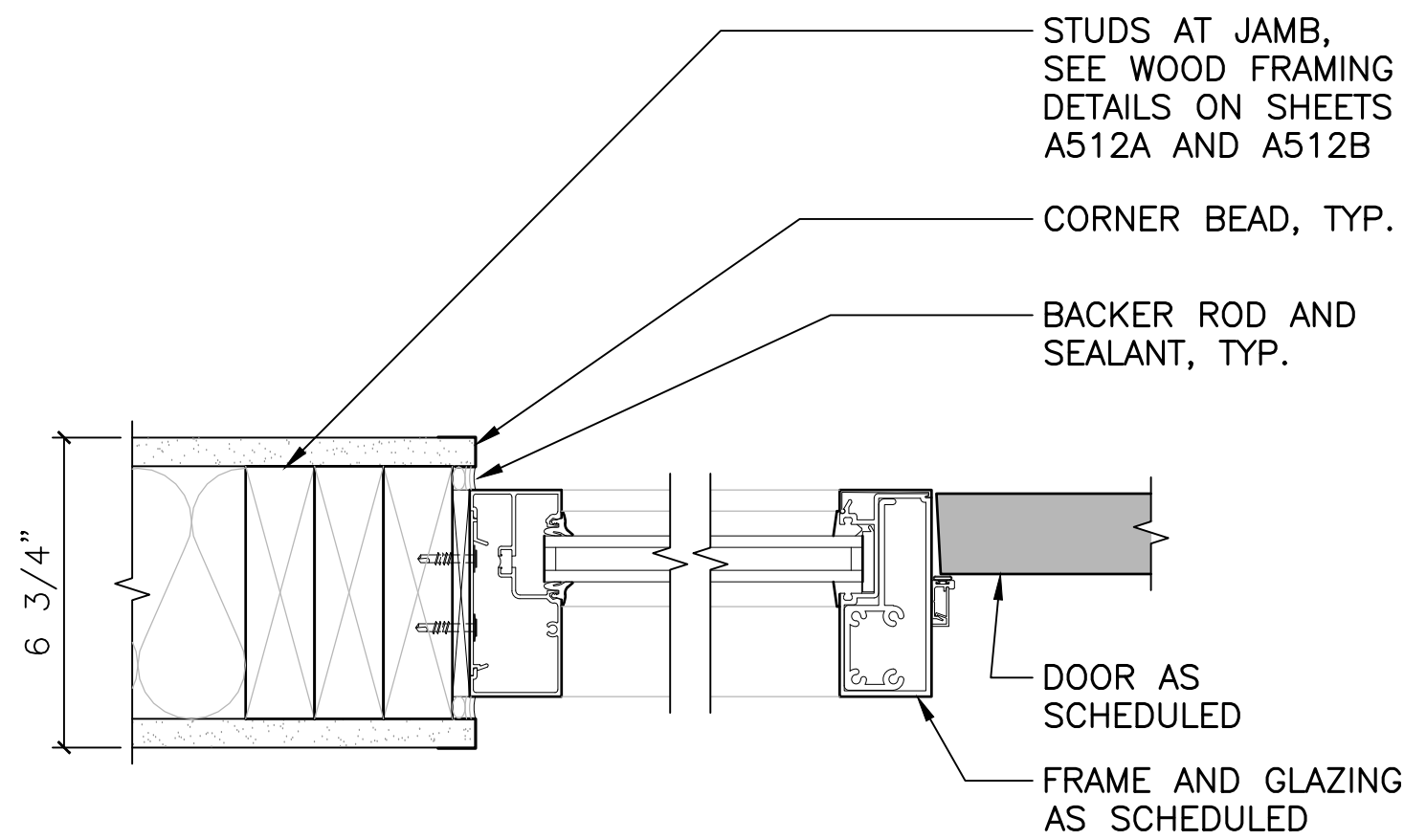
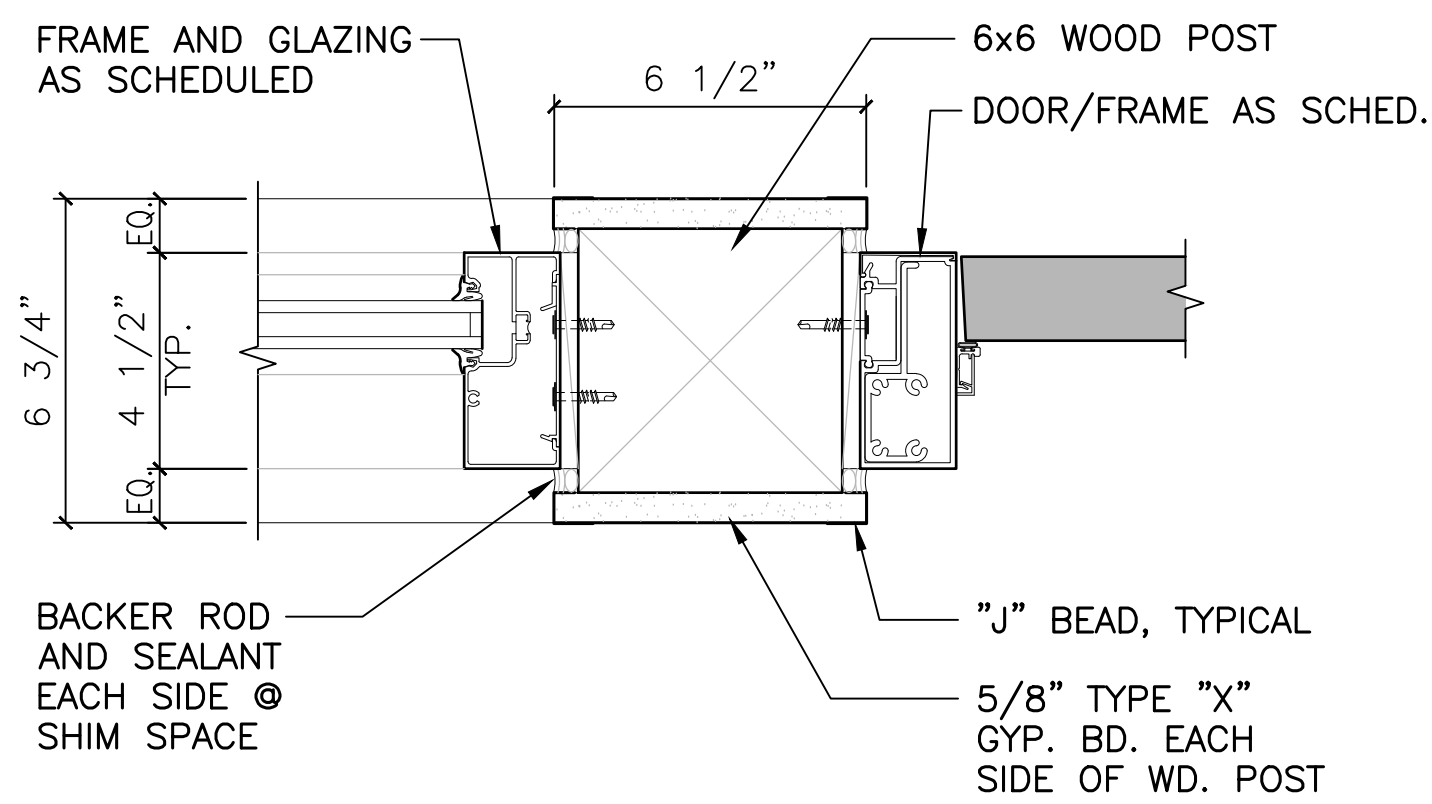
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

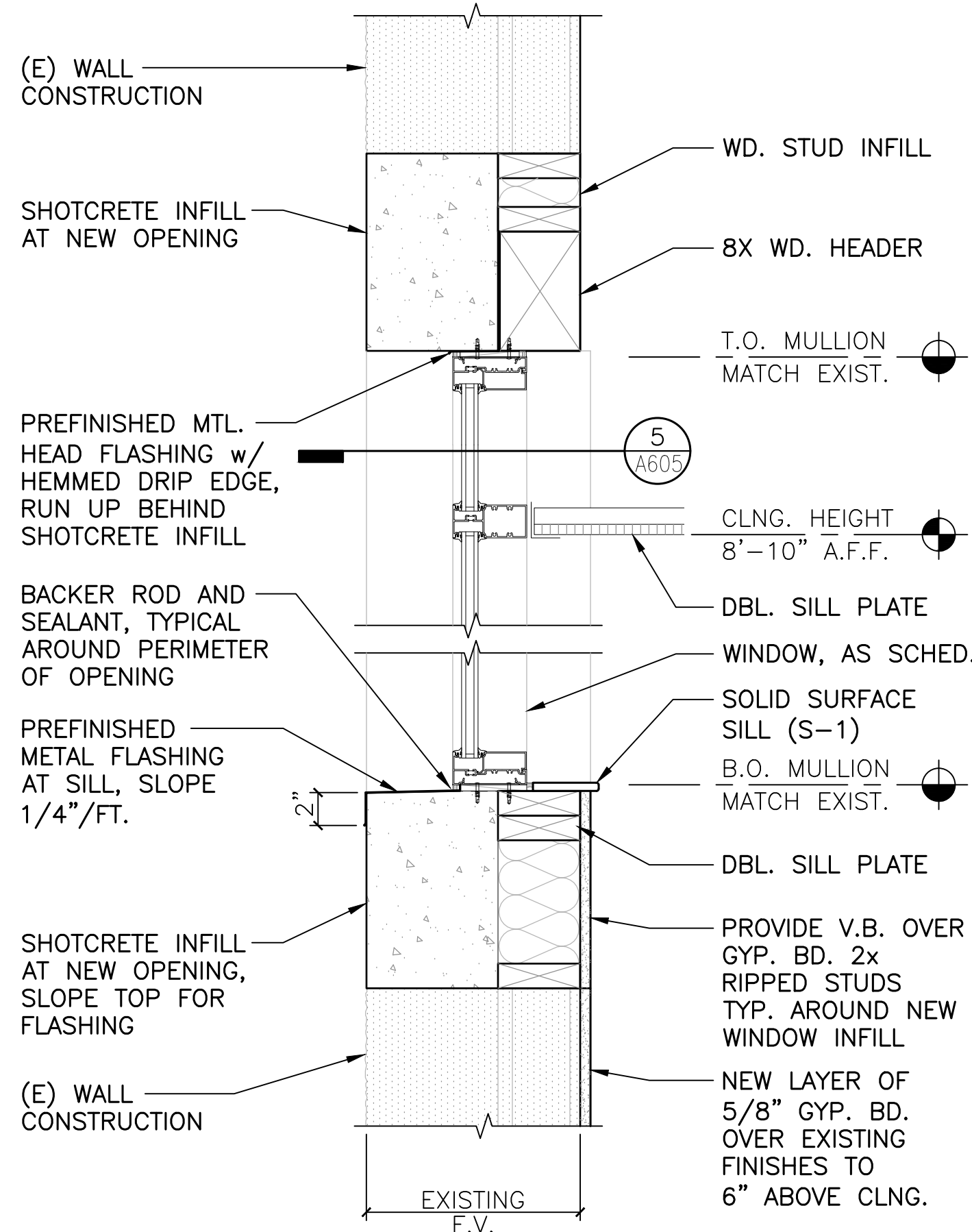
Sheet Title:

DOOR SCHEDULE,
DOOR TYPES AND
FRAME TYPES

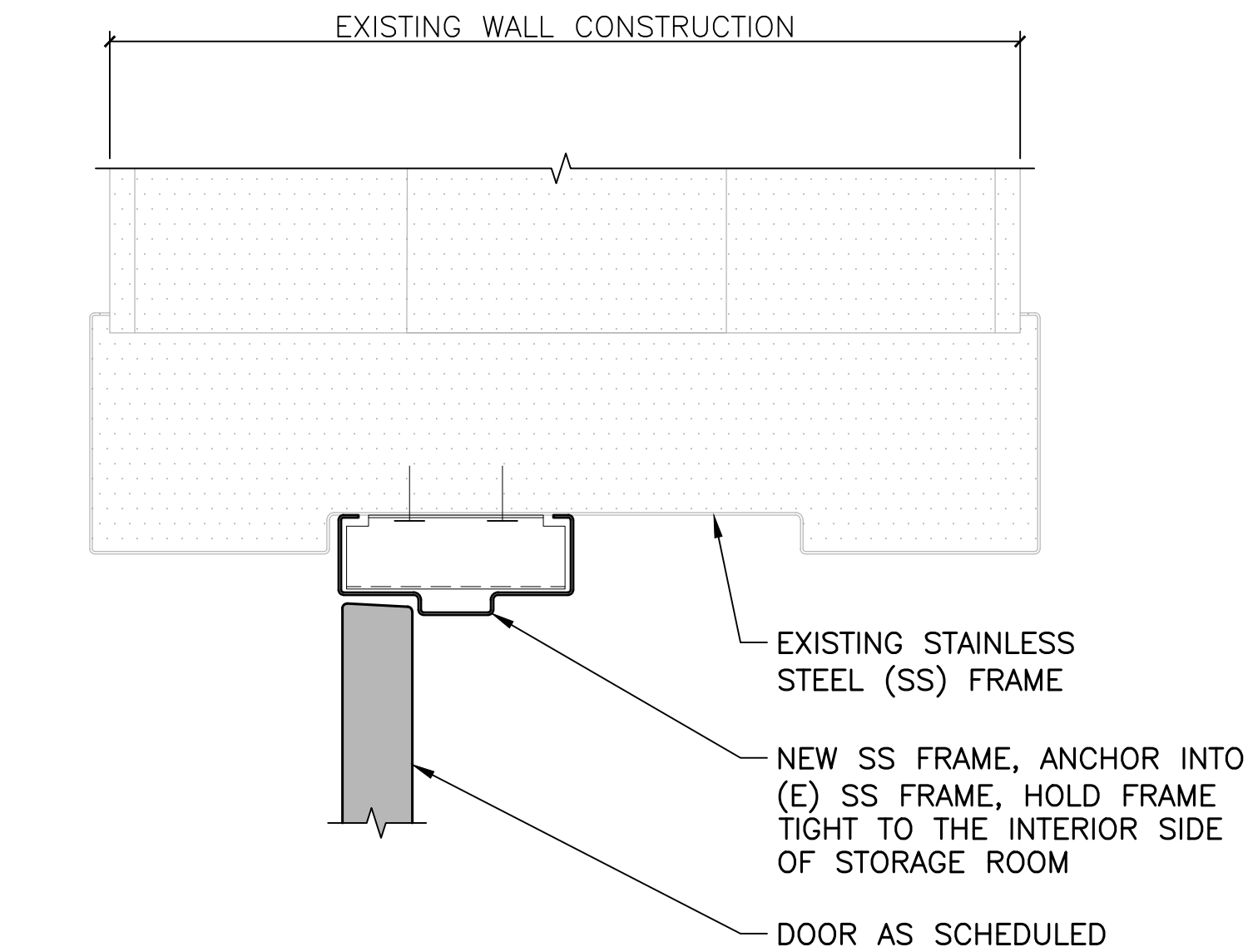
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A602

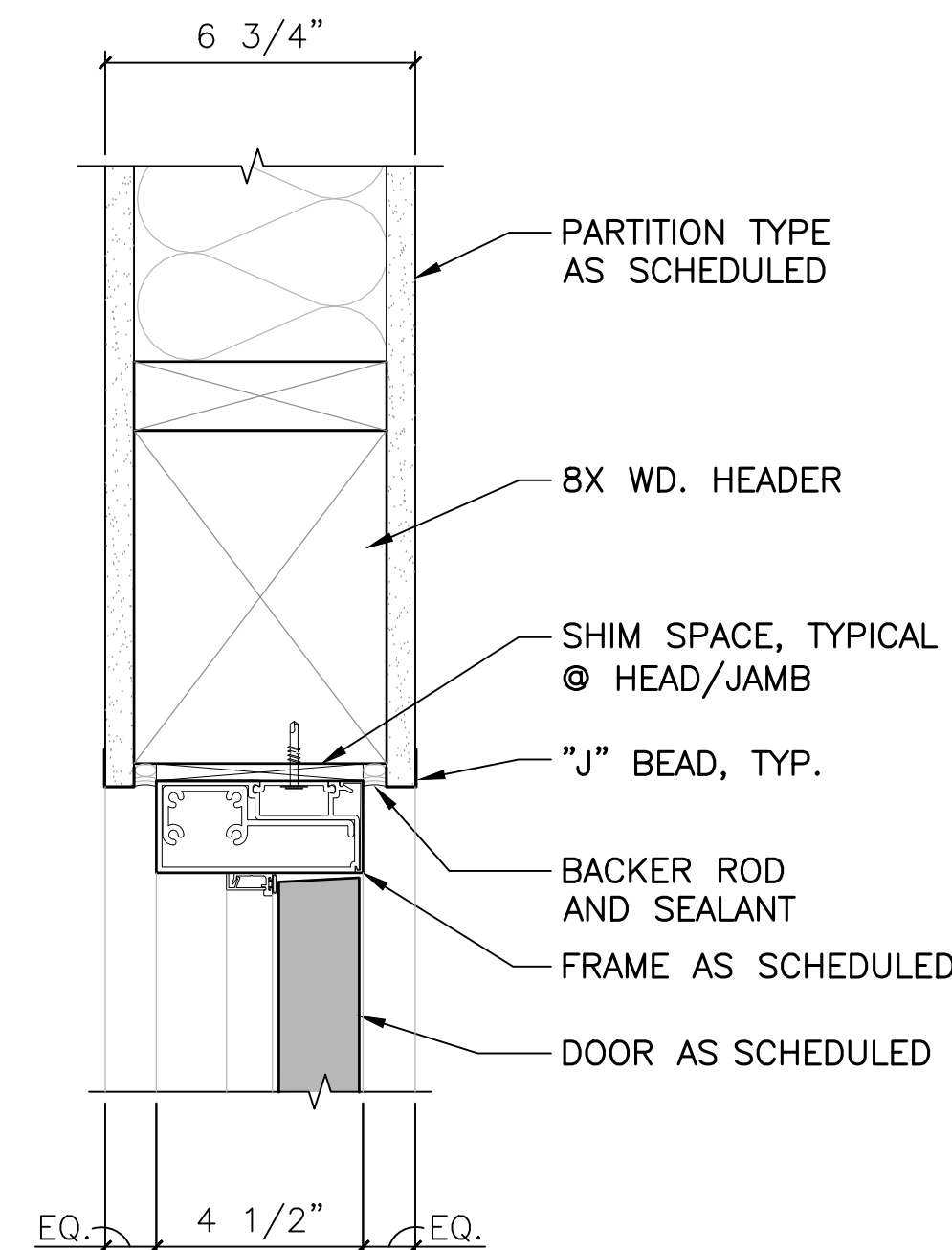




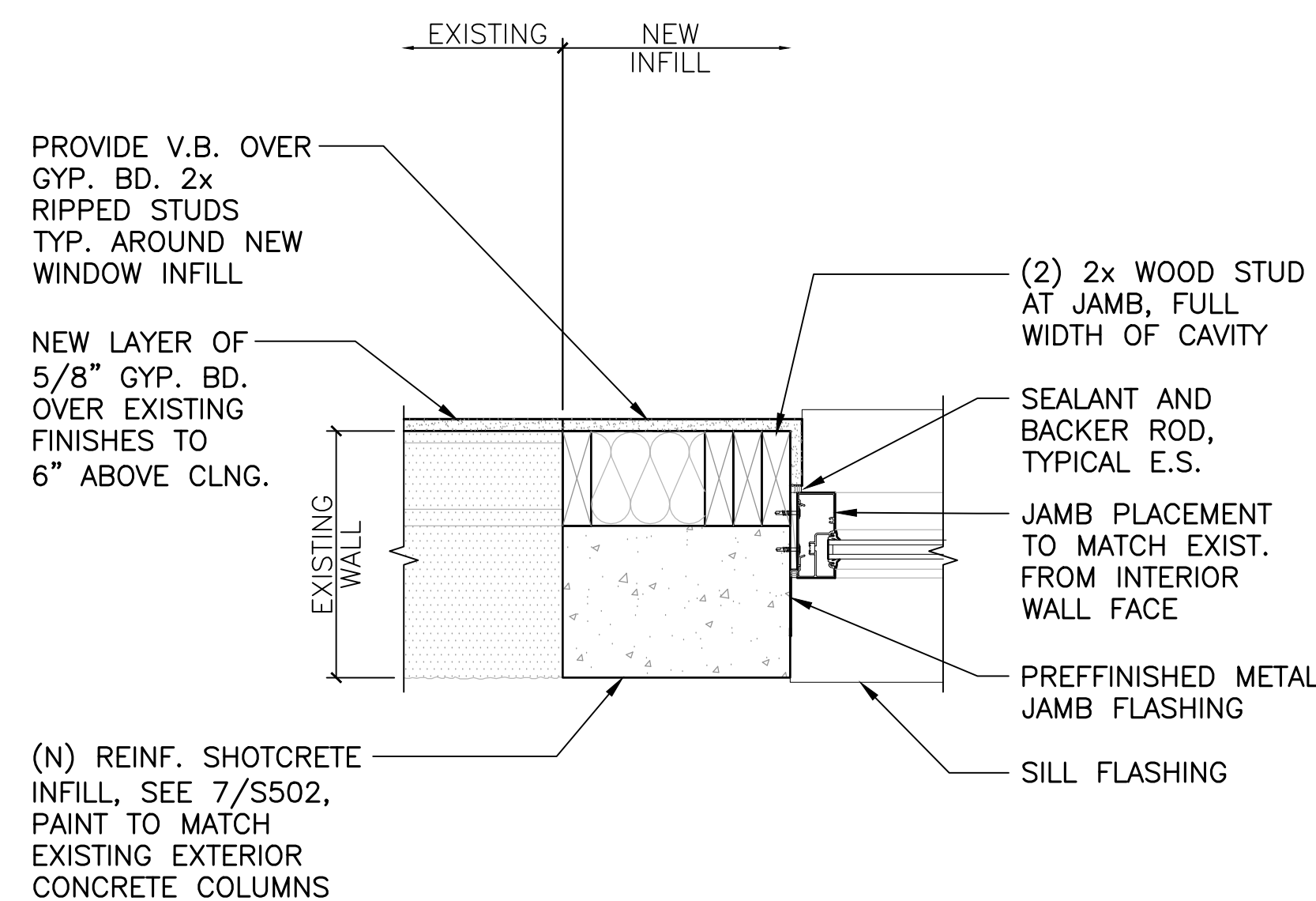
6 WINDOW SILL/HEAD DETAIL
1 1/2" = 1'-0"



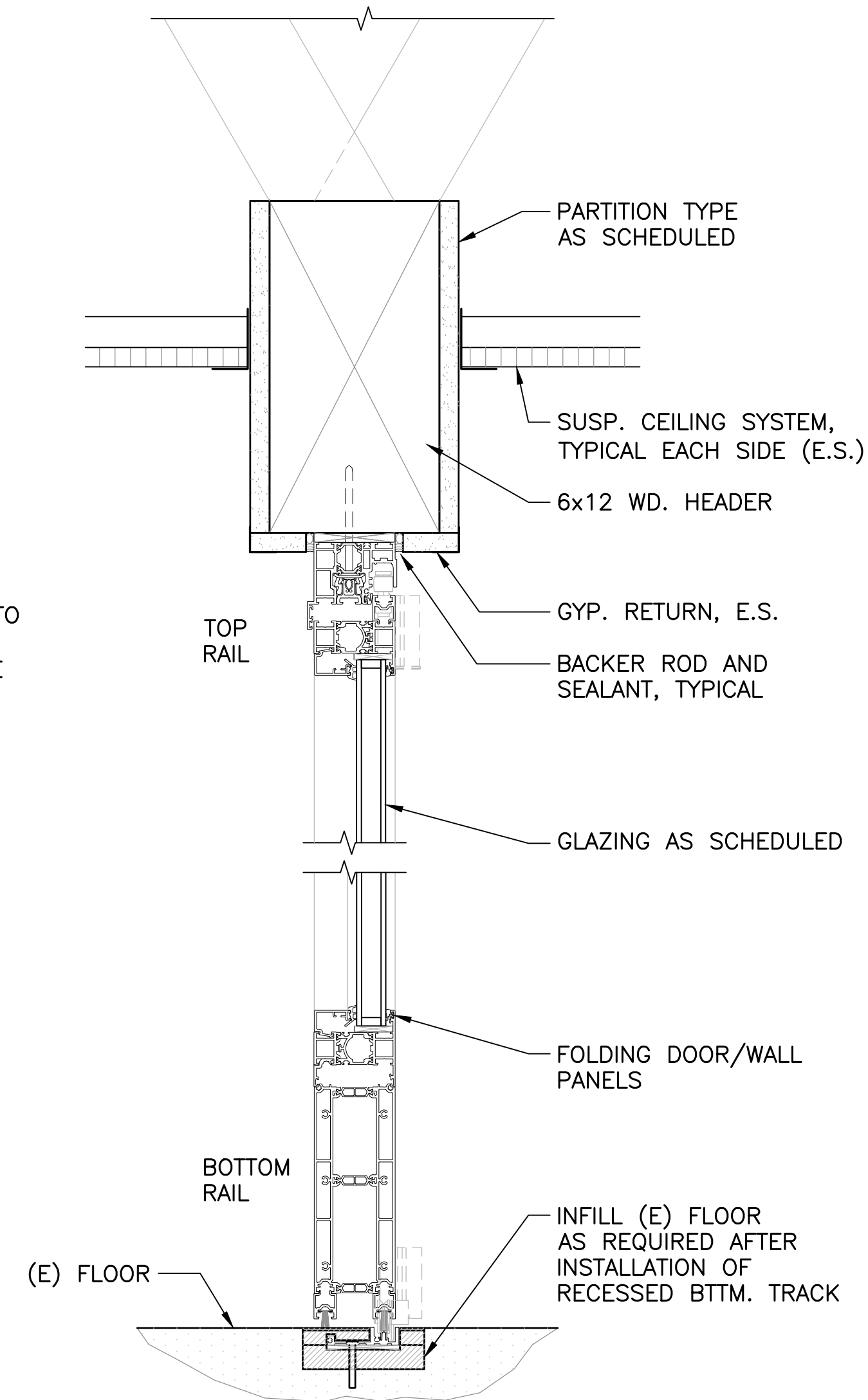
3 INTERIOR DOOR JAMB DETAIL
3" = 1'-0"



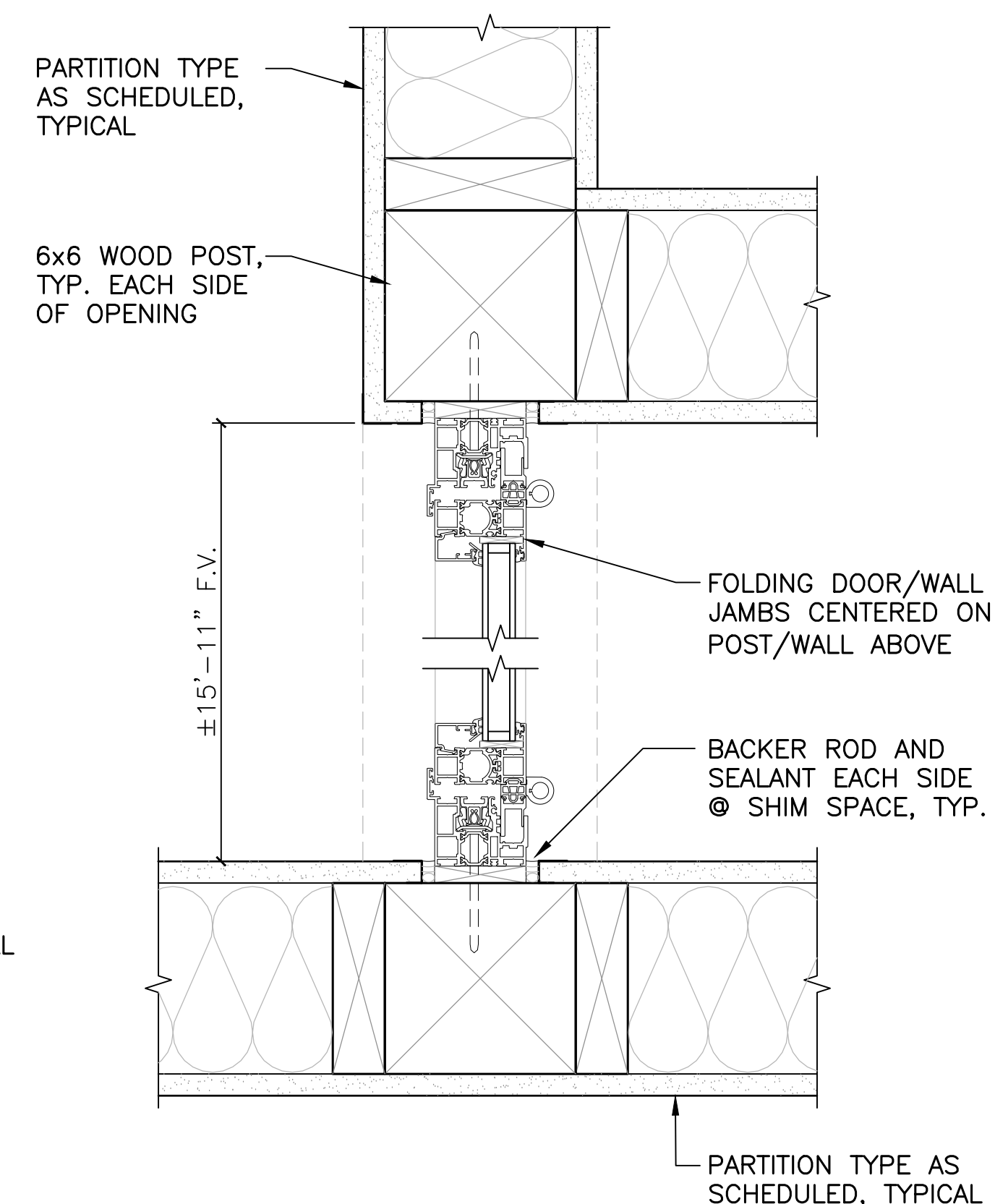
4 INTERIOR DOOR HEAD DETAIL
3" = 1'-0"



5 WINDOW JAMB DETAIL
1 1/2" = 1'-0"



1 DOOR SECTION DETAIL
3" = 1'-0"



2 JAMB DETAIL
3" = 1'-0"

Revisions:

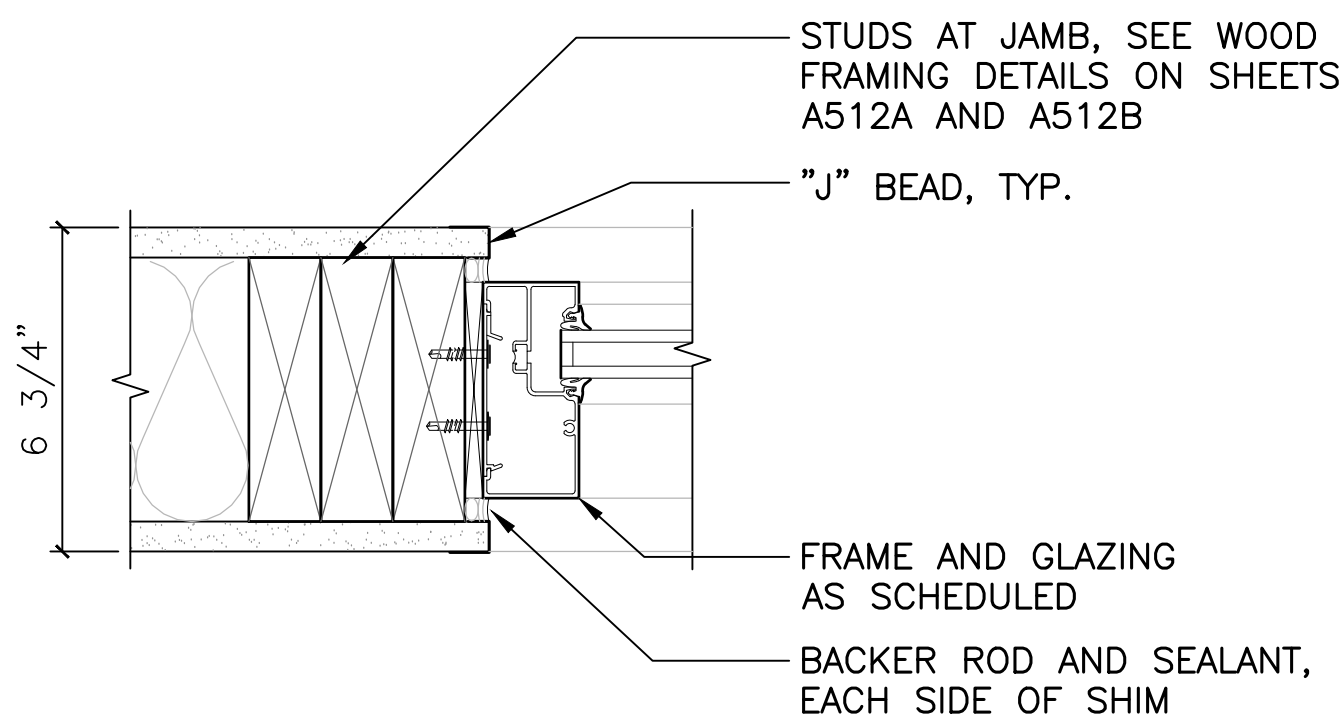
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

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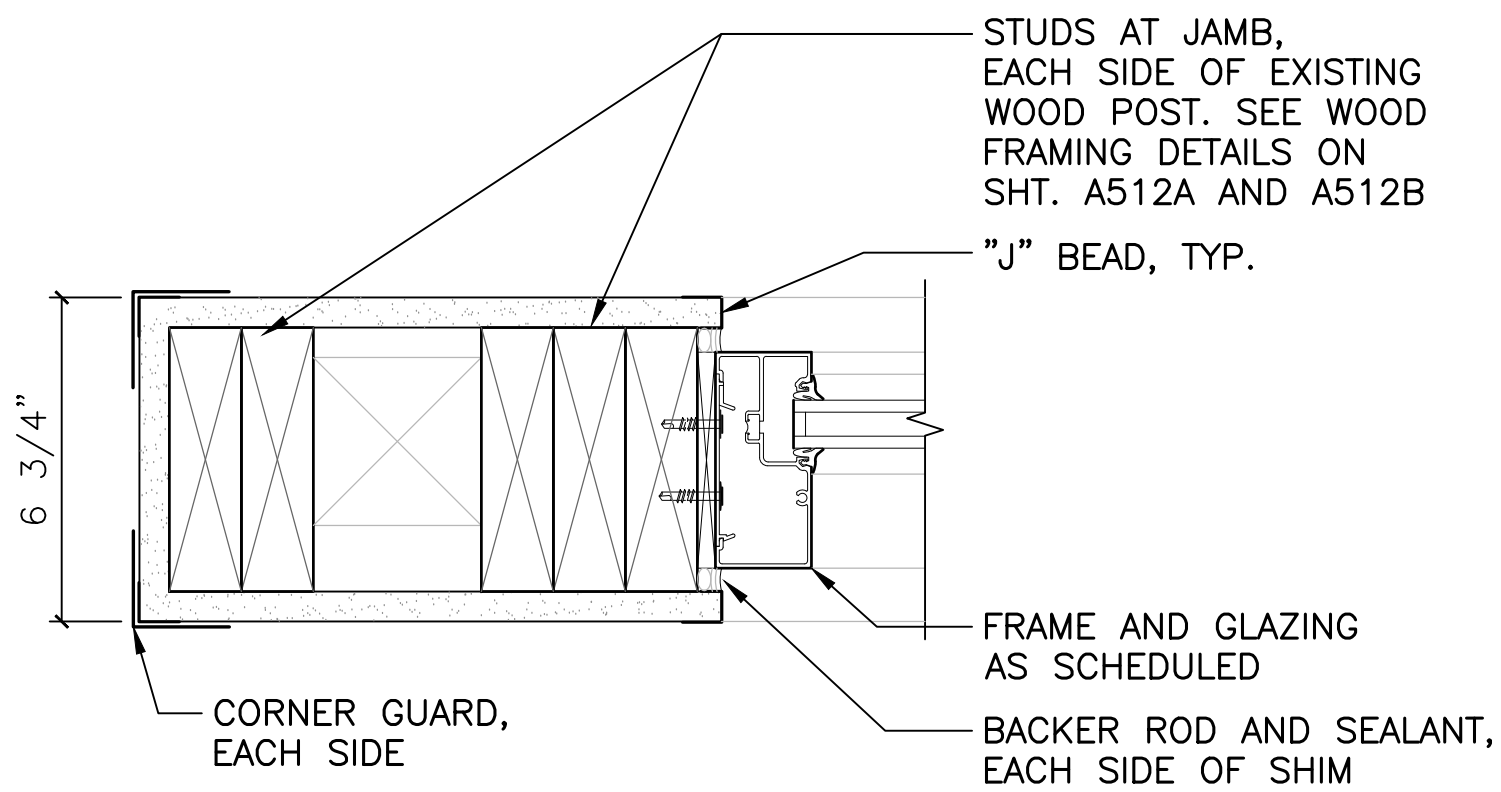
DOOR/MISC. DETAILS

Sheet Number:

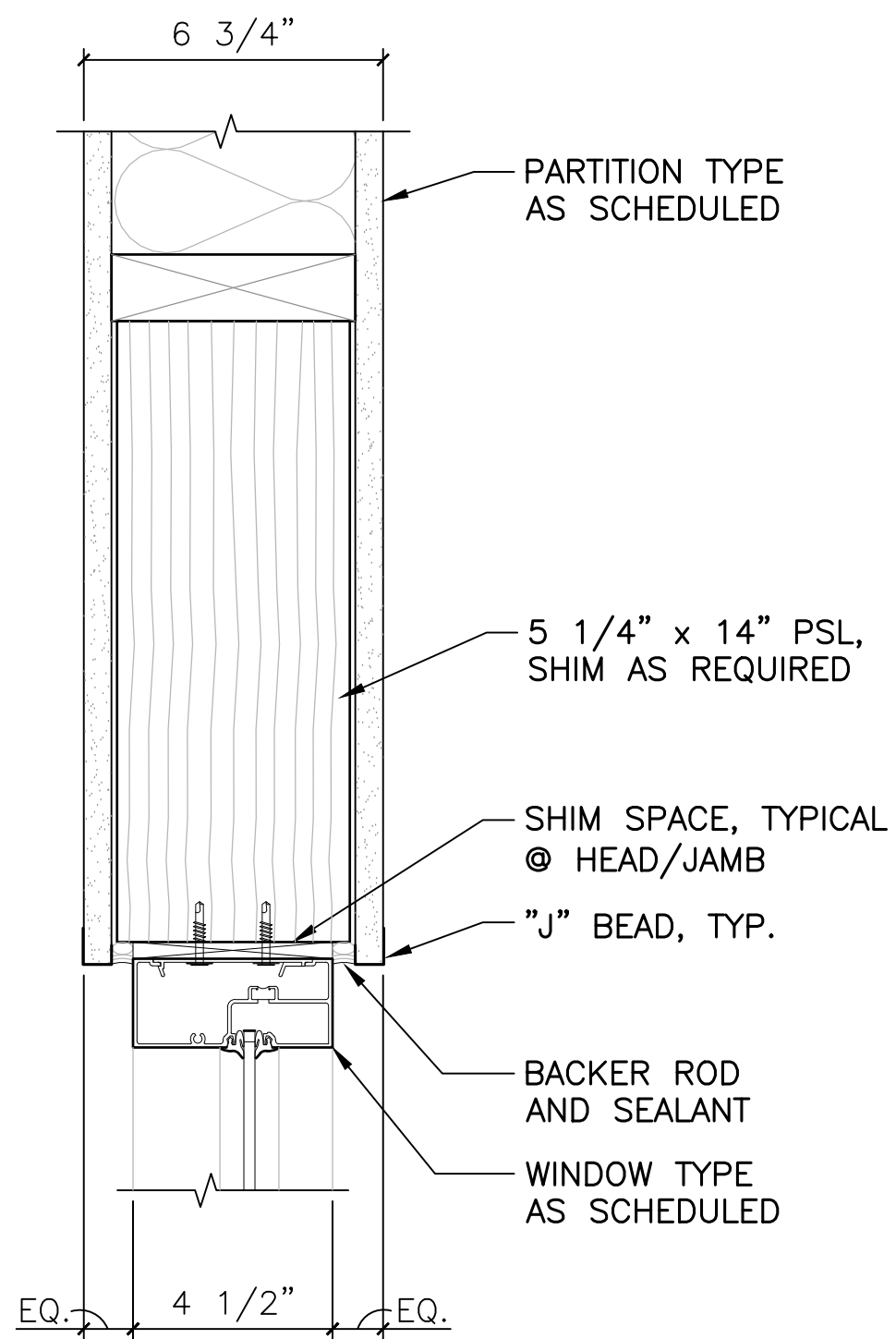
A604



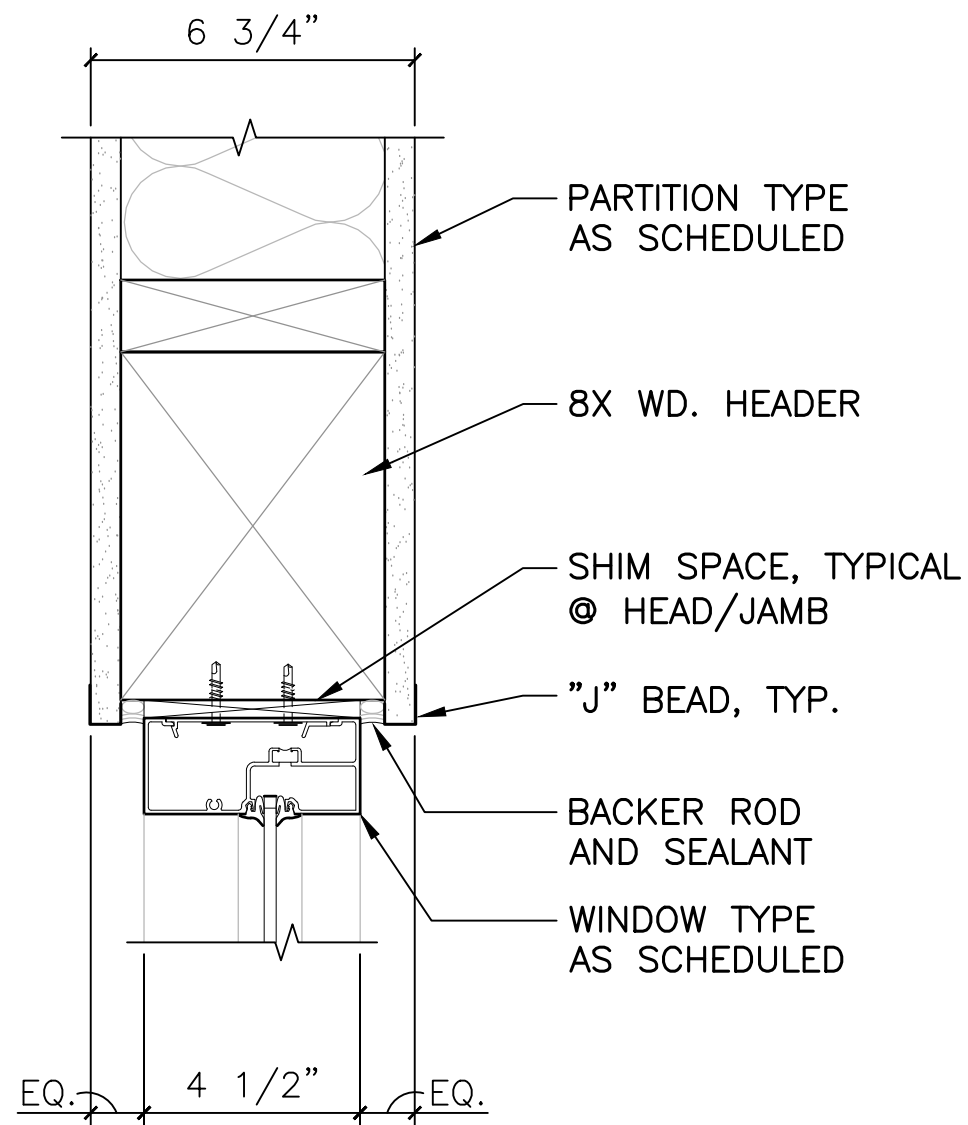
9 INTERIOR WINDOW JAMB DETAIL
3" = 1'-0"



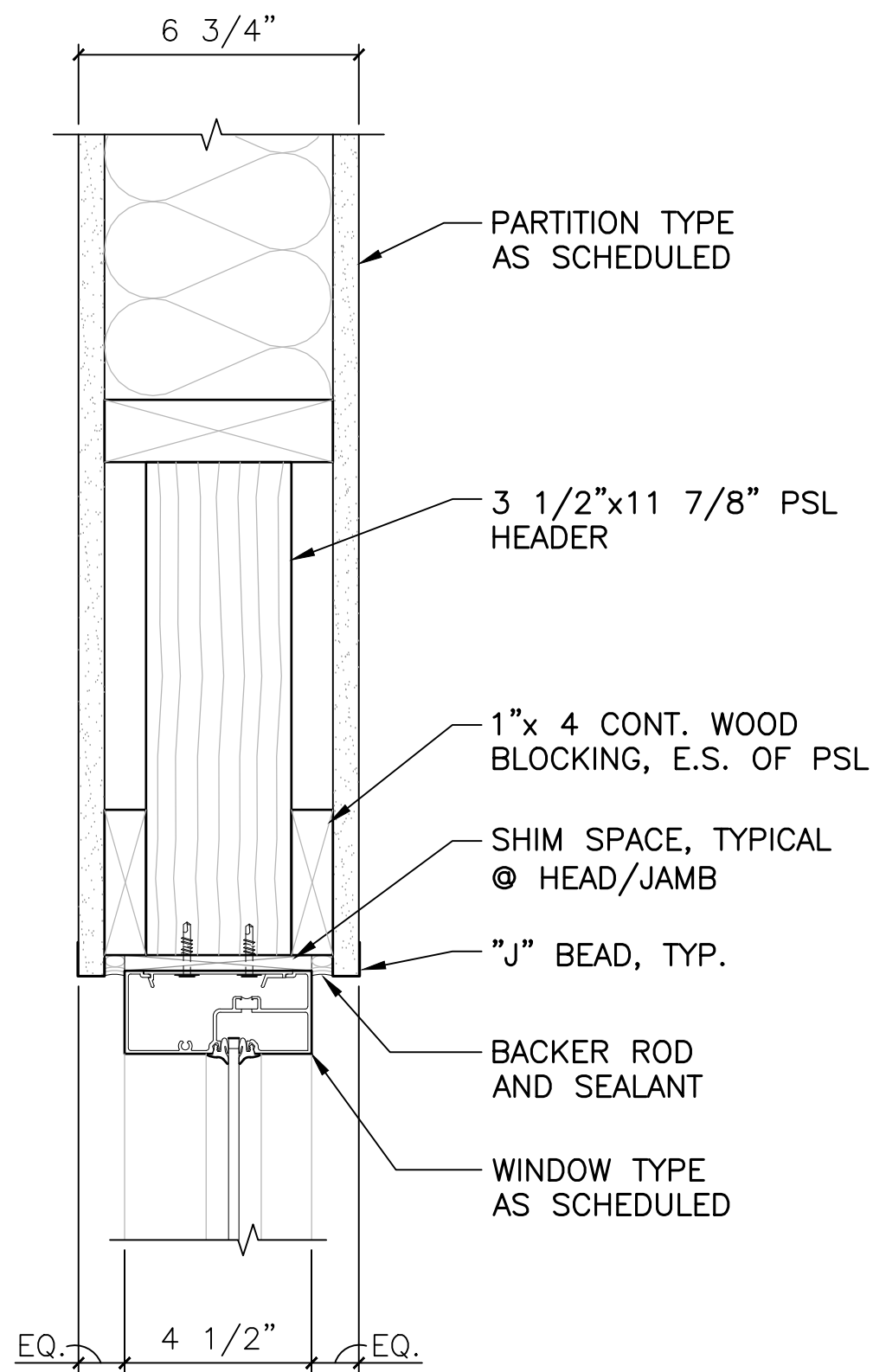
10 INTERIOR WINDOW JAMB DETAIL
3" = 1'-0"



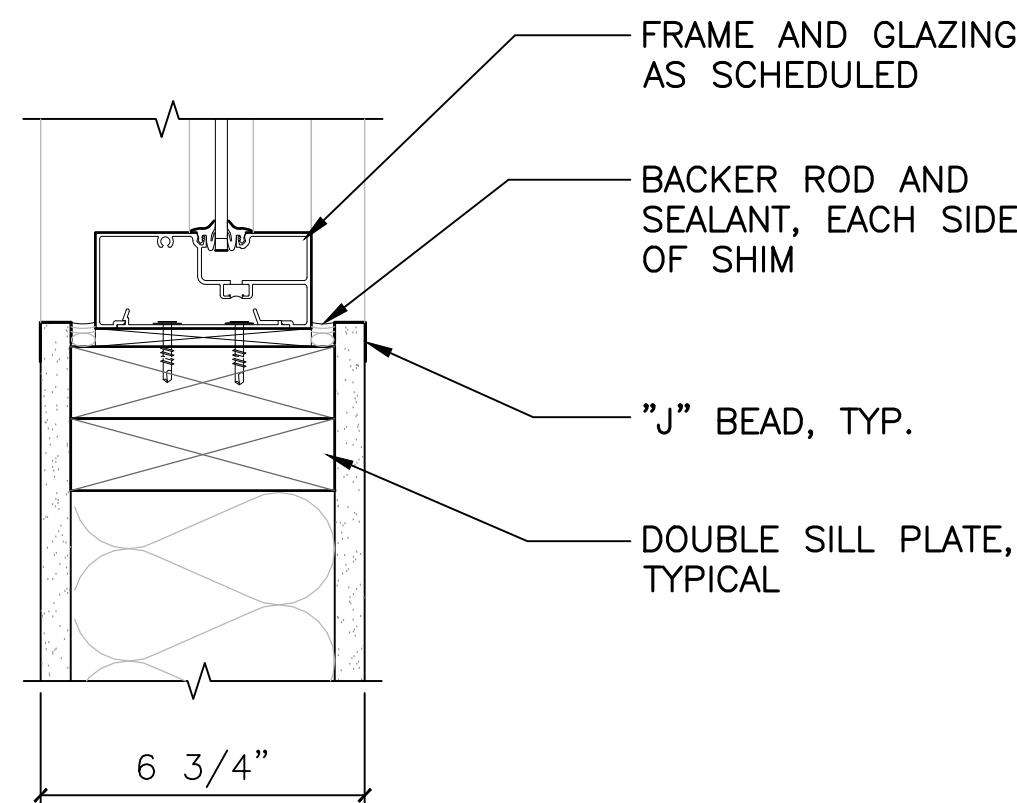
11 INTERIOR WINDOW HEAD DETAIL
3" = 1'-0"



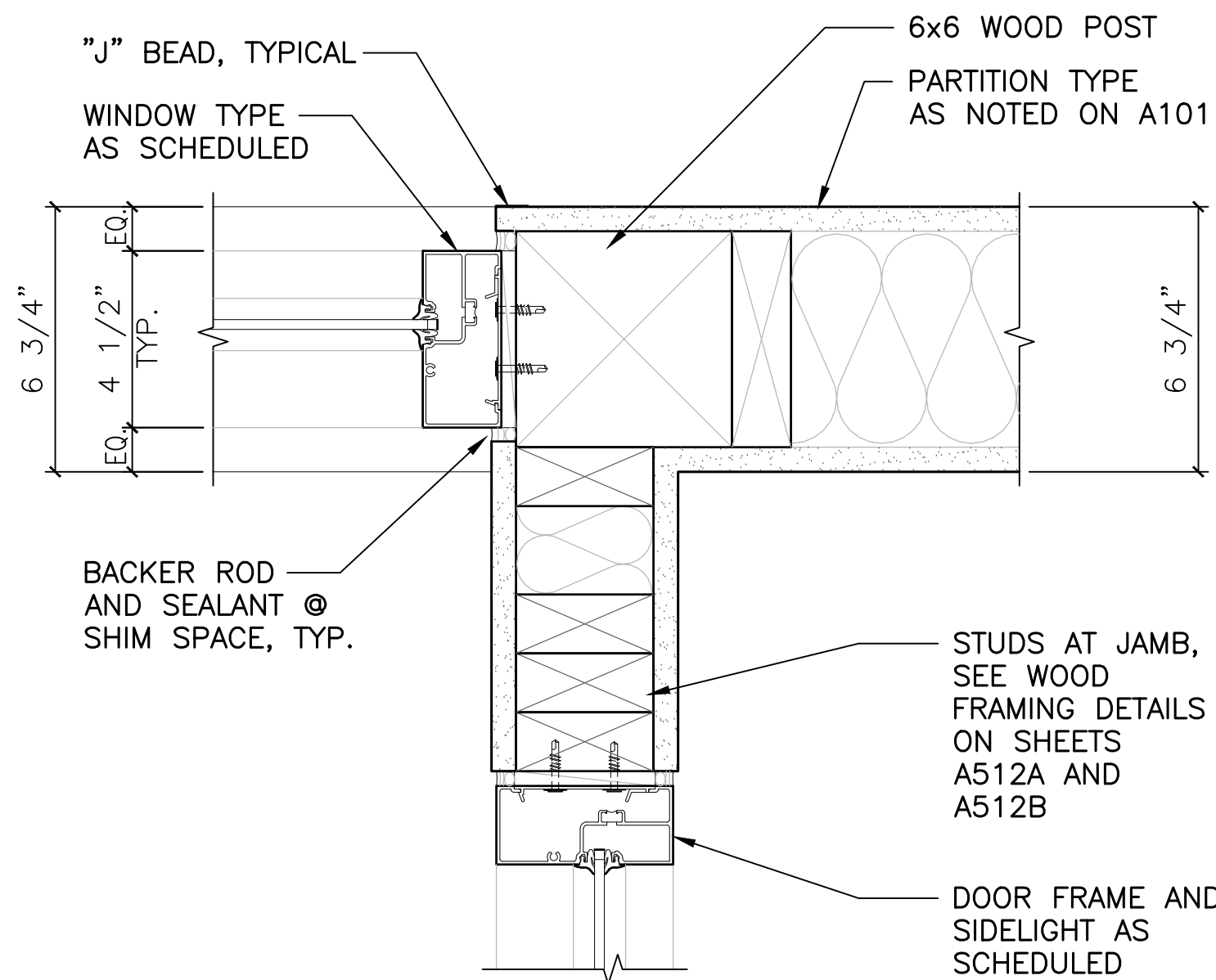
6 INTERIOR WINDOW HEAD DETAIL
3" = 1'-0"



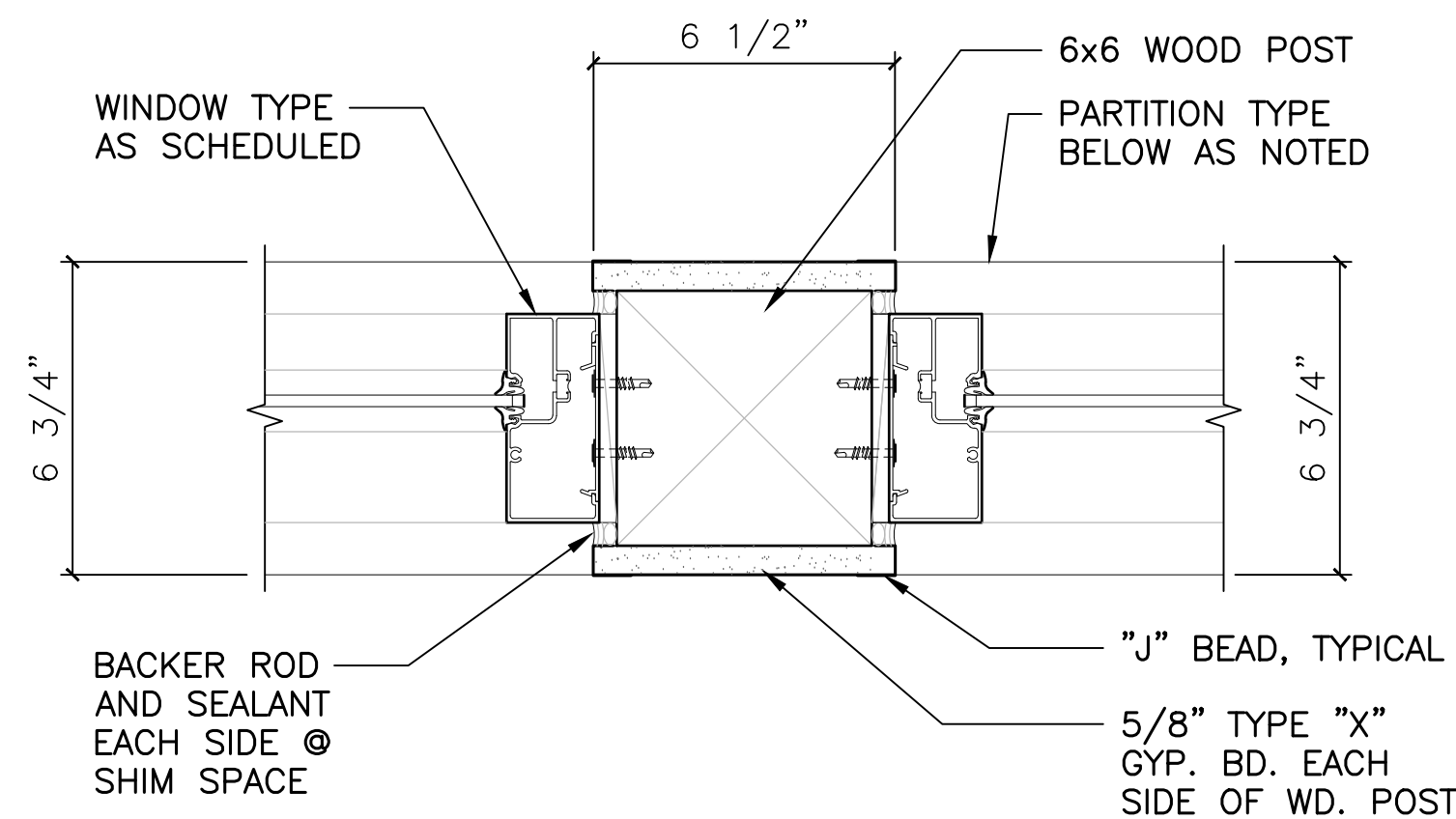
7 INTERIOR WINDOW HEAD DETAIL
3" = 1'-0"



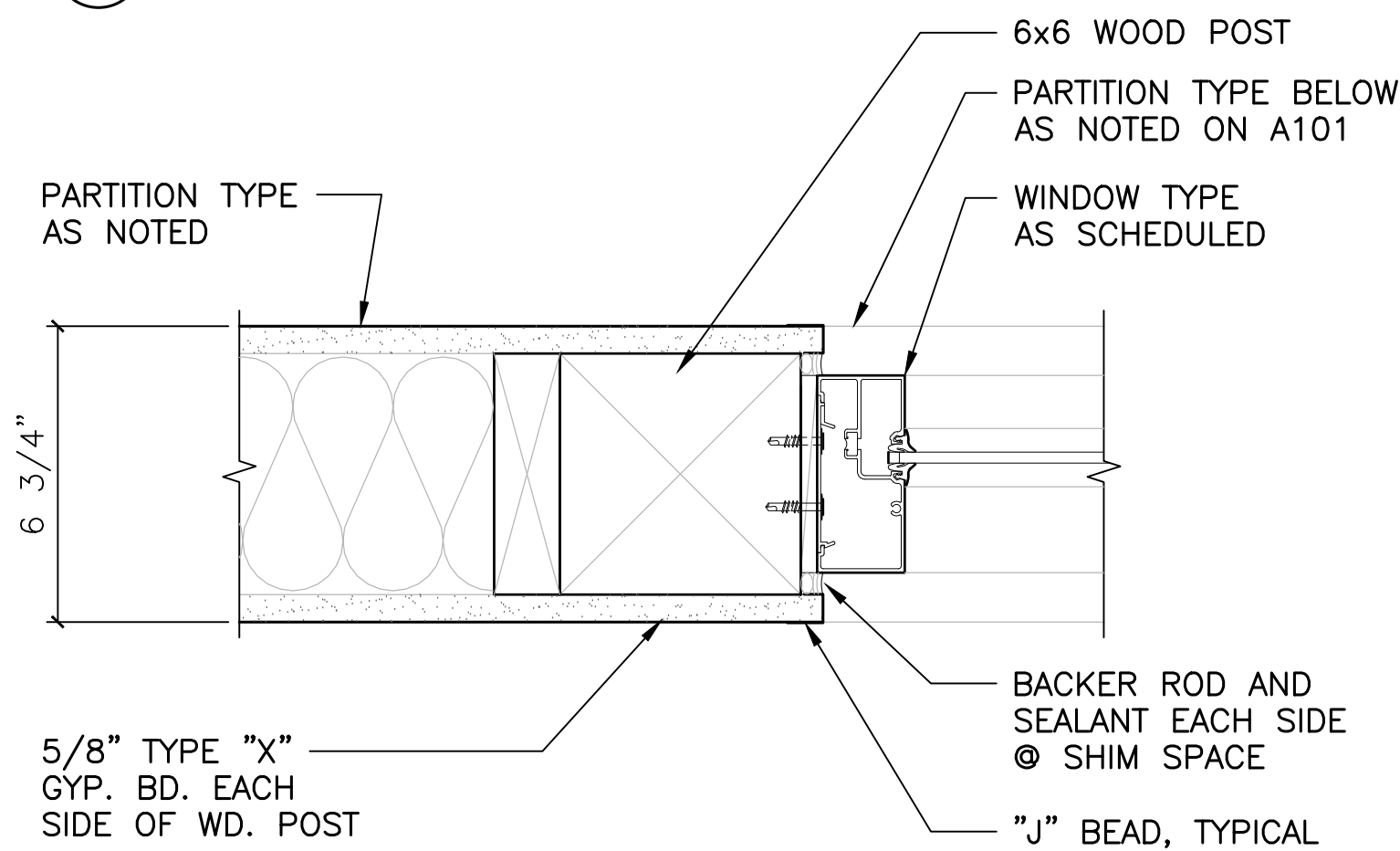
8 INTERIOR WINDOW SILL DETAIL
3" = 1'-0"



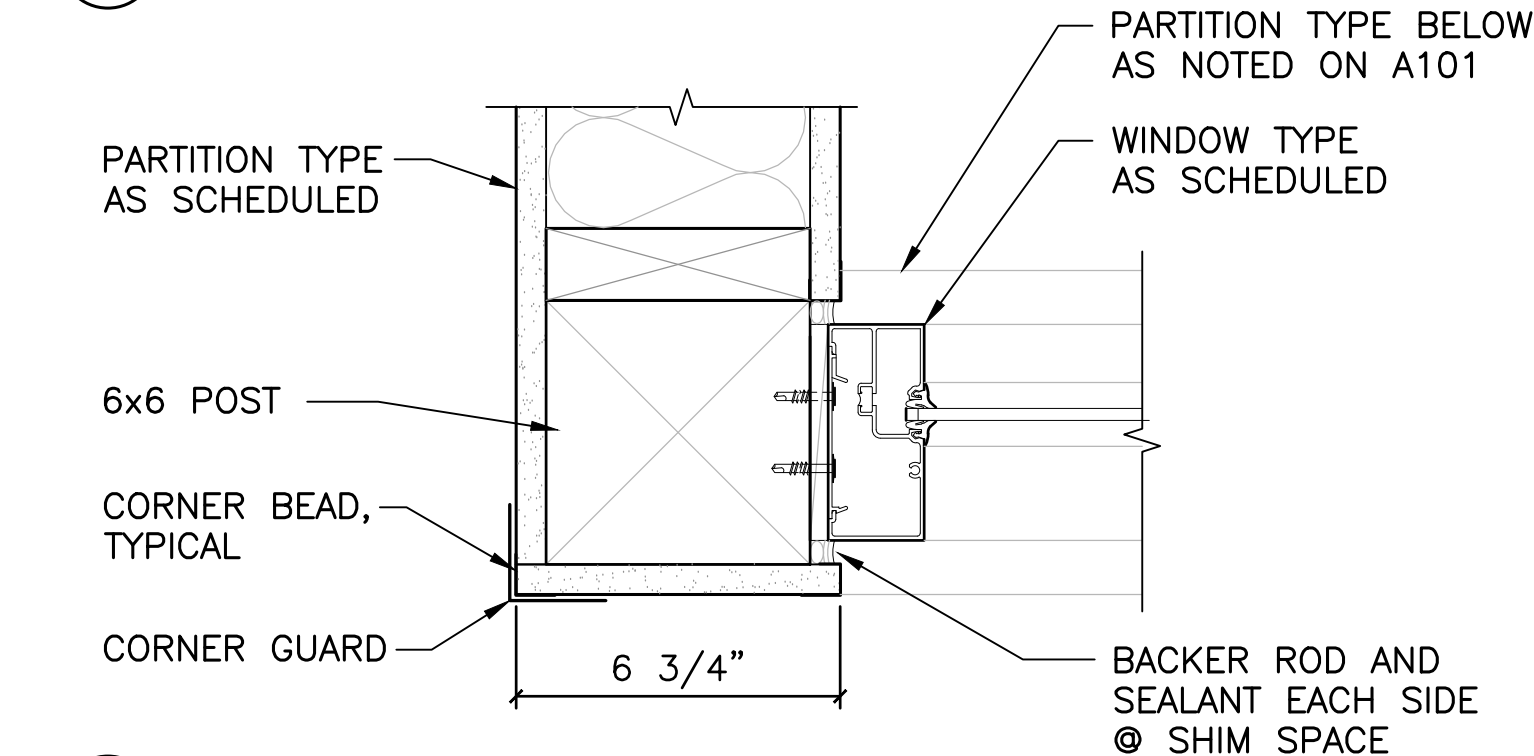
2 DOOR SIDELIGHT/WINDOW JAMB DETAIL
3" = 1'-0"



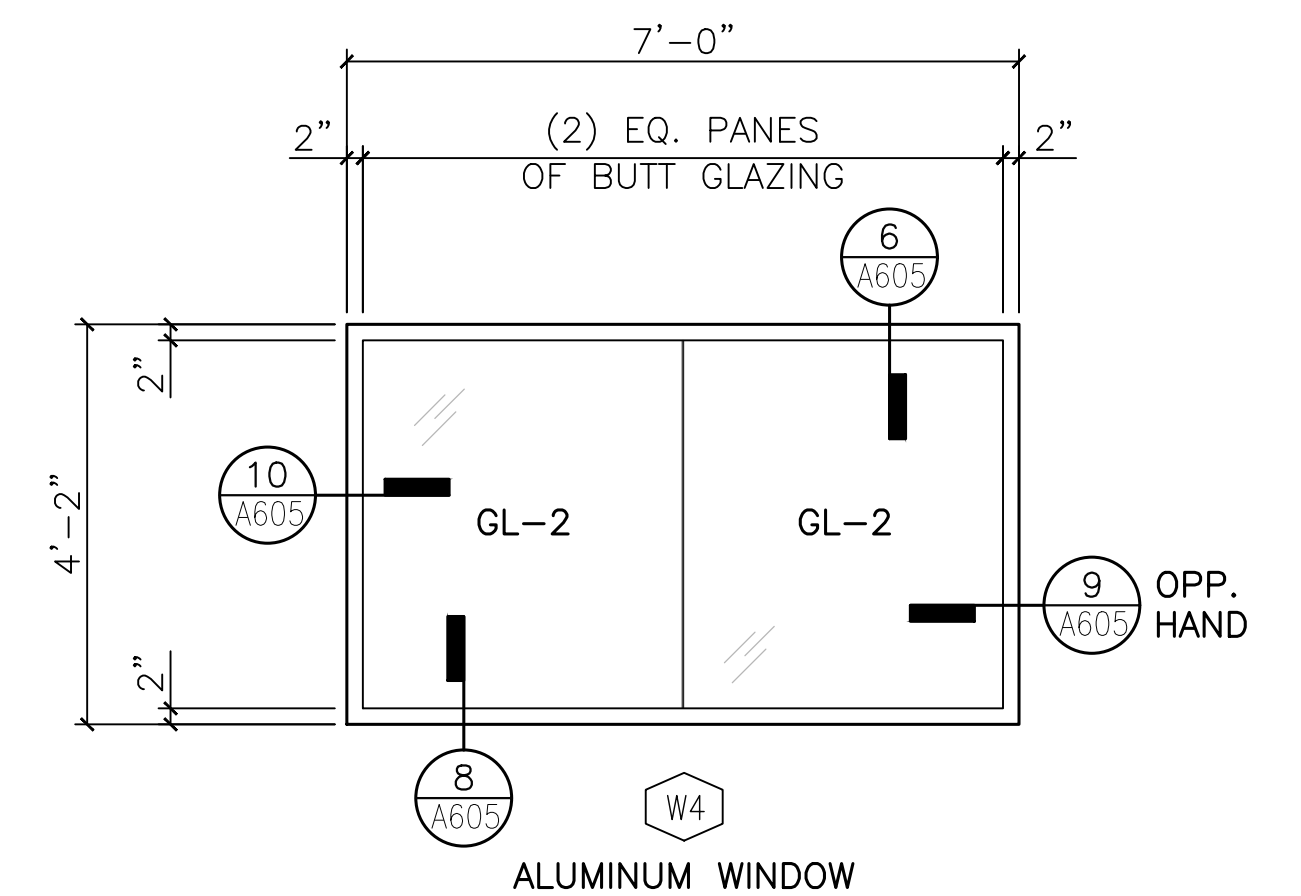
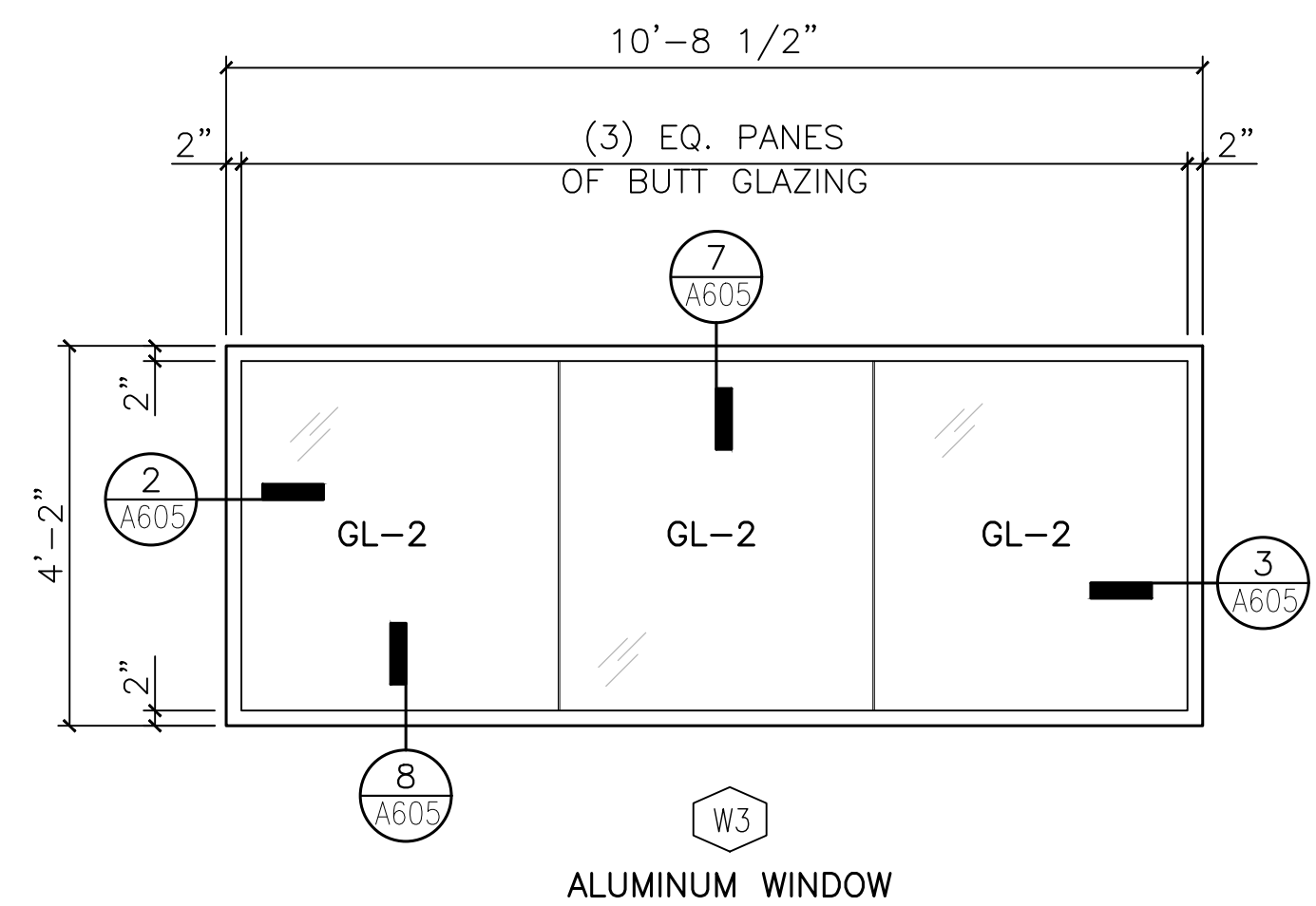
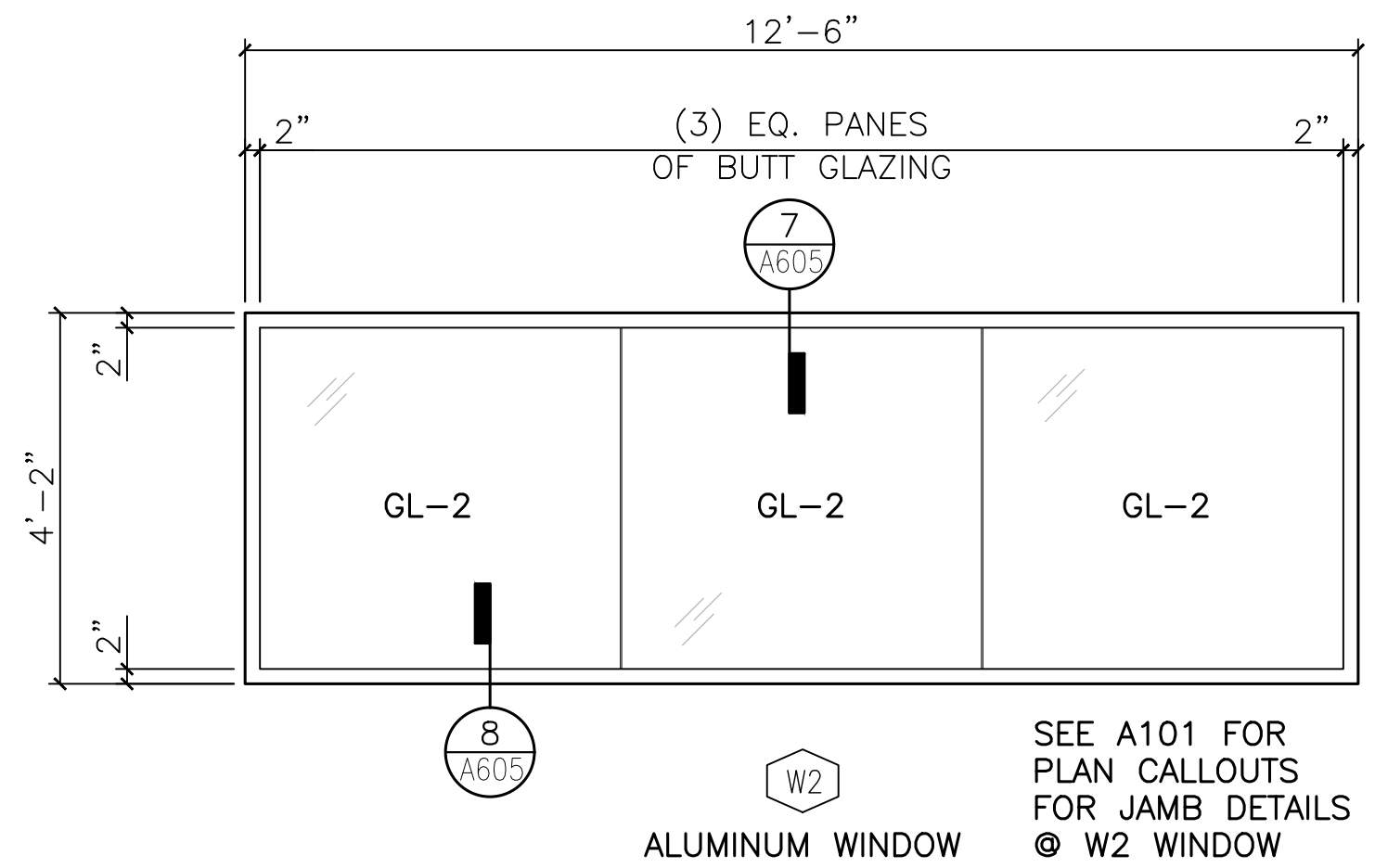
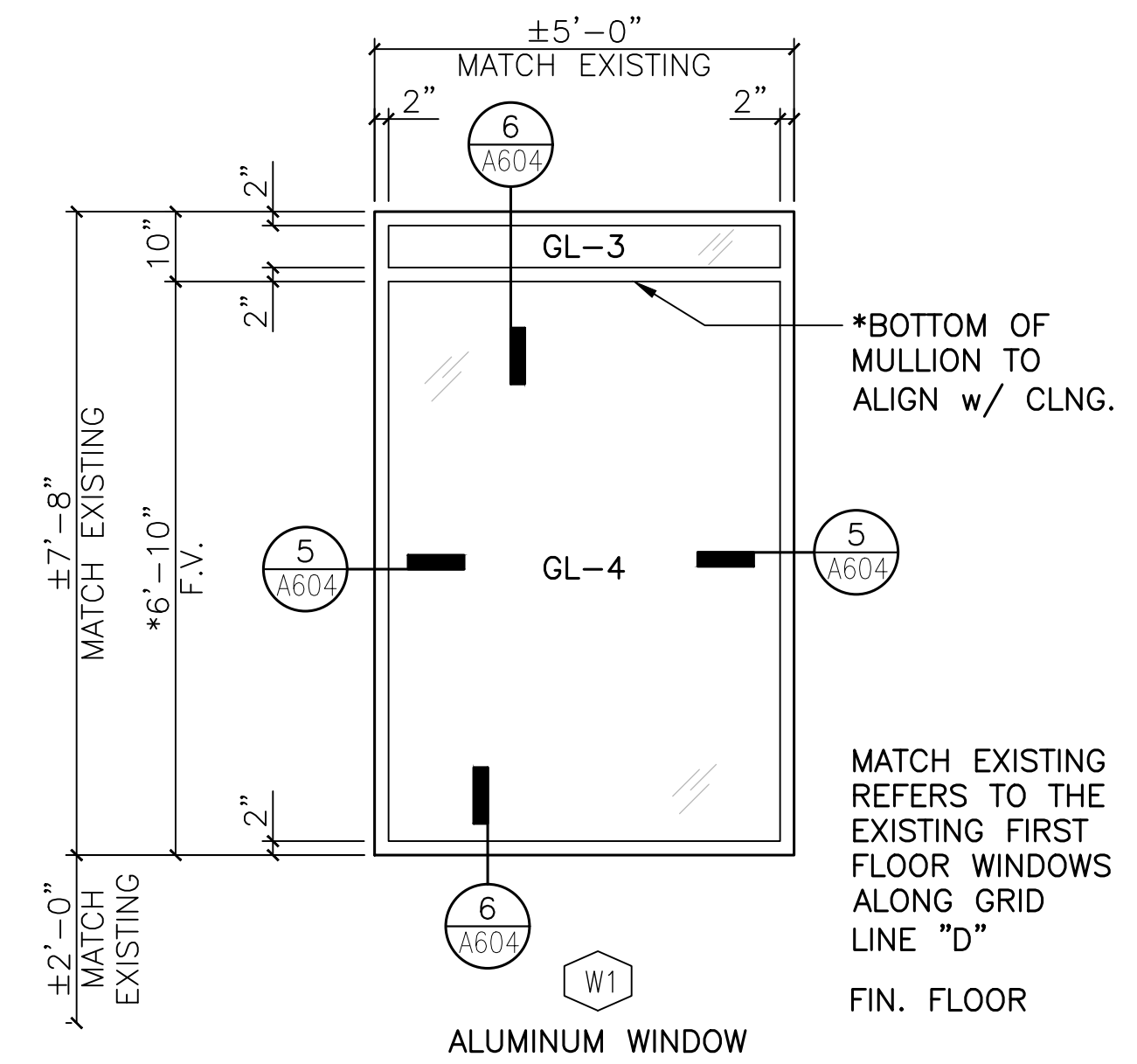
3 WINDOW JAMB DETAIL
3" = 1'-0"



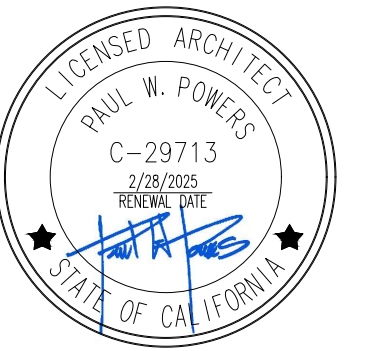
4 JAMB DETAIL
3" = 1'-0"



5 JAMB DETAIL
3" = 1'-0"



1 WINDOW TYPES
1/2" = 1'-0"



CITY OF UKIAH
BANK OF AMERICA
ADA BARRIER REMOVAL
501 South State St. Ukiah, CA 95482

Revisions:

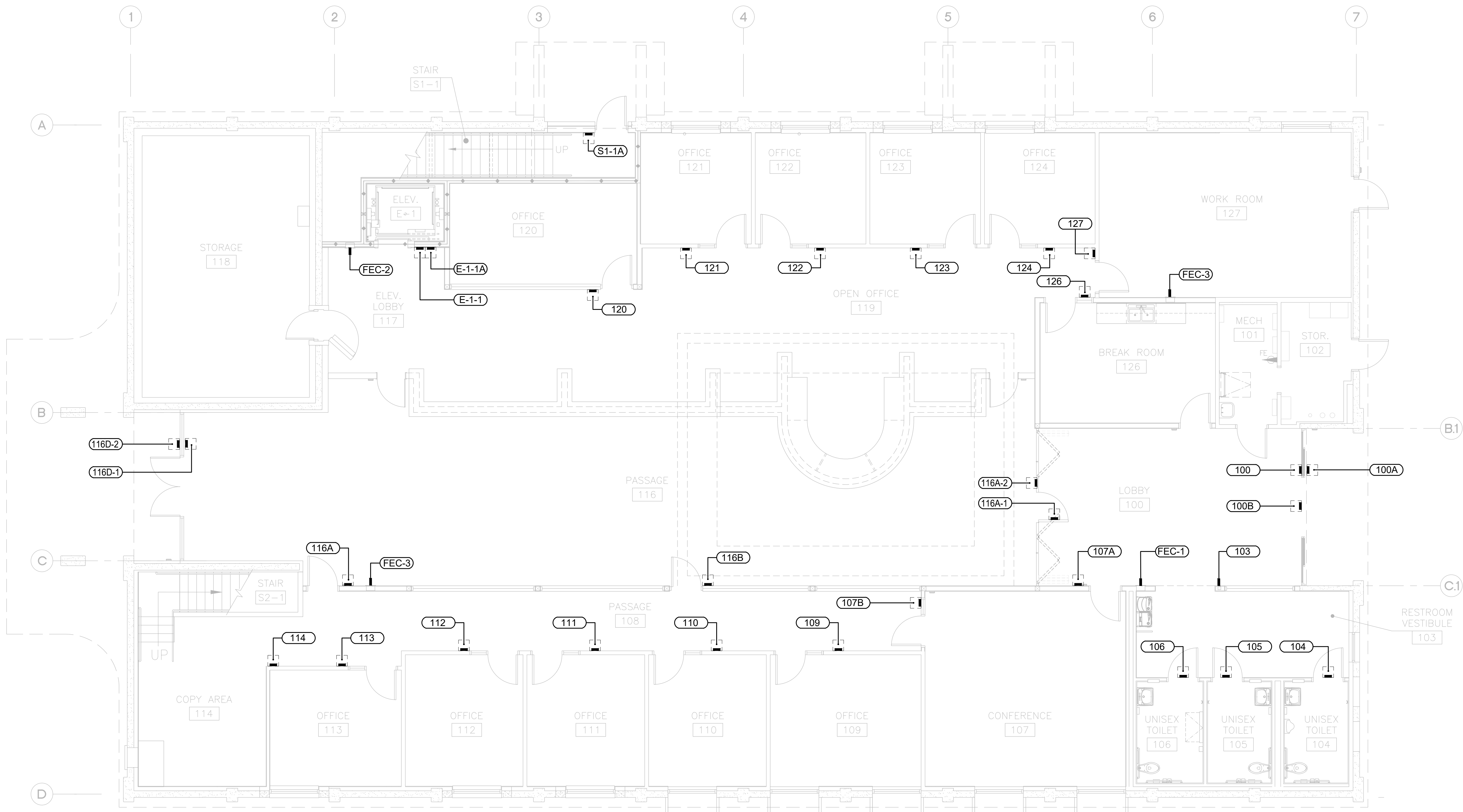
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

SIGNAGE FIRST FLOOR PLAN

Sheet Number:

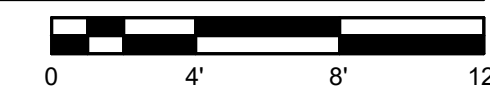
A606



PLAN
NORTH

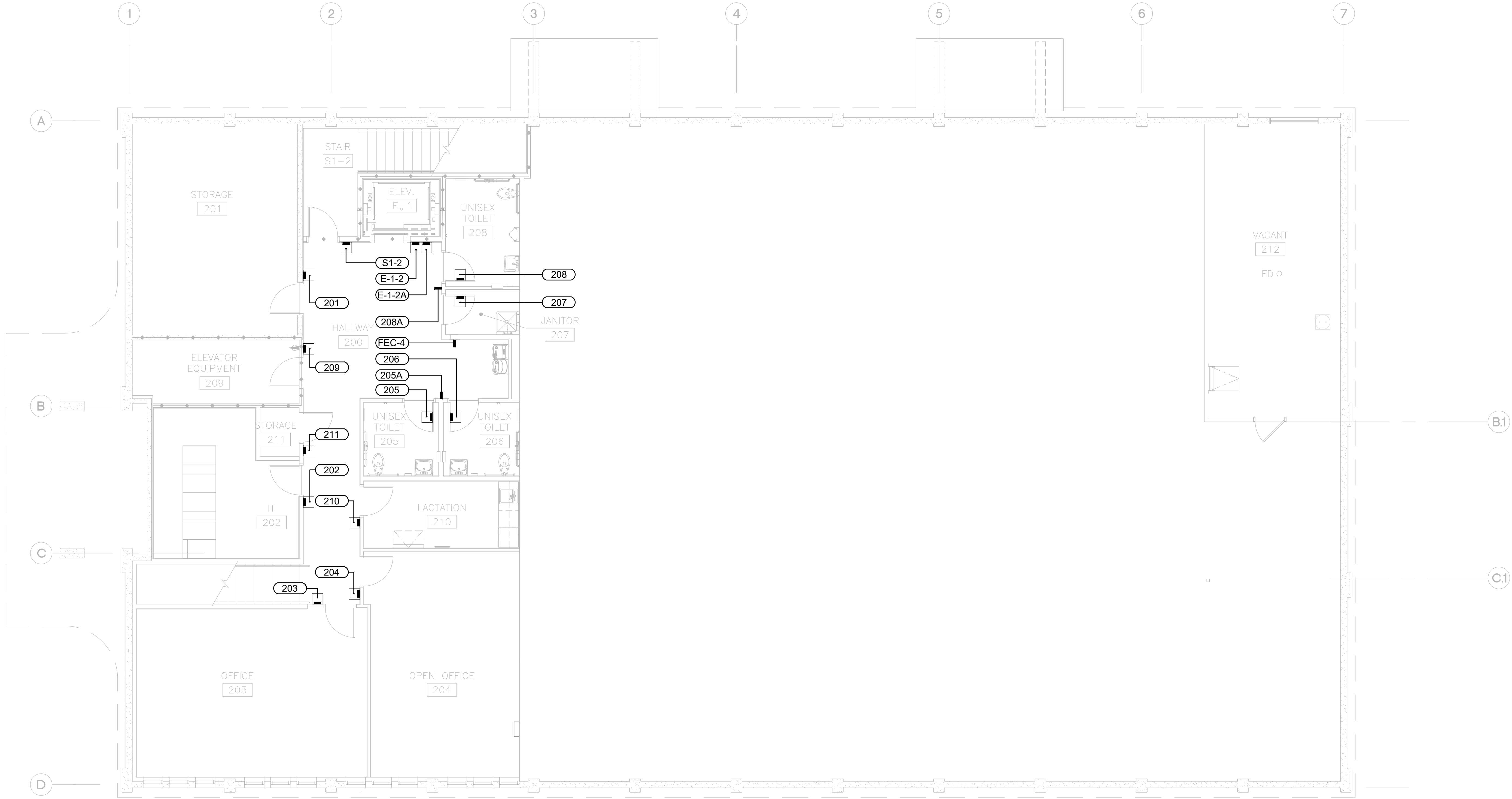


FIRST FLOOR SIGNAGE PLAN

$$3/16'' = 1'-0''$$


GENERAL NOTES:

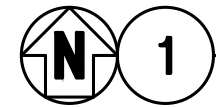
1. ALL SIGNAGE SHALL COMPLY WITH 2022 CBC CHAPTER 11B, DIVISION 11 – COMMUNICATION ELEMENTS AND FEATURES.
2. ALL SIGN SURFACES SHALL HAVE A NON-GLARE FINISH.
3. PROTRUSION FROM WALL FACE SHALL NOT EXCEED 4”.
4. ALL EXIT SIGN LED LIGHTS SHALL OPERATE ON NORMAL (AC INPUT) AND EMERGENCY (DC INPUT).
5. BUILDING OWNER TO APPROVE ALL SIGNS.
6. SEE SHEET A608 FOR SIGN TYPES AND TYPICAL MOUNTING HEIGHTS.
7. SITE SIGNAGE FOR FIRE ACCESS PER CFC503.3.
8. SEE SHEETS C101, C401, C501, AND C503 FOR LOCATION OF SITE SIGNS.
9. COORDINATE WITH DOOR AND PARTITION COMPONENTS TO INSTALL DOOR EXIT AND ADA CBC CHAPTER 11B SIGNAGE.
10. COORDINATE LOCATION OF ALL EXTERIOR SIGN POSTS WITH ARCHITECT PRIOR TO INSTALLATION.



GENERAL NOTES:

- ALL SIGNAGE SHALL COMPLY WITH 2022 CBC CHAPTER 11B, DIVISION 11 – COMMUNICATION ELEMENTS AND FEATURES.
- ALL SIGN SURFACES SHALL HAVE A NON-GLARE FINISH.
- PROTRUSION FROM WALL FACE SHALL NOT EXCEED 4”.
- ALL EXIT SIGN LED LIGHTS SHALL OPERATE ON NORMAL (AC INPUT) AND EMERGENCY (DC INPUT).
- BUILDING OWNER TO APPROVE ALL SIGNS.
- SEE SHEET A608 FOR SIGN TYPES AND TYPICAL MOUNTING HEIGHTS.
- SITE SIGNAGE FOR FIRE ACCESS PER CFC503.3.
- SEE SHEETS C101, C401, C501, AND C503 FOR LOCATION OF SITE SIGNS.
- COORDINATE WITH DOOR AND PARTITION COMPONENTS TO INSTALL DOOR EXIT AND ADA CBC CHAPTER 11B SIGNAGE.
- COORDINATE LOCATION OF ALL EXTERIOR SIGN POSTS WITH ARCHITECT PRIOR TO INSTALLATION.

PLAN
NORTH



SECOND FLOOR SIGNAGE PLAN

3/16" = 1'-0"



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501 South State St. Ukiah, CA 95482

Revisions:

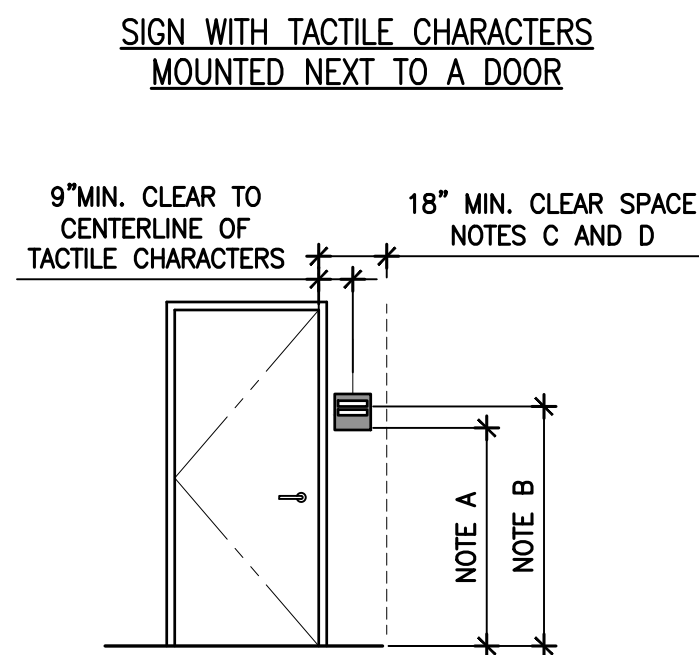
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

**SIGNAGE SECOND
FLOOR PLAN**

Sheet Number:

A607



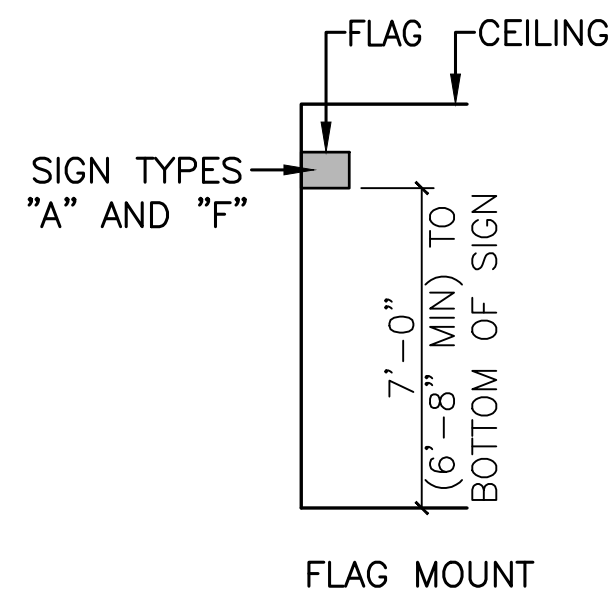
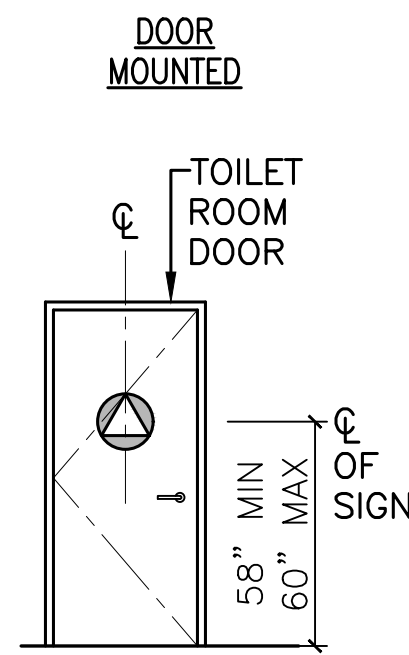
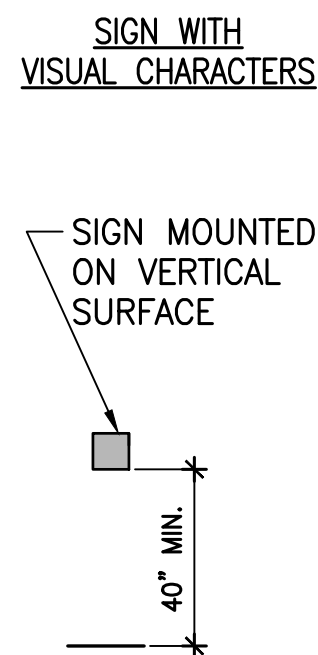
TACTILE CHARACTERS INCLUDE RAISED LETTERS, NUMBERS AND BRAILLE

NOTE A: 48" MIN WHEN MEASURING TO BASELINE OF THE LOWEST BRAILLE CELLS

NOTE B: 60" MAX WHEN MEASURING TO BASELINE OF THE HIGHEST RAISED CHARACTERS

NOTE C: BRAILLE CELLS SHALL BE CENTERED IN 18" MIN CLEAR SPACE

NOTE D: 18" MIN CLEAR SPACE EXTENDS BOTH PARALLEL AND PERPENDICULAR TO THE SIGN

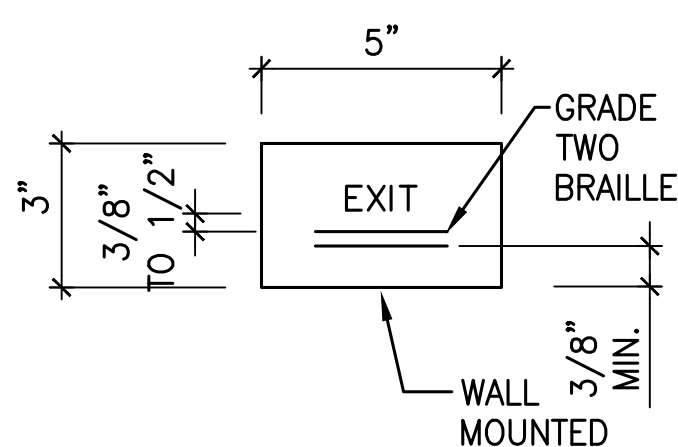


SIGN TYPES "A" AND "F"

FLAG MOUNT

WALL MOUNTING HEIGHT REQUIREMENTS PER 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

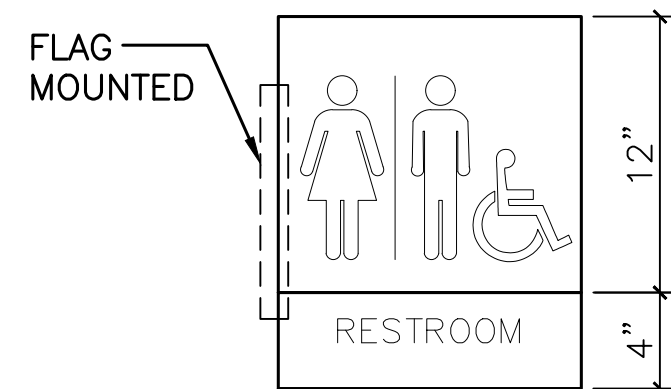
NOT TO SCALE



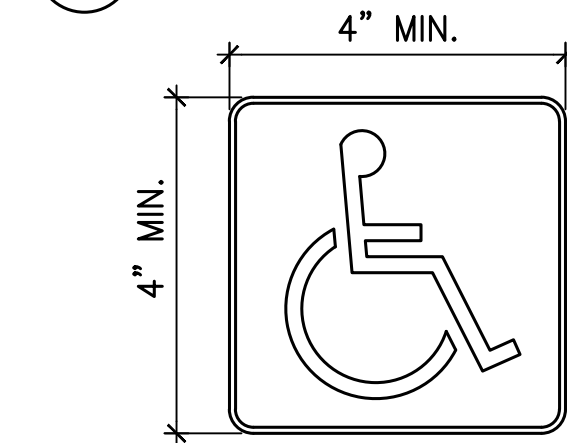
NOTES:
USE THIS SIGN AT WALLS NEXT TO DOORS
AS INDICATED.

FONT: 5/8" FUTURA CONDENSED BOLD OR
FUTURA CONDENSED EXTRA BOLD

LETTERING SHALL BE LIGHT COLOR ON A DARK BACKGROUND, BRAILLE IDENTIFICATION SHALL BE PROVIDED AS REQUIRED. SIGNAGE SHALL BE 5" X 3" RECTANGLE WITH RADIUS CORNERS

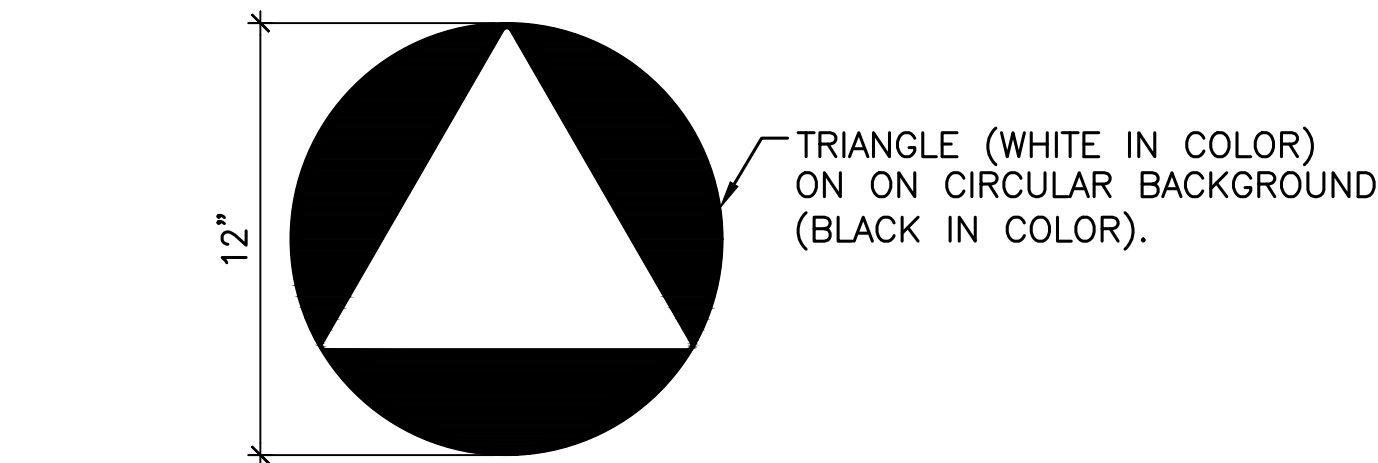


NOTES:
PP: 12"x12"x1/4" PHOTOPOLYMER -
COPY & ASI, WHITE; BACKGROUND,
DARK ATTACHMENT: DOUBLE FACED
TAPE & SILICONE
CBC 11B-703.5.1 BACKGROUND TO
PROVIDE 70% CONTRAST WITH
COPY/FIGURE



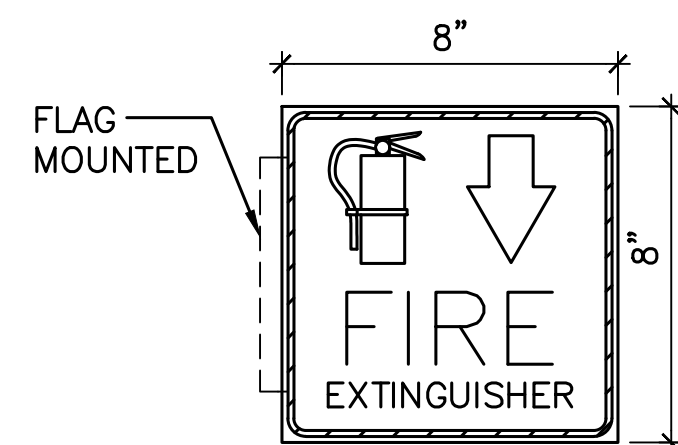
NOTES:
VINYL DECAL

SYMBOL SHALL CONSIST OF WHITE FIGURE
ON A BLUE (FS15090) BACKGROUND



NOTES:

PP: 12"x12"x1/4" PHOTOPOLYMER - COPY & ASI, WHITE; BACKGROUND, DARK ATTACHMENT: DOUBLE FACED TAPE & SILICONE
CBC 11B-703.5.1 BACKGROUND TO CONTRAST WITH DOOR & PROVIDE 70% CONTRAST WITH COPY/FIGURE
11B-703.7.2.6.3 TRIANGLE SYMBOL TO CONTRAST WITH THE CIRCLE SYMBOL, CIRCLE SYMBOL TO CONTRAST WITH THE DOOR.
CBC 11B-703.7.2.6.4. EASE EDGES.
11B-703.7.2.6 SYMBOLS AT ENTRANCES TO TOILET AND BATHING ROOMS SHALL BE MOUNTED AT 58 INCHES MINIMUM AND 60 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE MEASURED FROM THE CENTERLINE OF THE SYMBOL.



NOTES:
USE THIS SIGN AT WALLS ABOVE FIRE
EXTINGUISHERS.

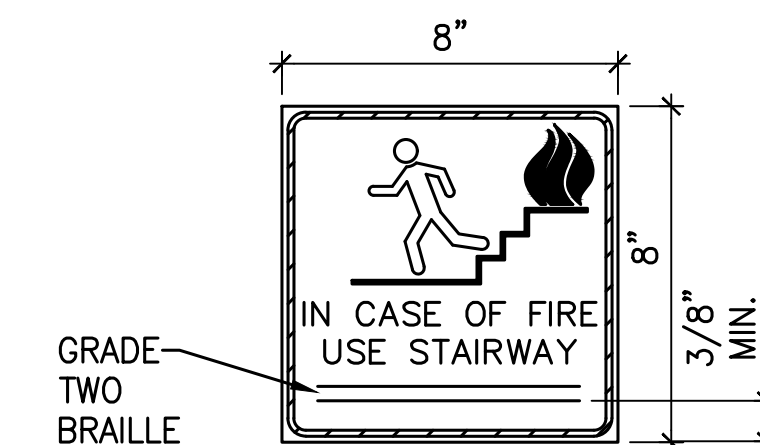
INSTALL ACCORDING TO MANUFACTURER INSTRUCTIONS.



NOTES:
USE THIS SIGN AT WALLS ABOVE DOORS AS
INDICATED.

FONT: 1" FUTURA CONDENSED BOLD OR
FUTURA CONDENSED EXTRA BOLD

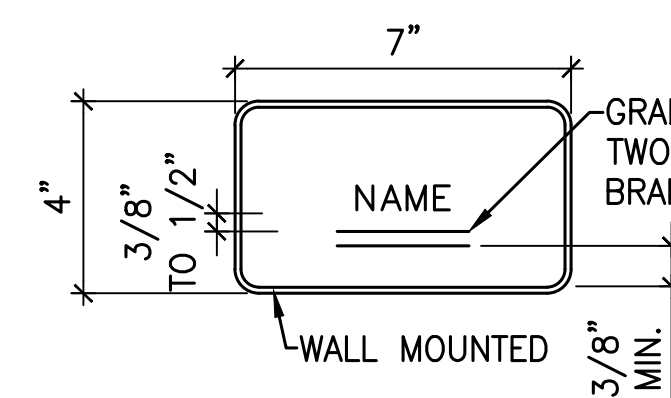
LETTERING SHALL BE LIGHT COLOR ON A DARK BACKGROUND, SIGNAGE SHALL BE A RECTANGLE SIZED TO FIT TEXT WITH RADIUS CORNERS



NOTES:
USE THIS SIGN AT WALLS ADJACENT
TO ELEVATOR CAR DOORS.

LETTERING SHALL BE WHITE IN
COLOR ON CONTRASTING DARK
BACKGROUND

INSTALL ACCORDING TO
MANUFACTURER INSTRUCTIONS.

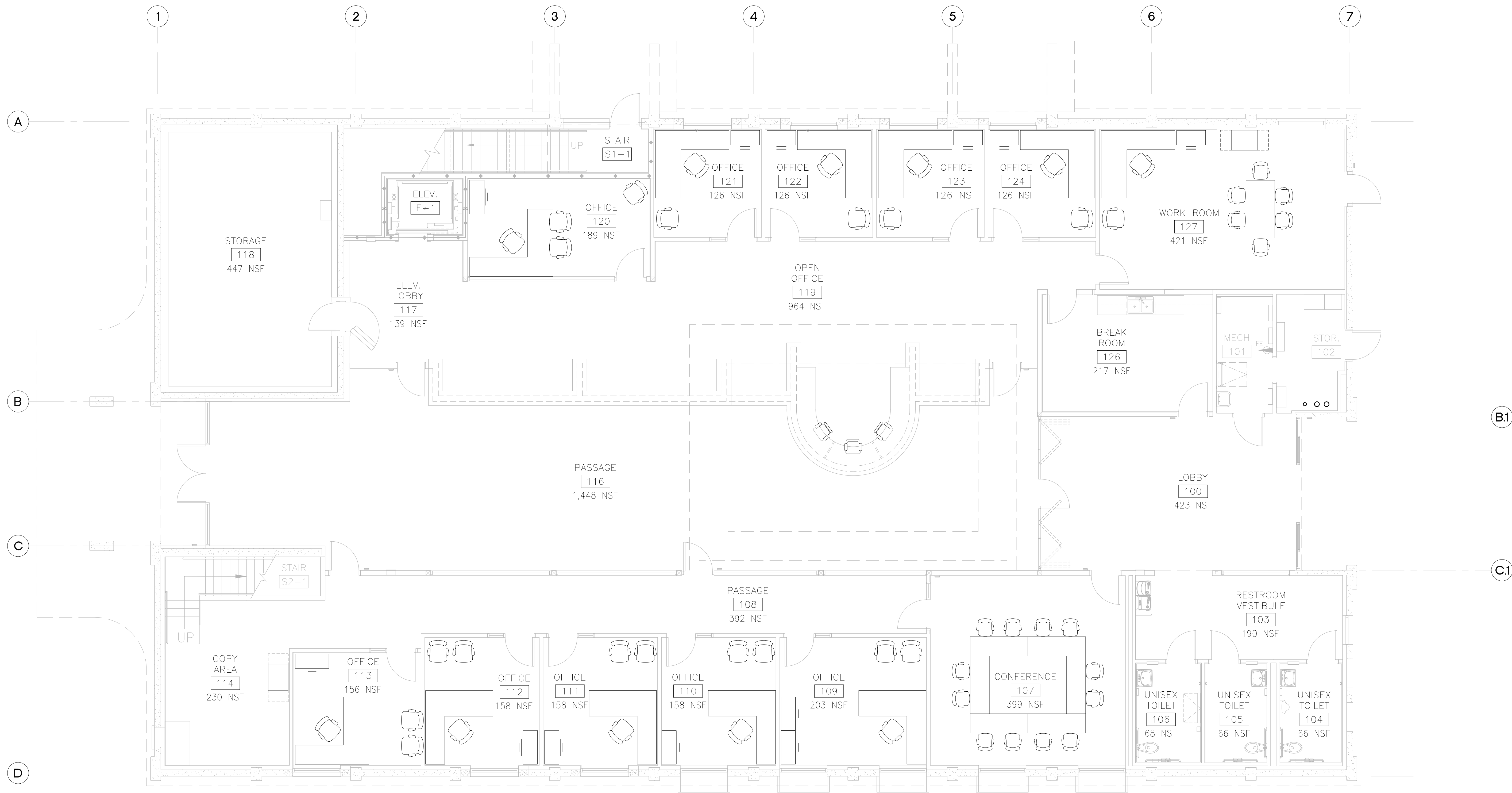


NOTES:
USE THIS SIGN AT WALLS NEXT TO DOORS
AS INDICATED.

FONT: 5/8" FUTURA CONDENSED BOLD OR
FUTURA CONDENSED EXTRA BOLD

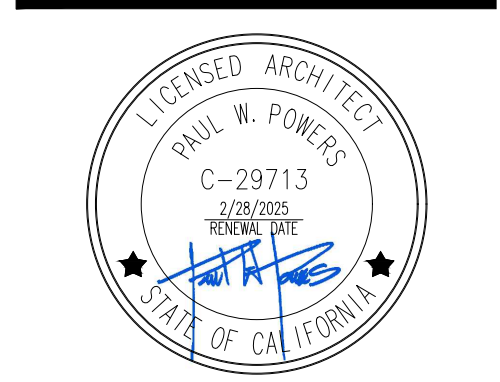
LETTERING SHALL BE LIGHT COLOR ON A DARK BACKGROUND, BRAILLE IDENTIFICATION SHALL BE PROVIDED AS REQUIRED. SIGNAGE SHALL BE 7" X 4" RECTANGLE WITH RADIUS CORNERS

SIGN NUMBER	ROOM or AREA	ROOM NUMBER	SIGN FUNCTION	SIGN TYPE	MESSAGE
100	VESTIBULE (INTERIOR)	100	EGRESS	D	EXIT
100A	VESTIBULE (EXTERIOR)	100	ACCESSIBILITY	E	SEE DETAIL 3,4/A608
100B	VESTIBULE (INTERIOR)	100	INFORMATION	G	SEE DETAIL 4/A608
103	RESTROOM VESTIBULE	103	REST ROOM FLAG	A	RESTROOMS
104	UNISEX TOILET	104	RESTROOM DOOR	B	ALL GENDER RESTROOM
105	UNISEX TOILET	105	RESTROOM DOOR	B	ALL GENDER RESTROOM
106	UNISEX TOILET	106	RESTROOM DOOR	B	ALL GENDER RESTROOM
107A	CONFERENCE	107	ROOM IDENTIFICATION	C	CONFERENCE 107
107B	CONFERENCE	107	ROOM IDENTIFICATION	C	CONFERENCE 107
116B	PASSAGE	108	ROOM IDENTIFICATION	C	PASSAGE
116C	PASSAGE	108	ROOM IDENTIFICATION	C	PASSAGE
109	OFFICE	109	ROOM IDENTIFICATION	C	OFFICE 109
110	OFFICE	110	ROOM IDENTIFICATION	C	OFFICE 110
111	OFFICE	111	ROOM IDENTIFICATION	C	OFFICE 111
112	OFFICE	112	ROOM IDENTIFICATION	C	OFFICE 112
113	OFFICE	113	ROOM IDENTIFICATION	C	OFFICE 113
114	STORAGE	114	ROOM IDENTIFICATION	C	COPY AREA 114
116A-1	VESTIBULE (INTERIOR)	116	EGRESS	D	EXIT
116A-2	VESTIBULE (INTERIOR)	116	INFORMATION	G	SEE DETAIL 4/A608
116B	PASSAGE	116	ROOM IDENTIFICATION	C	PASSAGE
116C	PASSAGE	116	ROOM IDENTIFICATION	C	PASSAGE
116D-1	VESTIBULE (INTERIOR)	116	EGRESS	D	EXIT
116D-2	VESTIBULE (EXTERIOR)	116	ACCESSIBILITY	E	SEE DETAIL 3,4/A608
120	OFFICE	120	ROOM IDENTIFICATION	C	OFFICE 120
121	OFFICE	121	ROOM IDENTIFICATION	C	OFFICE 121
122	OFFICE	122	ROOM IDENTIFICATION	C	OFFICE 122
123	OFFICE	123	ROOM IDENTIFICATION	C	OFFICE 123
124	OFFICE	124	ROOM IDENTIFICATION	C	OFFICE 124
126	BREAK ROOM	126	ROOM IDENTIFICATION	C	BREAK ROOM 126
127	WORK ROOM	127	ROOM IDENTIFICATION	C	WORK ROOM 127
201	STORAGE	201	ROOM IDENTIFICATION	C	STORAGE 201
202	IT	202	ROOM IDENTIFICATION	C	IT 202
203	OFFICE	203	ROOM IDENTIFICATION	C	OFFICE 203
204	OPEN OFFICE	204	ROOM IDENTIFICATION	C	OFFICE 204
205	UNISEX TOILET	205	RESTROOM DOOR	B	ALL GENDER RESTROOM
205A	UNISEX TOILET	205/206	RESTROOM FLAG	A	RESTROOMS
206	UNISEX TOILET	206	RESTROOM DOOR	B	ALL GENDER RESTROOM
207	JANITOR	207	ROOM IDENTIFICATION	C	JANITOR
208	UNISEX TOILET	208	RESTROOM DOOR	B	ALL GENDER RESTROOM
208A	UNISEX TOILET	208	RESTROOM FLAG	A	RESTROOM
209	ELEVATOR EQUIPMENT	209	ROOM IDENTIFICATION	C	ELEVATOR EQUIPMENT 209
210	LACTATION	210	ROOM IDENTIFICATION	C	LACTATION 210
211	STORAGE	211	ROOM IDENTIFICATION	C	STORAGE 211
E-1-1	ELEVATOR	E-1	ROOM IDENTIFICATION	C	ELEVATOR
E-1-1A	ELEVATOR	E-1	EGRESS	H	SEE DETAIL 4/A608
E-1-2	ELEVATOR	E-1	ROOM IDENTIFICATION	C	ELEVATOR
E-1-2A	ELEVATOR	E-1	EGRESS	H	SEE DETAIL 4/A608
FEC-1	LOBBY	100	FEC LOCATION	F	SEE DETAIL 3,4/A608
FEC-2	ELEVATOR LOBBY	117	FEC LOCATION	F	SEE DETAIL 3,4/A608
FEC-3	WORK ROOM	127	FEC LOCATION	F	SEE DETAIL 3,4/A608
FEC-4	PASSAGE	116	FEC LOCATION	F	SEE DETAIL 3,4/A608
S1-1A	STAIR	S1-1	EGRESS	D	EXIT
S1-2	STAIR	S1-2	EGRESS	D	EXIT
GENERAL NOTES: 1. SEE DETAIL 4/A608 FOR SIGNAGE TYPE. SEE DETAIL 3/A608 FOR TYPICAL SIGNAGE MOUNTING REQUIREMENTS. 2. ALL SIGNAGE TEXT AND REQUIREMENTS AS PER CBC, CHAPTER 11B, DIVISION 7: COMMUNICATION ELEMENTS AND FEATURES.					



GENERAL NOTES:

1. FURNITURE IS NOT IN CONTRACT. FOR REFERENCE ONLY.



CITY OF UKIAH
**BANK OF AMERICA
ADA BARRIER REMOVAL**
501 South State St. Ukiah, CA 95482

Revisions:

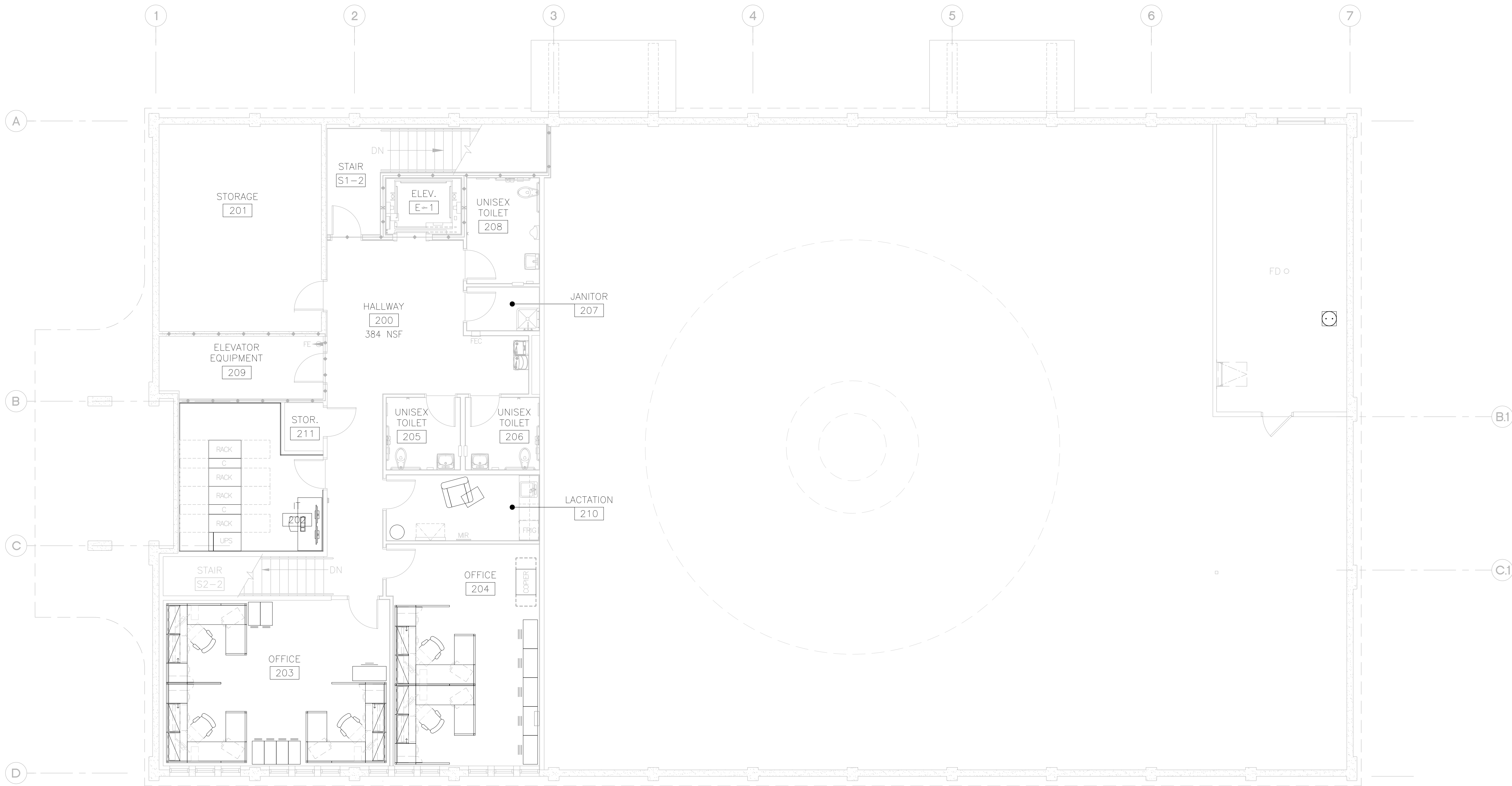
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

FIRST FLOOR
FURNITURE PLAN

Sheet Number:

A901



GENERAL NOTES:

1. FURNITURE IS NOT IN CONTRACT. FOR REFERENCE ONLY.

PLAN NORTH

N

1

SECOND FLOOR FURNITURE PLAN

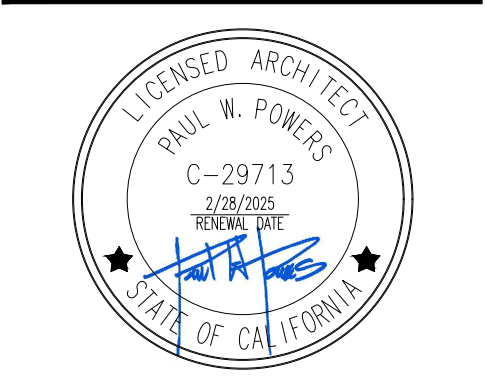
3/16" = 1'-0"

0

4'

8'

12'



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ADA BARRIER REMOVAL
501 South State St. Ukiah, CA 95482

Revisions:

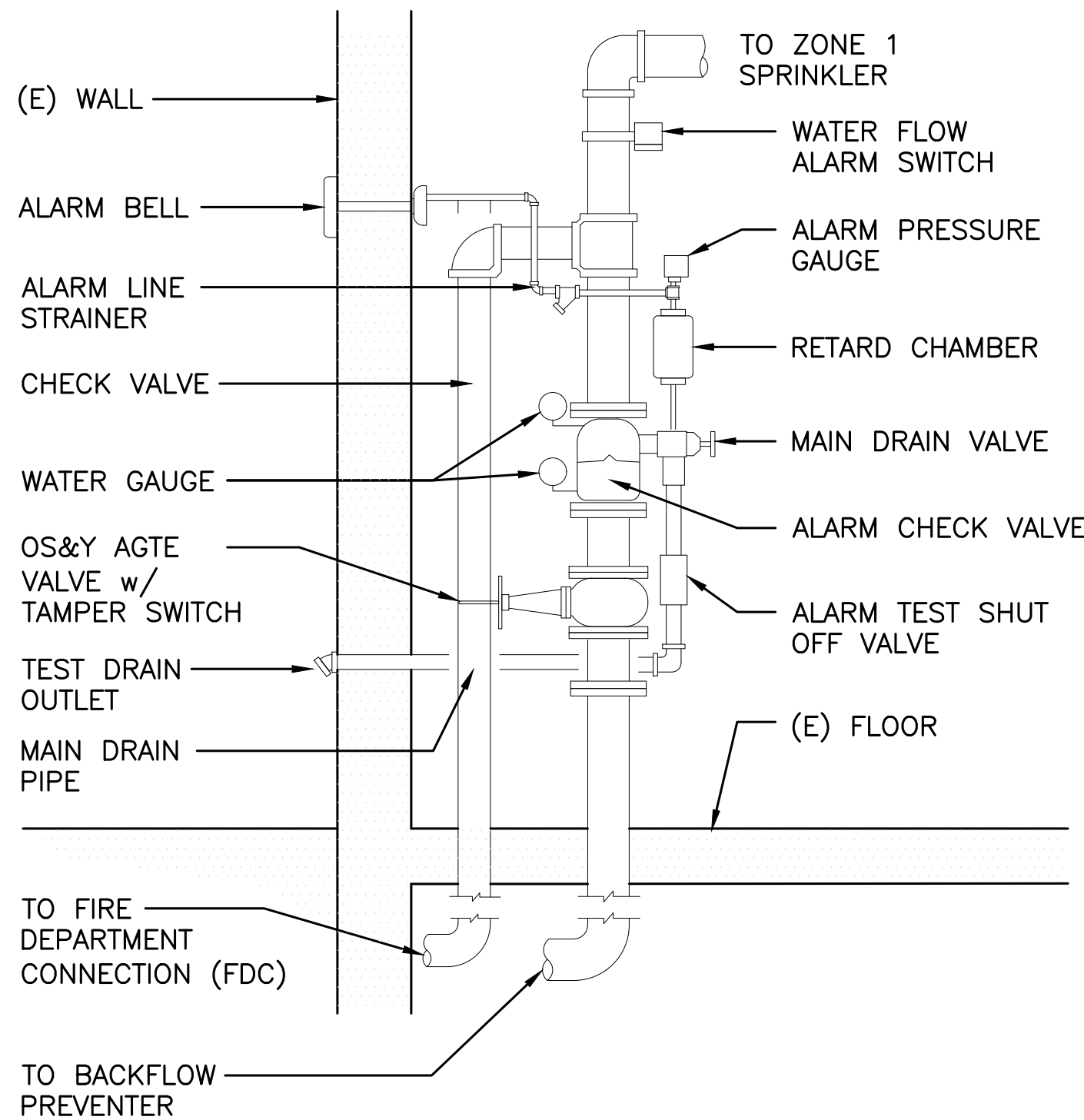
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

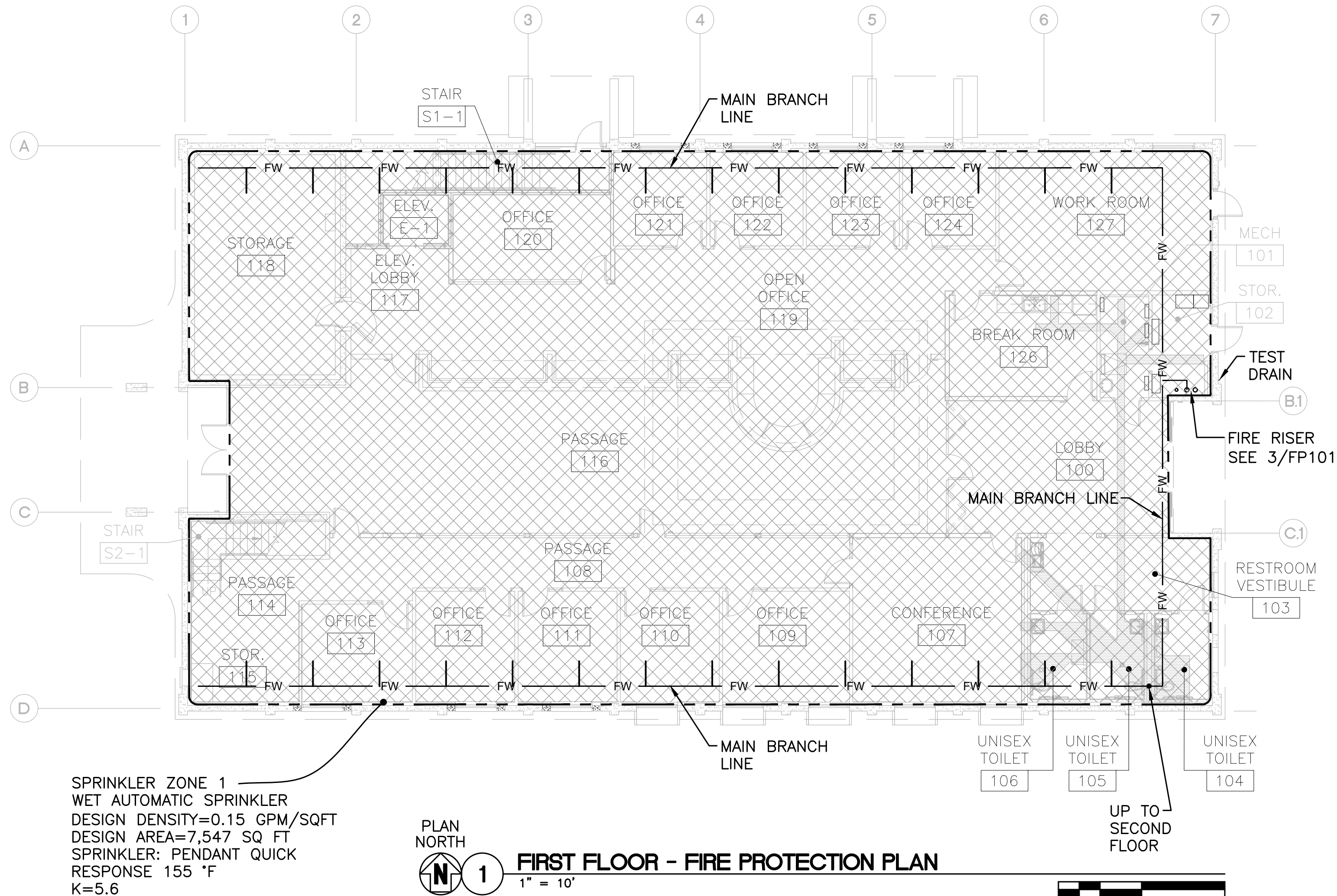
SECOND FLOOR
FURNITURE PLAN

Sheet Number:

A902



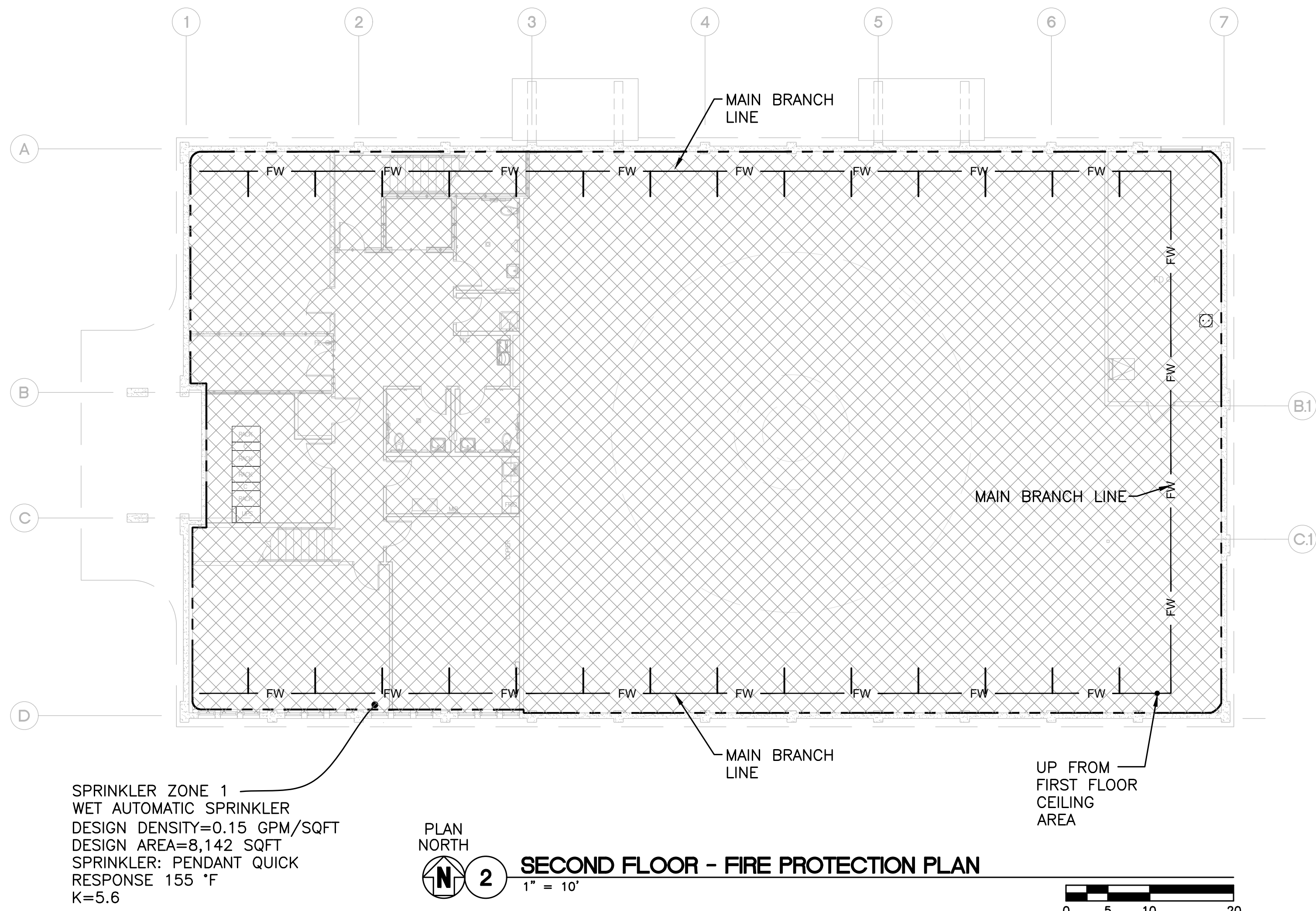
3 WET PIPE SPRINKLER RISER DETAIL
N.T.S.



SPRINKLER ZONE 1
WET AUTOMATIC SPRINKLER
DESIGN DENSITY=0.15 GPM/SQFT
DESIGN AREA=7,547 SQ FT
SPRINKLER: PENDANT QUICK
RESPONSE 155 °F
K=5.6



1 FIRST FLOOR - FIRE PROTECTION PLAN
1" = 10'



SPRINKLER ZONE 1
WET AUTOMATIC SPRINKLER
DESIGN DENSITY=0.15 GPM/SQFT
DESIGN AREA=8,142 SQFT
SPRINKLER: PENDANT QUICK
RESPONSE 155 °F
K=5.6



2 SECOND FLOOR - FIRE PROTECTION PLAN
1" = 10'

GENERAL NOTES:

- NEW WET PIPE FIRE SPRINKLER SYSTEM ZONE 1. PROVIDE CONTROL VALVE.
- OCCUPANCY AND CONSTRUCTION TYPE PER G005
- PROVIDE COMPLETE PLANS, CALCULATIONS AND OTHER SUBMITTALS REQUIRED BY PROJECT SPECIFICATION FOR NEW WORK.
- PROVIDE A COMPLETE AUTOMATIC WET FIRE SPRINKLER SYSTEM FOR THE ENTIRE BUILDING. THE AUTOMATIC SPRINKLER SYSTEM SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 - NFPA 13, 2022 EDITION: STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS.
 - NFPA 24, 2022 EDITION: STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTANCES.
 - CALIFORNIA FIRE CODE, 2022 EDITION.
- INSTALLATION OF THE SPRINKLER SYSTEMS SHALL NOT BE STARTED UNTIL COMPLETE PLANS AND CALCULATIONS (INCLUDING WATER SUPPLY INFORMATION) HAVE BEEN APPROVED BY THE FIRE MARSHAL. AT VARIOUS STAGES AND UPON COMPLETION, THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF FIRE MARSHALL REPRESENTATIVE.
- ALL FIRE SPRINKLER WORK SHALL BE PERFORMED BY A LICENSED FIRE PROTECTION CONTRACTOR WITH A CURRENT STATE OF CALIFORNIA C-16 LICENSE.
- PROVIDE SPRINKLERS BELOW ALL EXPOSED DUCTS, OBSTRUCTIONS AND OPEN GRATINGS GREATER THAN FOUR FEET WIDE.
- PAINT AND INSULATE SPRINKLER RISER AND PROVIDE METAL PROTECTIVE COVERING, BY MECHANICAL AND PAINTING CONTRACTORS.
- ALL FIRE SPRINKLER PIPING SHALL BE CONCEALED WHERE POSSIBLE.
- FURNISH AND INSTALL ANY INCIDENTAL WORK NOT SHOWN OR SPECIFIED WHICH ARE NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
- KEEP FIRE SPRINKLER AS HIGH AS POSSIBLE TO STRUCTURE ABOVE AND OFFSET PIPING AS REQUIRED.
- SEE REFLECTED CEILING PLANS FOR CENTERING SPRINKLER HEADS IN GRIDS AND LOCATIONS OF LIGHT, DIFFUSERS, ETC.
- LOCATIONS OF PIPE PENETRATIONS THROUGH BEAMS, CONCRETE WALLS AND FLOORS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
- PROVIDE STEEL PIPE SLEEVES WHERE PIPES PASS THROUGH NEW CONCRETE WALLS. REFER TO STRUCTURAL DRAWINGS AND STRUCTURAL DETAILS FOR PIPE SLEEVE REQUIREMENTS. REFER TO STRUCTURAL DRAWINGS FOR CLEARANCE REQUIREMENTS BETWEEN SLEEVES AND PIPES.
- PROVIDE FLEXIBLE HEAD DROPS FOR ALL CEILING MOUNTED SPRINKLER HEADS THROUGHOUT TO COMPLY WITH CBC 2019 AND NFPA 13 REQUIREMENTS FOR (1") ONE INCH CLEARANCE BETWEEN THE SPRINKLER HEAD AND THE CEILING. THE USE OF OVERSIZED CEILING ESCUTCHEONS ARE NOT ACCEPTABLE.
- PROVIDE SYSTEM BACKFLOW PREVENTER PER UTILITY REQUIREMENTS.
- PROVIDE MULTI-ZONE FIRE PROTECTION SYSTEM HEADER WITH EACH ZONE: SHUT-OFF VALVE, FLOW SWITCH, PRESSURE GAUGE, PRESSURE RELIEF VALVE, DRAIN AND INSPECTION TEST VALVE, SIGHT GLASS AND OTHER SYSTEMS REQUIRED BY CODE.
- PROVIDE FIRE DEPARTMENT CONNECTION BY THE BACKFLOW PREVENTER, SEE SHEET 1/C402.
- FIRE PROTECTION TEST PIPE SHALL DISCHARGE INTO LANDSCAPE BED.
- NO SPRINKLER LINES SHALL BE LOCATED ABOVE ELECTRICAL EQUIPMENT.
- CONTRACTOR TO PROVIDE A NEW FLOW TEST AT EXISTING FIRE HYDRANT.
- ELEVATOR HOISTWAYS AND ASSOCIATED ELEVATOR MACHINE ROOM SHALL NOT BE SPRINKLERED UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL PROVIDE SPRINKLERS AT THE TOP AND BOTTOM OF THE HOISTWAY AND ELEVATOR MACHINE ROOM ALONG WITH REQUIRED SHUNT TRIPS ON ASSOCIATED BREAKERS.
- PROVIDE UPRIGHT SPRINKLERS IN AREAS WITHOUT CEILINGS, THIS INCLUDES THE ATTIC SPACE.

LEGEND:

ZONE 1 - WET PIPE SPRINKLERED
ORDINARY HAZARD GROUP 1
0.15 GPM/SQFT OVER 1,500 SQFT

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:
FIRST AND SECOND
FLOOR PLAN
FIRE PROTECTION
PLANS

Sheet Number:

FP101

Revisions:

Client Project Number: 6305.007
KPA Project Number: 740.00
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

PLUMBING DETAILS &
LEGENDS

SheetNumber:

P001

ABBREVIATIONS

ACC	AIR COOLED CONDENSER	ID	INSIDE DIAMETER
ACU	AIR CONDITIONING UNIT	IFB	INTEGRAL FACE & BYPASS
AD	ACCESS DOOR	IGV	INLET GUIDE VANES
ADJ	ADJUSTABLE	IPS	IRON PIPE SIZE
AF	AIR FOIL	IU	INDUCTION UNIT
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS
AFG	ABOVE FINISHED GRADE	KWH	KILOWATT HOUR
AFR	ABOVE FINISHED ROOF	LAT	LEAVING AIR TEMPERATURE (°F)
AFS	AIR FLOW STATION	LF	LINEAR FEET
AHU	AIR HANDLING UNIT	LWT	LEAVING WATER TEMPERATURE (°F)
AP	ACCESS PANEL	M	MOTOR OPERATED
ATC	AUTOMATIC TEMPERATURE CONTROL	MAU	MAKEUP AIR UNIT
ATM	ATMOSPHERE	MB	MIXING BOX
AWG	AMERICAN WIRE GAUGE	MBH	1000 BTU/HR
		MC	MECHANICAL CONTRACTOR
B	BOILER	MFR	MANUFACTURER
BB	BASEBOARD	MS	MINI-SPLIT
BC	BACKWARD CURVED	NC	NOISE CRITERIA
BD	BACKDRAFT DAMPER	NC	NORMALLY CLOSED
BF	BOILER FEED	NC	NOT IN CONTRACT
BHP	BRAKE HORSEPOWER	NO	NORMALLY OPEN
BI	BACKWARD INCLINED	NPS	NOMINAL PIPE SIZE
BMS	BUILDING MANAGEMENT SYSTEM	OA	OUTSIDE AIR
BOD	BOTTOM OF DUCT	OAD	OUTSIDE AIR DAMPER
BOJ	BOTTOM OF JOIST	OBD	OPPOSED BLADE DAMPER
BOS	BOTTOM OF STEEL	P	PUMP
BTU	BRITISH THERMAL UNIT	PC	PLUMBING CONTRACTOR
		PD	PRESSURE DROP
C	COMMON	PH	PHASE
CAV	CONSTANT AIR VOLUME	PHC	PREHEAT COIL
CC	COOLING COIL	PPM	PART PER MILLION
CCW	COUNTER CLOCKWISE	PROP	PROPELLER
CFM	CUBIC FEET PER MINUTE	PRV	PRESSURE REDUCING VALVE
CH	CHILLER	PSIA	PSI, ABSOLUTE
C&I	CONTROLS & INSTRUMENTATION	PSIG	PSI, GAUGE
CLG	CEILING	QTY	QUANTITY
CMU	CONCRETE MASONRY UNIT	R	REGISTER
CND	CONDENSATE	RA	RETURN AIR
CONT	CONTINUATION	RD	RADIAL DAMPER
CORR	CORRIDOR	RF	RETURN/RELIEF AIR FAN
CT	COOLING TOWER	RH	RELATIVE HUMIDITY
CU	CONDENSING UNIT	RHC	REHEAT COIL
CH	CABINET HEATER	SA	SUPPLY AIR
CV	CONTROL VALVE	SAP	SUPPLY AIR FAN
CVS	CONTROL VALVE STATION	SC	SENSIBLE COOLER
CW	CLOCKWISE	SCFM	CFM, STANDARD CONDITIONS
		SD	SMOKE DETECTOR
dB	DECIBEL	SEER	SEASONAL ENERGY EFFICIENCY RATIO
DB	DRY BULB TEMPERATURE (°F)	SENS	SENSIBLE
DDC	DIRECT DIGITAL CONTROL	SP	STATIC PRESSURE
DH	DUCT HEATER	SPS	STATIC PRESSURE SENSOR
DP	DEW POINT TEMPERATURE (°F)	SS	STAINLESS STEEL
DX	DIRECT EXPANSION	T	THERMOSTAT
		TA	TRANSFER AIR
E	EXHAUST	TCC	TEMPERATURE CONTROL CONTRACTOR
EA	EXHAUST AIR	TCP	TEMPERATURE CONTROL PANEL
EAT	ENTERING AIR TEMPERATURE (°F)	TG	TRANSFER GRILL
EC	ELECTRICAL CONTRACTOR	TOD	TOP OF DUCT
EDR	EQUIVALENT DIRECT RADIATION	TOP	TOP OF PIPE
EER	ENERGY EFFICIENCY RATIO	TOS	TOP OF STEEL
EF	EXHAUST FAN	TSP	TOTAL STATIC PRESSURE
EFF	EFFICIENCY	TYP	TYPICAL
ELEV	ELEVATION	UH	UNIT HEATER
ERV	ENERGY RECOVERY VENTILATOR	UNC	UNDERCUT
ESP	EXTERNAL STATIC PRESSURE	UV	UNIT VENTILATOR
ET	EXPANSION TANK	VA	VOLT-AMPERE
EWT	ENTERING WATER TEMPERATURE (°F)	VAV	VARIABLE AIR VOLUME
F&T	FLOAT & THERMOSTATIC	VD	VOLUME DAMPER
FA	FACE AREA	VEL	VELOCITY
FC	FORWARD CURVED	VFD	VARIABLE FREQUENCY DRIVE
FC	FAN COIL	VRF	VARIABLE REFRIGERANT FLOW
FP	FIRE PROTECTION	WB	WET BULB TEMPERATURE (°F)
FPM	FEET PER MINUTE	WC	WATER COLUMN
FT	FEET	WG	WATER GAUGE
		WSHP	WATER SOURCE HEAT PUMP
GA	GAUGE OR GAGE	ΔT	TEMPERATURE DIFFERENCE (°F)
GC	GENERAL CONTRACTOR		
GEN	GENERATOR		
GH	GRAVITY HOOD		
GPD	GALLONS PER DAY		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
H	HUMIDIFIER		
HC	HEATING COIL		
HG	MERCURY		
HOA	HAND-OFF-AUTOMATIC		
HP	HORSEPOWER		
HR	HOUR		
HX	HEAT EXCHANGER		

ANNOTATION SYMBOLS

	3D VIEW NUMBER
	DETAIL NUMBER
	SECTION NUMBER
	PLUMBING FIXTURE / EQUIPMENT MARK
	EXISTING PLUMBING FIXTURE / EQUIPMENT
	DEMOLISHED PLUMBING FIXTURE / EQUIPMENT
	POINT OF NEW CONNECTION
	POINT OF DISCONNECTION
	DIRECTION OF FLOW AND SLOPE PER FOOT

GENERAL

	NAME (E)	EXISTING PIPE TO REMAIN
	NAME (D)	EXISTING PIPE TO BE DEMOLISHED
	NAME	NEW PIPING
		DIRECTION OF FLOW

PLUMBING

	DCW	DOMESTIC COLD WATER
	DHW	DOMESTIC HOT WATER (120°F)
	DHWR	DOMESTIC HOT WATER RECIRC.
	HTHW	HIGH TEMPERATURE HOT WATER (140°F)
	IRR	IRRIGATION
	RO	REVERSE OSMOSIS TREATED
	SAN	SANITARY WASTE
	V	SANITARY VENT
	GW	GREASE WASTE
	AW	ACID WASTE
	AV	ACID VENT
	NG	NATURAL GAS
	LPG	LIQUIFIED PETROLEUM GAS
	RWL	RAIN WATER LEADER
	ORL	RAIN WATER OVERFLOW
	CND	CONDENSATE DRAIN
	CA	COMPRESSED AIR

PLUMBING LEGEND

PIPE FITTINGS

	ELBOW
	PIPE BREAK
	PIPE UP
	PIPE DOWN
	CHANGE IN ELEVATION OF PIPE
	SIDE CONNECTION OR TEE FITTING
	TOP CONNECTION
	BOTTOM CONNECTION
	UNION
	FLANGE
	CAPPED OUTLET
	BLIND FLANGE

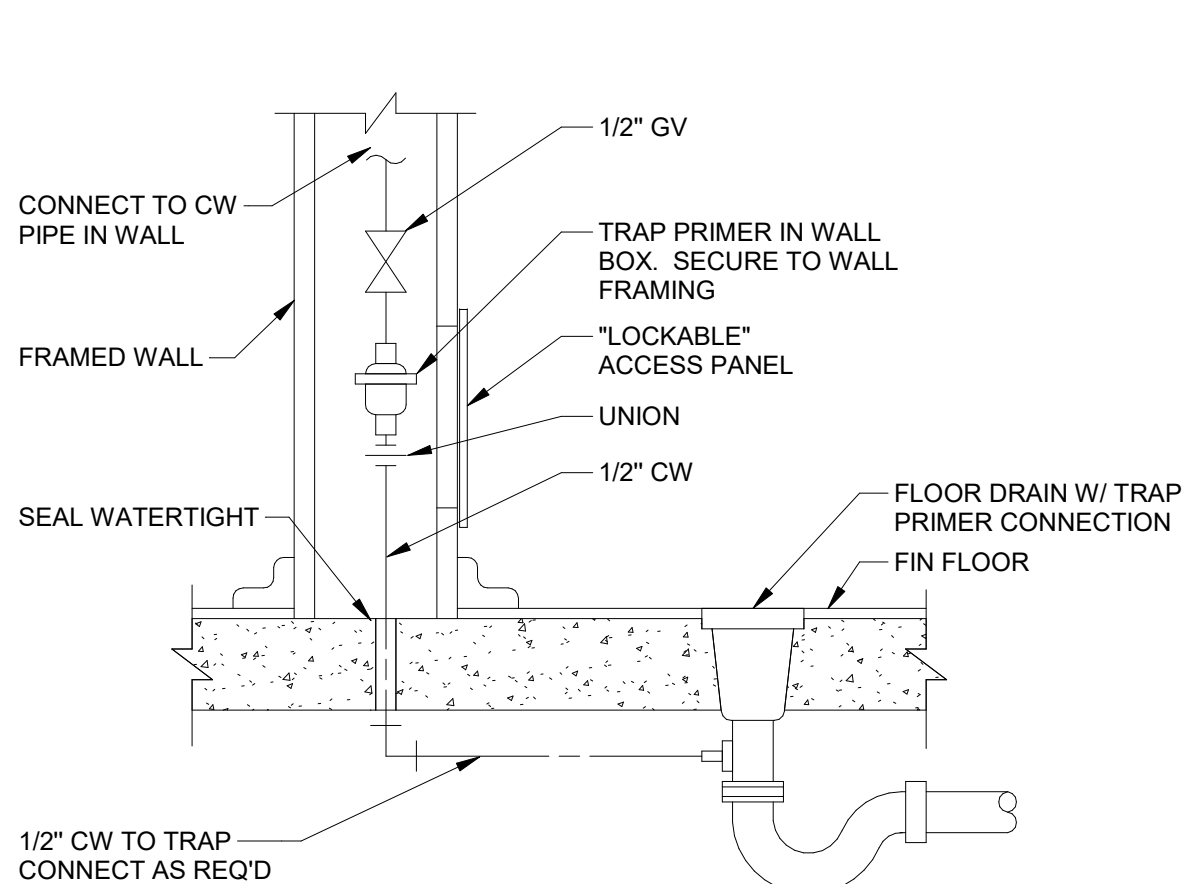
VALVES

	COMBINATION Y-STRAINER & SHUTOFF VALVE
	COMBINATION AUTOFLOW & SHUTOFF VALVE
	MANUAL BALANCING VALVE
	AUTOFLOW VALVE
	ISOLATION VALVE - SEE SPECIFICATIONS FOR TYPE
	3-WAY VALVE
	BUTTERFLY VALVE
	HOSE END DRAIN
	STRAINER
	MANUAL BALANCING VALVE
	AUTOFLOW VALVE
	CHECK VALVE
	BACKFLOW PREVENTER
	PRESSURE REDUCING VALVE
	TEMPERATURE AND PRESSURE RELIEF VALVE
	SOLENOID VALVE
	2-WAY TEMPERATURE CONTROL VALVE
	3-WAY TEMPERATURE CONTROL VALVE

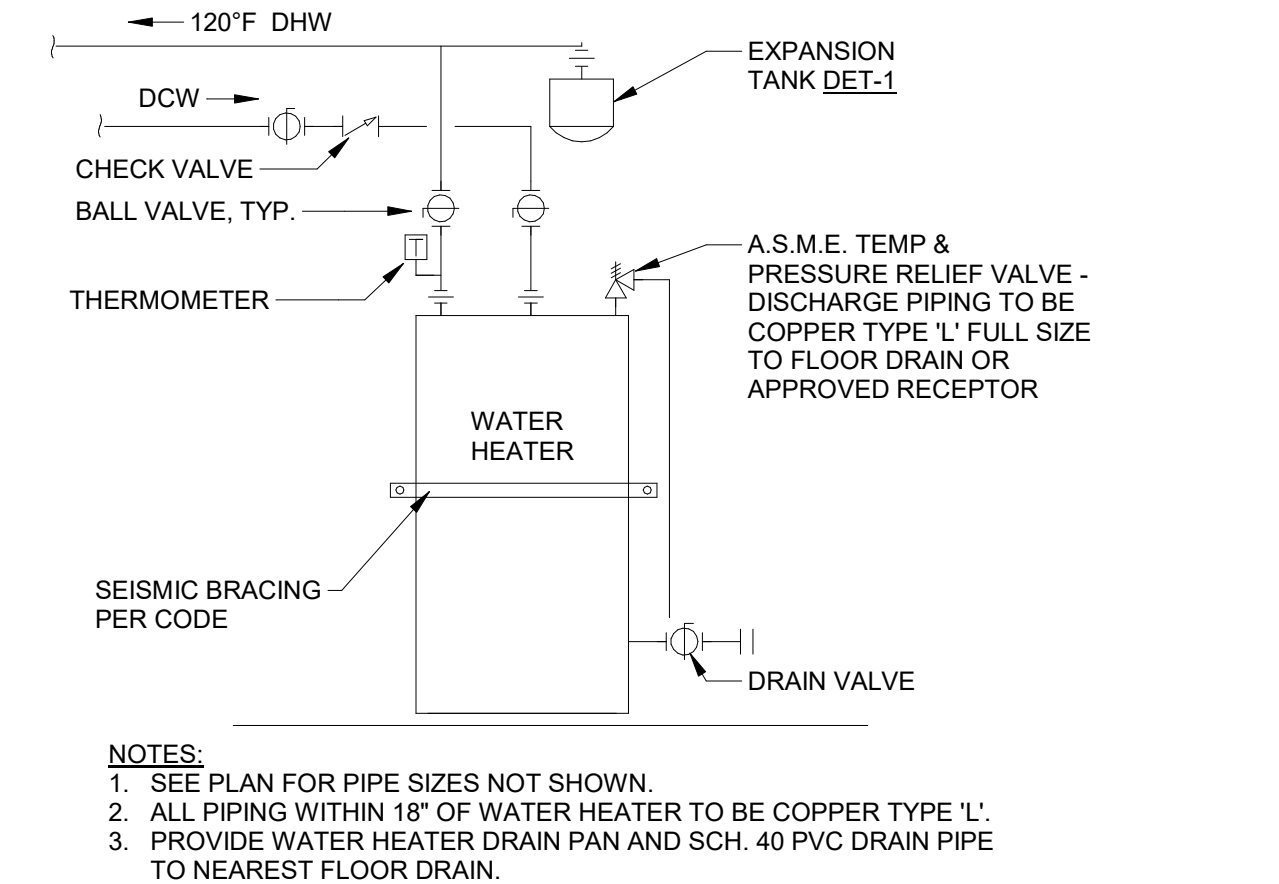
PIPING SPECIALTIES

	AUTOMATIC AIR VENT
	MANUAL AIR VENT - 1/4" BALL VALVE WITH 12" SOFT COPPER TUBE
	PRESSURE / TEMPERATURE PORT
	DDC TEMP SENSOR
	DDC PRESSURE SENSOR
	PIPE WELL - EMPTY
	FLOW SWITCH
	PRESSURE SWITCH
	PRESSURE GAUGE
	PRESSURE GAUGE & COCK
	TEMPERATURE GAUGE
	SCHEMATIC PUMP
	FLEXIBLE CONNECTOR
	PIPE GUIDES
	ANCHOR
	THERMAL EXPANSION LOOP
	WATER METER
	FLOOR CLEAN OUT
	WALL CLEAN OUT
	WATER HAMMER ARRESTER
	HOSE BIBB
	WALL HYDRANT
	IRRIGATION BLOWOUT PORT

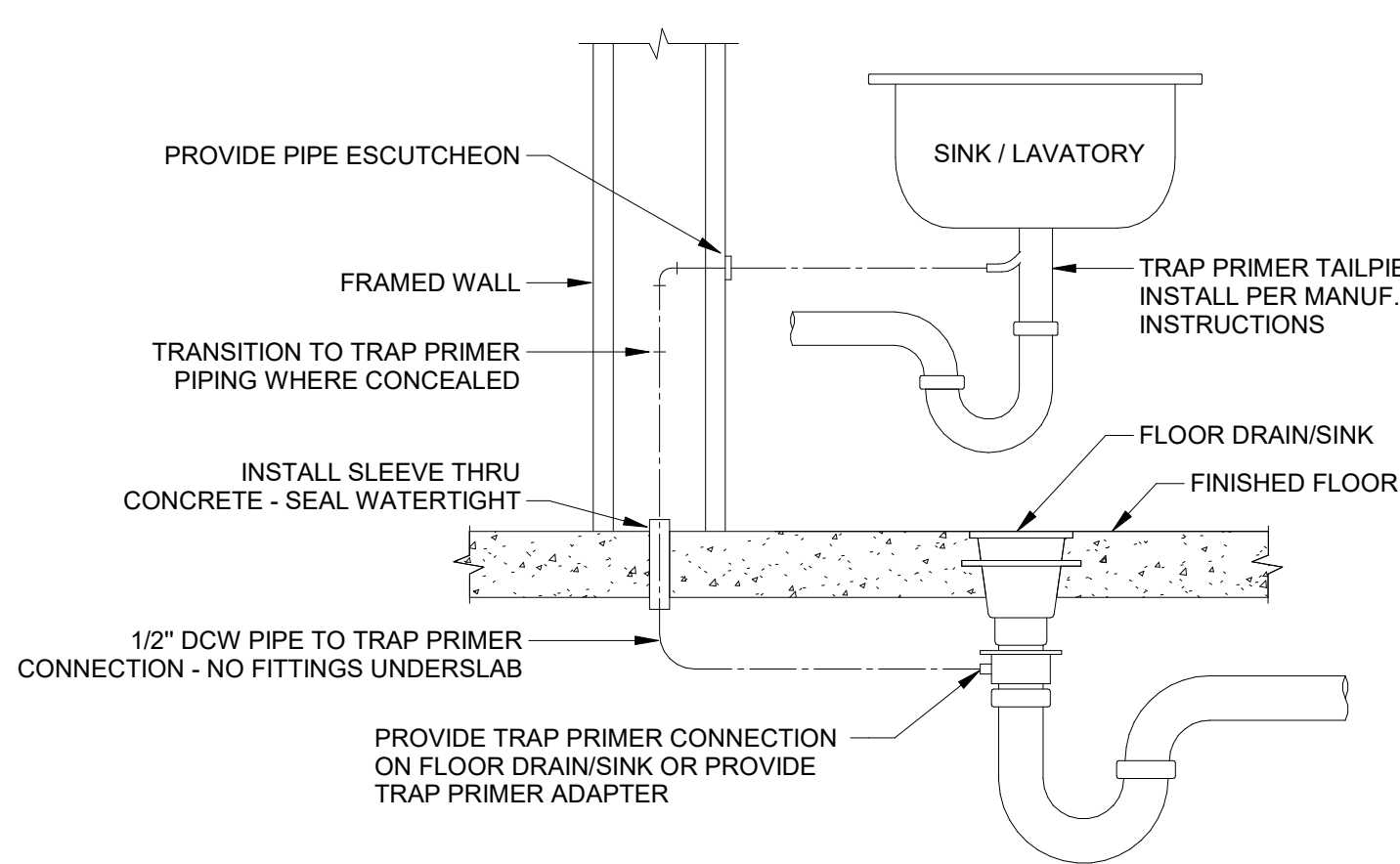
NOTE: THIS IS A STANDARD LEGEND. NOT ALL PIPE TYPES AND SYMBOLS ARE NECESSARILY UTILIZED IN THE DRAWINGS.



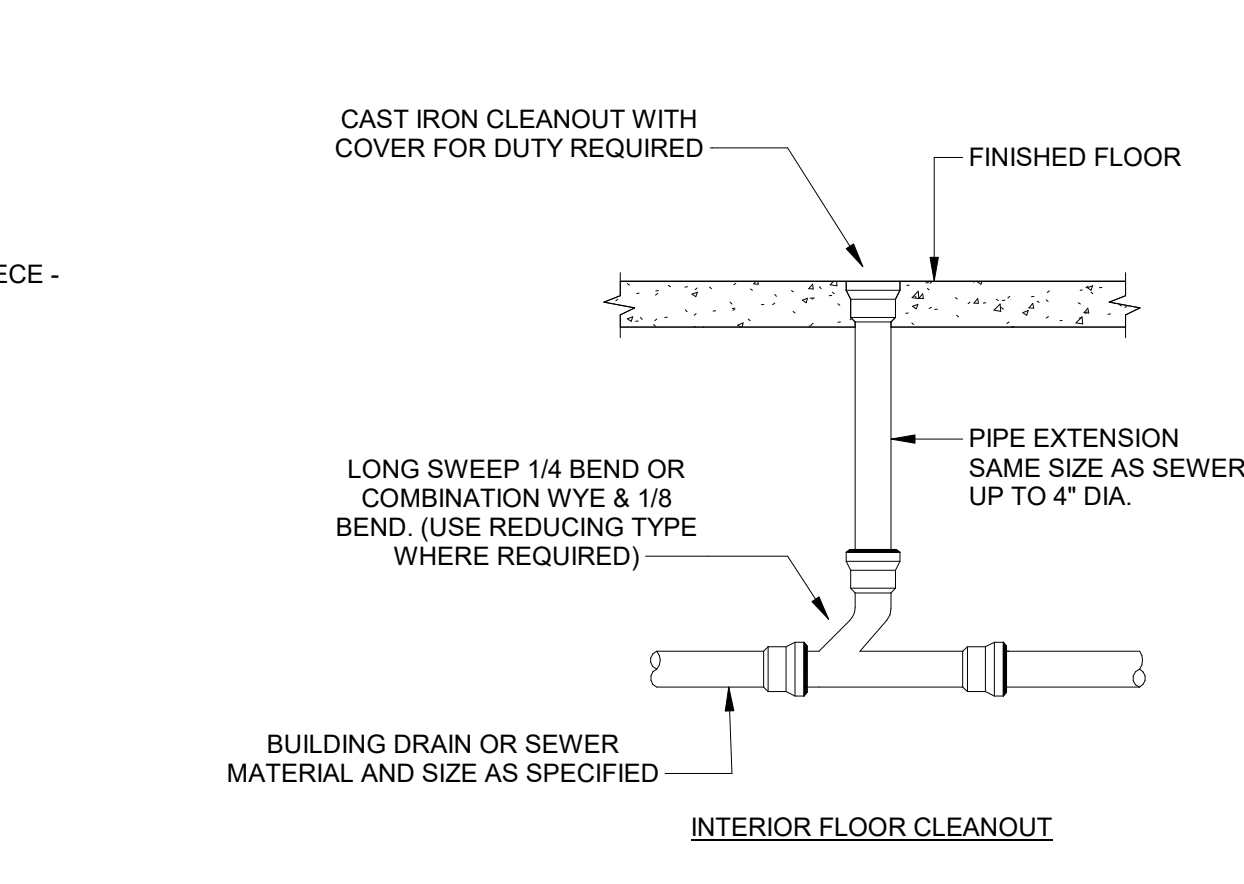
1 TRAP PRIMER TO FLOOR DRAIN DETAIL
N.T.S.



2 WATER HEATER DETAIL
N.T.S.



3 TAILPIECE TRAP PRIMER DETAIL
N.T.S.



4 SEWER LINE CLEANOUT DETAIL
N.T.S.

DOMESTIC WATER HEATER SCHEDULE													
MARK	MFGR.	MODEL #	DESCRIPTION	FUEL TYPE	STORAGE CAPACITY (GAL)	STORAGE TEMP (F)	HEIGHT (IN)	DIAMETER (IN)	GPH @ 100F RISE	ELECTRICAL DATA			REMARKS
										LOAD	VOLTAGE	PHASE	
DWH-1	BRADFORD WHITE	ELECTRIFLEX LD UTILITY LE110U3-1	ELECTRIC WATER HEATER	ELECTRIC	55	120	56 15/16"	23	45	4500 W	208	1	SEE NOTES
NOTES: ASME TEMPERATURE AND PRESSURE RELIEF VALVE, TEMPERATURE AND PRESSURE GAUGE AND 4"X6" CLEAN-OUT PORT. MOUNT HEATER ON HOUSE KEEPING PAD OR GALVANIZED FLOOR SUPPORT FRAME. INSTALL SEISMIC BRACING PER CODE. PIPE T&P RELIEF VALVE TO FLOOR SINK.													

DOMESTIC HOT WATER EXPANSION TANK							
MARK	MFGR.	MODEL	TOTAL VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	SYSTEM	SYSTEM (PSI)	REMARKS
DET-1	AMTROL	ST-12	4.4	3.2	DWH-1	80	SEE NOTES
NOTES: PROVIDE ASME RATED EXPANSION TANK, NSF RATED FOR USE IN POTABLE DOMESTIC WATER SYSTEMS. SEE DETAIL P001.2.							

PLUMBING PUMP SCHEDULE								
ACCESSORIES: 1. PROVIDE GRUNDFOS DIGITAL TIMER AND AQUASTAT.			REMARKS: 1. PROVIDE ALL NECESSARY VALVING AND ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION.			CONTROLS: 1. PUMP TO ONLY OPERATE DURING OCCUPIED HOURS (ADJUSTABLE WITH TIMER). 2. PUMP TO ACTIVATE AT A RECIRCULATION TEMPERATURE LESS THAN 105°F AND DEACTIVATE AT A RECIRCULATION TEMPERATURE OF 120°F (ADJUSTABLE WITH AQUASTAT).		ELECTRICAL DATA: SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.
MARK	MANUF.	MODEL	MATERIAL	DESCRIPTION	FLOW (GPM)	HEAD (FT)	TEMPERATURE (°F)	
PP-1	Taco	003	STAINLESS STEEL	HOT WATER RECIRCULATION PUMP	4	2	120	

MEP COORDINATION SCHEDULE

CONTROL TYPE:		DISCONNECT/STARTER TYPE:		DIVISION OF RESPONSIBILITIES:	
BAS	BUILDING AUTOMATION SYSTEM	CB	PANELBOARD CIRCUIT BREAKER WITHIN SIGHT OF EQUIPMENT	22/22	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 22
CO	CARBON MONOXIDE DETECTOR	CSFD	COMBINATION STARTER/DISCONNECT - HOA	22/26	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 26
CONT	CONTINUOUS OPERATION	FD	FUSED DISCONNECT	23/23	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 23
EF	INTERLOCK WITH EXHAUST FAN	FST	FUSTAT	23/26	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 26
HCP	HOOD CONTROL PANEL	FW	FACTORY-WIRED SINGLE POINT CONNECTION	26/26	FURNISHED AND INSTALLED BY DIV. 26, WIRED BY DIV. 26
INT	INTEGRAL	MOCP	MOTOR OVER-CURRENT PROTECTION		
L	LIGHT SWITCH	MSS	MANUAL STARTER SWITCH WITH THERMAL OVERLOADS (1-, 2- OR 3-POLE AS REQUIRED)		
MS	MANUAL SWITCH	NFD	NON-FUSED DISCONNECT		
OS	OCCUPANCY SENSOR	RCPT	20A DUPLEX RECEPTACLE (GFCI PROTECTED AS REQUIRED), CORD AND PLUG		
PS	PRESSURE SWITCH	RVSS	REDUCED VOLTAGE SOLID-STATE		
T	THERMOSTAT	VFD	VARIABLE FREQUENCY DRIVE - HOA		
TC	TIME CLOCK	N/A	NOT APPLICABLE		
UC	UNIT CONTROLLER				
VE	VEHICLE EXHAUST DETECTION SYSTEM				
N/A	NOT APPLICABLE				

GENERAL NOTES:

A.

CONTROL WIRING SHALL BE CONCEALED WITHIN WALL CONSTRUCTION, ABOVE CEILING, OR RUN IN CONDUIT. EXPOSED CONTROL WIRING IS UNACCEPTABLE.

B.

UNLESS SPECIFICALLY NOTED, ALL FEEDERS SHALL INCLUDE A FULL SIZE NEUTRAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY WITH THE MANUFACTURER OF THE ACTUAL EQUIPMENT BEING SUPPLIED WHETHER A NEUTRAL IS REQUIRED PRIOR TO ROUGH-IN.

C.

ALL DUCT SMOKE DETECTORS FURNISHED BY DIV. 26, INSTALLED BY DIV. 23, AND WIRED BY DIV. 26. DIV. 26 SHALL WIRE ALL FANS TO SHUT DOWN WHEN ALARM IS INITIATED BY ANY DUCT SMOKE DETECTOR.

MARK	DESCRIPTION	ELECTRICAL DATA		CONTROL		NOTES		
		LOAD		VOLT-PHASE	TYPE		DIV	
DAC-1	DUCTLESS AC CONDENSER		MCA 19.8 / MOCP 20		208-1	UC	23/23	
DCU-1	SINGLE ZONE AHU		FROM OUTDOOR UNIT		208-1	T	23/23	
DWH-1	DOMESTIC HOT WATER HEATER		1500 W		120-1	INT	22/26	
PP-1	HOT WATER RECIRCULATION PUMP		0.43 A		120-1	INT	22/26	4

PLUMBING FIXTURE SCHEDULE															
REMARKS: 1. PROVIDE ALL FIXTURES WITH APPROPRIATE COMMERCIAL GRADE SUPPORTS/CARRIERS, P-TRAPS, STOP VALVES, BRAIDED FLEXIBLE SUPPLIES, UNDER FIXTURE PIPING INSULATION AND HAMMER ARRESTORS. 2. PROVIDE AND INSTALL TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR3. INSTALL ALL TRAP PRIMERS IN RECESSED WALL MOUNTED BOXES IN AN ACCESSIBLE LOCATION. 4. FIELD COORDINATE INSTALLATION LOCATION OF TRAP PRIMER WALL BOXES, WATER CLOSETS, LAVATORIES, AND URINALS FOR ADA COMPLIANCY WITH ARCHITECT/ENGINEER.															
MARK	DESCRIPTION	FIXTURE			MATERIAL / FINISH	MOUNTING / HEIGHT	TRIM			MATERIAL / FINISH	ROUGH-IN SIZE (IN)				REMARKS
		ADA	MANUF.	MODEL			DESCRIPTION	MANUF.	MODEL		WASTE	VENT	COLD	HOT	
DF-1	DUAL HEIGHT W/ BOTTLE FILL	YES	ELKAY	EZWS-EDFPBM117K	STAINLESS STEEL	WALL / ADA HEIGHT	N / A	N / A	N / A	N / A	1-1/2"	1-1/2"	1/2"	--	PROVIDE COMPLETE WITH QUARTER TURN ISOLATION VALVE IN ACCESSIBLE LOCATION. COORDINATE ADA MOUNTING HEIGHT WITH ARCHITECTURAL PLANS.
FD-1	FLOOR DRAIN	N / A	JR SMITH	2005	CAST IRON BODY / NICKEL BRONZE STRAINER	FLOOR	N / A	N / A	N / A	N / A	SEE PLANS	1-1/2"	1/2"	--	PROVIDE COMPLETE WITH SQUARE NICKEL BRONZE STRAINER HEAD, TRAP PRIMER CONNECTION, AND JR SMITH QUAD CLOSE TRAP SEAL.
FS-1	FLOOR SINK	N / A	JR SMITH	3101	CAST IRON BODY / NICKEL BRONZE STRAINER	FLOOR	N / A	N / A	N / A	N / A	SEE PLANS	1-1/2"	1/2"	--	PROVIDE COMPLETE WITH SQUARE NICKEL BRONZE STRAINER HEAD, TRAP PRIMER CONNECTION, AND JR SMITH QUAD CLOSE TRAP SEAL.
LAV-1	LAVATORY	YES	KOHLER	"KINGSTON" K-2005	VITREOUS CHINA	WALL / ADA HEIGHT	CHROME SENSOR-OPERATED FAUCET	MOEN	CA8302	CHROME	1-1/2"	1-1/2"	1/2"	1/2"	PROVIDE COMPLETE WITH KOHLER # K-7131-A OFFSET DRAIN, TRUEBRO LAV GUARD COVERS, QUARTER TURN STOP VALVE, CHROME PLATED TUBULAR BRASS P-TRAP AND WATTS 1170 MIXING VALVE SET TO 110 DEGREES F.
MS-1	JANITORIAL MOP SPINK	N / A	FIAT	MSB2424	STAINLESS STEEL	FLOOR	SERVICE SINK FAUCET	MOEN	8124	CHROME	3"	2"	3/4"	3/4"	PROVIDE COMPLETE WITH GRID DRAIN, CAST IRON P-TRAP, STAINLESS STEEL WALL GUARDS, MOEN MODEL #8199 RUBBER HOSE AND BRACKET, MOEN #8198 MOP/BROOM HOLDER.
S-1	DOUBLE COMPARTMENT SINK	YES	JUST	DLADA1933	STAINLESS STEEL	COUNTER	FAUCET W/ PULLOUT SPRAY	MOEN	8707	CHROME	2"	1-1/2"	1/2"	1/2"	PROVIDE COMPLETE WITH CHROME P-TRAP, QUARTER TURN STOP VALVES, AND BASKET STRAINER.
S-2	SINGLE COMPARTMENT SINK	YES	JUST	SLADA1617	STAINLESS STEEL	COUNTER	FAUCET W/ PULLOUT SPRAY	MOEN	8707	CHROME	2"	1-1/2"	1/2"	1/2"	PROVIDE COMPLETE WITH CHROME P-TRAP, QUARTER TURN STOP VALVES, AND BASKET STRAINER.
UR-1	HIGH EFFICIENCY WALL MOUNTED URINAL	NO	KOHLER	"BARDON" K-4991-ET	VITREOUS CHINA	WALL / ADA HEIGHT	FLUSH VALVE	MOEN	8316	CHROME	2"	1-1/2"	3/4"	--	PROVIDE COMPLETE WITH COMMERCIAL CARRIER, CHROME P-TRAP, QUARTER TURN STOP VALVES, AND HAMMER ARRESTOR.
WC-1	FLOOR MOUNT FLUSH VALVE WATER CLOSET	YES	KOHLER	"HIGHCLIFF" K-96057-SS-0	VITREOUS CHINA	FLOOR	FLUSH VALVE	SLOAN	GEM-2 11 SFSM	CHROME	4"	2"	1"	--	PROVIDE COMPLETE WITH KOHLER MODEL # K-466-SA SEAT, QUARTER TURN STOP VALVES, AND HAMMER ARRESTOR. 1.28 GPF FLUSH VALVE.
WH-1	TRAP PRIMER - PRESSURE ACTIVATED	N / A	SIOUX CHIEF MANUFACTURING	Prime Perfect Trap Primer 695-01	BRASS - LEAD FREE - EPDM SEALS	WALL	N / A	N / A	N / A	N / A	--	--	1"	1"	MAX WORKING TEMPERATURE 250F - MAX WORKING PRESSURE 350 PSIG - 33-60 FIXUTRE UNITS.

WATER SUPPLY FIXTURE UNIT CALCULATIONS			
FIXTURE	QTY	(PRIVATE, PUBLIC, OR ASSEMBLY) WSFU	TOTAL WSFU
DRINKING FOUNTAIN OR WATER COOLER	4	0.75	3
LAVATORY	7	1.0	7.0
SINKS	--	--	--
KITCH, DOMESTIC	2	1.5	3.0
SERVICE OR MOP BASIN	1	3.0	3.0
URINAL (1.0 GPF FLUSHOMETER VALVE)	4	*SIZED ON TABLE 610.10	35.0
WATER CLOSET (1.6 GPF FLUSHOMETER VALVE)	6	*SIZED ON TABLE 610.10	125.0
TOTAL WSFU =			171.5
MAX LENGTH:	115 FT		
TOTAL PEAK FLOW:	58 GPM		
WATER METER SIZE (BY UTILITY):	1.5"		
BUILDING SUPPLY SIZE (CONFIRM ON SITE):	2"		
BASED ON 2022 CALIFORNIA PLUMBING CODE TABLE 610.3			

NEW WASTE FIXTURE UNIT CALCULATION			
FIXTURE	QTY	(PRIVATE, PUBLIC, OR ASSEMBLY) WFU	TOTAL WFU
DRINKING FOUNTAIN OR WATER COOLER	2	0.5	1.0
FLOOR DRAIN (FOR ADDITIONAL SIZES SEE SECTION 702.0)	3	2.0	6.0
LAVATORY, SINGLE	3	1.0	3.0
URINAL INTEGRAL TRAP 1.0 GPF*	1	2.0	2.0
WATER CLOSET, 1.6 GPF GRAVITY TANK	3	4.0	12.0
TOTAL WFU =			
* = PROVIDE 2" MIN DRAIN ** = SIZED IN ACCORDANCE WITH 2022 CALIFORNIA PLUMBING CODE, TABLE 702.1		TOTAL	24
		TOTAL FIX UNITS	WASTE PIPE SIZE
		24	3

EXISTING LINE WASTE FIXTURE UNIT CALCULATION			
FIXTURE	QTY	(PRIVATE, PUBLIC, OR ASSEMBLY) WFU	TOTAL WFU
DRINKING FOUNTAIN OR WATER COOLER	2	0.5	1.0
FLOOR DRAIN (FOR ADDITIONAL SIZES SEE SECTION 702.0)	3	2.0	6.0
LAVATORY, SINGLE	3	1.0	3.0
SINK, KITCHEN DOMESTIC	1	2.0	2.0
MOP BASIN	1	3.0	3.0
URINAL INTEGRAL TRAP 1.0 GPF*	1	2.0	2.0
WATER CLOSET, 1.6 GPF GRAVITY TANK	3	6.0	18.0
TOTAL WFU =			
* = PROVIDE 2" MIN DRAIN ** = SIZED IN ACCORDANCE WITH 2022 CALIFORNIA PLUMBING CODE, TABLE 702.1		TOTAL	35
		TOTAL FIX UNITS	WASTE PIPE SIZE
		35	4

Revisions:

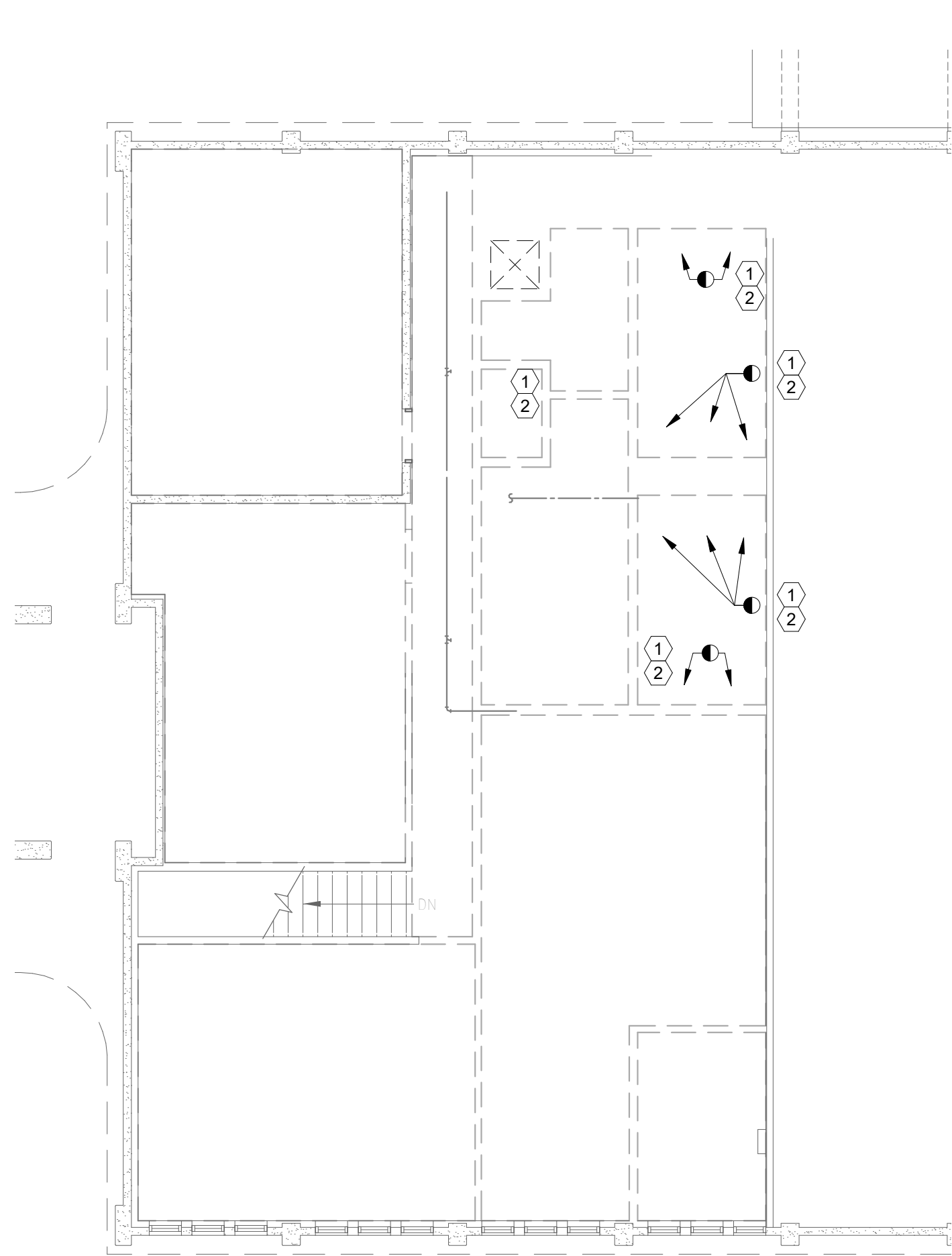
Client Project Number: 6305.007
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Sheet Title:

PLUMBING
SCHEDULES

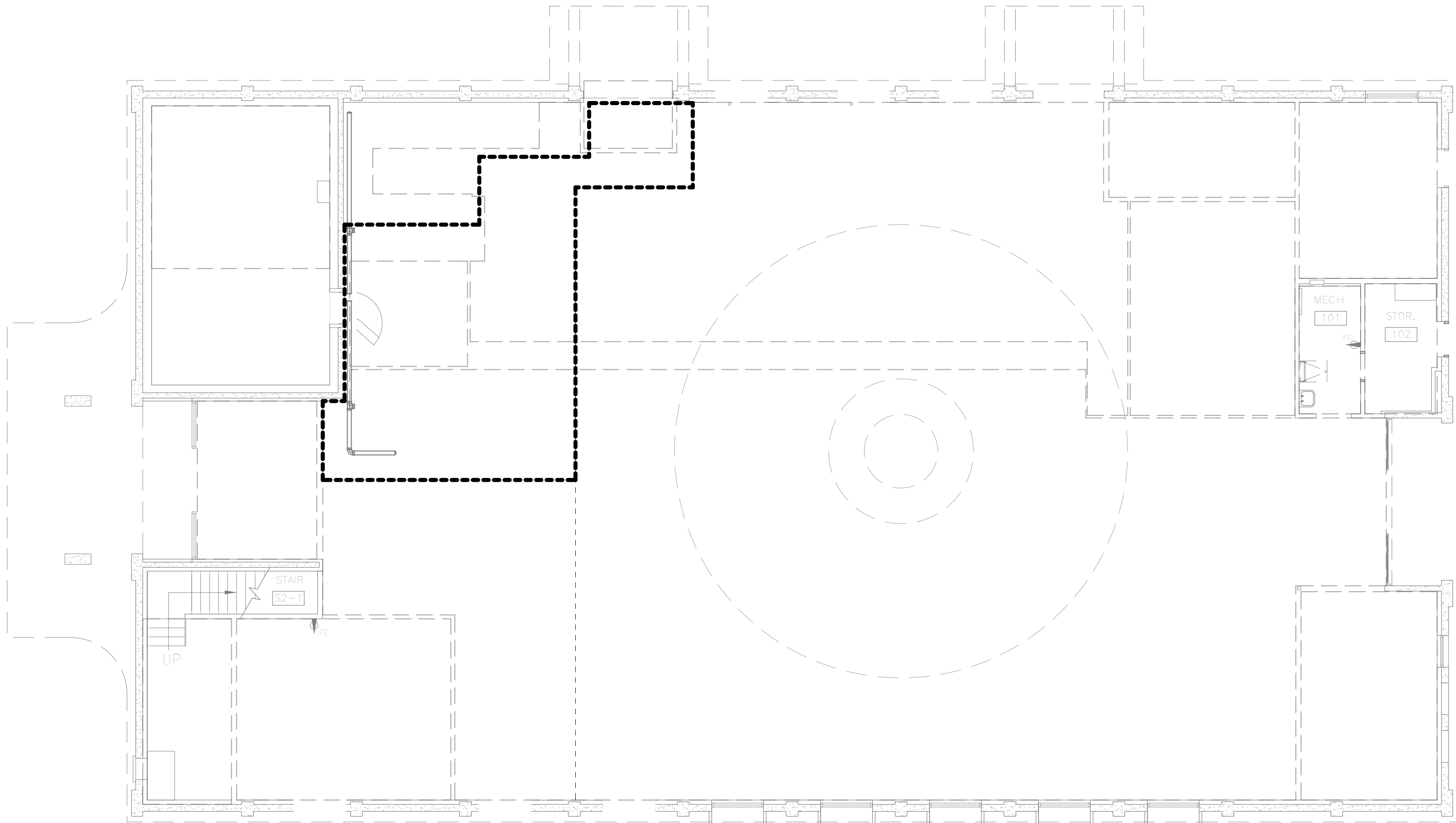
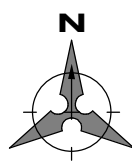
SheetNumber:

P002



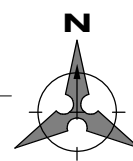
NOTE:
ALL EXISTING AND NEW PIPING SHOWN IS FOR REPRESENTATION. CONTRACTOR IS TO FIELD
VERIFY ALL EXISTING PIPING SIZES AND LOCATIONS AND MAKE PIPING CONNECTIONS AND
ALTERATIONS AS REQUIRED FOR NEW RESTROOM FIXTURE CONNECTIONS.

2 SECOND FLOOR PLUMBING DEMOLITION PLAN
1/8" = 1'-0"



NOTE:
ALL EXISTING AND NEW PIPING SHOWN IS FOR REPRESENTATION. CONTRACTOR IS TO FIELD
VERIFY ALL EXISTING PIPING SIZES AND LOCATIONS AND MAKE PIPING CONNECTIONS AND
ALTERATIONS AS REQUIRED FOR NEW RESTROOM FIXTURE CONNECTIONS.

1 FIRST FLOOR PLUMBING DEMOLITION PLAN
1/8" = 1'-0"



PLUMBING DEMO NOTES

- LOCATIONS AND DIMENSIONS OF EXISTING FACILITIES IDENTIFIED ON THIS DRAWING ARE APPROXIMATE AND REPRESENT THE BEST AVAILABLE INFORMATION BASED ON A COMBINATION OF FIELD INVESTIGATIONS AND VARIOUS DESIGN AND RECORD DRAWINGS AVAILABLE AT THE TIME OF DESIGN. FIELD VERIFY LOCATIONS AND DIMENSIONS PRIOR TO ORDERING EQUIPMENT AND DURING PERFORMANCE OF THE WORK. PROVIDE DEMOLITION WORK, NECESSARY FITTINGS, TRANSITIONS, AND OTHER COMPONENTS AS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION OF NEW SYSTEMS AT NO ADDITIONAL COST TO THE OWNER.
- EXISTING PLUMBING EQUIPMENT, FIXTURES, AND PIPING SHOWN AS DARK AND DASHED SHALL BE DEMOLISHED. EXISTING PLUMBING EQUIPMENT, FIXTURES, AND PIPING SHOWN LIGHT SHALL REMAIN UNCHANGED.
- THE PLUMBING CONTRACTOR SHALL COORDINATE SALVAGE OF REMOVED EQUIPMENT IN GOOD CONDITION WITH THE OWNER. THE PLUMBING CONTRACTOR SHALL DISPOSE OF UNWANTED EQUIPMENT.
- COORDINATE WITH GENERAL CONTRACTOR TO PATCH AND REPAIR ROOF AND WALL ASSEMBLIES ASSOCIATED WITH PLUMBING DEMOLITION.
- CONCRETE SLAB CUTTING REGIONS SHOWN ON DRAWINGS ARE APPROXIMATE AND MUST BE FIELD COORDINATED PRIOR TO THE CUTTING OF THE SLAB.
- PROTECT EXISTING BUILDING ELEMENTS DURING DEMOLITION WORK. COORDINATE WITH OTHER TRADES TO ENSURE NO EXISTING EQUIPMENT/PIPING TO REMAIN IS DAMAGED DURING THE DEMOLITION WORK.

KEY NOTES:

- DEMO EXISTING FIXTURES, CARRIERS, VALVES, AND ASSOCIATED PIPING AS REQUIRED FOR CONNECTION OF NEW FIXTURES. NEW FIXTURES TO BE CONNECTED PER P002.
- DEMO ALL EXISTING PIPING ASSOCIATED WITH FIXTURES BEING REMOVED. DEMO UP TO THE PIPING MAIN OR POINT OF NEW CONNECTION TO FIXTURE. DO NOT LEAVE PIPING DEAD-ENDS. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL DEMO INFORMATION.

GENERAL DEMO. NOTES:

- SEE ARCH. SHEET AD111 FOR DEMOLITION WORK. DEMOLITION INCLUDES EXISTING GRILLES, DIFFUSERS, AND PORTIONS OF DUCTWORK.
- CEILING AREAS AT THE FIRST FLOOR, BELOW THE NEW SECOND FLOOR TOILET ROOMS WILL BE DEMO'D AND RECONSTRUCTED TO ALLOW ACCESS FOR DEMO. OF EXISTING PIPING AND INSTALLATION OF NEW PIPING. SEE ARCH SHEET A111.

Revisions:

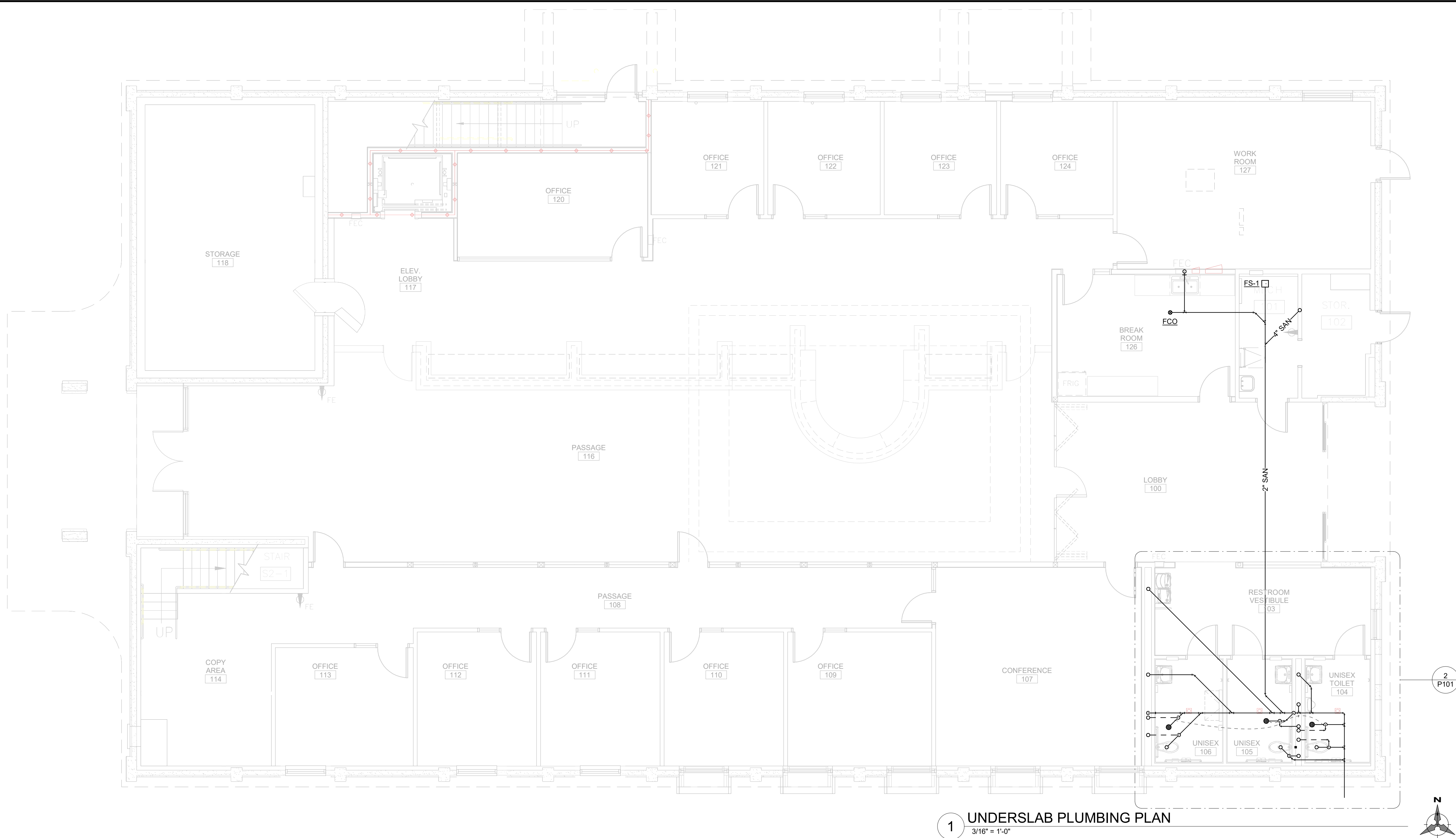
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Sheet Title:

FIRST AND SECOND
FLOOR PLUMBING
DEMOLITION

SheetNumber:

PD101



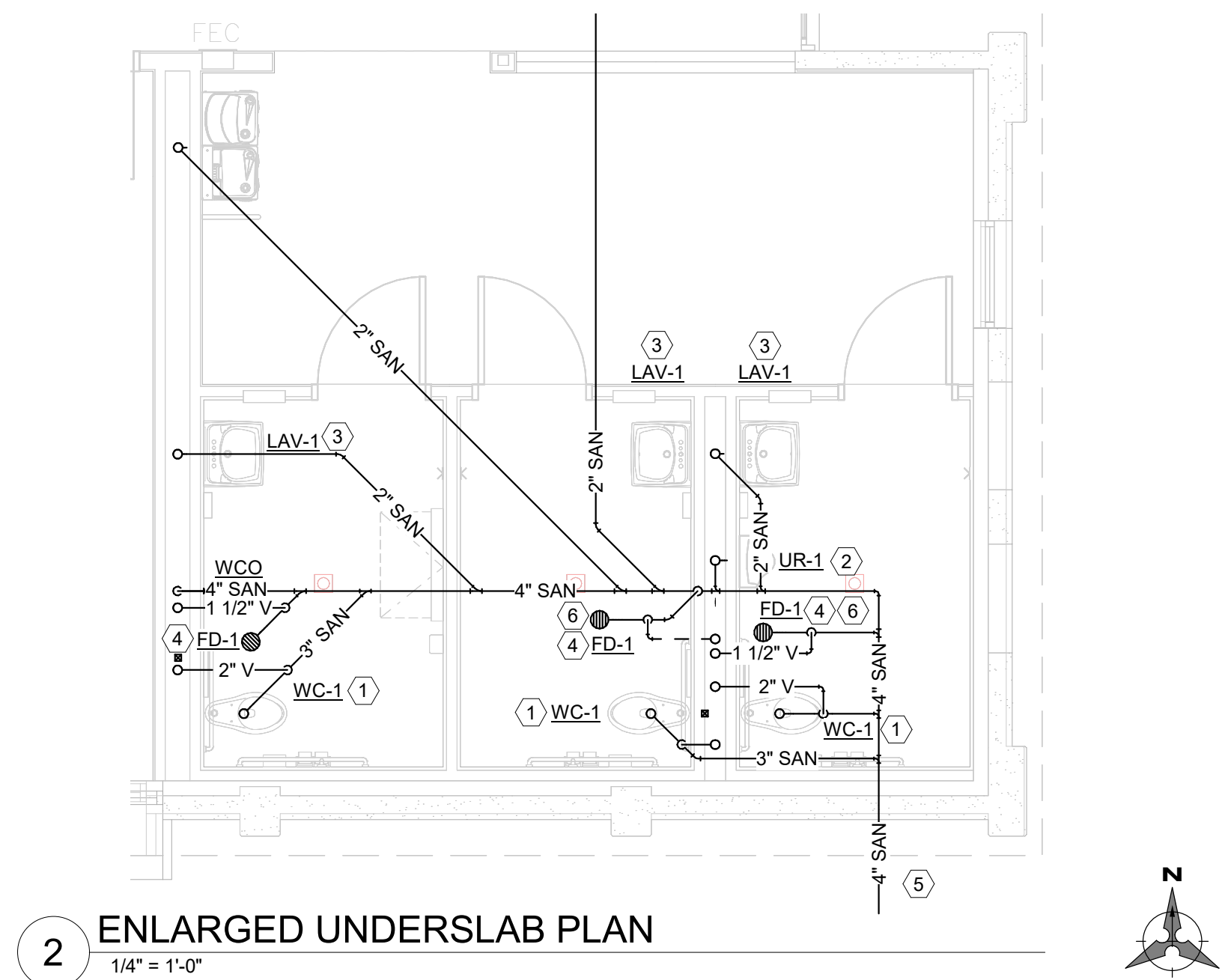
1 UNDERSLAB PLUMBING PLAN
3/16" = 1'-0"

PLUMBING GENERAL NOTES

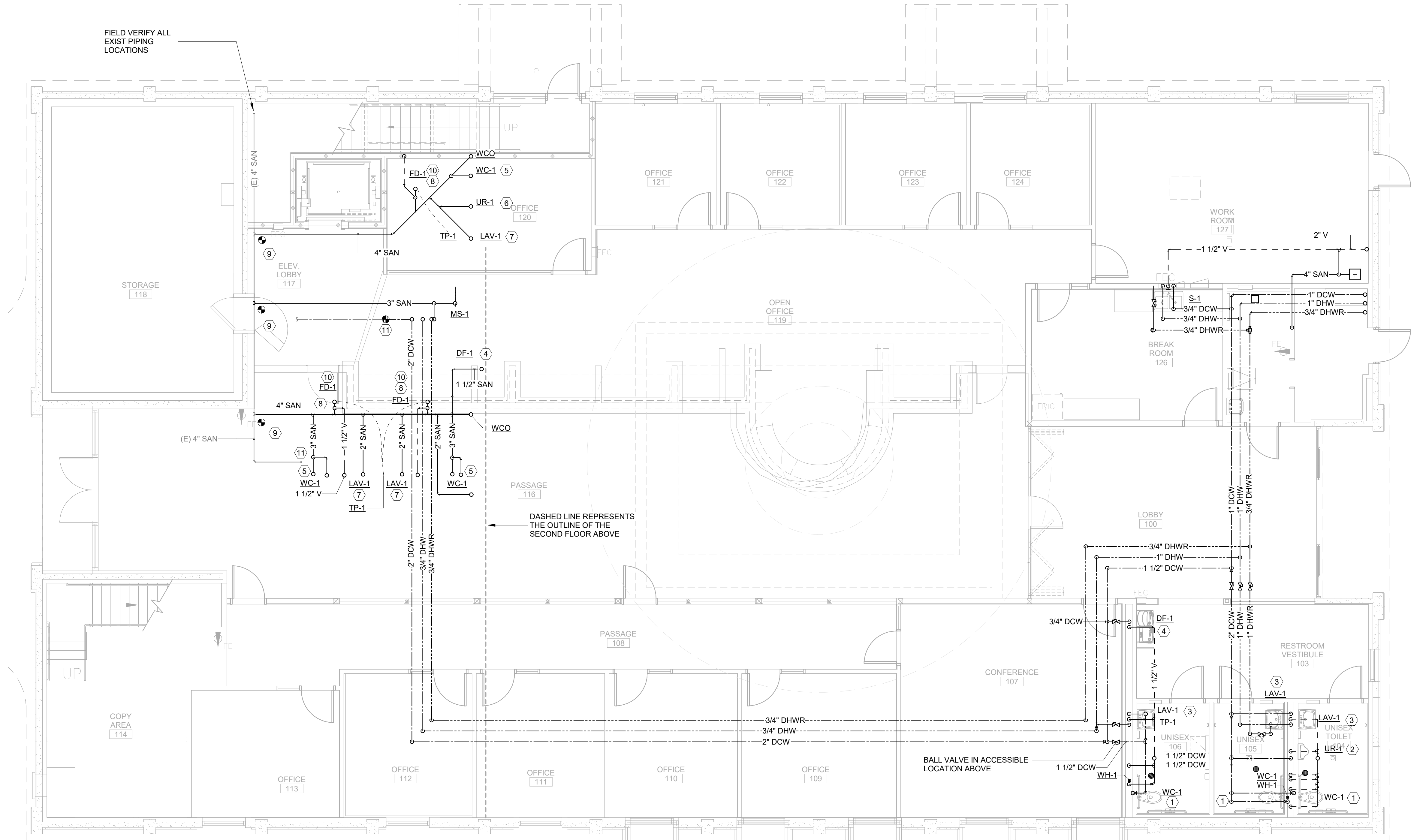
- PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT, VALVES, AND OTHER DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH ARCHITECT AND ENGINEER.
- PROVIDE TRAP SEALS FOR FLOOR DRAINS AND FLOOR SINKS.
- PROVIDE TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS. LOCATE TRAP PRIMERS IN A VALVE BOX AS INDICATED ON PLAN.
- INSTALL ACCESSIBLE PLUMBING FIXTURES IN COMPLIANCE WITH ADA REQUIREMENTS. INSULATE EXPOSED PIPING BELOW ADA ACCESSIBLE FIXTURES.
- INSTALL FLOOR DRAIN STRAINERS AND CLEANOUT COVERS FLUSH AND LEVEL WITH FINISHED FLOOR.
- PIPING SHALL BE IDENTIFIED WITH PIPE LABELS MARKED AT A MAXIMUM OF EVERY 25 FT. VALVES SHALL BE IDENTIFIED WITH BRASS OR ALUMINUM VALVE TAGS.
- PROVIDE AND INSTALL PIPE GUIDES, EXPANSION JOINTS, AND HANGERS PER MANUFACTURER'S RECOMMENDATIONS.
- PIPING WALL PENETRATIONS SHALL BE FINISHED WITH A CHROME ESCUTCHEON PLATE.
- NO FITTINGS OR PIPING CONNECTIONS SHALL BE INSTALLED UNDERSLAB.
- GAS PIPING IS TO BE WELDED IN CONCEALED SPACES.
- REFER TO THE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES TO INDIVIDUAL FIXTURES.
- COORDINATE CONCRETE PENETRATIONS WITH STRUCTURAL DRAWINGS TO VERIFY HOW AND WHERE CONCRETE CAN BE CUT.
- EXPOSED PIPING SHALL BE PAINTED PER ARCHITECTURAL OR PROVIDED WITH A PVC COATED JACKET IN THE COLOR OF THE ARCHITECT'S CHOOSING. CONTRACTOR TO CLEAN AND DRY PIPING PRIOR TO PAINTING.
- SANITARY SEWER, RAINWATER, AND OTHER DRAIN PIPING SHALL BE INSTALLED AT A MINIMUM 1/4" PER FOOT (2%) SLOPE IN DIRECTION OF FLOW, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

KEY NOTES:

- 4" SAN UP TO WATER CLOSET, 2" V UP.
- 3" SAN UP TO URINAL, 1-1/2" V UP.
- 2" SAN UP TO LAVATORY.
- 2" SAN UP TO FLOOR DRAIN, 1-1/2" V UP.
- NEW 4" SAN, REFER TO CIVIL SITE UTILITY PLAN FOR CONTINUATION. COORDINATE INV. ELEVATION.
- PEX PIPING BELOW SLAB TO LAVATORY TRAP TAILPIECE. SEE DETAIL P001.03.



2 ENLARGED UNDERSLAB PLAN
1/4" = 1'-0"



NOTE:
SYMBOL DENOTES APROX CONNECTION OF NEW TO EXISTING, FIELD VERIFICATION REQUIRED

1 FIRST FLOOR PLUMBING PLAN
3/16" = 1'-0"

- PLUMBING GENERAL NOTES**
- A. PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT, VALVES, AND OTHER DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH ARCHITECT AND ENGINEER.
 - B. PROVIDE TRAP SEALS FOR FLOOR DRAINS AND FLOOR SINKS. LOCATE TRAP PRIMERS IN A VALVE BOX AS INDICATED ON PLAN.
 - D. INSTALL ACCESSIBLE PLUMBING FIXTURES IN COMPLIANCE WITH ADA REQUIREMENTS. INSULATE EXPOSED PIPING BELOW ADA ACCESSIBLE FIXTURES.
 - E. INSTALL FLOOR DRAIN STRAINERS AND CLEANOUT COVERS FLUSH AND LEVEL WITH FINISHED FLOOR.
 - F. PIPING SHALL BE IDENTIFIED WITH PIPE LABELS MARKED AT A MAXIMUM OF EVERY 25 FT. VALVES SHALL BE IDENTIFIED WITH BRASS OR ALUMINUM VALVE TAGS.
 - G. PROVIDE AND INSTALL PIPE GUIDES, EXPANSION JOINTS, AND HANGERS PER MANUFACTURER'S RECOMMENDATIONS.
 - H. PIPING WALL PENETRATIONS SHALL BE FINISHED WITH A CHROME ESCUTCHEON PLATE.
 - I. NO FITTINGS OR PIPING CONNECTIONS SHALL BE INSTALLED UNDERSLAB.
 - J. GAS PIPING IS TO BE WELDED IN CONCEALED SPACES.
 - K. REFER TO THE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES TO INDIVIDUAL FIXTURES.
 - L. COORDINATE CONCRETE PENETRATIONS WITH STRUCTURAL DRAWINGS TO VERIFY HOW AND WHERE CONCRETE CAN BE CUT.
 - M. EXPOSED PIPING SHALL BE PAINTED PER ARCHITECTURAL OR PROVIDED WITH A PVC COATED JACKET IN THE COLOR OF THE ARCHITECT'S CHOOSING. CONTRACTOR TO CLEAN AND DRY PIPING PRIOR TO PAINTING.
 - N. SANITARY SEWER, RAINWATER, AND OTHER DRAIN PIPING SHALL BE INSTALLED AT A MINIMUM 1/4" PER FOOT (2%) SLOPE IN DIRECTION OF FLOW. UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

- KEY NOTES:**
- 1. 1" DCW, 2" V DN TO WATER CLOSET.
 - 2. 3/4" DCW, 1-1/2" V DN TO URINAL.
 - 3. 3/4" DCW, 3/4" DHW, 3/4" DHWR AND 1-1/2" V DN TO LAVATORY. PROVIDE MANUAL BALANCING VALVE SET TO 0.5 GPM.
 - 4. 3/4" DCW, 1-1/2" VENT DN TO DRINKING FOUNTAIN.
 - 5. 4" SAN UP TO WATER CLOSET, 2" V UP.
 - 6. 3" SAN UP TO URINAL, 1-1/2" V UP.
 - 7. 2" SAN UP TO LAVATORY.
 - 8. 2" SAN UP TO FLOOR DRAIN, 1-1/2" V UP.
 - 9. CONNECT NEW SAN TO EXISTING MAIN OF MINIMUM OF 4". FIELD COORDINATE EXACT CONNECTION LOCATION.
 - 10. PEX PIPING TO LAVATORY TRAP TAILPIECE. SEE DETAIL P001.03.
 - 11. CONNECT TO EXISTING 2" BUILDING SUPPLY DCW PIPING. FIELD COORDINATE EXACT CONNECTION LOCATION.



CITY OF UKIAH
BANK OF AMERICA
ADA BARRIER REMOVAL
501 SOUTH STATE ST. UKIAH, CA 95482

Revisions:

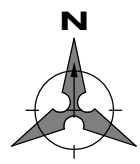
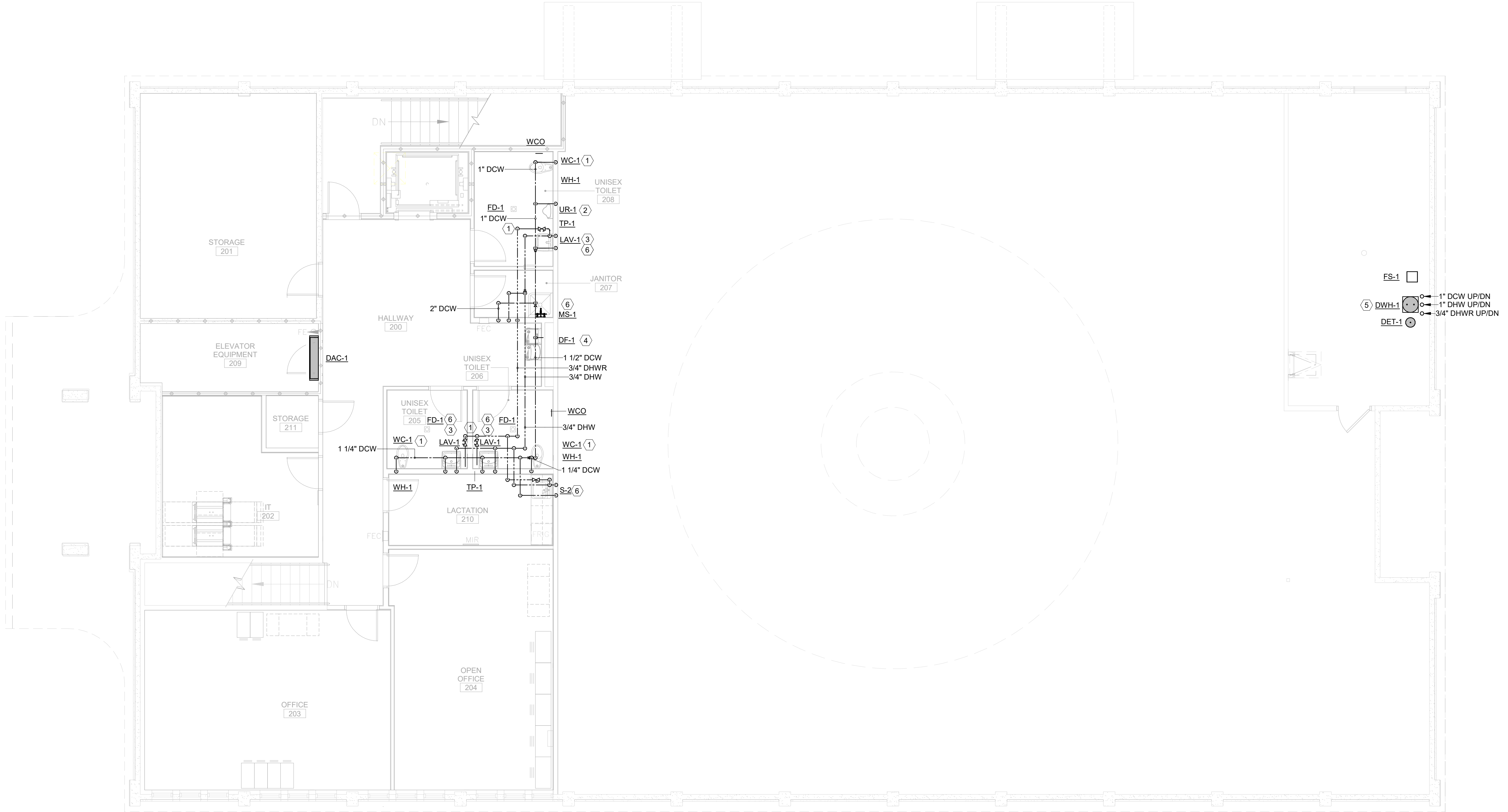
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Sheet Title:

FIRST FLOOR
PLUMBING PLAN

SheetNumber:

P102



PLUMBING GENERAL NOTES

- PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT, VALVES, AND OTHER DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH ARCHITECT AND ENGINEER.
- PROVIDE TRAP SEALS FOR FLOOR DRAINS AND FLOOR SINKS.
- PROVIDE TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS. LOCATE TRAP PRIMERS IN A VALVE BOX AS INDICATED ON PLAN.
- INSTALL ACCESSIBLE PLUMBING FIXTURES IN COMPLIANCE WITH ADA REQUIREMENTS. INSULATE EXPOSED PIPING BELOW ADA ACCESSIBLE FIXTURES.
- INSTALL FLOOR DRAIN STRAINERS AND CLEANOUT COVERS FLUSH AND LEVEL WITH FINISHED FLOOR.
- PIPING SHALL BE IDENTIFIED WITH PIPE LABELS MARKED AT A MAXIMUM OF EVERY 25 FT. VALVES SHALL BE IDENTIFIED WITH BRASS OR ALUMINUM VALVE TAGS.
- PROVIDE AND INSTALL PIPE GUIDES, EXPANSION JOINTS, AND HANGERS PER MANUFACTURER'S RECOMMENDATIONS.
- PIPING WALL PENETRATIONS SHALL BE FINISHED WITH A CHROME ESCUTCHEON PLATE.
- NO FITTINGS OR PIPING CONNECTIONS SHALL BE INSTALLED UNDERSLAB.
- GAS PIPING IS TO BE WELDED IN CONCEALED SPACES.
- REFER TO THE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES TO INDIVIDUAL FIXTURES.
- COORDINATE CONCRETE PENETRATIONS WITH STRUCTURAL DRAWINGS TO VERIFY HOW AND WHERE CONCRETE CAN BE CUT.
- EXPOSED PIPING SHALL BE PAINTED PER ARCHITECTURAL OR PROVIDED WITH A PVC COATED JACKET IN THE COLOR OF THE ARCHITECT'S CHOOSING. CONTRACTOR TO CLEAN AND DRY PIPING PRIOR TO PAINTING.
- SANITARY SEWER, RAINWATER, AND OTHER DRAIN PIPING SHALL BE INSTALLED AT A MINIMUM 1/4" PER FOOT (2%) SLOPE IN DIRECTION OF FLOW. UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

KEY NOTES:

- 1" DCW, 2" V DN TO WATER CLOSET.
- 3/4" DCW, 1-1/2" V DN TO URINAL.
- 3/4" DCW, 3/4" DHW, AND 1-1/2" V DN TO LAVATORY.
- 3/4" DCW, 1-1/2" VENT DN TO DRINKING FOUNTAIN.
- WATER HEATER TO BE INSTALLED IN SECOND FLOOR STORAGE MEZZANINE. REFER TO DETAIL P001.2. FIELD COORDINATE EXACT INSTALLATION LOCATION WITH ELECTRICAL TRADES.
- MANUAL BALANCING VALVE SET TO 0.5 GPM. PROVIDE VALVE IN ACCESSIBLE LOCATION OR PROVIDE ACCESS PANEL.

1 SECOND FLOOR PLUMBING PLAN

3/16" = 1'-0"

Revisions:

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SECOND FLOOR
PLUMBING PLAN

Sheet Number:

P103



PLUMBING GENERAL NOTES

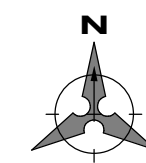
- PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT, VALVES, AND OTHER DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH ARCHITECT AND ENGINEER.
- PROVIDE TRAP SEALS FOR FLOOR DRAINS AND FLOOR SINKS.
- PROVIDE TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS. LOCATE TRAP PRIMERS IN A VALVE BOX AS INDICATED ON PLAN.
- INSTALL ACCESSIBLE PLUMBING FIXTURES IN COMPLIANCE WITH ADA REQUIREMENTS. INSULATE EXPOSED PIPING BELOW ADA ACCESSIBLE FIXTURES.
- INSTALL FLOOR DRAIN STRAINERS AND CLEANOUT COVERS FLUSH AND LEVEL WITH FINISHED FLOOR.
- PIPING SHALL BE IDENTIFIED WITH PIPE LABELS MARKED AT A MAXIMUM OF EVERY 25 FT. VALVES SHALL BE IDENTIFIED WITH BRASS OR ALUMINUM VALVE TAGS.
- PROVIDE AND INSTALL PIPE GUIDES, EXPANSION JOINTS, AND HANGERS PER MANUFACTURER'S RECOMMENDATIONS.
- PIPING WALL PENETRATIONS SHALL BE FINISHED WITH A CHROME ESCUTCHEON PLATE.
- NO FITTINGS OR PIPING CONNECTIONS SHALL BE INSTALLED UNDERSLAB.
- GAS PIPING IS TO BE WELDED IN CONCEALED SPACES.
- REFER TO THE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES TO INDIVIDUAL FIXTURES.
- COORDINATE CONCRETE PENETRATIONS WITH STRUCTURAL DRAWINGS TO VERIFY HOW AND WHERE CONCRETE CAN BE CUT.
- EXPOSED PIPING SHALL BE PAINTED PER ARCHITECTURAL OR PROVIDED WITH A PVC COATED JACKET IN THE COLOR OF THE ARCHITECT'S CHOOSING. CONTRACTOR TO CLEAN AND DRY PIPING PRIOR TO PAINTING.
- SANITARY SEWER, RAINWATER, AND OTHER DRAIN PIPING SHALL BE INSTALLED AT A MINIMUM 1/4" PER FOOT (2%) SLOPE IN DIRECTION OF FLOW. UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

KEY NOTES:

- ROUTE CONDENSATE FROM OAC-1 AND CRAC UNITS (BY OTHERS) TO LAVATORY IN RESTROOM. FIELD COORDINATE CONDENSATE DRAIN FROM CRAC UNIT.

1 SECOND FLOOR DWV PLUMBING PLAN

3/16" = 1'-0"



Revisions:

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Sheet Title:

SECOND FLOOR
PLUMBING PLAN

Sheet Number:

P104

Revisions:

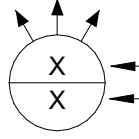
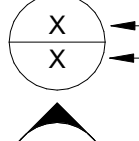
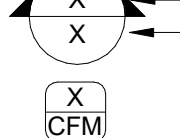
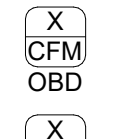
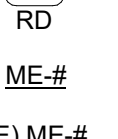
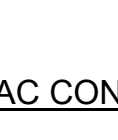
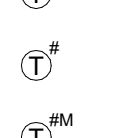
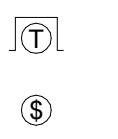
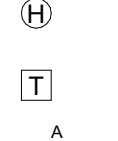
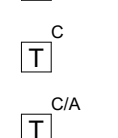
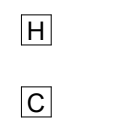
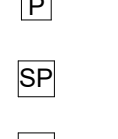
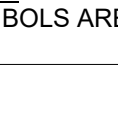
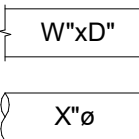
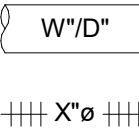
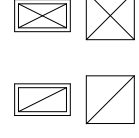
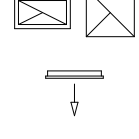
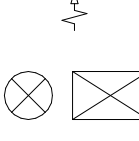
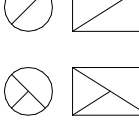
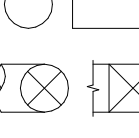
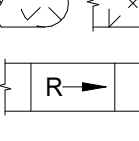
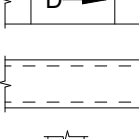
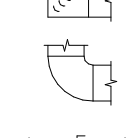
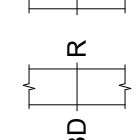
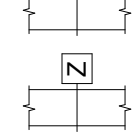
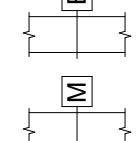
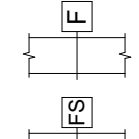
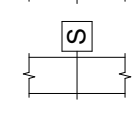
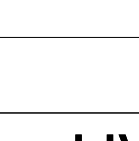
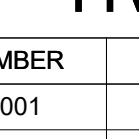
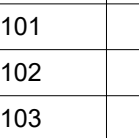
Client Project Number: 6305.007
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Sheet Title:

MECHANICAL
LEGENDS

SheetNumber:

M001

ABBREVIATIONS			MECHANICAL LEGEND		
ACC	AIR COOLED CONDENSER	ID	INSIDE DIAMETER	ANNOTATION SYMBOLS	
ACU	AIR CONDITIONING UNIT	IFB	INTEGRAL FACE & BYPASS		
AD	ACCESS DOOR	IGV	INLET GUIDE VANES		
ADJ	ADJUSTABLE	IPS	IRON PIPE SIZE		
AF	AIR FOIL	IU	INDUCTION UNIT		
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS		
AFG	ABOVE FINISHED GRADE	KWH	KILOWATT HOUR		
AFR	ABOVE FINISHED ROOF	LAT	LEAVING AIR TEMPERATURE (°F)		
AFS	AIR FLOW STATION	LF	LINEAR FEET		
AHU	AIR HANDLING UNIT	LWT	LEAVING WATER TEMPERATURE (°F)		
AP	ACCESS PANEL	M	MOTOR OPERATED		
ATC	AUTOMATIC TEMPERATURE CONTROL	MAU	MAKEUP AIR UNIT		
ATM	ATMOSPHERE	MB	MIXING BOX		
AWG	AMERICAN WIRE GAUGE	MBH	1000 BTU/HR		
B	BOILER	MC	MECHANICAL CONTRACTOR		
BB	BASEBOARD	MFR	MANUFACTURER		
BC	BACKWARD CURVED	MS	MINI-SPLIT		
BD	BACKDRAFT DAMPER	NC	NOISE CRITERIA		
BF	BOILER FEED	NC	NORMALLY CLOSED		
BHP	BRAKE HORSEPOWER	NIC	NOT IN CONTRACT		
BI	BACKWARD INCLINED	NO	NORMALLY OPEN		
BMS	BUILDING MANAGEMENT SYSTEM	NPS	NOMINAL PIPE SIZE		
BOD	BOTTOM OF DUCT	OA	OUTSIDE AIR		
BOJ	BOTTOM OF JOIST	OAD	OUTSIDE AIR DAMPER		
BOS	BOTTOM OF STEEL	OBD	OPPOSED BLADE DAMPER	HVAC CONTROL SYMBOLS	
BTU	BRITISH THERMAL UNIT	P	PUMP		
C	COMMON	PC	PLUMBING CONTRACTOR		THERMOSTAT
CAV	CONSTANT AIR VOLUME	PD	PRESSURE DROP		ZONED THERMOSTAT
CC	COOLING COIL	PH	PHASE		ZONED THERMOSTAT - MASTER
CCW	COUNTER CLOCKWISE	PHC	PREHEAT COIL		THERMOSTAT W/ LOCKABLE COVER
CFM	CUBIC FEET PER MINUTE	PPM	PART PER MILLION		WALL SWITCH
CH	CHILLER	PROP	PROPELLER		HUMIDISTAT
C&I	CONTROLS & INSTRUMENTATION	PRV	PRESSURE REDUCING VALVE		ROOM TEMPERATURE SENSOR
CLG	CEILING	PSIA	PSI, ABSOLUTE		ADJUSTABLE ROOM TEMPERATURE SENSOR
CMU	CONCRETE MASONRY UNIT	PSIG	PSI, GAUGE		COMBO ROOM TEMPERATURE & CO2 SENSOR
CND	CONDENSATE	QTY	QUANTITY		ADJUSTABLE COMBO ROOM TEMP & CO2 SENSOR
CONT	CONTINUATION	R	REGISTER		ROOM HUMIDITY SENSOR
CORR	CORRIDOR	RA	RETURN AIR		ROOM CO2 SENSOR
CT	COOLING TOWER	RD	RADIAL DAMPER		BUILDING PRESSURE SENSOR
CU	CONDENSING UNIT	RF	RETURN/RELIEF AIR FAN		STATIC PRESSURE SENSOR
CH	CABINET HEATER	RH	RELATIVE HUMIDITY		DIFFERENTIAL PRESSURE SENSOR
CV	CONTROL VALVE	RHC	REHEAT COIL		CARBON MONOXIDE / NITRIC OXIDE SENSOR
CVS	CONTROL VALVE STATION	SA	SUPPLY AIR	HVAC DUCTWORK	
CW	CLOCKWISE	SAF	SUPPLY AIR FAN		
dB	DECIBEL	SC	SENSIBLE COOLER		RECTANGULAR DUCT WIDTH x DEPTH
DDC	DIRECT DIGITAL CONTROL	SCFM	CFM, STANDARD CONDITIONS		ROUND DUCT DIAMETER
DH	DUCT HEATER	SD	SMOKE DETECTOR		OVAL DUCT WIDTH/DEPTH
DP	DEW POINT TEMPERATURE (°F)	SEER	SEASONAL ENERGY EFFICIENCY RATIO		FLEXIBLE DUCT DIAMETER
DX	DIRECT EXPANSION	SENS	SENSIBLE		FLOOR/CEILING SUPPLY DIFFUSER
E	EXHAUST	SP	STATIC PRESSURE		FLOOR/CEILING RETURN GRILLE
EA	EXHAUST AIR	SPS	STATIC PRESSURE SENSOR		FLOOR/CEILING EXHAUST GRILLE
EAT	ENTERING AIR TEMPERATURE (°F)	SS	STAINLESS STEEL		SIDEWALL SUPPLY DIFFUSER
EC	ELECTRICAL CONTRACTOR	T	THERMOSTAT		SIDEWALL RETURN/EXHAUST GRILLE
EDR	EQUIVALENT DIRECT RADIATION	TA	TRANSFER AIR		SUPPLY DUCT (SECTION VIEW)
EER	ENERGY EFFICIENCY RATIO	TCC	TEMPERATURE CONTROL CONTRACTOR		RETURN DUCT (SECTION VIEW)
EF	EXHAUST FAN	TCP	TEMPERATURE CONTROL PANEL		EXHAUST DUCT (SECTION VIEW)
EFF	EFFICIENCY	TG	TRANSFER GRILL		OUTDOOR AIR DUCT (SECTION VIEW)
ELEV	ELEVATION	TOD	TOP OF DUCT		DUCT UP (PLAN VIEW)
ERV	ENERGY RECOVERY VENTILATOR	TOP	TOP OF PIPE		DUCT DOWN (PLAN VIEW)
ESP	EXTERNAL STATIC PRESSURE	TOS	TOP OF STEEL		INCLINED RISE - IN DIRECTION OF AIRFLOW
ET	EXPANSION TANK	TSP	TOTAL STATIC PRESSURE		INCLINED DROP - IN DIRECTION OF AIRFLOW
EWI	ENTERING WATER TEMPERATURE (°F)	TYP	TYPICAL		INTERNAL DUCT LINING
F&T	FLOAT & THERMOSTATIC	UH	UNIT HEATER		ELBOW WITH TURNING VANES
FA	FACE AREA	UNC	UNDERCUT		RADIUS ELBOW
FC	FORWARD CURVED	UV	UNIT VENTILATOR		MANUAL VOLUME DAMPER
FC	FAN COIL	VA	VOLT-AMPERE		REMOTE VOLUME DAMPER
FP	FIRE PROTECTION	VAV	VARIABLE AIR VOLUME		BACKDRAFT DAMPER
FFM	FEET PER MINUTE	VD	VOLUME DAMPER		ZONE DAMPER
FT	FEET	VEL	VELOCITY		BYPASS DAMPER
GA	GAUGE OR GAGE	VFD	VARIABLE FREQUENCY DRIVE		MOTORIZED DAMPER
GC	GENERAL CONTRACTOR	VRF	VARIABLE REFRIGERANT FLOW		FIRE DAMPER
GEN	GENERATOR	WB	WET BULB TEMPERATURE (°F)		FIRE/SMOKE DAMPER
GH	GRAVITY HOOD	WC	WATER COLUMN		SMOKE DAMPER
GPD	GALLONS PER DAY	WG	WATER GAUGE	NOTE: THIS IS A STANDARD LEGEND. NOT ALL PIPE TYPES AND SYMBOLS ARE NECESSARILY UTILIZED IN THE DRAWINGS.	
GPH	GALLONS PER HOUR	WSHP	WATER SOURCE HEAT PUMP		
GPM	GALLONS PER MINUTE	ΔT	TEMPERATURE DIFFERENCE (°F)		
H	HUMIDIFIER				
HC	HEATING COIL				
HG	MERCURY				
HOA	HAND-OFF-AUTOMATIC				
HP	HORSEPOWER				
HR	HOUR				
HX	HEAT EXCHANGER				

HVAC SHEET INDEX	
NUMBER	SHEET NAME
M001	MECHANICAL LEGENDS
M002	MECHANICAL DETAILS & SCHEDULES
M101	FIRST FLOOR MECHANICAL PLAN
M102	SECOND FLOOR MECHANICAL PLAN
M103	ROOF MECHANICAL PLAN

DUCTLESS MINI-SPLIT SYSTEM SCHEDULE											
ACCESSORIES: 1. ALL STANDARD ACCESSORIES 2. FILTER KIT 3. ULTRA LOW AMBIENT KIT, COOLING OPERATING LIMIT -40°F TO 115°F						CONTROLS: 1. FACTORY PROVIDED CONTROLS - NO INTERCONNECTION TO THE DDC SYSTEM. 2. T.C.C. SHALL INDEPENDENTLY MONITOR THE SPACE TEMPERATURE. SEE POINTS/SEQUENCES FOR MORE INFORMATION.			ELECTRICAL DATA: SEE MEP COORDINATION SCHEDULE FOR STARTER/DISCONNECT AND ALL OTHER ELEC. DATA.		
INDOOR COOLING UNIT						OUTDOOR CONDENSING UNIT				MANUF.	NOMINAL COOLING CAPACITY (MBH)
MARK	MODEL	TYPE	RATED / SENSIBLE CAPACITY (BTU/HR)	EER / SEER	WEIGHT (LBS)	MARK	MODEL	TYPE	WEIGHT (LBS)		
DAC-1	FTX36NVJU	WALL MOUNT UNIT	36,000/34,400	9.85/17.5	38	DCU-1	RX36NMVJUA	SINGLE ZONE AHU	133	Daikin	34.4

MEP COORDINATION SCHEDULE											
CONTROL TYPE:			DISCONNECT/STARTER TYPE:			DIVISION OF RESPONSIBILITIES:					
BAS	BUILDING AUTOMATION SYSTEM		CB	PANELBOARD CIRCUIT BREAKER WITHIN SIGHT OF EQUIPMENT		22/22	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 22				
CO	CARBON MONOXIDE DETECTOR		CSFD	COMBINATION STARTER/DISCONNECT - HOA		22/26	FURNISHED AND INSTALLED BY DIV. 22, WIRED BY DIV. 26				
CONT	CONTINUOUS OPERATION		FD	FUSED DISCONNECT		23/23	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 23				
EF	INTERLOCK WITH EXHAUST FAN		FST	FUSTAT		23/26	FURNISHED AND INSTALLED BY DIV. 23, WIRED BY DIV. 26				
HCP	HOOD CONTROL PANEL		FW	FACTORY-WIRED SINGLE POINT CONNECTION		26/26	FURNISHED AND INSTALLED BY DIV. 26, WIRED BY DIV. 26				
INT	INTEGRAL		MOCP	MOTOR OVER-CURRENT PROTECTION							
L	LIGHT SWITCH		MSS	MANUAL STARTER SWITCH WITH THERMAL OVERLOADS (1-, 2- OR 3-POLE AS REQUIRED)							
MS	MANUAL SWITCH		NFD	NON-FUSED DISCONNECT							
OS	OCCUPANCY SENSOR		RCPT	20A DUPLEX RECEPTACLE (GFCI PROTECTED AS REQUIRED), CORD AND PLUG							
PS	PRESSURE SWITCH		RVSS	REDUCED VOLTAGE SOLID-STATE							
T	THERMOSTAT		VFD	VARIABLE FREQUENCY DRIVE - HOA							
TC	TIME CLOCK		N/A	NOT APPLICABLE							
UC	UNIT CONTROLLER										
VE	VEHICLE EXHAUST DETECTION SYSTEM										
N/A	NOT APPLICABLE										
GENERAL NOTES:											
A. CONTROL WIRING SHALL BE CONCEALED WITHIN WALL CONSTRUCTION, ABOVE CEILING, OR RUN IN CONDUIT. EXPOSED CONTROL WIRING IS UNACCEPTABLE.											
B. UNLESS SPECIFICALLY NOTED, ALL FEEDERS SHALL INCLUDE A FULL SIZE NEUTRAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY WITH THE MANUFACTURER OF THE ACTUAL EQUIPMENT BEING SUPPLIED WHETHER A NEUTRAL IS REQUIRED PRIOR TO ROUGH-IN.											
C. ALL DUCT SMOKE DETECTORS FURNISHED BY DIV. 26, INSTALLED BY DIV. 23, AND WIRED BY DIV. 26. DIV. 26 SHALL WIRE ALL FANS TO SHUT DOWN WHEN ALARM IS INITIATED BY ANY DUCT SMOKE DETECTOR.											
MARK	DESCRIPTION				ELECTRICAL DATA		CONTROL		NOTES		
					LOAD	VOLT-PHASE	TYPE	DIV			
DAC-1	DUCTLESS AC CONDENSER				MCA 19.8 / MOCP 20	208-1	UC	23/23			
DCU-1	SINGLE ZONE AHU				FROM OUTDOOR UNIT	208-1	T	23/23			
DWH-1	DOMESTIC HOT WATER HEATER				1500 W	120-1	INT	22/26			
PP-1	HOT WATER RECIRCULATION PUMP				0.43 A	120-1	INT	22/26	4		

GRILLE, REGISTER AND DIFFUSER SCHEDULE														
GRD REMARKS: 1. SUBMITTAL DATA SHALL INCLUDE N.C., THROW, VELOCITY, AND PRESSURE DROP AS WELL AS ALL PHYSICAL AND INSTALLATION DATA. 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FITTINGS AND ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. 3. N.C. VALUES IN SCHEDULE ARE VALID FOR SCHEDULE AIRFLOW ONLY AND REPRESENT A MAXIMUM ACCEPTABLE VALUE. SUBSTITUTE EQUIPMENT SHALL HAVE N.C. VALUE EQUAL TO OR BELOW THE VALUE SCHEDULE.						ACCESSORY REMARKS: 1. PROVIDE FRAME FOR INSTALLATION IN RELEVANT CEILING TYPE. REFER TO ARCHITECTURAL RCP FOR CEILING TYPE. 2. PAINT INTERIOR OF VISIBLE RETURN DUCTS & PLENUMS BLACK. 3. COORDINATE LINEAR SLOT WIDTHS WITH THE WIDTH OF THE WOOD SLAT CEILINGS THEY WILL BE INSTALLED IN PRIOR TO ORDERING. 4. PROVIDE MANUAL BALANCING DAMPER AT LOCATIONS WHERE A SPECIFIED AIR VOLUME IS SHOWN.						5. PROVIDE RUSKIN MODEL CFD7T CEILING RADIATION DAMPER FOR SQUARE NECK DIFFUSERS AND MODEL CFD7RT FOR ALL ROUND NECK DIFFUSERS INSTALLED IN A FIRE RATED CEILING ASSEMBLY. CEILING RADIATION DAMPER TO MEET UL 55C LISTING R8039. 6. PROVIDE PRICE MODEL VCS3 OPPOSED BLADE DAMPER (OBD) WHERE INDICATED ON THE FLOOR PLANS. BALANCE TO AIRFLOW SPECIFIED. 7. PROVIDE PRICE MODEL VCR9 RADIAL DAMPER (RD) WHERE INDICATED ON THE FLOOR PLANS. BALANCE TO THE AIRFLOW SPECIFIED.		
MARK	MANUF.	MODEL	DESCRIPTION	NECK SIZE	FUNCTION	MAX AIRFLOW (CFM)	PERFORMANCE DATA AT MAX CFM					MOUNTING & FINISH		
							N.C.	PRESSURE DROP (IN WC)	THROW AT 50 FPM (FT)	VELOCITY (FPM)	THROW DIRECTION	MOUNTING	MATERIAL	FINISH
E-1	PRICE	535	45" BLADES @ 1/2"	6" x 6"	EXHAUST	100	19	0.10	-	522	-	SURFACE	STEEL	WHITE
E-2	PRICE	535	45" BLADES @ 1/2"	6" x 6"	EXHAUST	100	19	0.10	-	522	-	LAY-IN W/ PAN	STEEL	WHITE
E-3	PRICE	535	45" BLADES @ 1/2"	8" x 8"	EXHAUST	190	21	0.10	-	521	-	LAY-IN W/ PAN	STEEL	WHITE
R-1	PRICE	535	45" BLADES @ 1/2"	10" x 10"	RETURN	300	22	0.10	-	505	-	LAY-IN W/ PAN	STEEL	WHITE
R-2	PRICE	535	45" BLADES @ 1/2"	12" x 12"	RETURN	450	24	0.10	-	512	-	LAY-IN W/ PAN	STEEL	WHITE
R-3	PRICE	535	45" BLADES @ 1/2"	12" x 12"	RETURN	450	24	0.10	-	512	-	SURFACE	STEEL	WHITE
R-4	PRICE	535	45" BLADES @ 1/2"	20" x 20"	RETURN	1150	25	0.08	-	447	-	LAY-IN W/ PAN	STEEL	WHITE
S-1	PRICE	SMCD	MODULAR CORE DIFFUSER	6" x 6"	SUPPLY	125	< 20	0.06	12-43	500	4-WAY ADJUSTABLE	SURFACE	STEEL	WHITE
S-2	PRICE	SMCD	MODULAR CORE DIFFUSER	6" x 6"	SUPPLY	125	< 20	0.06	12-43	500	4-WAY ADJUSTABLE	LAY-IN W/ PAN	STEEL	WHITE
S-3	PRICE	SMCD	MODULAR CORE DIFFUSER	8" x 8"	SUPPLY	225	15	0.06	16-48	506	4-WAY ADJUSTABLE	LAY-IN W/ PAN	STEEL	WHITE
S-4	PRICE	SMCD	MODULAR CORE DIFFUSER	10" x 10"	SUPPLY	350	16	0.06	19-53	504	4-WAY ADJUSTABLE	SURFACE	STEEL	WHITE
S-5	PRICE	SMCD	MODULAR CORE DIFFUSER	10" x 10"	SUPPLY	350	16	0.06	19-53	504	4-WAY ADJUSTABLE	LAY-IN W/ PAN	STEEL	WHITE
S-6	PRICE	SMCD	MODULAR CORE DIFFUSER	12" x 12"	SUPPLY	500	18	0.06	21-56	500	4-WAY ADJUSTABLE	LAY-IN W/ PAN	STEEL	WHITE

Revisions:

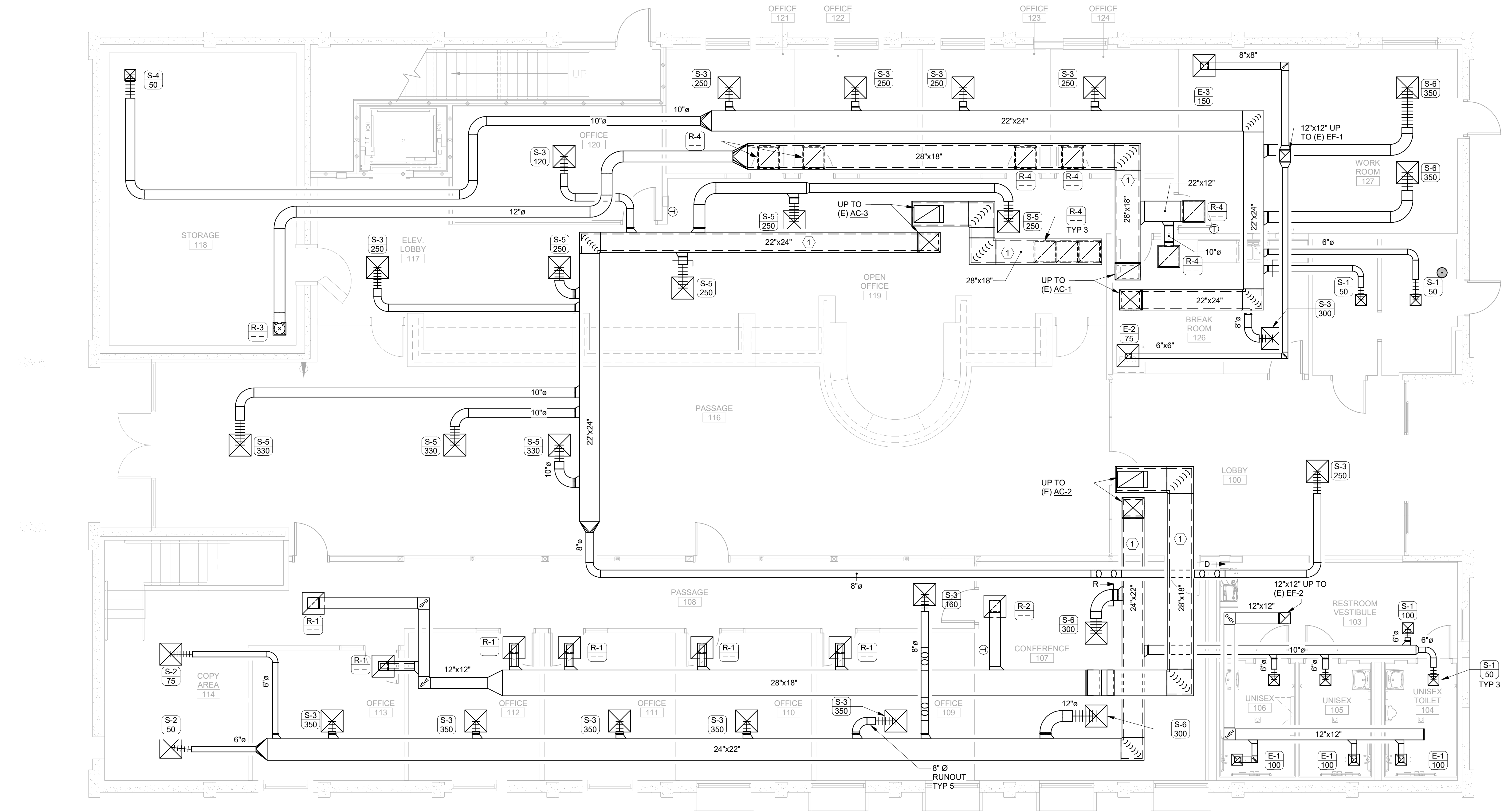
Client Project Number: 6305.007
KPA Project Number: 740.00
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

MECHANICAL
DETAILS &
SCHEDULES

SheetNumber:

M002



MECHANICAL GENERAL NOTES

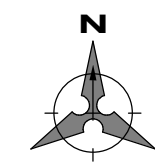
- VERIFY THE LOCATION OF THERMOSTATS AND SENSORS WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. INSTALL THERMOSTATS 48" ABOVE FINISHED FLOOR PER ADA REQUIREMENTS.
- PROVIDE AND INSTALL SEISMIC BRACING FOR EQUIPMENT, DUCTWORK AND PIPING PER THE REQUIREMENTS OF THE CURRENTLY ADOPTED INTERNATIONAL BUILDING CODE.
- FLEXIBLE DUCTWORK BETWEEN BRANCH DUCTS AND GRILLES, REGISTERS, OR DIFFUSERS SHALL BE LIMITED TO 5 FT. FLEXIBLE DUCT SHALL NOT BE USED IN PLACE OF ELBOWS.
- PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION FIRE/SMOKE DAMPERS WHERE DUCTWORK PASSES THROUGH RATED ASSEMBLIES. ASSOCIATED DUCT DETECTORS SHALL BE ADDRESSABLE. SMOKE DAMPERS AND COMBINATION SMOKE/FIRE DAMPERS SHALL INCLUDE A KEYED REMOTE TEST SWITCH LOCATED IN AN ACCESSIBLE LOCATION. FIELD COORDINATE THE LOCATION OF TEST SWITCHES WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
- SEAL DUCT AND PIPE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH A UL-APPROVED FIRE STOP SYSTEM.
- PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT. VALVES, DAMPERS AND DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS, COORDINATE SUCH INSTALLATIONS WITH THE ARCHITECT AND ENGINEER.
- EXPOSED DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL AND PAINTED PER ARCHITECTURAL. CONTRACTOR TO CLEAN AND DRY DUCTWORK PRIOR TO PAINTING.

KEY NOTES:

- DUCTWORK SHOWN WITH DASHED LINES IS TO BE INTERNALLY LINED WITH 1" DUCT LINER FOR SOUND ATTENUATION. DUCT DIMENSIONS SHOWN HAVE BEEN SIZE TO ACCOUNT FOR LINING.

SCOPE OF WORK:

- SEE ARCH. SHEET AD111 FOR DEMOLITION WORK.
- DEMOLISH DUCTWORK BACK TO EACH RTU. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW OF POSSIBLE REUSE OF EXISTING DUCTWORK.



1 FIRST FLOOR MECHANICAL PLAN

3/16" = 1'-0"

Revisions:

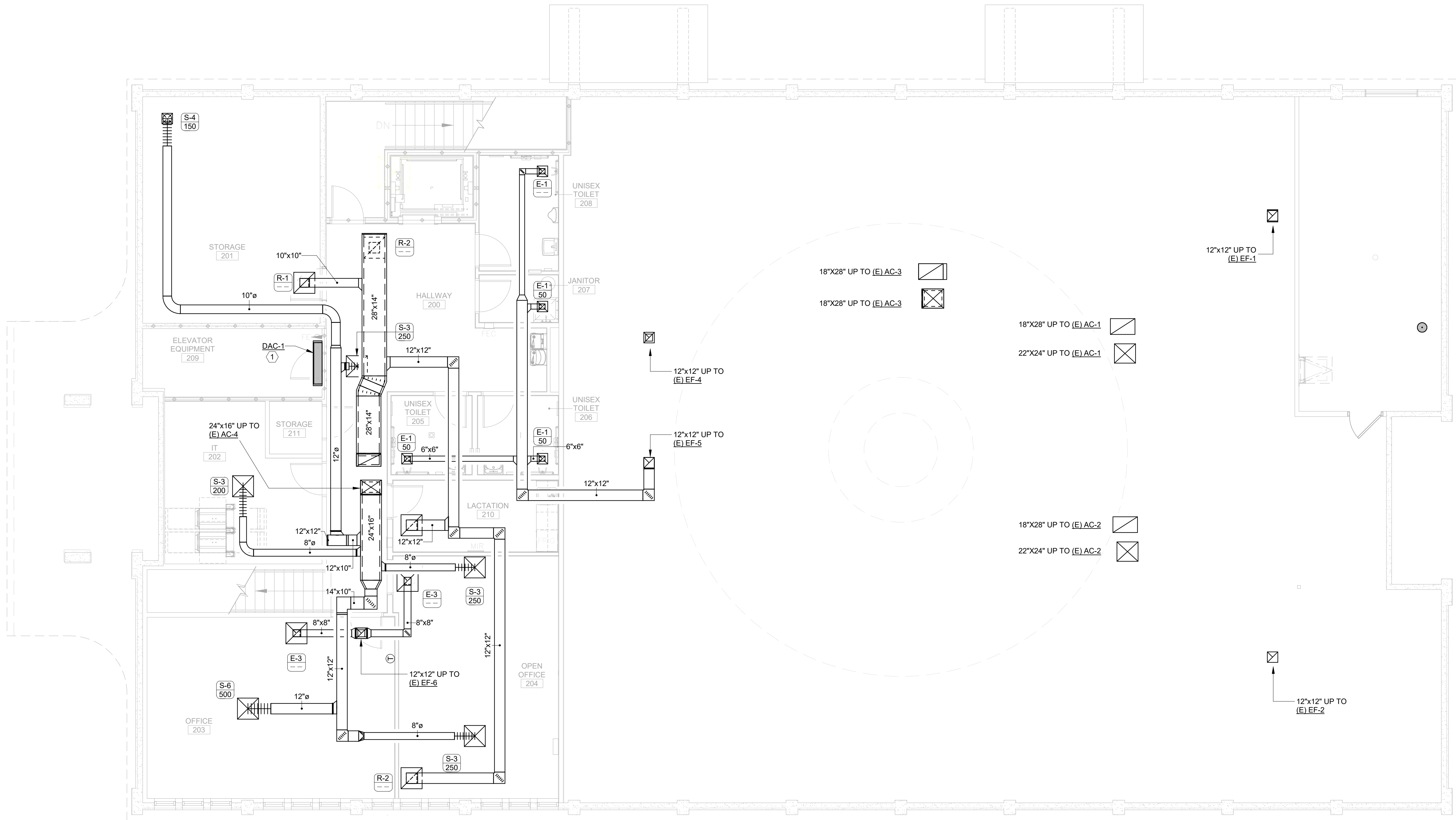
Client Project Number: 6305.007
KPA Project Number: 740.00
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

FIRST FLOOR
MECHANICAL PLAN

SheetNumber:

M101



MECHANICAL GENERAL NOTES

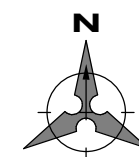
- VERIFY THE LOCATION OF THERMOSTATS AND SENSORS WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. INSTALL THERMOSTATS 48" ABOVE FINISHED FLOOR PER ADA REQUIREMENTS.
- PROVIDE AND INSTALL SEISMIC BRACING FOR EQUIPMENT, DUCTWORK AND PIPING PER THE REQUIREMENTS OF THE CURRENTLY ADOPTED INTERNATIONAL BUILDING CODE.
- FLEXIBLE DUCTWORK BETWEEN BRANCH DUCTS AND GRILLES, REGISTERS, OR DIFFUSERS SHALL BE LIMITED TO 5 FT. FLEXIBLE DUCT SHALL NOT BE USED IN PLACE OF ELBOWS.
- PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION FIRE/SMOKE DAMPERS WHERE DUCTWORK PASSES THROUGH RATED ASSEMBLIES. ASSOCIATED DUCT DETECTORS SHALL BE ADDRESSABLE. SMOKE DAMPERS AND COMBINATION SMOKE/FIRE DAMPERS SHALL INCLUDE A KEYED REMOTE TEST SWITCH LOCATED IN AN ACCESSIBLE LOCATION. FIELD COORDINATE THE LOCATION OF TEST SWITCHES WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
- SEAL DUCT AND PIPE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH A UL-APPROVED FIRE STOP SYSTEM.
- PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT. VALVES, DAMPERS AND DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH THE ARCHITECT AND ENGINEER.
- EXPOSED DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL AND PAINTED PER ARCHITECTURAL. CONTRACTOR TO CLEAN AND DRY DUCTWORK PRIOR TO PAINTING.

KEY NOTES:

- MINI SPLIT SYSTEM AIR-CONDITIONING SYSTEM. MOUNT INDOOR UNIT ABOVE DOOR (OR ON ADJACENT WALL). FIELD COORDINATE. ROUTE NEW CONDENSATE DRAIN LINE DOWN IN WALL AND TIE-IN TO SAN SEWER AS REQ'D. MOUNT OUTDOOR UNIT ON ROOF ABOVE. POWER FROM INDOOR UNIT FED FROM OUTDOOR UNIT, COORD. W/ ELECTRICAL CONTRACTOR.
- DUCTWORK SHOWN WITH DASHED LINES IS TO BE INTERNALLY LINED WITH 1" DUCT LINER FOR SOUND ATTENUATION. DUCT DIMENSIONS SHOWN HAVE BEEN SIZE TO ACCOUNT FOR LINING.

SCOPE OF WORK:

- SEE ARCH. SHEET AD111 FOR DEMOLITION WORK.
- DEMOLISH DUCTWORK BACK TO EACH RTU. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW OF POSSIBLE REUSE OF EXISTING DUCTWORK.



1 SECOND FLOOR MECHANICAL PLAN
3/16" = 1'-0"

Revisions:

Client Project Number: 6305.007
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Sheet Title:

SECOND FLOOR
MECHANICAL PLAN

SheetNumber:

M102



CITY OF UKIAH
BANK OF AMERICA
ADA BARRIER REMOVAL
501 SOUTH STATE ST. UKIAH, CA 95482

Revisions:

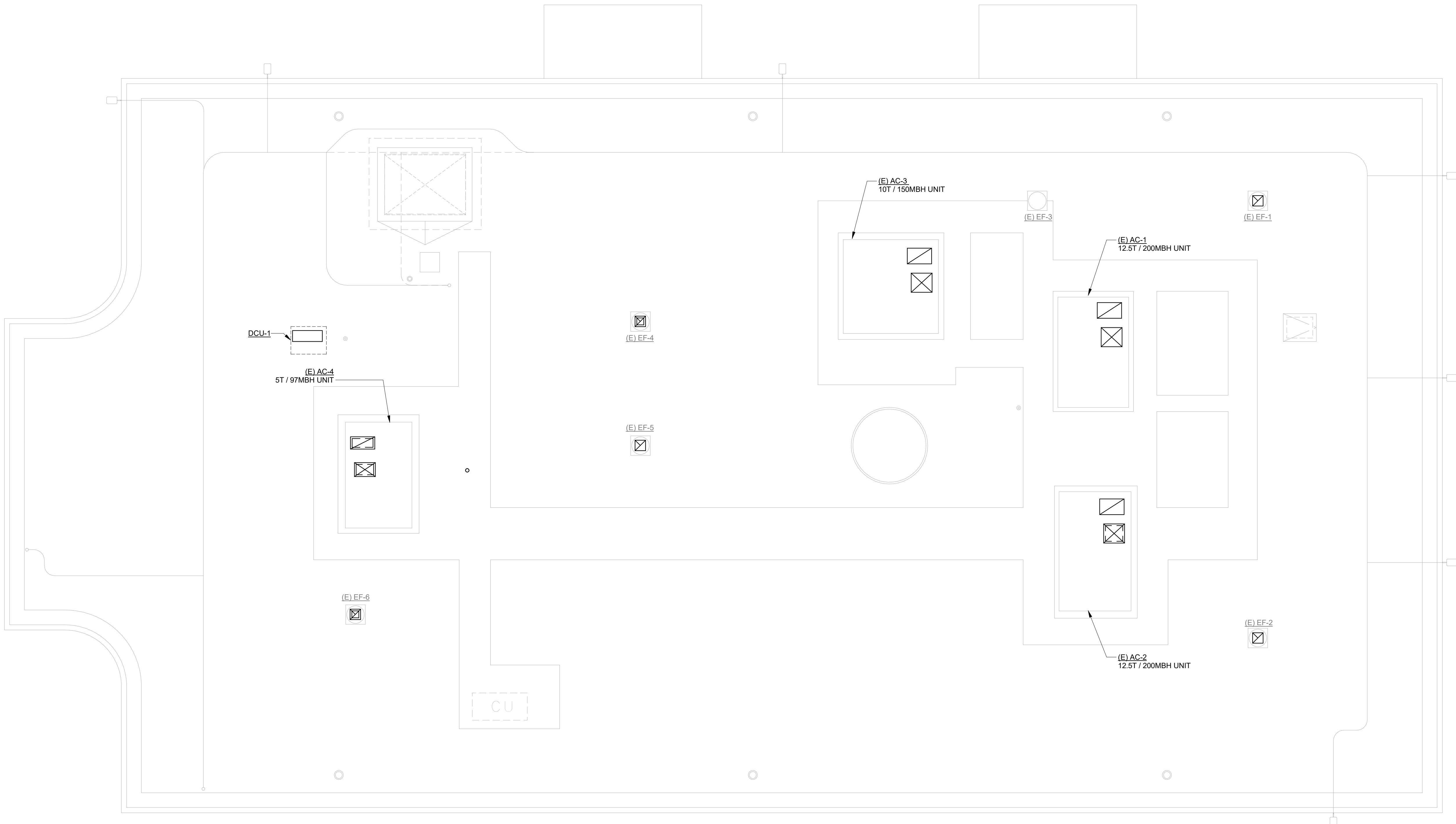
Client Project Number: 6305.007
KPA Project Number: 740.00
Date: **DEC. 19, 2024** **ISSUE FOR BID**

Sheet Title:

**ROOF MECHANICAL
PLAN**

SheetNumber:

M103



MECHANICAL GENERAL NOTES

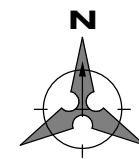
- VERIFY THE LOCATION OF THERMOSTATS AND SENSORS WITH THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION. INSTALL THERMOSTATS 48" ABOVE FINISHED FLOOR PER ADA REQUIREMENTS.
- PROVIDE AND INSTALL SEISMIC BRACING FOR EQUIPMENT, DUCTWORK AND PIPING PER THE REQUIREMENTS OF THE CURRENTLY ADOPTED INTERNATIONAL BUILDING CODE.
- FLEXIBLE DUCTWORK BETWEEN BRANCH DUCTS AND GRILLES, REGISTERS, OR DIFFUSERS SHALL BE LIMITED TO 5 FT. FLEXIBLE DUCT SHALL NOT BE USED IN PLACE OF ELBOWS.
- PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION FIRE/SMOKE DAMPERS WHERE DUCTWORK PASSES THROUGH RATED ASSEMBLIES. ASSOCIATED DUCT DETECTORS SHALL BE ADDRESSABLE. SMOKE DAMPERS AND COMBINATION SMOKE/FIRE DAMPERS SHALL INCLUDE A KEYED REMOTE TEST SWITCH LOCATED IN AN ACCESSIBLE LOCATION. FIELD COORDINATE THE LOCATION OF TEST SWITCHES WITH THE ARCHITECT AND ENGINEER PRIOR INSTALLATION.
- SEAL DUCT AND PIPE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH A UL-APPROVED FIRE STOP SYSTEM.
- PROVIDE ACCESS DOORS TO ALLOW SERVICE AND INSPECTION OF EQUIPMENT. VALVES, DAMPERS AND DEVICES INSTALLED ABOVE NON-REMOVABLE CEILINGS. COORDINATE SUCH INSTALLATIONS WITH THE ARCHITECT AND ENGINEER.
- EXPPOSED DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL AND PAINTED PER ARCHITECTURAL. CONTRACTOR TO CLEAN AND DRY DUCTWORK PRIOR TO PAINTING.

KEY NOTES:

- NOT USED.

SCOPE OF WORK:

- SEE ARCH. SHEET AD111 FOR DEMOLITION WORK.
- DEMOLISH DUCTWORK BACK TO EACH RTU. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW OF POSSIBLE REUSE OF EXISTING DUCTWORK.



1 MECHANICAL ROOF PLAN
3/16" = 1'-0"



CITY OF UKIAH
**BANK OF AMERICA
ADA BARRIER REMOVAL**
501 South State St. Ukiah, CA 95482

Revisions:

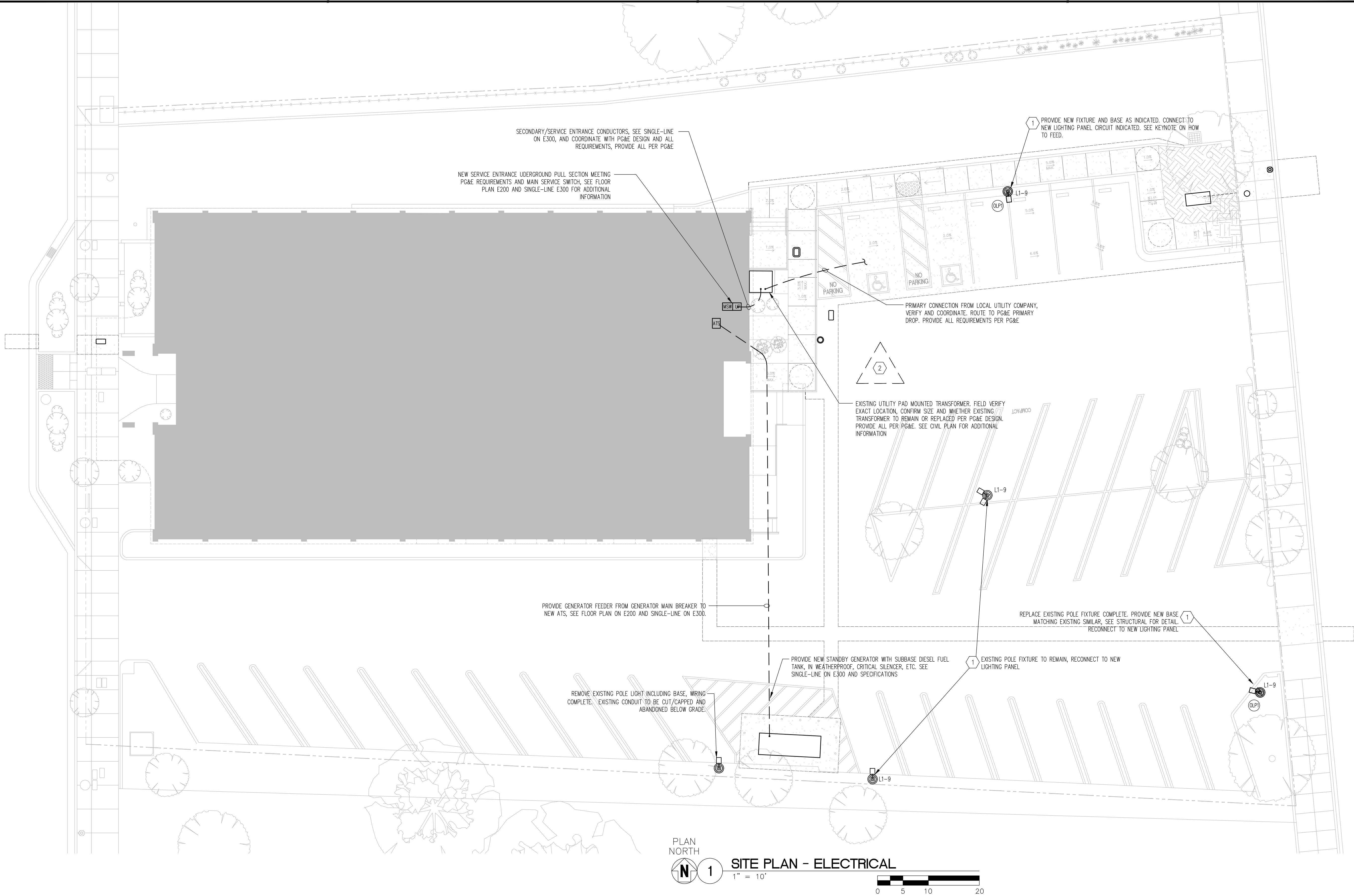
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

**SITE PLAN-
ELECTRICAL**

Sheet Number:

ES100



GENERAL NOTES - SITE ELECTRICAL

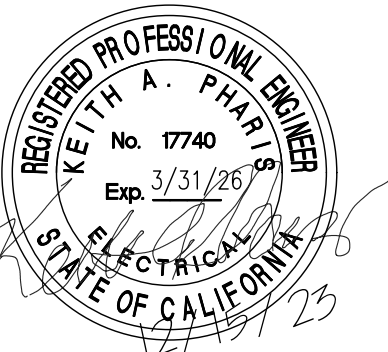
(ALL NOTES MAY NOT APPLY TO THIS SHEET)

- SEE DRAWING E000 FOR ADDITIONAL NOTES AND FIXTURE SCHEDULE FOR NEW POLE LIGHTS.
- COORDINATE EXACT LOCATIONS OF ALL EQUIPMENT WITH EXISTING CONDITIONS, CIVIL PLAN, OTHER TRADES, UTILITIES-NEW AND EXISTING, ETC.
- SEE POLE BASE DETAIL THIS DRAWING ON STRUCTURAL, INTENT TO MATCH EXISTING.
- ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC, 36" BELOW GRADE. ALL STUB-UPS/90'S SHALL TRANSITION TO BE SCHEDULE 80 PVC. COORDINATE WITH ALL OTHER UNDERGROUND UTILITIES, EXISTING CONDITIONS AND COORDINATION WITH PG&E DESIGN AND REQUIREMENTS. PG&E REQUIREMENTS TO SUPERCEDE ALL DESIGN INDICATED ON THESE PLANS. REUSE OF EXISTING CONDUITS TO POLE FIXTURE IS ACCEPTABLE.
- CONTRACTOR SHALL COORDINATE WITH PG&E AND PROVIDE ALL NECESSARY COMPONENTS FOR COMPLETE INSTALLATION PER THEIR RESPECTIVE REQUIREMENTS AND LATEST EDITIONS OF THEIR STANDARD INSTALLATION/ELECTRIC SERVICE HANDBOOKS AND DETAILS. UTILITY COMPANY SHALL MAKE FINAL DETERMINATION OF PAD MOUNTED TRANSFORMER DESIG, LOCATION OF PRIMARY CONNECTION, ETC. INTENT IS TO UTILIZE SERVICE UTILITY POLE EXISTING, COORDINATE WITH PG&E - CONTRACTOR SHALL FOLLOW ALL UTILITY REQUIREMENTS FOR FULL AND COMPLETE SYSTEM INSTALLATION MEETING LOCAL UTILITY AND ALL CEC REQUIREMENTS. CONTRACTOR SHALL COORDINATE ALL WITH ENGINEER.
- SEE DRAWING E300 FOR ADDITIONAL DETAILS.

KEYNOTES - SITE ELECTRICAL

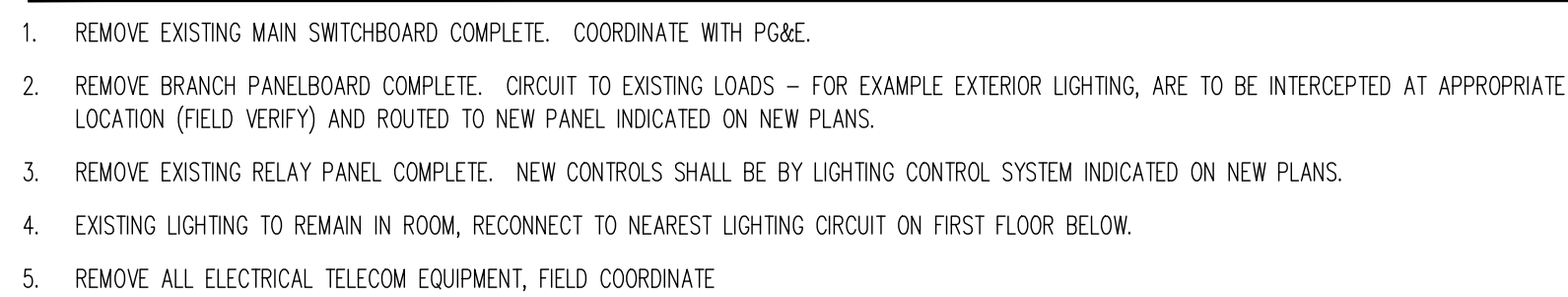
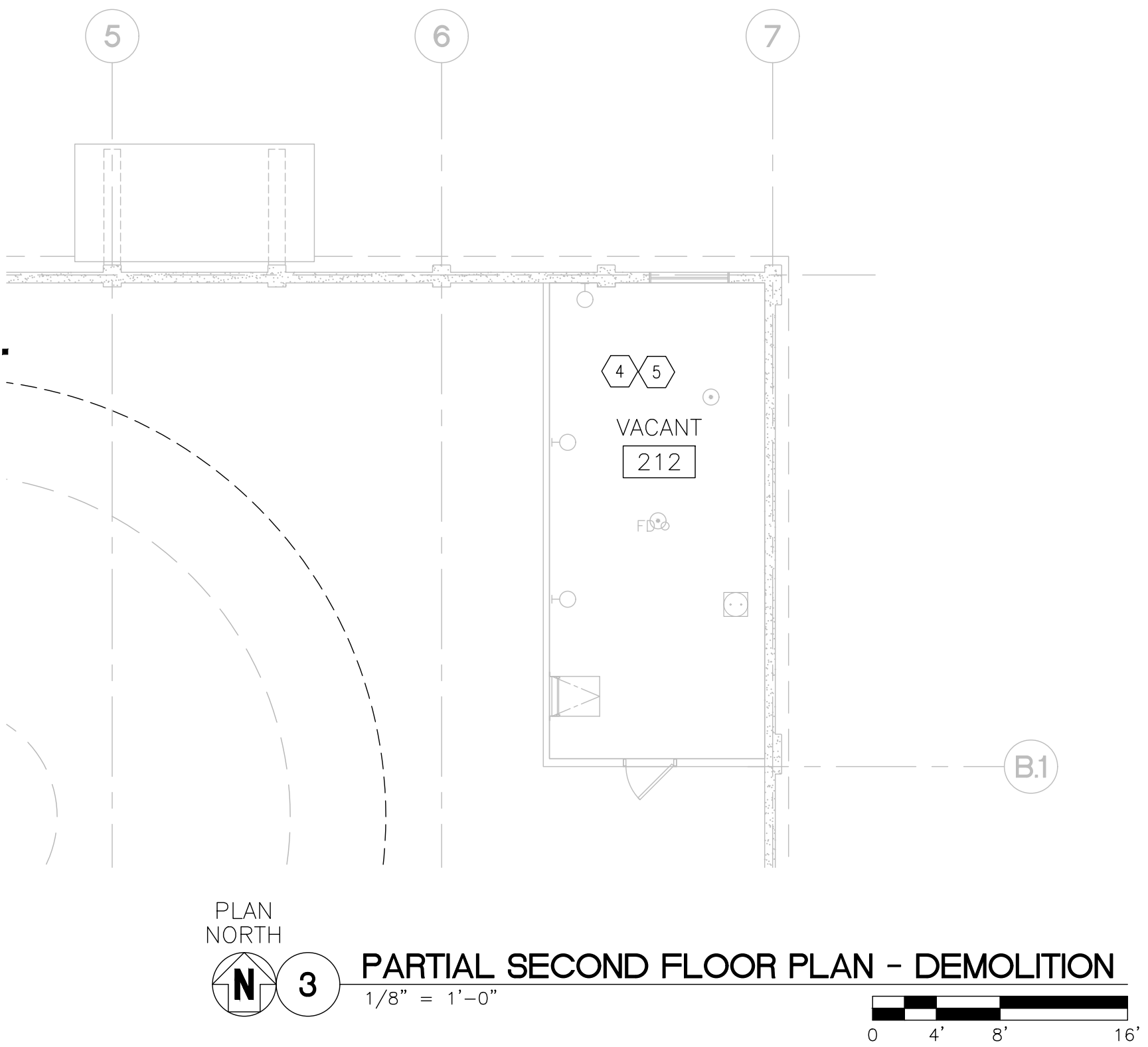
(ALL NOTES MAY NOT APPLY TO THIS SHEET)

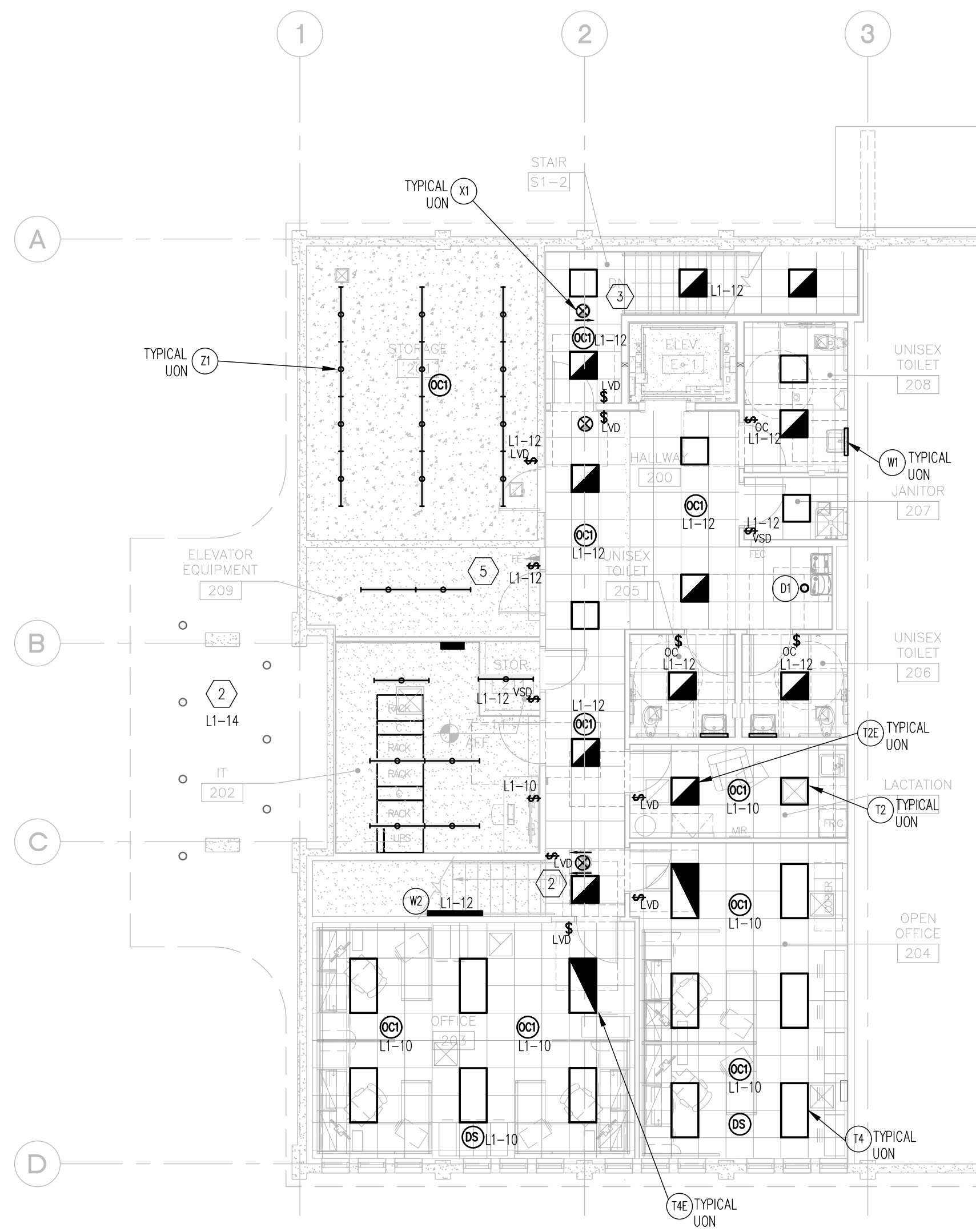
- EXTERIOR FIXTURES INCLUDING SITE LIGHTING SHALL BE CONNECTED TO LIGHTING CONTROL SYSTEM VIA CIRCUIT INDICATED. SEE CONTROL DIAGRAM ON E300 FOR ADDITIONAL INFORMATION. EXISTING SITE LIGHTING FIXTURES TO REMAIN, EXISTING CONDUIT INTO STRUCTURE TO BE REUSED. ONE FIXTURE REPLACED AND ONE NEW FIXTURE PROVIDED AS INDICATED. CONNECT NEW FIXTURE TO SAME CIRCUIT(S) AS INDICATED, EITHER INTERCEPT EXISTING CONDUIT, OR RUN NEW CONDUIT INTO ELECTRICAL ROOM AND COMBINE WITH EXISTING FIXTURE. CIRCUITING TO NEW LIGHTING PANEL CIRCUIT INDICATED. COORDINATE EXISTING CONDITIONS AND PROVIDE ALL. COORDINATE WITH MANUFACTURER.
- GENERAL LOCATION OF SERVICE GROUND COUNTERPOISE SYSTEM. FIELD COORDINATE EXACT LOCATION WITH ARCHITECT, CIVIL, EXISTING CONDITIONS, NEW WORK AND OTHER TRADES. SEE SINGLE-LINE AND DETAILS ON E300.



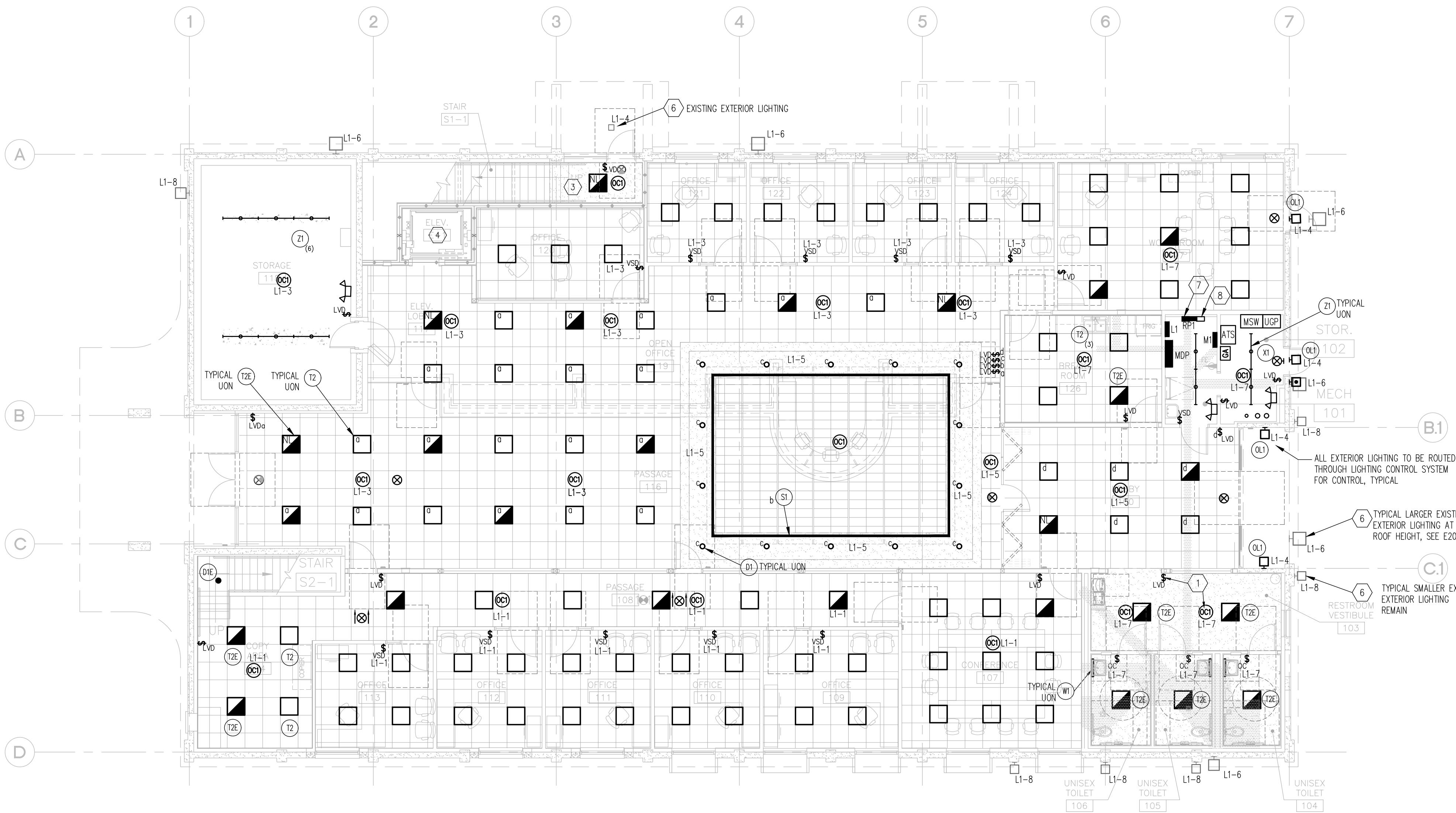
CITY OF UKIAH
BANK OF AMERICA
ADA BARRIER REMOVAL
501 South State St. Ukiah, CA 95482

ED100





PLAN NORTH
N
2
SECOND FLOOR PLAN - LIGHTING
1/8" = 1'-0"
0 4' 8' 16'



PLAN NORTH
N
1
FIRST FLOOR PLAN- LIGHTING
1/8" = 1'-0"
0 4' 8' 16'

KEYNOTES - LIGHTING:

(ALL NOTES MAY NOT APPLY TO THIS SHEET)

- SEE VACANCY/OCCUPANCY CONTROL TYPICAL WIRING DIAGRAM IN DETAIL 03 THIS SHEET, TYPICAL. COORDINATE WITH ENGINEER. COORDINATE EXACT LOCATION OF CEILING MOUNTED SENSORS WITH MANUFACTURER, OTHER TRADES AND ENGINEER/CONTRACTOR/ARCHITECT PRIOR TO ROUGH-IN TO CONFIRM COVERAGE.
- EXISTING DOWNLIGHTS IN HIGH SOFFIT TO REMAIN, RELAP. ALL. CONNECT TO LIGHTING CIRCUIT INDICATED. FIXTURES TO BE CONTROLLED BY NEW BUILDING LIGHTING CONTROL SYSTEM VIA POWER PACK. SEE E300 FOR LIGHTING CONTROL SYSTEM DETAIL.
- LIGHTING CONTROL SENSORS IN STAIRWAYS SHALL REDUCE LIGHTING IN THE STAIRWAYS TO 50% WHEN UN-OCCUPIED, UPON OCCUPANCY LIGHTING SHALL INCREASE TO 100% BY PROGRAMMABILITY OF POWER PACKS, ETC. LIGHTING CONTROLS VENDOR SHALL DETAIL AS REQUIRED.
- SEE DRAWING E200, KEYNOTE #18 FOR LIGHTING IN ELEVATOR PIT AND REQUIREMENTS.
- SEE KEYNOTE #26 ON E200.
- EXISTING EXTERIOR LIGHTING TO REMAIN. RECONNECT TO NEW LIGHTING PANEL L1 WITH SAME NUMBER OF CIRCUITS AS EXISTING, FIELD COORDINATE AND MARK ON AS-BUILT DRAWINGS FOR INCLUSION. ROUTE THROUGH LIGHTING CONTROL SYSTEM POWER PACKS FOR PROGRAMMABLE CONTROL.
- LIGHTING CONTROL PANEL, SEE DIAGRAM ON E300.
- EMERGENCY ISOLITE IM250 OR EQUIVALENT. ROUTE FIXTURES S1 VIA THIS REMOTE EMERGENCY PACK FOR EGRESS LIGHTING IN AREA.

GENERAL NOTES - LIGHTING:

(ALL NOTES MAY NOT APPLY TO THIS SHEET)

- SEE DRAWING E000 FOR ADDITIONAL NOTES AND FIXTURE SCHEDULE.
- COORDINATE EXACT MOUNTING HEIGHTS AND LOCATIONS WITH ARCHITECTURAL ELEVATIONS, NEW WORK, AND ALL TRADES (MECHANICAL, PLUMBING EQUIPMENT, DUCTWORK, ETC.)
- ALL LIGHTING FIXTURES ARE TO BE SUPPORTED PER CURRENT NEC AND MEETING ALL SEISMIC REQUIREMENT FOR LOCALITY.
- ALL DEVICES AND WALL PLATES IN FINISHED AREAS TO BE OF COLOR BY ARCHITECT. COORDINATE WITH LIGHTING CONTROL DIAGRAM AND REQUIRED DEVICES.
- FOR CEILING MOUNTED OCCUPANCY SENSORS, PROVIDE CEILING MOUNTED LIGHTING CONTROL CONSISTING OF A SENSOR SWITCH, CIRCUIT AHEAD OF ANY WALL BOX CONTROLS OR SWITCHES, (SEE PLAN). COLOR PER ARCHITECT. SEE TYPICAL DIAGRAM THIS DRAWING.
- IN ALL AREAS WHERE NEW LIGHTING IS INDICATED, ALL EXISTING LIGHTING, RELATED SWITCHES, CONDUIT, BOXES, WIRING, ETC. SHALL BE REMOVED COMPLETE. SEE TYPICAL DEMOLITION NOTES ON E000.

Revisions:

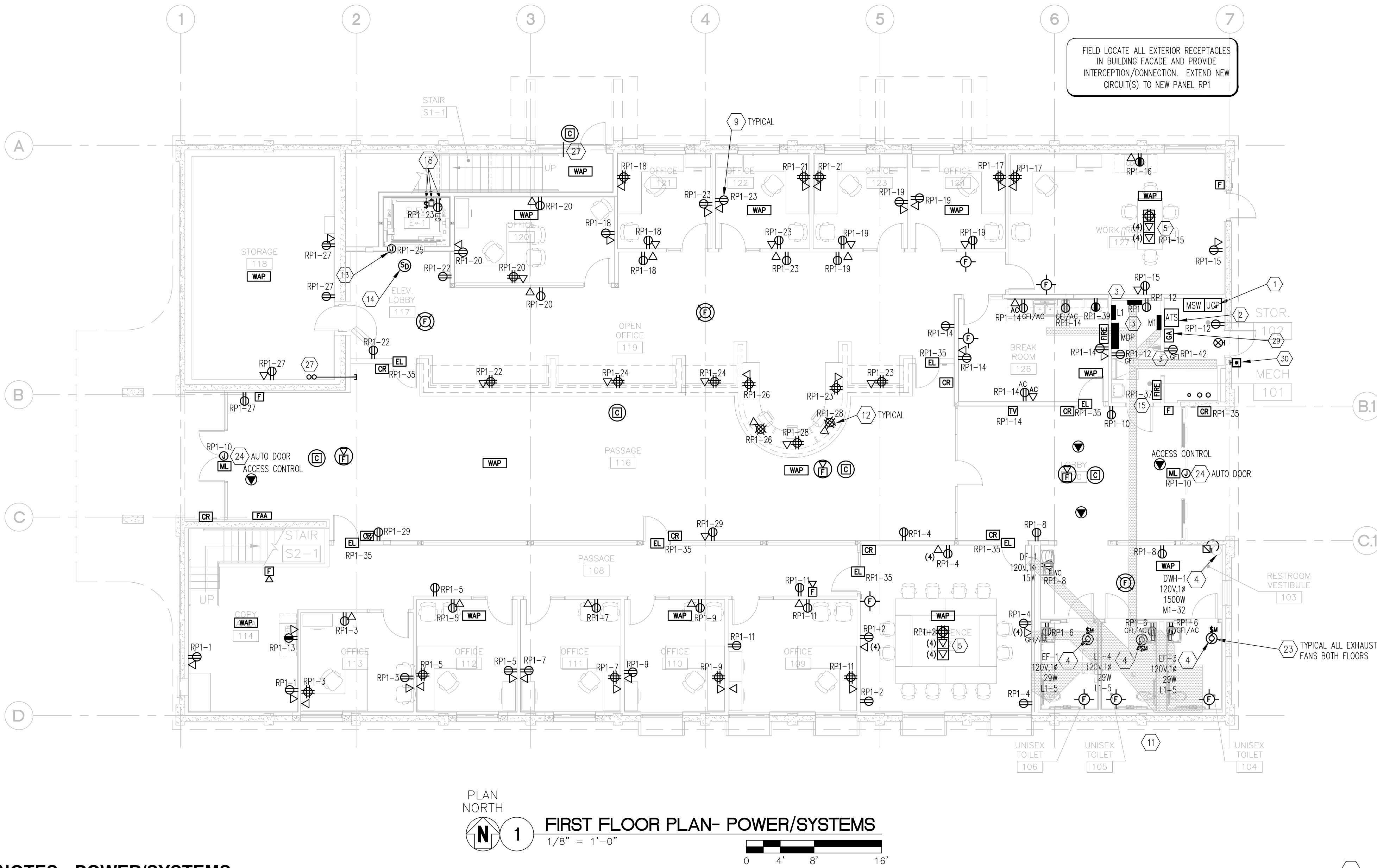
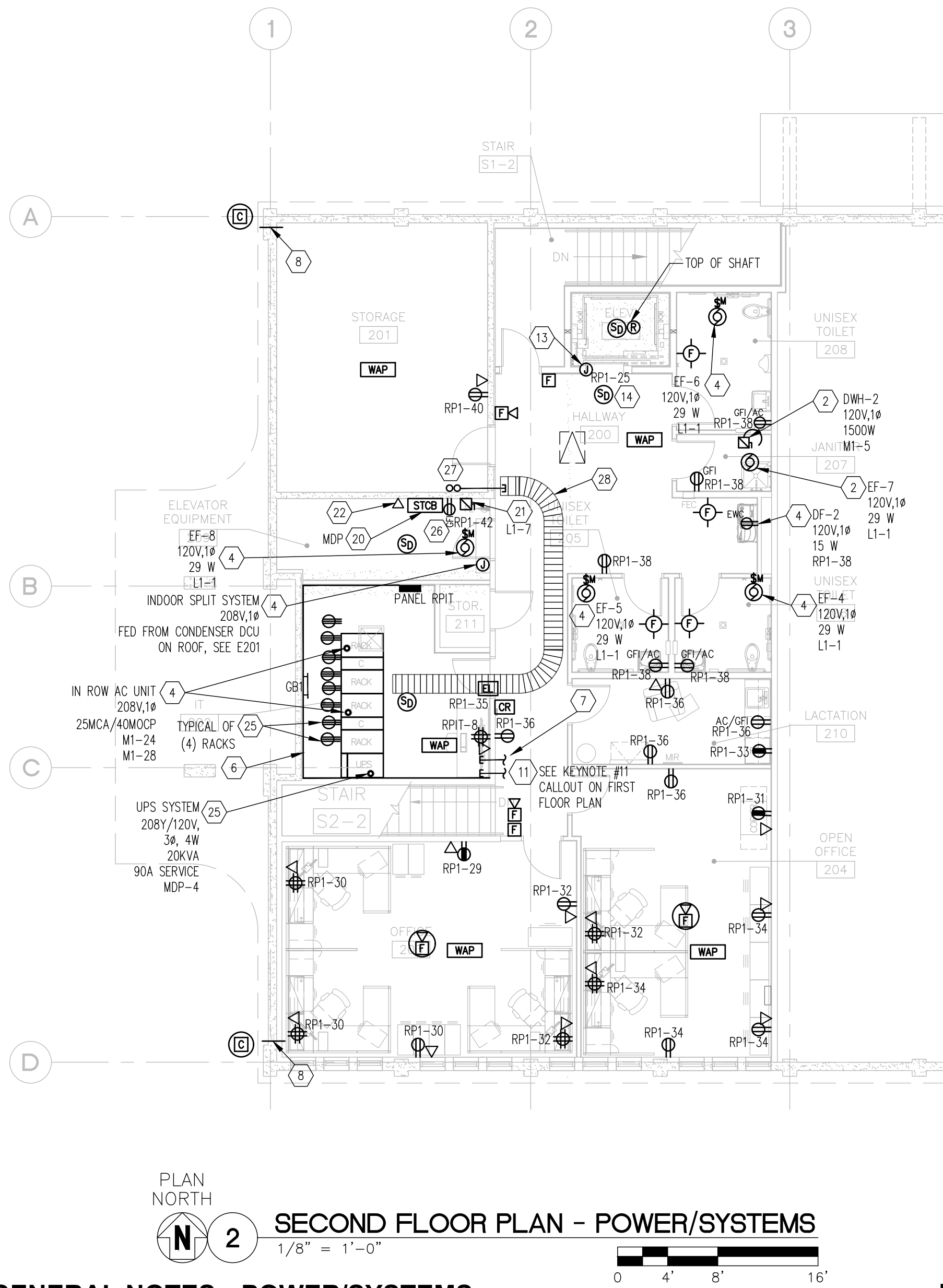
Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

**FIRST FLOOR PLAN -
LIGHTING**

Sheet Number:

E100



GENERAL NOTES - POWER/SYSTEMS:

- (ALL NOTES MAY NOT APPLY TO THIS SHEET)
- SEE DRAWING E000 FOR ADDITIONAL LEGEND, GENERAL NOTES, AND OTHER SCHEDULES.
 - COORDINATE EXACT MOUNTING HEIGHTS AND LOCATIONS WITH EXISTING CONDITIONS, ARCHITECTURAL ELEVATIONS, NEW WORK, AND ALL TRADES. ALL DEVICES AND COVERPLATES TO BE COLOR PER ARCHITECT.
 - PROVIDE FIRE STOP TO ALL CONDUITS AND DEVICES PENETRATING FIRE RATED WALLS, SMOKE WALLS AND FLOORS. ALL PENETRATIONS THROUGH FIRE WALLS SHALL BE BY UL LISTED FIRE PENETRATION METHODS/MATERIALS, ETC. SEE ARCHITECTURAL FOR RATED WALLS.
 - COORDINATE WITH ALL SYSTEMS AND TRADES TO PROVIDE COMPLETE DISTRIBUTION SYSTEMS REQUIRED FOR COMPLETE AND OPERABLE SYSTEMS, INCLUDING BUT NOT LIMITED TO HVAC, PLUMBING, FIRE ALARM, SECURITY, DOOR ELECTRONICS, CCTV, CITY, MONITORING, INTERCOM, PAGING, VOICE/DATA, CABLE TELEVISION, ETC. AS APPLICABLE TO THIS PROJECT SCOPE.
 - COORDINATE MOUNTING AND EXACT LOCATIONS OF ALL MECHANICAL AND PLUMBING EQUIPMENT DISCONNECTS, STARTERS, ETC. WITH ALL TRADES AND IN ACCORDANCE WITH ALL STATE, LOCAL, AND NATIONAL CODES. PROVIDE ALL LABOR AND MATERIALS TO CONNECT COMPLETE. PROVIDE SIZES PER UNIT NAME PLATE, FINAL CONNECTIONS WITH SEAL-TITE. FOR SERVICE TO ALL ROOF TOP MECHANICAL EQUIPMENT, CONTRACTOR SHALL COORDINATE FEEDER PENETRATION AND SHALL ADHERE TO DETAIL BY MECHANICAL IN ORDER TO GROUP ALL LINES/PIPING INTO WATERTIGHT PENETRATIONS PER MECHANICAL DETAIL.
 - FOR ALL TELECOM DEVICES, DATA OUTLETS, WAPS, SECURITY CAMERAS, PROVIDE (2) CAT 6A FROM DEVICE LOCATION TO IT ROOM. TAG/LABEL EACH END PER IT REQUIREMENTS/DIRECTION. TERMINATION BY IT VENDOR/OWNER. SPOOL 20' CABLE IT ROOM END ABOVE RACKS, PROVIDE EXCESS AT DEVICE FOR TERMINATION AS DIRECTED BY IT. PROVIDE J-HOOKS FOR ROUTING CABLING. ADHERE TO BICSI STANDARDS, PROVIDE FOR 25% SPARE FOR ALL UNITS/RUNS.
 - REFER TO EQUIPMENT SCHEDULES ON ALL CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION FOR HVAC AND PLUMBING CONNECTIONS. PROVIDE ALL LABOR AND MATERIALS TO CONNECT COMPLETE.
 - COORDINATE EXACT WALL BOX REQUIREMENTS PRIOR TO ROUGH-IN. NO SURFACE RACEWAY IS TO BE PROVIDED UNLESS DIRECT DOCUMENTED VARIANCE IS INDICATED OR GIVEN BY OWNER. IF GRANTED PERMISSION, PROVIDE SURFACE MOUNTED RACEWAY CONDUITS, BACK BOXES AND ALL ACCESSORIES EQUAL TO WIREMOLD SERIES #200DOWN WHERE RACEWAYS AND BACK BOXES ARE EXPOSED. PROVIDE ALL LABOR AND MATERIALS TO CONNECT NEW EQUIPMENT, DEVICES, ETC. COMPLETE TO PANEL INDICATED, 20A/1P, UN.O.
 - ALL RECEPTACLES NEAR SINKS AND OTHER SIMILAR LOCATIONS, EXTERIOR AND ROOFTOP AREAS SHALL BE PROTECTED BY GFCI PER NEC 210.8 (B). IN GENERAL, ALL DEVICES IN AREAS DESIGNATED IN NEC 210.8 SHALL BE GFCI PROTECTED WHETHER INDICATED OR NOT.
 - ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC, 36" BELOW GRADE. ALL STUB-UPS/90'S SHALL TRANSITION TO BE SCHEDULE 80 PVC. COORDINATE WITH ALL OTHER UNDERGROUND UTILITIES.
 - IN ALL AREAS WHERE NEW WORK IS BEING DONE, ALL EXISTING ELECTRICAL DEVICES IN WALLS AND CEILINGS BEING REMOVED, SHALL BE REMOVED. REMOVE ALL ASSOCIATED BOXES, CONDUITS, RACEWAYS, WIRING, ETC. COMPLETE. SEE GENERAL DEMOLITION NOTES ON E000.
 - COORDINATE ALL FIRE ALARM WORK WITH FIRE ALARM SYSTEM SUBCONTRACTOR/VENDOR REPRESENTATIVE BEFORE SUBMITTING BIDS. SYSTEM DESIGN SHALL BE COMPLETED BY SUCCESSFUL FIRE ALARM SUBCONTRACTOR'S NIET LEVEL IV TECHNICIAN AND THIS DESIGN SHALL BE SUBMITTED TO AHJ FOR APPROVAL. PROCESS BY CONTRACTOR AFTER REVIEW BY ELECTRICAL ENGINEER OF RECORD. PROVIDE ALL DEVICES, COMPONENTS, ETC. FOR FULLY NFPA COMPLIANT SYSTEM MEETING ALL LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS. PROVIDE ALL CONNECTIONS TO FIRE PROTECTION SYSTEM - TAMPERS, FLOWS, RELAYS, MODULES, ETC. FOR FULLY FUNCTIONAL NFPA COMPLIANT SYSTEM. PROVIDE ELEVATOR RECALL FUNCTION AND ALL ASSOCIATED CONNECTIONS MEETING NFPA AND ELEVATOR CODES AND CHECKLISTS. PROVIDE ALL COMPONENTS AND ALL ASSOCIATED CONNECTIONS MEETING NFPA AND ELEVATOR CODES AND CHECKLISTS FOR ELEVATOR SHUNT TRIP. HEAT DETECTORS SHALL BE PLACED WITH 2' OF ALL SPRINKLER HEADS AS REQUIRED BY NFPA. PROVIDE DEDUCT ALTERNATE TO PROVIDE PLENUM RATED UL LISTED FIRE ALARM CABLING TO MEET ALL APPLICABLE CODES IN LIEU OF A FULLY CONDUITED SYSTEM. PROVIDE FOR FAN SHUTDOWN WITH DUCT SMOKE IN UNITS REQUIRED BY CODE. PROVIDE FIRE ALARM REMOTE ANNUNCIATOR(S) IN EXACT LOCATIONS AS DICTATED/DIRECTED BY FIRE MARSHALL.
 - AT LEAST ONE CONTROLLED RECEPTACLE SHALL BE INSTALLED WITHIN 6 FEET OF EACH UNCONTROLLED RECEPTACLE, OR SPLIT-WIRED DUPLEX ARE INSTALLED (THAT HAVE ONE CONTROLLED AND ONE UNCONTROLLED RECEPTACLE) IN ALL OF THE FOLLOWING SPACES IF SPACES ARE AFFECTED IN THIS SOW (CONTRACTOR SHALL PROVIDE PERMANENT AND DURABLE MARKING TO DISTINGUISH BETWEEN CONTROLLED AND UNCONTROLLED):
 - M.A. PRIVATE OFFICES
 - M.B. RECEPTIONS AND LOBBIES
 - M.C. CONFERENCE ROOMS
 - M.D. KITCHENETTES IN OFFICE SPACES
 - M.E. COPY ROOM

KEYNOTES - POWER/SYSTEMS:

- (ALL NOTES MAY NOT APPLY TO THIS SHEET)
- PROVIDE SERVICE ENTRANCE SWITCH WITH PG&E COMPLIANT UG PULL SECTION AND PG&E METERING SECTION. COORDINATE WITH PG&E. SEE SINGLE-LINE DIAGRAM ON E300 FOR ADDITIONAL INFORMATION. FIELD COORDINATE EXACT LOCATIONS WITH OTHER TRADES, EXISTING STRUCTURE, ENGINEER, ETC. TO PROVIDE NEC REQUIRED WORKING CLEARANCE, ETC.
 - PROVIDE AUTOMATIC TRANSFER SWITCH, SEE E300 FOR ADDITIONAL INFORMATION.
 - PROVIDE NEW ELECTRICAL PANELS, ETC. AS INDICATED. SEE SINGLE-LINE DIAGRAM ON E300 AND PANEL SCHEDULES ON E400 SERIES FOR ADDITIONAL INFORMATION.
 - POWER CONNECTION FOR MECHANICAL/PLUMBING EQUIPMENT. COORDINATE EXACT LOCATION, CONTROLS, POWER AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER AND ALL TRADES TO INSTALL COMPLETE. PROVIDE DISCONNECT RATED (NEMA 1 INTERIOR, NEMA 3R EXTERIOR) AND SIZED/FUSED PER MANUFACTURER RECOMMENDATIONS IF NOT FACTORY PROVIDED AS PART OF EQUIPMENT (SEE MECHANICAL FOR BASIS OF DESIGN MCA AND MOOP, ACCESSORIES AND CONTROLS). PROVIDE CIRCUIT AS INDICATED. EXACT CIRCUIT BREAKER AND BRANCH CIRCUIT SIZE SHALL BE BASED ON ACTUAL EQUIPMENT PROVIDED TO MEET MANUFACTURER'S RECOMMENDATIONS. FINAL CONNECTION WITH SEAL-TITE.
 - PROVIDE MULTIPLE SERVICE, FLUSH FLOOR OUTLET WIREMOLD TYPE #RFB2 2GANG (FOR DUPLEX AND DATA), #RFB4 SERIES 4GANG FLOOR BOX (FOR QUADRAPLEX AND DATA) OR #RFB6 6GANG (FOR QUADRAPLEX, DUAL DATA) AS INDICATED BY SYMBOLS ON DRAWING. PROVIDE FLOORPORT STYLE COVERPLATE (PROVIDE BLANK TOP FOR CONCRETE/TILE APPLICATION, OR OUTPUT TOP FOR CARPET INSTALLATIONS - COORDINATE FLOOR TYPE WITH ARCHITECTURAL, ALSO COORDINATE FINISH OF COVERPLATE WITH ARCHITECTURAL). PROVIDE FP-CIR FOR CONCRETE POUR APPLICATIONS TO ENSURE FINISHED COVERPLATE IS TOTALLY FLUSH WITH FINISH FLOOR. PROVIDE DUPLEX RECEPTACLE(S) AS INDICATED PER SPECIFICATIONS. COORDINATE DATA PORTS WITH IT IF DATA CABLING IS NOTED ON DRAWINGS. COORDINATE EXACT LOCATION, FLOORING TYPE AND MANUFACTURER INSTALLATION REQUIREMENTS PRIOR TO ROUGH-IN AND PROVIDE ALL COMPONENTS FOR COMPLETE INSTALLATION. ALL OUTLETS SHALL HAVE CONDUIT RUN IN/UNDER FLOOR SLAB TO NEAREST WALL AND CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING (IF APPLICABLE) FOR CONTINUATION TO ELECTRICAL PANEL OR TELECOM BACKBOARD (ALL TELECOM CONDUIT WITH PULLSTRING). FIELD COORDINATE EXACT LOCATIONS AND FULL REQUIREMENTS WITH VENDOR AND OWNER FOR COMPLETE SYSTEM. FLOOR BOX COVERS MUST BE FLUSH WITH FINISHED FLOOR TO AVOID ANY TRIPPING HAZARD. PROVIDE (1) 1-1/4" WITH PULLSTRING UNDER SLAB STUB AND TURN ABOVE ACCESSIBLE CEILING.
 - PROVIDE FIRE RETARDANT PLYWOOD BACKBOARD FOR DATA/TELECOM EQUIPMENT. PROVIDE DEDICATED 20A, 120V CIRCUITS TO QUADRAPLEX OUTLETS AS INDICATED, FIELD COORDINATE EXACT LOCATION OF OUTLETS WITH IT REPRESENTATIVE OR ARCHITECT/ENGINEER. TELECOM BOARD IN DATA ROOMS SHALL BE AROUND ROOM PERIMETER AS INDICATED. PROVIDE GROUND BAR GB-# AS INDICATED. SEE DETAIL ON E300. COORDINATE LOCATION OF RACKS WITH IT.
 - PROVIDE (2) 3" FROM IT/COMM. ROOM OVERHEAD FROM IT ROOM TO OTHER SIDE OF BUILDING FOR WEATHERHEAD/OVERHEAD CONNECTION TO UTILITY POLE CONNECTION PER LOCAL UTILITY REQUIREMENT. SEE ROOF PLAN FOR APPROXIMATE LOCATION OF WEATHER HEAD (NOTE LOCATE AT EXISTING ENTRANCE). ALL ELLS SHALL BE SWEEPING TYPE. FIELD COORDINATE EXACT LOCATION OF ALL STUB UPS WITH ARCHITECT/ENGINEER/OWNER PRIOR TO ROUGH-IN.
 - PROVIDE CORE DRILL AND 1" SLEEVE WITH BUSHINGS FOR ROUTING DATA CABLING FROM EXTERIOR CAMERA TO INTERIOR.
 - SPLIT WIRE RECEPTACLES TO MEET TITLE 24. SEE OCCUPANCY/VACANCY SENSOR WIRING DIAGRAM ON DRAWING. E300.
 - PROVIDE 120V, 1P CONNECTION TO ACCOMMODATE PLUMBING FIXTURE. COORDINATE EXACT LOCATION, CONNECTION, ETC. WITH MANUFACTURER.
 - PROVIDE (2) 2" IN TRENCH TO TOILETS, TURN AND CAP BELOW GRADE FOR FUTURE EXPANSION TO MUSEUM. FIELD COORDINATE EXACT LOCATION WITH CIVIL/ARCHITECT. ROUTE CONDUITS UP TO ATTIC AND OVER TO IT ROOM. STUB INTO ROOM WITH BUSHINGS. SWEEP CONDUITS, PROVIDE NECESSARY PULLBOXES GIVEN EXACT ROUTING AND DISTANCE..
 - PROVIDE (2) CIRCUITS TO EACH QUAD RECEPTACLE, (1) CIRCUIT THRU POWER PACK TO CONTROL RECEPTACLE (TO COMPLY WITH GENERAL NOTE K). SEE CONTROL DIAGRAM ON DRAWING E300.
 - PROVIDE 120V, 1P CONNECTION TO M400 SMOKE GUARD JUNCTION BOX PER MANUFACTURER REQUIREMENTS. CONNECT AS INDICATED.
 - PROVIDE WITH AUXILIARY CONTACT AND CONNECT TO SMOKE GUARD DOOR TO ACTIVATE SMOKE GUARD DOOR UPON SMOKE DETECTION. COORDINATE WITH MANUFACTURER, AND PROVIDE ALL CONTROL/FA WIRING IN 3/4" TO CONNECTION POINT ON SMOKE GUARD.
 - PROVIDE FIRE ALARM SYSTEM WITH DIGITAL DIALER FOR CONNECTION TO UL LISTED CENTRAL STATION MONITORING SERVICE AND REMOTE ANNUNCIATOR CONFORMING TO ALL LOCAL, STATE AND NATIONAL CODES. COORDINATE WITH LOCAL AHJ/FIRE MARSHALL FOR ALL REQUIREMENTS AND PROVIDE COMPLETE. COORDINATE EXACT LOCATION OF REMOTE ANNUNCIATOR WITH LOCAL AHJ. PROVIDE DUCT SMOKE DETECTION/FAN SHUTDOWN, SPRINKLER SUPERVISION, ELEVATOR RECALL, ETC. - INCLUDING ALL MONITOR MODULES, ETC. TO MEET APPLICABLE CODES.
 - PROVIDE RECEPTACLE AND COMMUNICATION OUTLET FOR MONITOR/TV, FIELD COORDINATE HEIGHT AND EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN
 - PROVIDE (4) RELAYS FOR ELEVATOR PRIMARY, SECONDARY RECALL, FIRE HAT AND ELEVATOR SHUNT TRIP IN ELEVATOR MACHINE ROOM 209. CONFIRM NUMBER OF RELAYS NECESSARY TO MEET CODES PER FIRE ALARM CODES, REGULATIONS, ELEVATOR CODES, CHECKLISTS, ETC.
 - PROVIDE GFCI RECEPTACLE WITH COVER AND GUARD IN PIT. PROVIDE WET LOCATION LIGHT FIXTURE WITH GUARD IN PIT AND ASSOCIATED SWITCH LOCATED AT PIT/LADDER ENTRANCE PER CODE AND ELEVATOR MANUFACTURER'S CHECKLIST. PROVIDE DEDICATED 20A, 1P 120V CIRCUIT WITH 3 #12, 3/4" INCH CONDUIT TO CIRCUIT INDICATED. SERVICE TO RECEPTACLE AND LIGHT - LIGHT SHALL NOT BE CONNECTED TO LOAD SIDE OF GFCI.
 - PROVIDE DEDICATED 20A/1P, 120V RECEPTACLE FOR SUMP PUMP (SP-1). PROVIDE CORD AND PLUG IF NOT PROVIDED WITH SUMP PUMP UNIT, COORDINATE WITH SUMP PUMP MANUFACTURER. CIRCUIT AS INDICATED. MEET ALL APPLICABLE CODE ELEVATOR INSPECTION CHECKLIST REQUIREMENTS.
 - PROVIDE 208V, 3ø, 100A, 3P ENCLOSED SHUNT TRIP CIRCUIT BREAKER FOR ELEVATOR POWER (VERIFY EXACT SIZE WITH MANUFACTURER NAMEPLATE AND SIZE ACCORDINGLY). INSTALL PER MANUFACTURER'S RECOMMENDATIONS. BREAKER SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. SHUNT TRIP BREAKER SHALL BE CONNECTED AS REQUIRED SO THAT ACTIVATION OF ASSOCIATED HEAT DETECTORS SHALL CAUSE POWER TO BE DISCONNECTED PRIOR TO APPLICATION OF WATER BY SPRINKLER SYSTEM TO MEET ALL APPLICABLE CODES.
 - PROVIDE 20A, 1P ENCLOSED BREAKER OR FUSED DISCONNECT FOR ELEVATOR CAB LIGHTS, CONTROL, ETC. DISCONNECT SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. FIELD COORDINATE EXACT LOCATION.
 - PROVIDE DEDICATED OUTSIDE TELEPHONE CONNECTION AS REQUIRED. FIELD COORDINATE EXACT LOCATION AND CONNECTION.
 - CIRCUIT EXHAUST FANS FROM LIGHTING CIRCUIT, SEE E100 FOR LIGHTING.
 - PROVIDE POWER, BACK BOXES, CONDUIT, PULL STRING, ETC. FOR CARD ACCESS SYSTEM. COORDINATE ALL REQUIREMENTS WITH OWNERS VENDOR.
 - PROVIDE L21-20R AT CEILING BEHIND RACK AT EACH CORNER (2 RECEPTACLES PER RACK). SERVE ONE FROM UPS INTEGRAL PANEL AND OTHER FROM PANEL RP1T IN IT ROOM. COORDINATE WHICH OUTLET IS WHICH WITH IT DESIGN. CONNECT WITH #12, #12G, 3/4". IT EQUIPMENT VERTICAL PDU HAS L21-20P AND WILL BE PLUGGED INTO OUTLET.
 - PROVIDE GFCI RECEPTACLE, LIGHT FIXTURE(S) AND ASSOCIATED SWITCH LOCATED PER CODE AND ELEVATOR MANUFACTURER'S CHECKLIST IN MACHINE ROOM. PROVIDE DEDICATED 20A, 1P 120V CIRCUIT WITH #12, 3/4" TO CIRCUIT INDICATED FOR SERVICE TO RECEPTACLE AND LIGHT - LIGHT SHALL NOT BE CONNECTED TO LOAD SIDE OF GFCI. SEE E100 FOR LIGHTING INFORMATION.
 - PROVIDE (2) 4" SLEEVES/STUBS FROM ABOVE 2ND FLOOR CEILING DOWN (STUBBED TO CABLE TRAY) TO ABOVE 1ST FLOOR CEILING FOR ROUTING DATA CABLING FROM FIRST FLOOR UP TO IT ROOM, FIELD COORDINATE EXACT LOCATION. UTILIZE ONLY SWEEPING ELBOWS.
 - 18" BASKET TRAY FOR ROUTING DATA CABLING INTO IT ROOM. OTHERWISE UTILIZE J-HOOKS PER GENERAL NOTES.
 - PROVIDE NEW REMOTE ANNUNCIATOR TO MEET SPECIFICATION SECTION 26213. FIELD COORDINATE EXACT LOCATION AND ALL CABLING REQUIRED PER GENERATOR MANUFACTURER. ROUTE CABLING AND CONDUIT COMPLETE BETWEEN ANNUNCIATOR AND GENERATOR CONTROL PANEL. UTILIZE TRENCH INDICATED FROM ATS OUT TO GENERATOR, PROVIDE ALL CABLING AND CONDUIT TO GENERATOR AS REQUIRED BY RELEVANT CODES AND REGULATIONS.
 - PROVIDE EMERGENCY STOP PUSHBUTTON TO SHUT DOWN PRIME MOVER MEETING REQUIREMENTS OF 445.18(B)(2). CED 445.18(C). FIELF VERIFY EXACT LOCATION.

Revisions:

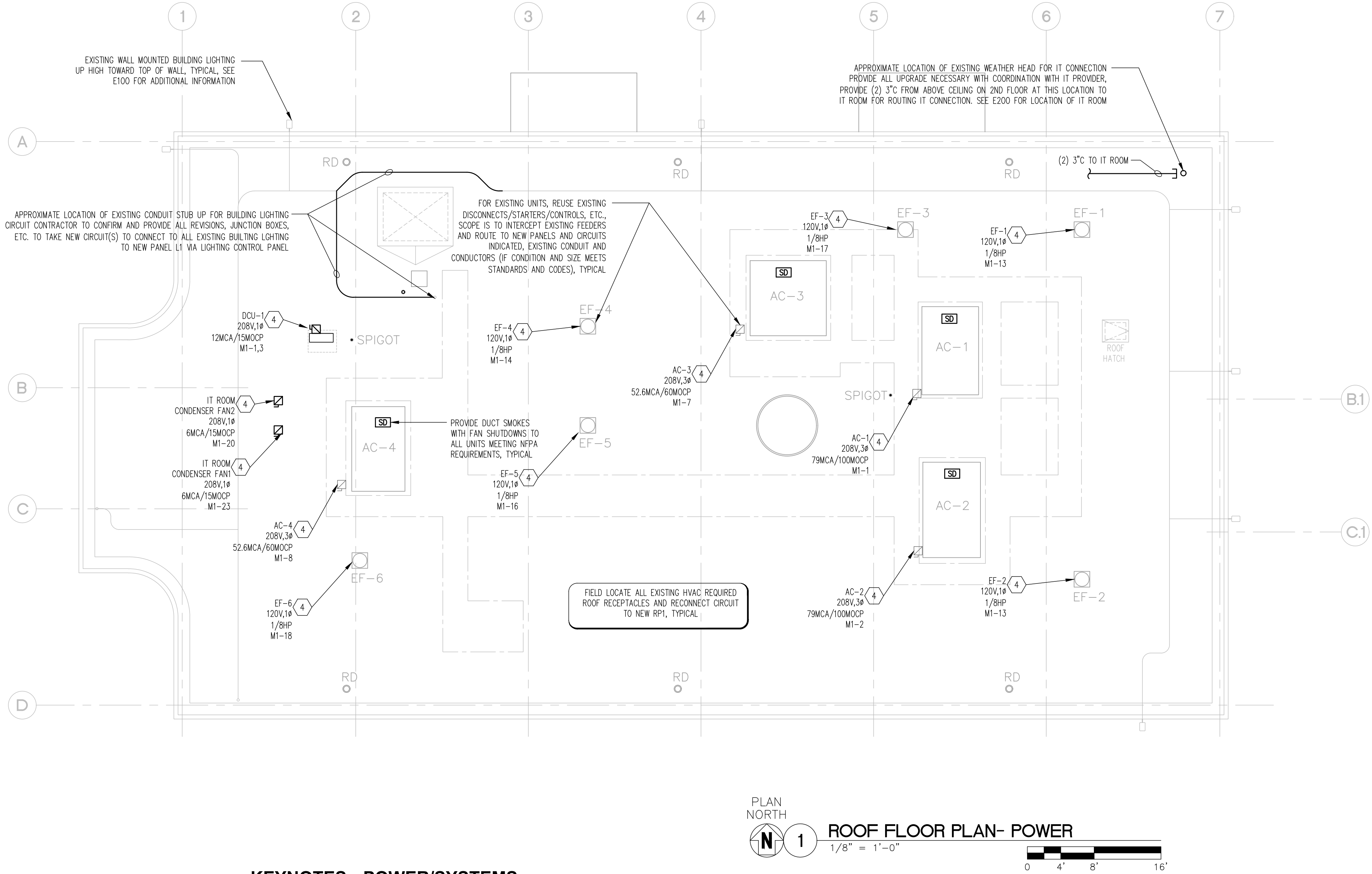
Client Project Number: **000**
APN Number: **000-000-000**
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Date: **DEC. 19, 2024** **ISSUE FOR BID**

Sheet Title:

**FIRST FLOOR PLAN -
POWER/SYSTEMS**

Sheet Number:

E200



GENERAL NOTES - POWER/SYSTEMS:

- (ALL NOTES MAY NOT APPLY TO THIS SHEET)
- A. SEE DRAWING E000 FOR ADDITIONAL LEGEND, GENERAL NOTES, AND OTHER SCHEDULES.
- B. COORDINATE EXACT MOUNTING HEIGHTS AND LOCATIONS WITH EXISTING CONDITIONS, ARCHITECTURAL ELEVATIONS, NEW WORK, AND ALL TRADES. ALL DEVICES AND COVERPLATES TO BE COLOR PER ARCHITECT.
- C. PROVIDE FIRE STOP TO ALL CONDUITS AND DEVICES PENETRATING FIRE RATED WALLS, SMOKE WALLS AND FLOORS. ALL PENETRATIONS THROUGH FIRE WALLS SHALL BE BY UL LISTED FIRE PENETRATION METHODS/MATERIALS, ETC. SEE ARCHITECTURAL FOR RATED WALLS.
- D. COORDINATE WITH ALL SYSTEMS AND TRADES TO PROVIDE COMPLETE DISTRIBUTION SYSTEMS REQUIRED FOR COMPLETE AND OPERABLE SYSTEMS, INCLUDING BUT NOT LIMITED TO HVAC, PLUMBING, FIRE ALARM, SECURITY, DOOR ELECTRONICS, CCTV, CTV, MONITORING, INTERCOM, PAGING, VOICE/DATA, CABLE TELEVISION, ETC. AS APPLICABLE TO THIS PROJECT SCOPE.
- E. COORDINATE MOUNTING AND EXACT LOCATIONS OF ALL MECHANICAL AND PLUMBING EQUIPMENT DISCONNECTS, STARTERS, ETC. WITH ALL TRADES AND IN ACCORDANCE WITH ALL STATE, LOCAL, AND NATIONAL CODES. PROVIDE ALL LABOR AND MATERIALS TO CONNECT COMPLETE. PROVIDE SIZES PER UNIT NAME PLATE, FINAL CONNECTIONS WITH SEAL-TITE. FOR SERVICE TO ALL ROOF TOP MECHANICAL EQUIPMENT, CONTRACTOR SHALL COORDINATE FEEDER PENETRATION AND SHALL ADHERE TO DETAIL BY MECHANICAL IN ORDER TO GROUP ALL LINES/PIPING INTO WATERTIGHT PENETRATIONS PER MECHANICAL DETAIL.
- F. FOR ALL TELECOM DEVICES, DATA OUTLETS, WAPS, SECURITY CAMERAS, PROVIDE (2) CAT 6A FROM DEVICE LOCATION TO IT ROOM. TAG/LABEL EACH END PER IT REQUIREMENTS/DIRECTION. TERMINATION BY IT VENDOR/OWNER. SPOOL 20' CABLE IT ROOM END ABOVE RACKS, PROVIDE EXCESS AT DEVICE FOR TERMINATION AS DIRECTED BY IT. PROVIDE J-HOOKS FOR ROUTING CABLING. ADHERE TO BICSI STANDARDS, PROVIDE FOR 25% SPARE FOR ALL UNITS/RUNS.
- G. REFER TO EQUIPMENT SCHEDULES ON ALL CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION FOR HVAC AND PLUMBING CONNECTIONS. PROVIDE ALL LABOR AND MATERIALS TO CONNECT COMPLETE.
- H. COORDINATE EXACT WALL BOX REQUIREMENTS PRIOR TO ROUGH-IN. NO SURFACE RACEWAY IS TO BE PROVIDED UNLESS DIRECT DOCUMENTED VARIANCE IS INDICATED OR GIVEN BY OWNER. IF GRANTED PERMISSION, PROVIDE SURFACE MOUNTED RACEWAY CONDUITS, BACK BOXES AND ALL ACCESSORIES EQUAL TO WIREMOLD SERIES #220DOWN WHERE RACEWAYS AND BACK BOXES ARE EXPOSED. PROVIDE ALL LABOR AND MATERIALS TO CONNECT NEW EQUIPMENT, DEVICES, ETC. COMPLETE TO PANEL INDICATED, 20A/1P, U.N.O.
- I. ALL RECEPTABLES NEAR SINKS AND OTHER SIMILAR LOCATIONS, EXTERIOR AND ROOFTOP AREAS SHALL BE PROTECTED BY GFCI PER NEC 210.8 (B). IN GENERAL, ALL DEVICES IN AREAS DESIGNATED IN NEC 210.8 SHALL BE GFCI PROTECTED WHETHER INDICATED OR NOT.
- J. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC, 36" BELOW GRADE. ALL STUB-UPS/90'S SHALL TRANSITION TO BE SCHEDULE 80 PVC. COORDINATE WITH ALL OTHER UNDERGROUND UTILITIES.
- K. IN ALL AREAS WHERE NEW WORK IS BEING DONE, ALL EXISTING ELECTRICAL DEVICES IN WALLS AND CEILINGS BEING REMOVED, SHALL BE REMOVED. REMOVE ALL ASSOCIATED BOXES, CONDUITS, RACEWAYS, WIRING, ETC. COMPLETE. SEE GENERAL DEMOLITION NOTES ON E000.
- L. COORDINATE ALL FIRE ALARM WORK WITH FIRE ALARM SYSTEM SUBCONTRACTOR/VENDOR REPRESENTATIVE BEFORE SUBMITTING BIDS. SYSTEM DESIGN SHALL BE COMPLETED BY SUCCESSFUL FIRE ALARM SUBCONTRACTOR'S NICET LEVEL IV TECHNICIAN AND THIS DESIGN SHALL BE SUBMITTED TO AHJ FOR APPROVAL. PROCESS BY CONTRACTOR AFTER REVIEW BY ELECTRICAL ENGINEER OF RECORD. PROVIDE ALL DEVICES, COMPONENTS, ETC. FOR FULLY NFPA COMPLIANT SYSTEM MEETING ALL LOCAL, STATE, AND NATIONAL CODES AND REGULATIONS. PROVIDE ALL CONNECTIONS TO FIRE PROTECTION SYSTEM - TAMPERS, FLOWS, RELAYS, MODULES, ETC. FOR FULLY FUNCTIONAL NFPA COMPLIANT SYSTEM. PROVIDE ELEVATOR RECALL FUNCTION AND ALL ASSOCIATED CONNECTIONS MEETING NFPA AND ELEVATOR CODES AND CHECKLISTS. PROVIDE ALL COMPONENTS AND ALL ASSOCIATED CONNECTIONS MEETING NFPA AND ELEVATOR CODES AND CHECKLISTS FOR ELEVATOR SHUNT TRIP. HEAT DETECTORS SHALL BE PLACED WITH 2' OF ALL SPRINKLER HEADS AS REQUIRED BY NFPA. PROVIDE DEDUCT ALTERNATE TO PROVIDE PLENUM RATED UL LISTED FIRE ALARM CABLING TO MEET ALL APPLICABLE CODES IN LIEU OF A FULLY CONDUITED SYSTEM. PROVIDE FOR FAN SHUTDOWN WITH DUCT SMOKE IN UNITS REQUIRED BY CODE. PROVIDE FIRE ALARM REMOTE ANNUNCIATOR(S) IN EXACT LOCATIONS AS DICTATED/DIRECTED BY FIRE MARSHALL.
- M. AT LEAST ONE CONTROLLED RECEPTACLE SHALL BE INSTALLED WITHIN 6 FEET OF EACH UNCONTROLLED RECEPTACLE, OR SPLIT-WIRE DUPLEX ARE INSTALLED (THAT HAVE ONE CONTROLLED AND ONE UNCONTROLLED RECEPTACLE) IN ALL OF THE FOLLOWING SPACES IF SPACES ARE AFFECTED IN THIS SOW (CONTRACTOR SHALL PROVIDE PERMANENT AND DURABLE MARKING TO DISTINGUISH BETWEEN CONTROLLED AND UNCONTROLLED):
- M.A. PRIVATE OFFICES
 - M.B. RECEPTIONS AND LOBBIES
 - M.C. CONFERENCE ROOMS
 - M.D. KITCHENETTES IN OFFICE SPACES
 - M.E. COPY ROOM

KEYNOTES - POWER/SYSTEMS:

- (ALL NOTES MAY NOT APPLY TO THIS SHEET)
1. PROVIDE SERVICE ENTRANCE SWITCH WITH PG&E COMPLIANT UG PULL SECTION AND PG&E METERING SECTION. COORDINATE WITH PG&E. SEE SINGLE-LINE DIAGRAM ON E300 FOR ADDITIONAL INFORMATION. FIELD COORDINATE EXACT LOCATIONS WITH OTHER TRADES, EXISTING STRUCTURE, ENGINEER, ETC. TO PROVIDE NEC REQUIRED WORKING CLEARANCE, ETC.
2. PROVIDE AUTOMATIC TRANSFER SWITCH, SEE E300 FOR ADDITIONAL INFORMATION.
3. PROVIDE NEW ELECTRICAL PANELS, ETC. AS INDICATED. SEE SINGLE-LINE DIAGRAM ON E300 AND PANEL SCHEDULES ON E400 SERIES FOR ADDITIONAL INFORMATION.
4. POWER CONNECTION FOR MECHANICAL/PLUMBING EQUIPMENT. COORDINATE EXACT LOCATION, CONTROLS, POWER AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER AND ALL TRADES TO INSTALL COMPLETE. PROVIDE DISCONNECT RATED (NEMA 1 INTERIOR, NEMA 3R EXTERIOR) AND SIZED/FUSED PER MANUFACTURER RECOMMENDATIONS IF NOT FACTORY PROVIDED AS PART OF EQUIPMENT (SEE MECHANICAL FOR BASIS OF DESIGN MCA AND MOOP, ACCESSORIES AND CONTROLS). PROVIDE CIRCUIT AS INDICATED. EXACT CIRCUIT BREAKER AND BRANCH CIRCUIT SIZE SHALL BE BASED ON ACTUAL EQUIPMENT PROVIDED TO MEET MANUFACTURER'S RECOMMENDATIONS. FINAL CONNECTION WITH SEAL-TITE.
5. PROVIDE MULTIPLE SERVICE, FLUSH FLOOR OUTLET WIREMOLD TYPE #RFB2 2GANG (FOR DUPLEX AND DATA), #RFB4 SERIES 4GANG FLOOR BOX (FOR QUADRAPLEX AND DATA) OR #RFB6 6GANG (FOR QUADRAPLEX, DUAL DATA) AS INDICATED BY SYMBOLS ON DRAWING. PROVIDE FLOORPORT STYLE COVERPLATE (PROVIDE BLANK TOP FOR CONCRETE/TILE APPLICATION, OR OUTPUT TOP FOR CARPET INSTALLATIONS - COORDINATE FLOOR TYPE WITH ARCHITECTURAL, ALSO COORDINATE FINISH OF COVERPLATE WITH ARCHITECTURAL). PROVIDE FP-CTR FOR CONCRETE POUR APPLICATIONS TO ENSURE FINISHED COVERPLATE IS TOTALLY FLUSH WITH FINISH FLOOR. PROVIDE DUPLEX RECEPTACLE(S) AS INDICATED PER SPECIFICATIONS. COORDINATE DATA PORTS WITH IT IF DATA CABLING IS NOTED ON DRAWINGS. COORDINATE EXACT LOCATION, FLOORING TYPE AND MANUFACTURER INSTALLATION REQUIREMENTS PRIOR TO ROUGH-IN AND PROVIDE ALL COMPONENTS FOR COMPLETE INSTALLATION. ALL OUTLETS SHALL HAVE CONDUIT RUN IN/UNDER FLOOR SLAB TO NEAREST WALL AND CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING (IF APPLICABLE) FOR CONTINUATION TO ELECTRICAL PANEL OR TELECOM BACKBOARD (ALL TELECOM CONDUIT WITH PULLSTRING). FIELD COORDINATE EXACT LOCATIONS AND FULL REQUIREMENTS WITH VENDOR AND OWNER FOR COMPLETE SYSTEM. FLOOR BOX COVERS MUST BE FLUSH WITH FINISHED FLOOR TO AVOID ANY TRIPPING HAZARD. PROVIDE (1) 1-1/4" WITH PULLSTRING UNDER SLAB STUB AND TURN ABOVE ACCESSIBLE CEILING.
6. PROVIDE FIRE RETARDANT PLYWOOD BACKBOARD FOR DATA/TELECOM EQUIPMENT. PROVIDE DEDICATED 20A, 120V CIRCUITS TO QUADRAPLEX OUTLETS AS INDICATED, FIELD COORDINATE EXACT LOCATION OF OUTLETS WITH IT REPRESENTATIVE OR ARCHITECT/ENGINEER. TELECOM BOARD IN DATA ROOMS SHALL BE AROUND ROOM PERIMETER AS INDICATED. PROVIDE GROUND BAR GB-# AS INDICATED. SEE DETAIL ON E300. COORDINATE LOCATION OF RACKS WITH IT.
7. PROVIDE (2) 3" FROM IT/COMM. ROOM OVERHEAD FROM IT ROOM TO OTHER SIDE OF BUILDING FOR WEATHERHEAD/OVERHEAD CONNECTION TO UTILITY POLE CONNECTION PER LOCAL UTILITY REQUIREMENT. SEE ROOF PLAN FOR APPROXIMATE LOCATION OF WEATHER HEAD (NOTE LOCATE AT EXISTING ENTRANCE). ALL ELLS SHALL BE SWEEPING TYPE. FIELD COORDINATE EXACT LOCATION OF ALL STUB UPS WITH ARCHITECT/ENGINEER/OWNER PRIOR TO ROUGH-IN.
8. PROVIDE CORE DRILL AND 1" SLEEVE WITH BUSHINGS FOR ROUTING DATA CABLING FROM EXTERIOR CAMERA TO INTERIOR.
9. SPLIT WIRE RECEPTABLES TO MEET TITLE 24. SEE OCCUPANCY/VACANCY SENSOR WIRING DIAGRAM ON DRAWING. E300.
10. PROVIDE 120V. CIRCUIT TO ACCOMMODATE PLUMBING FIXTURE. COORDINATE EXACT LOCATION, CONNECTION, ETC. WITH MANUFACTURER.
11. PROVIDE (2) 2" IN TRENCH TO TOILETS, TURN AND CAP BELOW GRADE FOR FUTURE EXPANSION TO MUSEUM. FIELD COORDINATE EXACT LOCATION WITH CIVIL/ARCHITECT. ROUTE CONDUITS UP TO ATTIC AND OVER TO IT ROOM. STUB INTO ROOM WITH BUSHINGS. SWEEP CONDUITS, PROVIDE NECESSARY PULLBOXES GIVEN EXACT ROUTING AND DISTANCE..
12. PROVIDE (2) CIRCUITS TO EACH QUAD RECEPTACLE, (1) CIRCUIT THRU POWER PACK TO CONTROL RECEPTACLE (TO COMPLY WITH GENERAL NOTE K). SEE CONTROL DIAGRAM ON DRAWING E300.
13. PROVIDE 120V, 1P CONNECTION TO M400 SMOKE GUARD JUNCTION BOX PER MANUFACTURER REQUIREMENTS. CONNECT AS INDICATED.
14. PROVIDE WITH AUXILIARY CONTACT AND CONNECT TO SMOKE GUARD DOOR TO ACTIVATE SMOKE GUARD DOOR UPON SMOKE DETECTION. COORDINATE WITH MANUFACTURER, AND PROVIDE ALL CONTROL/FA WIRING IN 3/4" TO CONNECTION POINT ON SMOKE GUARD.
15. PROVIDE FIRE ALARM SYSTEM WITH DIGITAL DIALER FOR CONNECTION TO UL LISTED CENTRAL STATION MONITORING SERVICE AND REMOTE ANNUNCIATOR CONFORMING TO ALL LOCAL, STATE AND NATIONAL CODES. COORDINATE WITH LOCAL AHJ/FIRE MARSHALL FOR ALL REQUIREMENTS AND PROVIDE COMPLETE. COORDINATE EXACT LOCATION OF REMOTE ANNUNCIATOR WITH LOCAL AHJ. PROVIDE DUCT SMOKE DETECTION/FAN SHUTDOWN, SPRINKLER SUPERVISION, ELEVATOR RECALL, ETC. - INCLUDING ALL MONITOR MODULES, ETC. TO MEET APPLICABLE CODES.
16. PROVIDE RECEPTACLE AND COMMUNICATION OUTLET FOR MONITOR/TV, FIELD COORDINATE HEIGHT AND EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN
17. PROVIDE (4) RELAYS FOR ELEVATOR PRIMARY, SECONDARY RECALL, FIRE HAT AND ELEVATOR SHUNT TRIP IN ELEVATOR MACHINE ROOM 209. CONFIRM NUMBER OF RELAYS NECESSARY TO MEET CODES PER FIRE ALARM CODES, REGULATIONS, ELEVATOR CODES, CHECKLISTS, ETC.
18. PROVIDE GFCI RECEPTACLE WITH COVER AND GUARD IN PIT. PROVIDE WET LOCATION LIGHT FIXTURE WITH GUARD IN PIT AND ASSOCIATED SWITCH LOCATED AT PIT/LADDER ENTRANCE PER CODE AND ELEVATOR MANUFACTURER'S CHECKLIST. PROVIDE DEDICATED 20A, 1P 120V CIRCUIT WITH 3 #12, 3/4 INCH CONDUIT TO CIRCUIT INDICATED. SERVICE TO RECEPTACLE AND LIGHT - LIGHT SHALL NOT BE CONNECTED TO LOAD SIDE OF GFCI.
19. PROVIDE DEDICATED 20A/1P, 120V RECEPTACLE FOR SUMP PUMP (SP-1). PROVIDE CORD AND PLUG IF NOT PROVIDED WITH SUMP PUMP UNIT, COORDINATE WITH SUMP PUMP MANUFACTURER. CIRCUIT AS INDICATED. MEET ALL APPLICABLE CODE ELEVATOR INSPECTION CHECKLIST REQUIREMENTS.
20. PROVIDE 208V, 3Ø, 100A, 3P ENCLOSED SHUNT TRIP CIRCUIT BREAKER FOR ELEVATOR POWER (VERIFY EXACT SIZE WITH MANUFACTURER NAMEPLATE AND SIZE ACCORDINGLY). INSTALL PER MANUFACTURER'S RECOMMENDATIONS. BREAKER SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. SHUNT TRIP BREAKER SHALL BE CONNECTED AS REQUIRED SO THAT ACTIVATION OF ASSOCIATED HEAT DETECTORS SHALL CAUSE POWER TO BE DISCONNECTED PRIOR TO APPLICATION OF WATER BY SPRINKLER SYSTEM TO MEET ALL APPLICABLE CODES.
21. PROVIDE 20A, 1P ENCLOSED BREAKER OR FUSED DISCONNECT FOR ELEVATOR CAB LIGHTS, CONTROL, ETC. DISCONNECT SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. FIELD COORDINATE EXACT LOCATION.
22. PROVIDE DEDICATED OUTSIDE TELEPHONE CONNECTION AS REQUIRED. FIELD COORDINATE EXACT LOCATION AND CONNECTION.
23. CIRCUIT EXHAUST FANS FROM LIGHTING CIRCUIT, SEE E100 FOR LIGHTING.
24. PROVIDE POWER, BACK BOXES, CONDUIT, PULL STRING, ETC. FOR CARD ACCESS SYSTEM. COORDINATE ALL REQUIREMENTS WITH OWNERS VENDOR.
25. PROVIDE L21-20R AT CEILING BEHIND RACK AT EACH CORNER (2 RECEPTACLES PER RACK). SERVE ONE FROM UPS INTEGRAL PANEL AND OTHER FROM PANEL RP1T IN IT ROOM. COORDINATE WHICH OUTLET IS WHICH WITH IT DESIGN. CONNECT WITH #12G, 3/4". IT EQUIPMENT VERTICAL PDU HAS L21-20P AND WILL BE PLUGGED INTO OUTLET.
26. PROVIDE GFCI RECEPTACLE, LIGHT FIXTURE(S) AND ASSOCIATED SWITCH LOCATED PER CODE AND ELEVATOR MANUFACTURER'S CHECKLIST IN MACHINE ROOM. PROVIDE DEDICATED 20A, 1P 120V CIRCUIT WITH #12,3/4" TO CIRCUIT INDICATED FOR SERVICE TO RECEPTACLE AND LIGHT - LIGHT SHALL NOT BE CONNECTED TO LOAD SIDE OF GFCI. SEE E100 FOR LIGHTING INFORMATION.
27. PROVIDE (2) 4" SLEEVES/STUBS FROM ABOVE 2ND FLOOR CEILING DOWN (STUBBED TO CABLE TRAY) TO ABOVE 1ST FLOOR CEILING FOR ROUTING DATA CABLING FROM 1ST FLOOR UP TO IT ROOM, FIELD COORDINATE EXACT LOCATION. UTILIZE ONLY SWEEPING ELBOWS.
28. 18" BASKET TRAY FOR ROUTING DATA CABLING INTO IT ROOM. OTHERWISE UTILIZE J-HOOKS PER GENERAL NOTES.
29. PROVIDE NEW REMOTE ANNUNCIATOR TO MEET SPECIFICATION SECTION 26213. FIELD COORDINATE EXACT LOCATION AND ALL CABLING REQUIRED PER GENERATOR MANUFACTURER. ROUTE CABLING AND CONDUIT COMPLETE BETWEEN ANNUNCIATOR AND GENERATOR CONTROL PANEL. UTILIZE TRENCH INDICATED FROM ATS OUT TO GENERATOR, PROVIDE ALL CABLING AND CONDUIT TO GENERATOR AS REQUIRED BY RELEVANT CODES AND REGULATIONS.
30. PROVIDE EMERGENCY STOP PUSHBUTTON TO SHUT DOWN PRIME MOVER MEETING REQUIREMENTS OF 445.18(B)(2). CED 445.18(C). FIELD VERIFY EXACT LOCATION.

Revisions:

Client Project Number: **000**

APN Number: **000-000-000**

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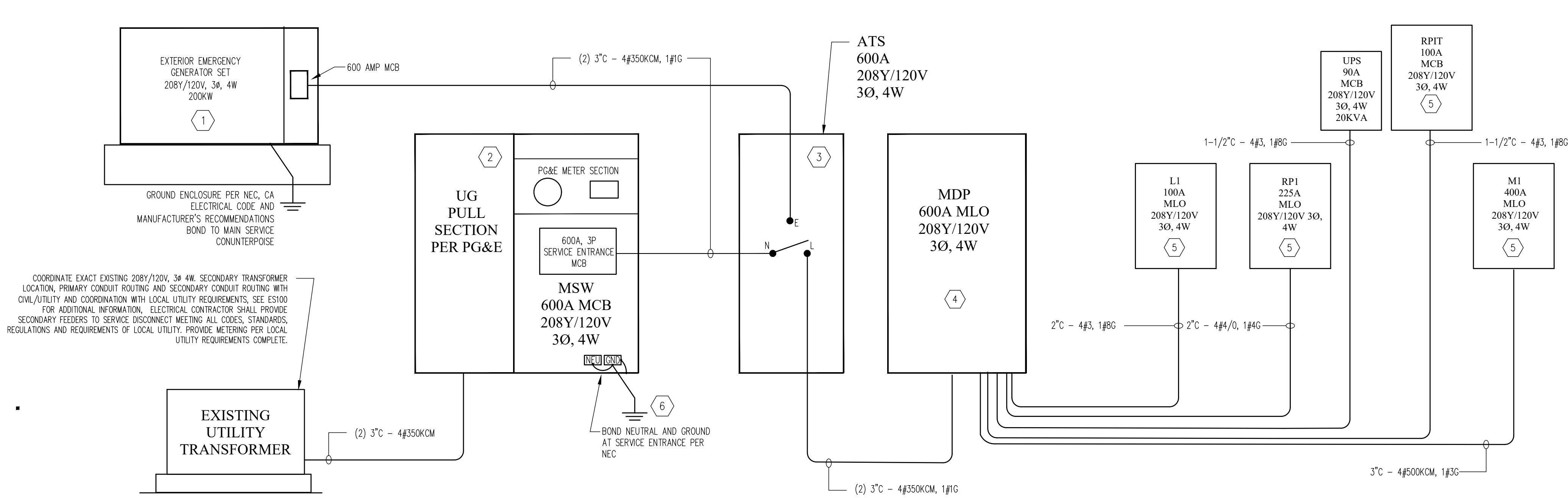
Date: **DEC. 19, 2024** **ISSUE FOR BID**

Sheet Title:

ROOF PLAN - POWER

Sheet Number:

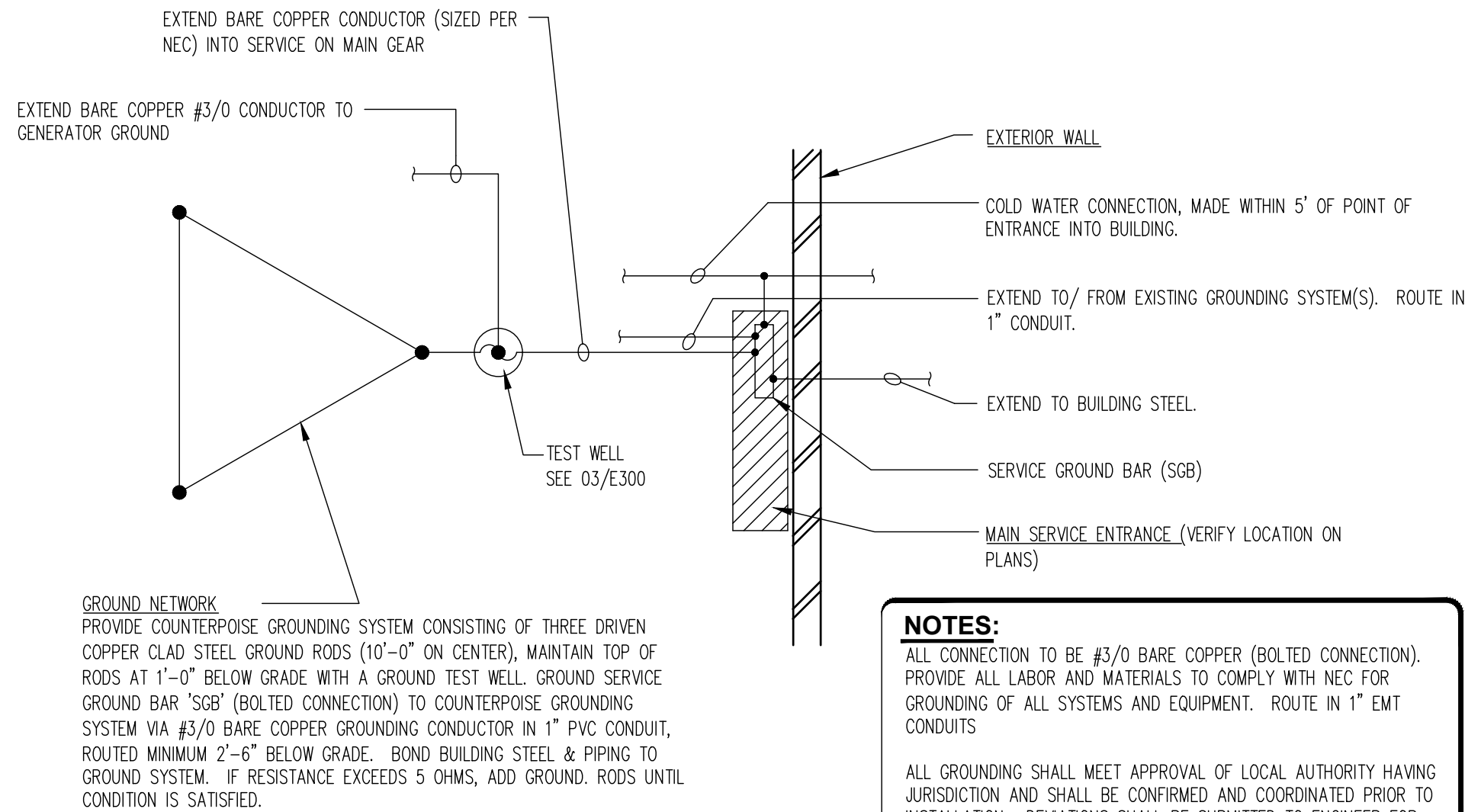
E201



ELECTRICAL SINGLE-LINE DIAGRAM

SCALE: NONE

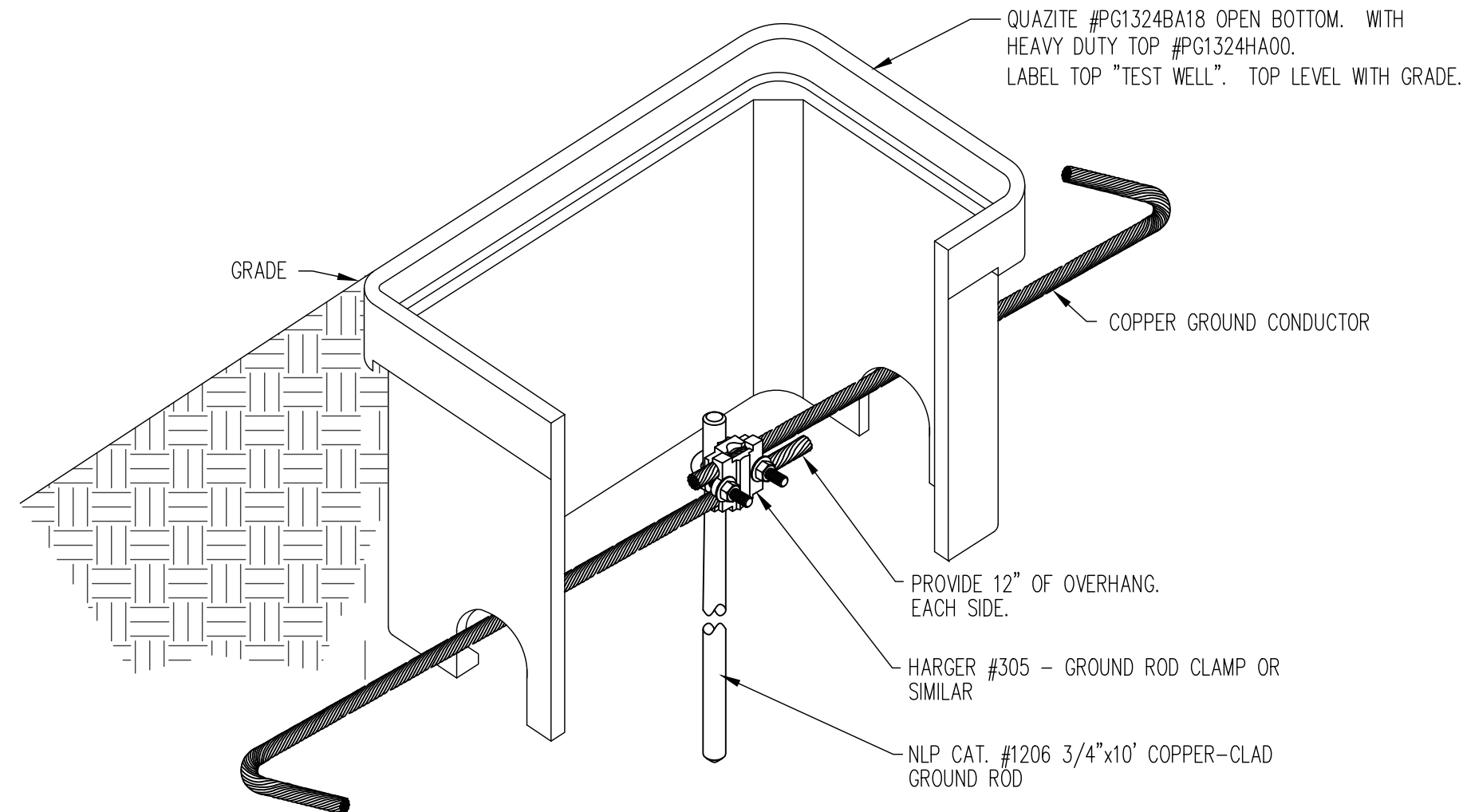
01



GROUND NETWORK DETAIL

SCALE: NONE

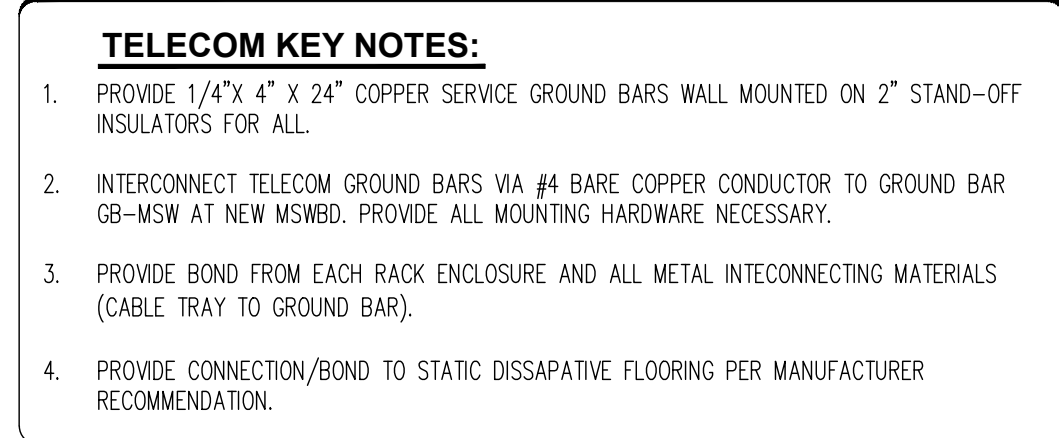
02



GROUND INSPECTION WELL (TEST WELL)

SCALE: NONE

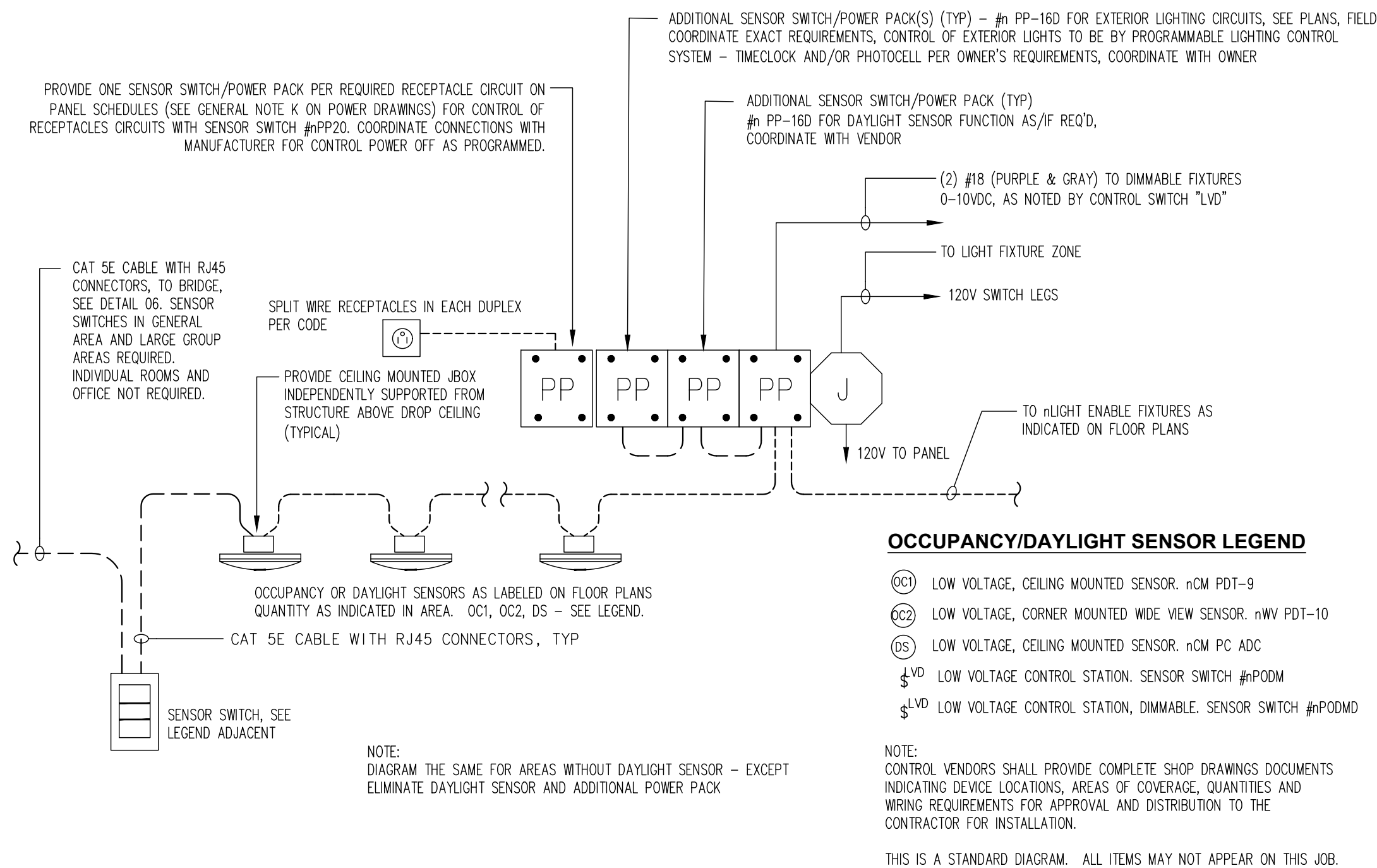
03



TELECOMMUNICATION GROUNDING SYSTEM DETAIL

SCALE: NONE

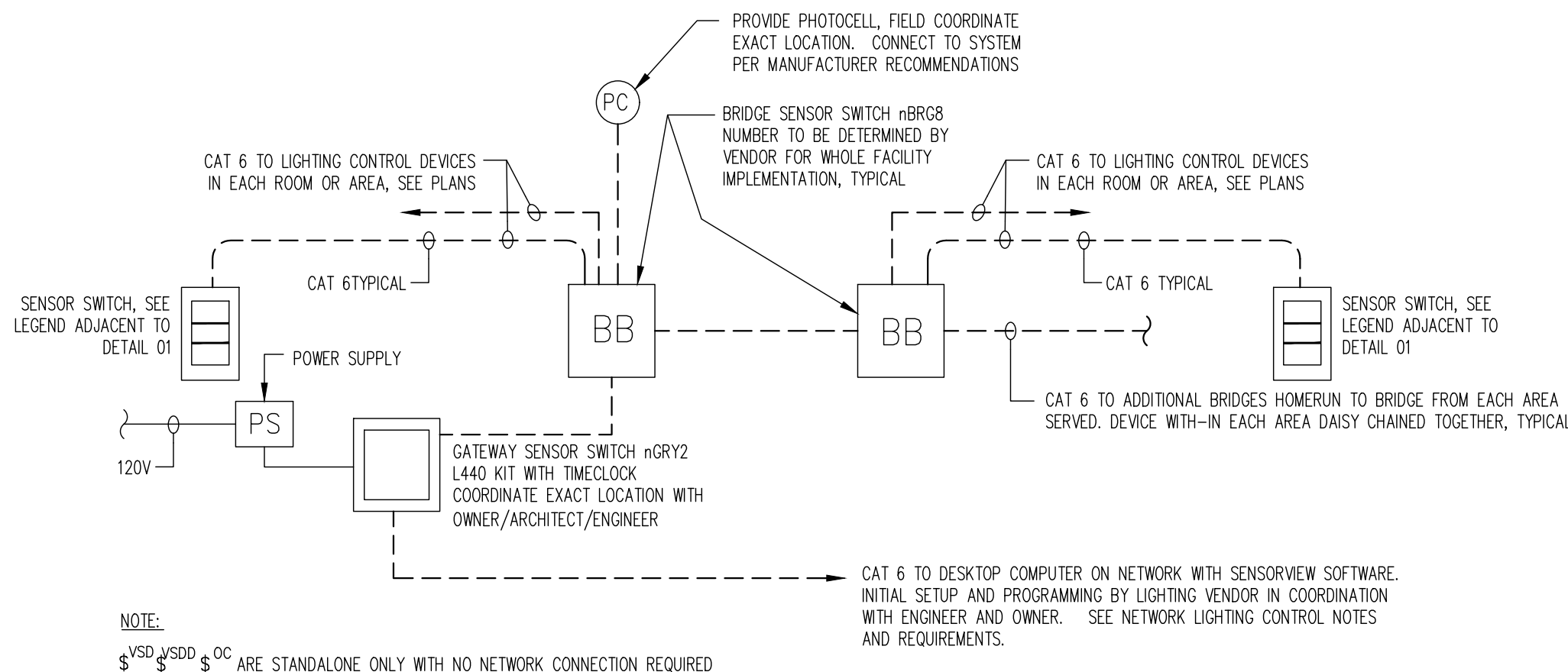
04



OCCUPANCY/VACANCY/DAYLIGHT SENSOR SYSTEM STANDARD TYPICAL WIRING DIAGRAM

SCALE: NONE

05



TYPICAL NETWORK LIGHTING CONTROL DIAGRAM

SCALE: NONE

SEE LIGHTING CONTROL GENERAL NOTES AND SEQUENCES LOCATED ON DRAWINGS WHICH RELATE TO THESE DIAGRAMS.

04

KEYNOTES - PANELBOARD AND RISER DIAGRAM:

- PROVIDE EXTERIOR EMERGENCY GENERATOR SET IN WEATHERPROOF SOUND ATTENUATED ENCLOSURE WITH SUB BASE DIESEL FUEL TANK, 48 HOURS FUEL SUPPLY, 200KW, 208Y/120V, 3ø, 4W, WITH 600 AMP MAIN CIRCUIT BREAKER. GENERATOR SHALL CONFORM TO ALL EPA, EMISSIONS, TIER RATINGS PER STATE AND LOCAL CODES AND REGULATIONS. CONFIRM ALL REGULATORY REQUIREMENTS AND PROVIDE COMPLETE COMPLIANT SYSTEM IN CONJUNCTION WITH MANUFACTURER.
- PROVIDE PG&E STANDARD UG PULL SECTION AND MAIN SERVICE ENTRANCE BREAKER SECTION WITH PG&E METERING SECTION. COORDINATE ALL WITH PG&E. PROVIDE CONCRETE PAD AS REQUIRED FOR GEAR COMPLETE.
- PROVIDE INTERIOR SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH "ATS" WITH SERVICE ENTRANCE MAIN CIRCUIT BREAKER.
- PROVIDE MAIN DISTRIBUTION PANELBOARD "MDP" AS INDICATED. COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND ALL TRADES. ENSURE COMPLIANCE WITH NEC CLEARANCES, ETC. PROVIDE FEEDER PER PANEL SCHEDULE THIS DRAWING. PROVIDE INTEGRAL SURGE PROTECTION DEVICE (SPD) IN MAIN PER GEAR MANUFACTURER RECOMMENDATIONS, PROVIDE ANY BRANCH BREAKER IN SWITCHBOARD FOR SPD (COORDINATE EXACT SIZE WITH MANUFACTURER). THE SPD SHALL BE AN 125/250KA, INTEGRAL TO MAIN SWITCHBOARD AND CONNECTED TO PANEL PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE NEW DISTRIBUTION BRANCH PANELBOARD AS INDICATED. SEE PLANS FOR LOCATION - FIELD COORDINATE EXACT LOCATIONS WITH OTHER TRADES AND ARCHITECTURAL LAYOUT TO PROVIDE NECESSARY NEC CLEARANCES, ETC. SEE PANEL SCHEDULES ON E3.1 AND E4.1
- PROVIDE SERVICE GROUNDING PER LOCAL UTILITY, SEE DETAIL 02 FOR ADDITIONAL INFORMATION.

GENERAL NOTES - PANELBOARD AND SINGLE-LINE DIAGRAM:

- PROVIDE PANELBOARDS WITH TYPE WRITTEN SCHEDULES AND AS-BUILT DRAWINGS PER ACTUAL INSTALLATION.
- FOR ALL PANELBOARD FEEDER SIZES REFER TO SAME PANELBOARD SCHEDULES, ON DRAWING E3.1 & E4.1
- ALL EQUIPMENT FEEDER SIZES INDICATED ON PANEL SCHEDULE, UON, OR PROVIDE PER NEC TO MATCH NAMEPLATE AND CORRESPONDING OVERCURRENT PROTECTION DEVICE.
- REFER TO POWER PLAN(S) FOR DISTRIBUTION EQUIPMENT "BASIS OF DESIGN" PHYSICAL SIZES AND LAYOUTS. CONTRACTOR SHALL PROVIDE AND INSTALL DISTRIBUTION EQUIPMENT TO MEET REQUIREMENTS OF ALL LOCAL, STATE, NATIONAL CODES AND AUTHORITY HAVING JURISDICTION. COORDINATE WITH EXISTING CONDITIONS, ALL NEW WORK, ACTUAL ROOM SIZE, ALL TRADES AND DISTRIBUTION EQUIPMENT SUPPLIER.
- VERIFY EXACT A.I.C. RATING FOR ALL DISTRIBUTION EQUIPMENT WITH ACTUAL SITE AND EQUIPMENT CHARACTERISTICS OF AVAILABLE FAULT CURRENT PER LOCAL UTILITY AND PROPER SHORT CIRCUIT CALCULATIONS PER MANUFACTURER CALCULATION. SIZES INDICATED ARE A MINIMAL DESIGN SIZE BASED ON INFORMATION PROVIDED AT TIME OF DESIGN. CONTRACTOR TO VERIFY.

Revisions:

Client Project Number: 000
APN Number: 000-000-000
KPA Project Number: 76100
Date: DEC. 19, 2024 ISSUE FOR BID

Sheet Title:

ELECTRICAL DETAILS

Sheet Number:

E300

MDP														BRANCH PANELBOARD													
NEMA 1				BOLT-ON BREAKERS						3 PHASE / 4 WIRE				800 AMP BUS													
SURFACE MOUNTED				22,000 AIC						208Y/120 VOLT				600 AMP MCB													
CT	DESCRIPTION	BKR	LF	A		B		C		LF	BKR	DESCRIPTION	CT														
1	M1	400/3	S	36376	6960	0				S	100/3	L1	2														
			S			33986	7800	0																			
			S				37110	8615																			
3	RP1	225A/3	S	8840	4720					S	100/3	RPIT	4														
			S			7900	4000																				
			S				8880	4000																			
5	UPS	90/3	S	4720						S	225/3	SPACE	6														
			S			4000																					
			S				4000																				
7	SPACE		S							S		SPACE	8														
			S																								
			S																								
9			S							S			10														
			S																								
			S																								
11			S							S			12														
			S																								
			S																								
13			S							S			14														
			S																								
			S																								
				61616		57686		62605																			
CONNECTED		181907	VA	506	AMPS																						
LF = LOAD FACTOR														C = CONTINUOUS, L = LIGHTING, R = RECEPTACLE, H = HACR (PER NAMEPLATE)													
														S = SUB FEED, K = KITCHEN, N = NON-CONTINUOUS, U = USER													
NOTES:																											
1 SEE SINGLE-LINE FOR FEEDER SIZE																											
SEE TABLE THIS SHEET FOR SIZING OF CONDUCTORS BASED ON BREAKER SIZES LISTED																											

RP1												BRANCH PANELBOARD	
NEMA 1				BOLT-ON BREAKERS				3 PHASE / 4 WIRE				225 AMP BUS	
SURFACE MOUNTED				22,000 AIC				208Y/120 VOLT				225A MLO	
CKT	DESCRIPTION	BKR	LF	A		B		C		LF	BKR	DESCRIPTION	CKT
1	RECEPTACLE	201/1	R	360	480					R	201/1	RECEPTACLE	2
3	RECEPTACLE	201/1	R			540	1260			R	201/1	RECEPTACLE	4
5	RECEPTACLE	201/1	R					720	540	R	201/1	RECEPTACLE	6
7	RECEPTACLE	201/1	R	360	540					R	201/1	EWIC/RECEPTACLE	8
9	RECEPTACLE	201/1	R			480	480			N	201/1	AUTO DOORS	10
11	RECEPTACLE	201/1	R					720	900	R	201/1	RECEPTACLE	12
13	RECEPTACLE COPIER	201/1	N	1200	1260					R	201/1	RECEPTACLE	14
15	RECEPTACLE	201/1	R			480	1200			N	201/1	RECEPTACLE COPIER	16
17	RECEPTACLE	201/1	R					900	900	R	201/1	RECEPTACLE	18
19	RECEPTACLE	201/1	R	480	900					R	201/1	RECEPTACLE	20
21	RECEPTACLE	201/1	R			480	540			R	201/1	RECEPTACLE	22
23	RECEPTACLE	201/1	R					1260	540	R	201/1	RECEPTACLE	24
25	RECEPTACLE	201/1	R	480	540					R	201/1	RECEPTACLE	26
27	RECEPTACLE	201/1	R			720	720			R	201/1	RECEPTACLE	28
29	RECEPTACLE	201/1	R					900		R	201/1	RECEPTACLE	30
31	RECEPTACLE COPIER	201/1	R	1200	540					R	201/1	RECEPTACLE	32
33	RECEPTACLE	201/1	R							S	201/1	SPARE	34
35	DOOR CONTROLS	201/1	N					1000	500	R	201/1	SPARE	36
37	FACP	201/1	R	500							201/1	SPARE	38
39	REFRIDGERATOR	201/1	C			1000					201/1	SPARE	40
41	SPARE	201/1						0	0		201/1	SPARE	42
43	SPARE	201/1		0	0						201/1	SPARE	44
45	SPARE	201/1				0	0				201/1	SPARE	46
47	SPARE	201/1						0	0		201/1	SPARE	48
49	SPARE	201/1		0	0						201/1	SPARE	50
51	SPARE	201/1				0	0				201/1	SPARE	52
53	SPARE	201/1						0	0		201/1	SPARE	54
55	SPARE	201/1		0	0						201/1	SPARE	56
57	SPARE	201/1				0	0				201/1	SPARE	58
59	SPARE	201/1						0	0		201/1	SPARE	60
				0	0								62
						0	0						64
								0	0				66
				0	0								68
						0	0						70
								0	0				72
CONNECTED				25620		VA	71	AMPS					
DEMAND				20525		VA	57	AMPS					
LF = LOAD FACTOR				C = CONTINUOUS, L = LIGHTING, R = RECEPTACLE, H = HACR (PER NAMEPLATE)									
				S = SUB FEED, K = KITCHEN, N = NON-CONTINUOUS, U = USER									
NOTES:													
1	SEE SINGLE-LINE FOR FEEDER SIZE												
	SEE TABLE THIS SHEET FOR SIZING OF CONDUCTORS BASED ON BREAKER SIZES LISTED												

L1												BRANCH PANELBOARD		
NEMA 1				BOLT-ON BREAKERS				3 PHASE / 4 WIRE				100 AMP BUS		
SURFACE MOUNTED				22,000 AIC				208Y/120 VOLT				100A MLO		
CKT	DESCRIPTION	BKR	LF	A		B		C		LF	BKR	DESCRIPTION	CKT	
1	LIGHTING	201/1	L	990							201/1	SPARE	2	
3	LIGHTING	201/1	L			1260	1000				L	201/1	LIGHTING	4
5	LIGHTING	201/1	L					1265	1200		L	201/1	LIGHTING	6
7	LIGHTING	201/1	L	870	800						L	201/1	LIGHTING	8
9	LIGHTING EXTERIOR	201/1	L			980	420				L	201/1	LIGHTING	10
11	LIGHTING	201/1	L					720	930		L	201/1	LIGHTING	12
13	LIGHTING	201/1	L	1200	700						L	201/1	LIGHTING	14
15	SPARE	201/1				480	1200				L	201/1	LIGHTING	16
17	SPARE	201/1						900	900			201/1	SPARE	18
19	SPARE	201/1		480	900							201/1	SPARE	20
21	SPARE	201/1				480	540					201/1	SPARE	22
23	SPARE	201/1						1260	540			201/1	SPARE	24
25	SPARE	201/1		480	540							201/1	SPARE	26
27	SPARE	201/1				720	720					201/1	SPARE	28
29	SPARE	201/1						900				201/1	SPARE	30
				6960		7800		8615						
CONNECTED		16919		VA	47	AMPS								
DEMAND		17194		VA	48	AMPS								
LF = LOAD FACTOR				C = CONTINUOUS, L = LIGHTING, R = RECEPTACLE, H = HACR (PER NAMEPLATE)										
				S = SUB FEED, K = KITCHEN, N = NON-CONTINUOUS, U = USER										
NOTES:														
1	SEE SINGLE-LINE FOR FEEDER SIZE													
	SEE TABLE THIS SHEET FOR SIZING OF CONDUCTORS BASED ON BREAKER SIZES LISTED													

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Not Used

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PART 1 - GENERAL**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General Conditions and Supplemental General Conditions and other Division 01 General Requirements, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling requests for Substitutions.
- B. Pre-bid substitutions will not be considered. No Substitution request will be accepted or considered by City prior to bid.
- C. Procedural requirements governing the Contractor's selection of products and product options are included under General Requirements - Product Requirements.

1.3 DEFINITIONS

- A. Definitions used in this Section are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents are considered requests for "substitutions." Where phrases such as "or equal" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that materials or equipment will be approved as equal unless the item has been specifically approved for this work by the Architect prior to Bid Opening Date, or as otherwise allowed in these Contract Documents.

The following are not considered substitutions:

- 1. Revisions to Contract Documents requested by the Owner or Architect.
- 2. Specified options of products and construction methods included in Contract Documents.
- 3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

- A. If the Contractor desires to use material or equipment other than that specified, they shall submit a request for approval of such substitution, in writing, to the Construction Manager.
Product Substitutions for all Specification Sections must be requested within the time period specified in the general conditions. Substitution Request Form: Use CSI Form 13.1A.
- B. Submit Substitution Request packages using the form provided and in a quantity to be returned to the Contractor plus four (4) copies of each request for substitution for review by the Architect.

- C. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
1. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
 2. Samples where applicable or requested.
 3. A detailed, side-by-side comparison of the significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include but is not necessarily limited to elements such as size, weight, durability, performance and visual effect.
 4. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors will become necessary to accommodate the proposed substitution.
 5. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 6. Cost information, including a proposal of the net change, if any, in the Contract Sum.
 7. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately
 8. The Contractor warrants that they have investigated the proposed product and determined that it is equal to or superior in all respects to that indicated or specified.
 9. The Contractor waives claim for additional costs and time associated with the proposed product, which may subsequently become apparent.
 10. The Contractor shall provide a signed statement that the proposed product is in full compliance with the Contract Documents, and applicable regulatory requirements, requires no changes to specified controls and monitoring systems that may be specified in other Sections, and Certify that the Contractor will be responsible for coordination at no additional expense to the Owner
 11. The Contractor shall provide information on availability of maintenance service, and source of replacement materials, and provide a sample of Manufacturer's standard form of guarantee or warranty for proposed product.

1.5 CONSTRUCTION MANAGER'S ACTION

- A. Within ten (10) days of receipt of the request, the Construction Manager will notify the Contractor of acceptance or rejection of the proposed substitution. The Architect at their sole discretion will determine the acceptability of proposed products and their determination shall be final. If a decision on use of a proposed substitution cannot be made or obtained within the time allocated, use the product specified by name in the Contract Documents.
- B. No consideration will be given to a substitute product unless, in the Architect's judgment, it complies with the following conditions.
 - 1. Substitution Request is complete.
 - 2. It is equal in quality, performance and serviceability.
 - 3. Its use does not entail changes in details or related construction.
 - 4. It is acceptable in regards to design and aesthetic effect.
 - 5. There is a cost and/or time advantage to the Owner.
- C. Acceptance of a product shall not relieve the Contractor from responsibility for the proper execution of the Work and any other requirements of the Contract Documents.
- D. If a proposed product is not accepted, use the product originally specified or indicated in the Contract Documents.
- E. No products other than those indicated or specified in the Contract Documents shall be purchased or incorporated in the Work without the Architect's prior written acceptance.

PART 2 - PRODUCTS**2.1 SUBSTITUTIONS**

- A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one (1) or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
 - 1. Extensive revisions to Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of the Contract Documents.
 - 3. The request is timely, fully documented and properly submitted.
 - 4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.
 - 5. The Specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method

cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or Separate Contractors, and similar considerations.
 8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
 9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
 10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
- B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents, does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (not used)

END OF SECTION



SUBSTITUTION REQUEST (After the Bidding Phase)

Project: Insert project name Substitution Request Number: For the Architect to fill in.
 From: Insert your name and company name
 To: Insert name of Architect, Engineer or GC Date: Insert the current date
 A/E Project Number: Fill in if you know the number
 Re: Substitution request Contract For: Insert your contract scope (in general)

Specification Title: Insert spec title from specification book Description: Copy section title from specification
 Section: Copy from spec book Page: insert page Article/Paragraph: insert para

Proposed Substitution:

Manufacturer:
 Address: Phone: insert plant phone number
 Trade Name: Model No.:

Installer: insert subs company Address: insert subs address Phone: insert subs phone number

History: ☐ New product ☐ 2-5 years old ☒ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product:

X ☐ Point-by-point comparative data attached - REQUIRED BY A/E.

Reason for not providing specified item:

Similar Installation:
 Project: List a completed project Architect: Insert name of Architect on completed project
 Address: Insert project address Owner: Insert name of Owner on completed project
 Date Installed:

Proposed substitution affects other parts of Work: X ☐ No ☐ Yes; explain

Savings to Owner for accepting substitution: (\$).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐

SUBSTITUTION

REQUEST (Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: Insert submitters name, normally project manager for sub

Signed by: Submitter to sign

Firm: Insert Submitters company name

Address: Insert

Telephone: Insert company phone number

Attachments: List name of attachments

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01330.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Project meetings.
 - 3. Requests for Interpretation (RFIs).
 - 4. Project Web site (web-based project management software).

1.2 DEFINITIONS

- A. RFI: Request For Information from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 WEB-BASED PROJECT MANAGEMENT SOFTWARE

- A. Software: Prolog Converge will be the software package utilized to manage the following processes:
 - 1. Requests for Information
 - 2. Submittals
 - 3. Change Management Documentation
 - 4. Daily Report Management
 - 5. Meeting Notes
 - 6. Document Management (including Photos)
 - 7. Close-Out Submittals
- B. The Contractor will be required to utilize Converge for all of the above processes. The Contractor may, at their option, utilize their own software for their own management purposes, but data must still be entered into the Prolog Converge web based software. Data entered into other management systems will not be recognized by the project team.
- C. Licenses: Three (3) Licenses will be provided to the Contractor at no cost. Additional licenses will be available at a cost of \$60 per month per license.

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Pre-installation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.

1.5 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 279 mm) but no larger than 30 by 42 inches (750 by 1067 mm).
3. Number of Copies: Submit electronic files for each submittal and produce hard copies as required by the Architect.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner, Construction Manager and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager and Architect, within three (3) days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Kitchell, but no later than fifteen (15) days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 1. Attendees: Authorized representatives of Owner, Construction Manager, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. LEED requirements.
 - l. Preparation of Record Documents.
 - m. Use of the premises and existing buildings.
 - n. Work restrictions.
 - o. Owner's occupancy requirements.

- p. Responsibility for temporary facilities and controls.
 - q. Construction waste management and recycling.
 - r. Parking availability.
 - s. Office, work, and storage areas.
 - t. Equipment deliveries and priorities.
 - u. First aid.
 - v. Security.
 - w. Progress cleaning.
 - x. Working hours.
3. Notes: Construction Manager or Architect will record and distribute meeting notes.
- C. Progress Meetings: Construction Manager will conduct progress meetings at **weekly** intervals. Coordinate dates of meetings with preparation of payment requests.
- 1. Attendees: In addition to representatives of Owner, Construction Manager and Architect, each subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. General Contractor's designated Project Manager and Superintendent must attend all Progress Meetings in addition to all other project related meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve notes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.

- 14) Field observations.
 - 15) Status of RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
3. Notes: Construction Manager will conduct the meeting will record and distribute meeting notes to Owner, Architect and Contractor.
 4. Reporting: Distribute notes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Contractor shall update the Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized.

1.7 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI via the web-based project management software.
 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. RFIs shall be submitted to the Construction Manager in the specified format.
 3. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 1. Project name.
 2. Project number
 3. Date.
 4. Name of Contractor.
 5. Name of Architect and Construction Manager.
 6. RFI number, numbered sequentially.
 7. Specification Section number and title and related paragraphs, as appropriate.
 8. Drawing number and detail references, as appropriate.
 9. Field dimensions and conditions, as appropriate.
 10. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 11. Contractor's signature.
 12. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- C. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow fourteen (14) working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to **procedures defined in the Contract Documents including Division F, Section 21.**
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within ten (10) days of receipt of the RFI response.
- D. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven (7) days if Contractor disagrees with response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log (CSI Log Form 13.2B) weekly. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION (Not Used)**

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Submittals Schedule.
 - 2. Daily construction reports.
 - 3. Field condition reports.

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- C. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

- A. Submittals Schedule: Submit via the web-based project management software. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Daily Construction Reports: Submit PDF file via the web-based project management software prior to close-of-business on the day covered by the report.

- C. Field Condition Reports: Submit PDF file via the web-based project management software at time of discovery of differing conditions.

1.4 COORDINATION

- A. Coordinate preparation and processing of reports with performance of construction activities and with scheduling and reporting of separate contractors.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site and quantities relating to labor force.
 - 2. Equipment at Project site.
 - 3. Material deliveries.
 - 4. High and low temperatures and general weather conditions.
 - 5. Accidents.
 - 6. Stoppages, delays, shortages, and losses.
 - 7. Meter readings and similar recordings.
 - 8. Orders and requests of authorities having jurisdiction.
 - 9. Services connected and disconnected.
 - 10. Equipment or system tests and startups.
 - 11. Progress on any schedule activity, including all related activity IDs.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation [on CSI Form 13.2A]. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION – (Not Used)

- END OF SECTION-

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's and Construction Manager's responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's and Construction Manager's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and Construction Manager and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal. Contractor is to notify the Architect and Construction Manager when new materials for review have been posted to the designated web-based project management software. Time will begin upon successful download of that information. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
 - 1. Initial Review: Allow fourteen (14) calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow fourteen (14) calendar days for review of each re-submittal.
- C. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.
1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings.
 - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Contractor shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement as well as any further waivers required by the Architect.
- D. Submittals are to be submitted electronically via the web-based project management software.
1. The following submittals are to be submitted electronically:
 - a. Product Data
 - b. Shop Drawings
 - c. Certifications
 - d. Test Data
 - e. Schedules
 2. Samples shall not be submitted electronically but a transmittal should be to document delivery of such samples.
- E. Identification and Information: Place a permanent label or title block on each cover of submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6x8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect and Construction Manager.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.

- f. Name of subcontractor.
 - g. Name of supplier.
 - h. Name of manufacturer.
 - i. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Other necessary identification.
- F. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
- 1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01-LNHS). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A-LNHS).
 - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect and Construction Manager.
 - 4. Include the following information on an inserted cover sheet:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Name of subcontractor.
 - h. Name of supplier.

- i. Name of Manufacturer
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Other necessary identification.
- G. Options: Identify options requiring selection by the Architect.
- H. Deviations: Highlight, encircle, and otherwise specifically identify deviations from the Contract Documents on submittals.
- I. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect or Construction Manager observes noncompliance with provisions in the Contract Documents, initial electronic submittal may serve as final submittal.
- J. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect and Construction Manager will return submittals, without review, received from sources other than Contractor.
- 1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect and Construction Manager on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- K. Re-submittals: Make re-submittals in same form as initial submittal.
- 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's and Construction Manager's action stamp.
- L. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- M. Use for Construction: Retain complete set of paper copies of submittals on Project site. Use only final submittals that are marked with approval notation from Architect's and Construction Manager's action stamp.
- 1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES
- A. At Contractor's written request, copies of Architect's CAD files of select plans will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions.
- 1. Only major site/floor/ceiling/roof plans, or building elevations/sections will be provided.
 - 2. Wall section, details, schedules will not be provided.

3. Title blocks will be removed from the file.
4. Notes and dimensions may be removed from the file.
5. Compliance of the requests for consultant files is at the discretion of the consultant.
6. The following disclaimer will be added to the file:

DISCLAIMER AND INDEMNIFICATION AGREEMENT FOR COMPUTER-BASED INFORMATION

The attached computer-based information for the **Construction of Fire Station 86** are provided to **(The User)** as a courtesy for their sole convenience. The User recognizes that computer-based information is easily changeable, that changes are difficult to detect and that use or conversion of the information provided may introduce errors, inaccuracies or anomalies that the Architect and their consultants can neither predict nor control. The delivery of this electronic data does not constitute the delivery of the professional work product of the Architect shall not be responsible for any modifications made to the electronic files or any products derived from the electronic files which are not prepared by us. By accepting and utilizing this electronic data in lieu of the corresponding drawings and specifications prepared by the Architect, the User agrees that such data is an instrument of service of the Architect, who shall be deemed to be the author of the drawings and data, and shall retain all common law, statutory law and other rights, including copyrights. The User, by accepting the electronic files, agrees to assume all risk and liabilities associated with the use of the information provided by the Architect and understand the Architect makes no claim or warranty as to the suitability or usefulness of the information for any purpose. The User also agrees, to the fullest extent permitted by law, to hold harmless and indemnify the Architect from and against any and all claims, liabilities, losses, damages and costs, including but not limited to attorney's fees, arising from or in connection with the use, misuse, modification, or misinterpretation of the electronic data provided by the Architect. Use of the attached computer-based information indicates acceptance and constitutes agreement to abide by the terms and conditions of this agreement.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Post electronic submittals as PDF electronic files directly to the web-based project management software (Prolog Converge). Notify the Architect and Construction Manager of the presence of the submittal(s) via email with identification of the specific materials posted. In web-based project management software, include link for all submittal register items associated with the submittal package. Where possible, endeavor to include all required action submittals for that specification section.
 - a. Architect, through Construction Manager, will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Submit electronic submittals via email as PDF files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 3. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified "Closeout Procedures."
 4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. PDF electronic file with transmittal as noted above.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submittals based upon Architect's digital data drawing files will be permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Provide hard copies as required by the Architect and Construction Manager
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package. Provide transmittal listing all samples submitted along with quantities.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal, through Construction Manager, with options selected.
 5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for

use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit three (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned. Mark up and retain one returned sample set as a project record sample.
 - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three (3) sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Submit product schedule in the following format:
 - a. PDF electronic file.
- F. Contractor's Construction Schedule: Comply with requirements specified in Section 01 32 16 "Construction Progress Document."
- G. Application for Payment: Comply with requirements specified in Section 01 29 00 "Payment Procedures."
- H. Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures."
- I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Wherever possible, including CSI numbers with description of work being completed. Also, provide DIR numbers for all subcontractors and vendors listed. Provide an updated list when any changes take place along with an explanation of what changed and why.
 1. Submit subcontract list in the following format:
 - a. PDF electronic file.
- J. Coordination Drawings: Comply with requirements specified in Section 01 31 00 "Project Management and Coordination."
- K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.

- M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- R. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- T. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- V. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES (Including DEFERRED APPROVALS)

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally-signed PDF electronic file and three (3) paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and Construction Manager.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Section 01 77 00 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S AND CONSTRUCTION MANAGER'S ACTION

- A. General: Construction Manager will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- B. Action Submittals: Architect and Construction Manager will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. Final Unrestricted Release: Where the submittal is marked "No Exceptions Taken," the Work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
 2. Final-but-Restricted Release: Where the submittal is marked "Reviewed with Exceptions as Noted," the Work covered by the submittal may proceed provided it complies with both Architect's notations and corrections on the submittal and the Contract Documents. Final acceptance will depend on that compliance.
 3. Returned for Resubmittal: Where the submittal is marked "Revise and Resubmit," do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Architect's notations and corrections.
 4. Rejected: Where the submittal is marked "Rejected," do not proceed with the Work covered by the submittal. Prepare a new submittal for a product that complies with the Contract Documents.
 5. Incomplete: Where the submittal is marked "Submit Specified Item," do not proceed with the Work covered by the submittal. Prepare additional information requested, or required by the Contract Documents, that indicates compliance with requirements.
- C. Informational Submittals: Architect and Construction Manager will review each submittal and will not return it or will return it if it does not comply with requirements. Construction Manager will forward each submittal to appropriate party.
- D. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

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PART 1 - GENERAL**1.1 DESCRIPTION**

- A The work of this section consists of implementing measures to prevent Storm Water Pollution during construction activities, in accordance with Federal, State, and local regulations, and in accordance with the Storm Water Pollution Prevention Plan (SWPPP) to be prepared for this project.

1.2 SUBMITTALS

- A Submit SWPPP to Owner after contract award and before the preconstruction conference.
- B Plans showing proposed arrangements and methods for control of erosion, sedimentation, and pollutant conveyance in storm water resulting from construction activities (Sheet C-7.2). The contractor shall provide final arrangement, methods of control and conveyance in the Storm Water Pollution Prevention Plan that satisfies all State NPDES permit requirements.
- C Provide sufficient information for evaluation of the following:
 - 1. Erosion protection measures and products
 - 2. Drainage management strategies
 - 3. Surface restoration
- D Submit schedules for inspection and monitoring of all SWPPP measures.
- E Submit manufacturer's product information and installation recommendations for silt fence, filter fabric and erosion control blanket, straw bales, and any other materials proposed for use on this project.
- F Contractor shall register on the State Water Resources Control Board (SWRCB) on-line Storm Water Multiple Application and Report Tracking System (SMARTS) database and submit the User Identification (ID) to the Owner. Owner will file a Notice of Intent (NOI) and link the Contractor User ID as a Data Entry Person for required entries (i.e., SWPPP, Annual Reports, Ad Hoc Reports) in accordance with the determined Risk Level monitoring and sampling requirements.

1.3 QUALITY ASSURANCE

- A Before commencing construction activities, such as grading, excavation or filling in any part of the site, Contractor shall plan for temporary structures to guide runoff away from the work area and to capture eroded material before it reaches natural water courses. The measures shall be in accordance with reviewed and approved SWPPP.

- B. Arrange construction activities to minimize erosion to the maximum practical extent. Clearing, excavation, and grading shall be limited to those areas of the project site necessary for construction. Minimize the area exposed and unprotected.
- C. Clearly mark and delineate the limits of work activities. Do not allow equipment to operate outside the limits of work or to disturb existing vegetation. Complete excavation and grading during the dry season to the maximum extent possible.

1.4 REGULATORY REQUIREMENTS

- A. The Contractor shall comply with provisions of Federal, State, and local regulations and requirements that govern the Contractor's operations and storm water and non-storm water discharges from the project site and areas outside the project limits during construction.
- B. The project site is more than one acre and therefore requires compliance with the State Water Resources Control Board statewide general permit entitled "Order No. 2009-0009-DWQ (as amended by Order No. 2010-0014-DWQ), National Pollutant Discharge Elimination System General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities" (Construction General Permit) that regulates discharges of storm water and non-storm water from construction activities disturbing one acre or more of land surface, or that are part of a common plan of development. The Construction General Permit is available for review at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/

This project shall conform to applicable provisions of this Permit and modifications thereto.

- C. This project lies within the boundaries of the San Francisco Bay Region (2) Regional Water Quality Control Board (SFRWQCB). The SFRWQCB has issued Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit for the discharge of stormwater runoff from the municipal separate storm sewer systems (MS4s) including construction sites (San Francisco Bay Region Municipal Regional Stormwater NPDES Permit Order No. R2-2015-0049 NPDES Permit No. CAS612008 November 19, 2015). The MS4 Regional Stormwater NPDES Permit is available to review at:

https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/R2_2015_0049_amended.pdf

This project shall conform to applicable provisions of this Permit and modifications thereto.

- D. Storm Water Pollution Prevention Plan (SWPPP)
 - 1. The SWPPP will include a description of best management practices (BMPs) that will be implemented to reduce the pollutants in stormwater and non-stormwater discharges to assure compliance with the terms and conditions of the Construction

General Permit.

2. A Qualified Stormwater Developer (QSD) shall prepare the SWPPP and a Qualified Stormwater Practitioner shall ensure implementation of the SWPPP.
3. The SWPPP shall include the following information and forms:
 - a. Site description
 - b. Expected sequencing of operations and construction schedule
 - c. Weather monitoring procedure
 - d. Descriptions and details of erosion controls, including dust control
 - e. Erosion control plans
 - f. Controls for other potential onsite storm water pollutants
 - g. Applicable specifications
 - h. Maintenance and inspection procedures and forms
 - i. Description of potential non-storm water discharges at site
 - j. Notice of Intent (NOI) form
 - k. Notice of Termination (NOT) form
 - l. QSD/QSP Certification forms
 - m. Other record keeping forms and procedures
 - n. Good housekeeping practices and procedures, including vehicle wash-down areas, protection of equipment storage and maintenance areas, and sweeping of roadways related to hauling activities
4. The Owner will review the draft SWPPP. Contractor QSD will address Owner review comments and submit revised SWPPP for Owner approval. Upon Owner approval, Contractor QSD and Owner representative will sign the approved SWPPP.
5. Contractor will upload approved SWPPP onto SMARTS database for Notice of Intent (NOI) submittal.
6. When the SWRCB approves the NOI, the SWPPP will be the document in force on the project.
7. Place the SWPPP and all updates in a three-ring binder so that completed inspection forms and other records may be inserted. The Contractor shall maintain a copy of the SWPPP and all associated records and forms on site throughout the construction period.
8. The SWPPP shall be available for public inspection. The Contractor shall notify the Owner immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to water pollution control work. The Contractor and the Owner shall provide copies of correspondence, notices of violation, enforcement actions, or proposed fines by regulatory agencies to the requesting regulatory agency.
9. Implement the SWPPP as required throughout the construction period and maintain all erosion control elements in proper working order until final acceptance of project.

10. Do not perform clearing and grubbing or earthwork until applicable BMPs have been installed.
 11. Prior to construction, the Contractor and all subcontractors shall sign certifications (included in the SWPPP) that they understand the requirements of the Construction General Permit and SWPPP. All Contractor and subcontractor crews shall comply with the requirements of the Construction General Permit under the supervision of the Contractor QSP who will be responsible for implementing the SWPPP. The Contractor QSP shall ensure that emergency procedures and the SWPPP are updated as needed and available for inspection. The SWPPP (including inspection forms) and all data used to complete the NOI shall be provided to the Owner at the completion of the project.
 12. SWPPP Inspections and Amendments
 - a. The Contractor QSP and/or trained crew under QSP supervision will perform weekly inspections of the project site in accordance with the SWPPP. Inspections shall be documented on forms provided in the SWPPP binder.
 - b. It may be necessary to revise the SWPPP during construction to make necessary improvements or to respond to unforeseen conditions noted during construction or site inspections. For that purpose, the SWPPP shall specify the mechanism whereby revisions may be proposed by the Contractor or the Owner and incorporated into the SWPPP, including review and acceptance of minor changes. The Contractor and the Owner will jointly accept and sign each revision to the SWPPP before implementation. Accepted modifications will be implemented within 7 calendar days following the date of the inspection when deficiencies or necessary corrections are first noted.
 - c. Temporary erosion and pollution control measures shall be used to correct conditions that develop during construction that were not foreseen during design, that are needed prior to installation of permanent control features, or that are needed temporarily to control erosion that developed during normal construction practices but are not associated with permanent control features on the project.
 - d. Provide additional temporary erosion and pollution controls made necessary by Contractor's errors or negligence at no additional cost to the Owner.
- E Notice of Intent (NOI)
1. Owner will complete NOI form on SMARTS and submit to SWRCB after accepted SWPPP has been uploaded by Contractor.
 2. Annual Reports are due to the SWRCB SMARTS by September 1 of each year. Contractor shall submit Annual Reports and any Ad Hoc Reports onto SMARTS by August 15 for Owner review.
- F Notice of Termination (NOT)
- G Upon final acceptance, the Owner will file the NOT.

1.5 PROJECT CONDITIONS

- A. The Contractor shall maintain records of work performed on the sediment control structures.
- B. The Contractor shall not remove any erosion or sediment control measure without prior permission from the Owner.
- C. The Contractor shall obtain approval from the Owner prior to making changes to erosion control plans.

1.6 SEQUENCE OF CONSTRUCTION

- A. The Contractor shall be responsible for arranging and conducting an Erosion and Sediment Control meeting/briefing to inform all parties scheduled to be on-site during the project of the measures to be implemented for proper erosion and sediment control (may be included as part of the preconstruction meeting).
 - 1. Installation of silt fences, storm drain protection, and all other forms of erosion and sediment control shall not begin until after this meeting has occurred.
- B. The Contractor shall notify the Owner in writing and by telephone of the following events:
 - 1. The required erosion and sediment control meeting/briefing.
 - 2. Following installation of required sediment control structures.
 - 3. Prior to removal of or modification to sediment control structures.
 - 4. Prior to removal of all sediment control structures.
- C. Silt fences, storm drain protection, and all other forms of erosion and sediment control shall be installed, inspected, and accepted by the Contractor before beginning any utility excavation.
- D. Temporary silt fences shall be installed around any stockpiles and/or excavated material that cannot be backfilled during the same day in which it was excavated. Temporary silt fences shall also be placed immediately downstream of any utility trench that has not been backfilled at the end of the working day. Temporary silt fences shall be installed prior to leaving the work site for the day.
- E. Silt fences and storm drain protection shall be inspected by the Contractor weekly. Repairs to these devices shall be completed prior to leaving the work site for the day.
- F. The Contractor shall prevent the deposition of materials onto paved areas. The Contractor shall inspect the paved areas for deposited materials weekly and remove the materials immediately.
- G. Silt fences shall be removed with permission of the Owner within 20 working days

after final acceptance of the project and/or after the establishment of permanent stabilization of all excavations and fill areas.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Before the work begins, sufficient equipment shall be available on the site to assure that the operation and adequacy of the erosion control plans can be continuously maintained.

2.2 EROSION CONTROL MEASURES

- A. Erosion control measures shall consist of silt fencing or equivalent (eg. wattles, etc.), barrier protectors, straw bales, temporary soil retention blankets, excelsior drainage filters, sediment traps and berms.
- B. Berms and excelsior drainage filters shall be used to form sediment traps and to control run-on and run-off into other areas, including creeks, streams, marshes, access roads, well areas, and the staging areas.
- C. Erosion control measures shall be used to contain only direct precipitation in the construction zone. The contained water shall be allowed to percolate into the ground or drain slowly through the drainage filter sediment traps.
- D. Earthen sediment traps or holding ponds shall not be used unless accepted by the Owner.

PART 3 - EXECUTION

3.1 GENERAL DESCRIPTION

- A. Furnish, install, maintain, and operate necessary control measures and other equipment necessary to prevent erosion to the maximum extent practical, including implementation of Best Management Practices (BMPs).
 - 1. Temporary measures shall be to Contractor's own design and Contractor shall be solely responsible for risks related to the management of erosion control during construction.
- B. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operations that will disturb the natural erosion protection.
- C. Schedule work to expose areas subject to erosion for the shortest possible time, and preserve natural vegetation to the greatest extent practicable. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast-growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.

3.2 METHODS

- A. Construct berms to reduce runoff velocity as well as direct surface runoff around and away from all fuel containment, storage, and borrow areas.
- B. Divert surface runoff around and away from cut and fill slopes by constructing berms or ditches at the base of disturbed slopes. Provide conveyance for the runoff in temporary pipes or protected channels to temporary sediment traps.
- C. Place drainage filters around all catch basins to create sediment traps to control runoff from the construction area.
- D. Excess water used for dust control shall be contained within the demolition areas by the erosion control measures.

3.3 MAINTENANCE OF TEMPORARY FACILITIES

- A. Inspect erosion and sediment control structures weekly. Ensure erosion and sediment control structures remain effective throughout excavation and grading operations. Relocate structures as necessary.
- B. Inspect control structures after each significant rainfall. Promptly repair breaches which occur.
- C. The Contractor shall remove entrapped sediment from behind excelsior drainage filter after each storm.

3.4 DISPOSAL OF SEDIMENT FROM STORM WATER POLLUTION CONTROL STRUCTURES

- A. Sediment excavated from temporary sediment control structures shall be disposed on the site with general fill, or with topsoil. Sediment shall be allowed to dry out as required before reuse.
- B. Contractor shall place the sediment removed from traps and other structures where it will not enter a storm drain or watercourse and where it will not immediately reenter the basin.

3.5 REMOVAL OF TEMPORARY STORM WATER POLLUTION CONTROL MEASURES

- A. All temporary control measures shall be removed with permission of the Owner within 20 working days after final acceptance of the Project or once grading is completed and slopes have stabilized.

SWPPP Contents

- a. SWPPP Certifications and Approval
- b. Risk Level
- c. Table of Contents
- d. Qualified SWPPP Developer
- e. Legally Responsible Person
- f. Amendment Log
- g. SWPPP Requirements
 - Permit registration documents
 - SWPPP availability and implementation
 - SWPPP amendments
 - Retention of records
 - Required non-compliance reporting
 - Annual report
 - Changes to permit coverage
 - Notice of Termination
- h. Project Information
 - Site description
 - Existing conditions
 - Existing drainage
 - Geology and groundwater
 - Project description
 - Developed condition
 - Permits and governing documents
 - Stormwater run-on from off-site areas
 - Findings of the construction site sediment and receiving water risk determination
 - Construction schedule
 - Potential construction activity and pollutant sources
 - Identification of non-stormwater discharges
 - Required site map information
- i. Best Management Practices
 - Schedule for BMP implementation
 - Erosion and sediment control
 - Non-stormwater controls and waste and materials management
 - Post-construction stormwater management measures
- j. BMP inspection and maintenance
 - Rain Event Action Plans
- k. Training
- l. Responsible parties and operators
 - Responsible parties

- Contractor list
- m. Construction Monitoring Program
 - Weather and rain event tracking
 - Monitoring locations
 - Safety and monitoring exemptions
 - Visual monitoring
 - Routine observations and inspections: Routine BMP inspections, Non-stormwater discharge observations
 - Rain-event triggered observations and inspections: Visual observations prior to a forecasted qualifying rain event, BMP inspections during an extended storm event, Visual observations following a qualifying rain event
 - Visual monitoring procedures
 - Visual monitoring follow-up and reporting
 - Visual monitoring locations
 - Water quality sampling and analysis
 - Sampling and analysis plan for non-visible pollutants in stormwater runoff discharges: Sampling scheduled, sampling locations, monitoring preparation, analytical constituents, sample collection, sample analysis, data evaluation and reporting
 - Sampling and analysis plan for pH and turbidity and stormwater runoff discharges: Sampling schedule, sampling locations, monitoring preparation, field parameters, sample collection, field measurements, data evaluation and reporting
 - Sampling and analysis plan for non-stormwater discharges: Sampling schedule, sampling locations, monitoring preparation, analytical constituents, sample collection, sample analysis, data evaluation and reporting
 - Additional monitoring following an NEL exceedance
 - Training of sampling personnel
 - Sample collection and handling
 - Sample documentation procedures
 - Records retention
- n. Attachments
 - Construction General Permit
 - Risk Level calculations
 - Water Pollution Control Drawings
 - Permit Registration Documents/Amendments
 - QSD/QSP Certifications
 - SWPPP Amendment Certifications
 - Construction Schedule

- Construction Activities, Materials Used, and Associated Pollutants
- CASQA Stormwater BMP Handbook Portal: Construction Fact Sheets
- BMP Inspection Form
- Training Reporting Form
- Weather forecast reports
- Monitoring records
- Field meter instructions

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
 - 3. Specific test and inspection requirements are not specified in this Section.

1.2 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.
- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities

having jurisdiction, to establish product performance and compliance with industry standards.

- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to Tradespeople of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction. See specific specification sections for additional experience requirements.

1.3 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement as defined in the General Conditions. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

- B. Reports: Prepare and submit certified written reports that include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and re-inspecting.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 2. Notify Construction Manager seven (7) days in advance of dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 6. Demolish and remove mockups when directed, unless otherwise indicated.
- J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 48.

1.6 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.

2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor (contract sum adjusted through change order procedures).
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections.
- D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Does not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.

- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency, special inspector and/or Essential Services Inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, this includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the

following:

1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Construction Manager's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 2. Comply with the Contract Document requirements for "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

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PART 1 – GENERAL**1.1 MOCK-UP SUMMARY**

- A. Mock-ups will be used to review of appearance, quality of workmanship, coordination, compatibility, and relationships with adjacent materials. Unless otherwise specifically indicated mock-ups shall be constructed in place at location directed by Architect. Approved mock ups may remain as part of the work.

1.2 SUBMITTALS

- A. Mock-ups shall not be fabricated until after acceptance of required submittals for all materials to be incorporated into the mock-ups. This means that the Project schedule shall take into account early submittal of these components to the Architect.
- B. Samples: Prior to construction of mock-ups, provide samples as specified in the respective Specification Sections included as part of the mock-ups.

1.3 QUALITY ASSURANCE

- A. Design Concept: Mock-up requirements are intended to establish function, workmanship, finish, and color for conformance with the architectural design intent.
- B. Purpose: To verify suitability of colors, finishes, and satisfactory integration of building materials and components indicated and required.
- C. Performance: Mock-ups shall be constructed for the Architect's review for compliance with the Contract Documents and shall be used as a standard for the final installation.
- D. Make necessary additions and modifications to mock-ups as directed by the Architect.
- E. Modify mock-ups, or construct or install new components if requested by the Architect, until final acceptance is obtained.
- F. Mock-ups shall serve as the standard for subsequent work of like kind after approval by the Architect. Be prepared, at no additional cost to the Owner, to make as many modifications as required to achieve mock-ups that are acceptable to the Architect and of sufficient quality to serve as the standard for the complete Project.
- G. Following acceptance, mock-ups shall serve as a performance standard of quality and appearance of the work it represents, including the interface with adjacent

materials and components as applicable.

- H. Coordinate fabrication, delivery, assembly, and installation with related materials to be included in the mock-ups. Construction of the mock-up assemblies shall be under the supervision of the same personnel who will be employed for the subsequent work.
- I. Maintain mock-ups in neat, clean condition until removal or final acceptance. Repair damage as required to maintain in condition suitable for review and approval.
- J. Scheduling:
 - 1. Construct mock-ups in a timely manner to permit review and modifications such that the work is not delayed.
 - 2. Do not proceed with ordering of components or construction subject to mock-up approval until after approvals have been obtained.
 - 3. Provide the Architect not less than 10 working days notice of the time each component is ready for review.
 - 4. Include line item in the construction schedule for the building section mock-up, showing submittals, construction, review, and approval periods.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. As specified in the respective Sections of the Specifications.

PART 3 – EXECUTION

3.1 EXTERIOR BUILDING MOCK-UP

- A. Provide building mock-up of building area indicated where directed by the Architect.
- B. Purpose: Establish standards for work indicated and specified to be included in mock-ups to demonstrate quality of workmanship, materials, colors, and textures required by the Contract Documents. Include roof, roof overhang, soffits, windows, doors, glazing, sealants, siding and cladding, flashings, and other exterior materials.
 - 1. Mock-up will be used by the Architect to test color and material alternatives and to approve final colors, textures, and workmanship.
 - 2. Interior finishes will not be required to be installed on the interior side of the exterior building mock-up.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes requirements for temporary fencing, utilities, support facilities, and security and protection facilities.

1.2 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weather tight; exterior walls are insulated and weather tight; and all openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Construction Manager, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water Service: Water from Owner's existing water system is not available for use without metering and without payment of use charges. Contractor is responsible for coordination of this activity with the local municipality.
- C. Electric Power Service: Contractor to provide connections and extensions of services as required for construction operations including the office trailers. Contractor will be responsible to coordinate and make arrangements with PG&E to provide temporary power to the construction site. Contractor will be responsible for all costs associated with the installation of temporary power and any and all use charges for the duration of the contract. **Contractor shall provide temporary power as required to allow for operation of office trailers, construction power and new modular building.** Temporary power from PG&E is available in the immediate area of the site, contractor shall pursue engineering and installation of temporary power at their own cost.
- D. Internet Service/Data: Temporary hardwired service is not currently available in the immediate area of the site, but contractor may pursue engineering and installation of temporary hardwired service at their own cost. Contractor may need to pursue other options to meet the contractual temporary service requirements (satellite, etc.).
- E. Temporary Fencing: Contractor to provide temporary fencing at the perimeter of the project site with adequate protection provided to pedestrians outside of the project site. If there is any exposure to falling objects outside of the project site then the Contractor must provide a covered walkway. Contractor shall comply with FAA Orders and Standards for temporary fencing installed at airside (aircraft parking areas). Contractor shall install fencing to secure FAA Parking areas near ATCT during work at ATCT parking lots.

1.4 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel and Construction Managers.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA

Construction General Permit or authorities having jurisdiction, whichever is more stringent.

- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibility.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Temporary Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fence with privacy screening fabric mesh; minimum 6 feet high (8 feet at airside) with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Galvanized Steel posts will be required to be driven into the ground for support and stability or portable fencing, if appropriate, with sufficient hold down weight to prevent overturning.

2.2 TEMPORARY FACILITIES FOR PROJECT SITE

- A. Field Offices for each site, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Field Offices: Provide and maintain for the duration of the Work temporary offices on site for use by the Contractor and a separate onsite trailer for use by the Owner's representatives (including Owner, Construction Manager and the Architect).
 - 1. **Owner's Representative.** This office shall be a self-contained construction trailer, minimum size 10' X 44', and shall be set up with an office at one end and an area for plans. The office will include a desk (minimum size of 30" X 60"), a rolling office chair and two (2) guest chairs. The plan area furnishings will include a 30" X 72" folding table, a small table with a coffee maker, (1) microwave, (1) mini refrigerator, (4) folding chairs, a plan table, a rolling plan rack, two trashcans, three (3) lockable 4 drawer filing cabinets, water cooler, fire extinguisher, smoke detector, and a complete set of unmarked Contract Documents for the Owner's Representative's use. The office shall also be equipped with a scanner/copier/printer and a dedicated data line. Two (2) dedicated parking spaces will be provided for use by the Construction Manager's staff.
 - 2. Offices shall be equipped with secure wireless internet capabilities to allow for onsite users access to email and the internet.

3. Offices shall be provided with a door and lock with security bar and a window with a minimum size of 4 feet x 3 feet and security screen. Provide and maintain an electric heater and air conditioning along with adequate electric lighting for each office.
- C. Office Supplies: The Contractor shall supply the field office of the Owner's Representative with (2) cases of 8-1/2 x 11 paper, (1) case of 11 x 17 paper, (1) box post-it notes, (1) box white-out tape, (1) stapler with staples, (1) box assorted binder clips, (1) box paperclips, (1) box of pens, (1) box of pencils, Printer/Copier Toner or Ink, (2) surge protectors, (1) 24' extension cord, (2) water cooler bottles, (1) box coffee cups, coffee, (3) rolls paper towels. Supplies shall be restocked monthly and/or on an as-needed basis.
- D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
- E. Temporary Field Fencing: Provide fence size, material and privacy screen fabric mesh to encompass each site, furnish and installed, equipped for entrance of utility trucks (16- foot gates) and man gates for easy access.
- F. Network Setup: The network shall have the following requirements:
 1. The internet connection must be separate service and independent of the Contractor's and shall be the fastest speed available in the area with a minimum a 20-Meg upload / 20-Meg download speed. This should be accomplished via a hard-wired connection.
 - a. Wired network connections must be provided at
 - 1) The Office, Planroom, and the Printer/Scanner.
 - b. Reasonable access to power for the equipment must be provided.
 2. If it is necessary to "piggyback" off of an existing hard-wired line, the line provided to the Owner's Representative shall be an unfiltered line, with no limitations set by the main line holder, such as access restrictions or DNS port blocking.
 3. In the cases where a hard-wired connection is not available, the wireless connection provided must meet the same speed needs of 20-Meg upload / 20-Meg download. It shall also be of sufficient bandwidth to meet the needs of the staff.
 4. In the case of sites where the internet speeds do not meet the above requirements, a cellular "hot-spot" is to be provided if resulting in a faster connection, along with a local storage device must be provided for the location to save the project data. The local storage device will be connected to the Kitchell network, and backed up during non-business hours to the Kitchell network server.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

PART 3 - EXECUTION**3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION FOR PROJECT SITE

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Electrical Power and Lighting:
 - 1. Contractor will furnish and pay for power during the course of the work to the extent power is not in the building(s) or on the Site. Contractor shall be responsible for providing temporary facilities required on the Site to point of intended use.
 - 2. Contractor shall furnish, wire for, install and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/ or observe of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.
 - 3. Contractor shall be responsible for maintaining existing lighting levels in the Project vicinity should temporary outage or service interruptions occur.
- C. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction. Coordination is the responsibility of the Contractor.
- D. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction and modular passenger terminal.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Provide connection to existing sanitary sewer for temporary passenger terminal modular.
- F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- H. Electric Power Service: It is the Contractor's responsibility to coordinate with PG&E to obtain the temporary electrical service, including submission of services applications, load calculation, and single line diagrams. The Contractor will also be responsible for payment of

the monthly PG&E invoices and all other temporary requirements as outlined within the specification section.

Contractor shall provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations including office trailers.

1. See Section 1.3.C

- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 Temporary Controls

- A. Noise Control
 1. Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work, and it shall take all reasonable precaution to minimize noise as required by applicable law and the Contract Documents.
 2. Notices of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the City a minimum of forty-eight (48) hours in advance of their performance. Contractor responsible for obtaining all permits required for construction noise outside of the times allowable within the noise ordinance.
 3. Contractor to meet the Conditions of Approval related to Noise Control as defined in the Contract Documents.
- B. Noise and Vibration
 1. Equipment and impact tools shall have intake and exhaust mufflers.
 2. Contractor shall cooperate with the City to minimize and /or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.
 3. Contractor to meet the Conditions of Approval related to noise and vibration as defined in the Contract Documents.
- C. Dust and Dirt
 1. Contractor shall conduct demolition and construction operations to minimize the generation of dust & dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.
 2. Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.
 3. Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.
 4. Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.
 5. Contractor to meet the Conditions of Approval related to dust and dirt as defined in the Contract Documents.
 6. Comply with FAA Orders and Standards.

3.4 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 1. Provide incombustible construction for offices, shops, and sheds located within

- construction area or within thirty (30) feet of building lines. Comply with NFPA 241.
2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.
- C. Temporary Roads and Paved Areas: All areas are currently paved.
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Contractor is to provide temporary parking for construction personnel within confines of the designated construction site. If parking within the designated construction site becomes unavailable due to number of Trades, Subcontractors and Vendors, Contractor shall be responsible for coordinating with the City, or local jurisdiction for parking requirements, locations, permits, shuttle services, etc. Contractor is to review and follow all related Conditions of Approval, Laws and Regulations from the City of Ukiah.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water. (refer to demolition drawings for specifics)
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
- G. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on drawings or required by the County or the City. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
1. Provide temporary, directional signs for construction personnel and visitors.
 2. Maintain and touchup signs so they are legible at all times.
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- 3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater

from heavy rains.

- D. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- E. Temporary Site Enclosure Fence: All costs associated with the install, monthly fencing rental fees and demobilization of the fencing will be the responsibility of the contractor. Furnish and install any additional site enclosure fence panels in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Temporary Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and protection of the public. Operations include temporary offices, parking, staging areas, actual construction site.
- F. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Contractor is responsible to ensure that the fencing and all gates are secured and locked prior to leaving the site on a daily basis to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather-tight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
 - 2. Insulate partitions to provide noise protection to occupied areas.
 - 3. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
 - 4. Protect air-handling equipment.
 - 5. Weather strip openings.
 - 6. Provide walk-off mats at each entrance through temporary partition.
- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Smoking is **prohibited** in all construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and

abuse, limit availability of temporary facilities to essential and intended uses.

- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Cutting and patching.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.

1.2 SUBMITTALS

- A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Survey reports and plots as detailed below.

1.3 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as

intended or that results in increased maintenance or decreased operational life or safety.

1.4 EXAMINATION

- A. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

1.5 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

1.6 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

1.7 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

1.8 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

1.9 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
- F. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

1.10 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than seven (7) days during normal weather or three (3) days if the temperature is expected to rise above 80 deg F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

1.11 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

1.12 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

1.13 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION (Not Used)**

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes procedural requirements for cutting and patching.
- B. See Divisions 2 through 48 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.2 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
 - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
 - 3. Products: List products to be used and firms or entities that will perform the Work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
 - 6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
 - 7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, and result in

reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.

- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - 4. Ceilings: Patch, repair, or re-hang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 - 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY – WASTE MANAGEMENT GOALS**

- A. Section includes administrative and procedural requirements for salvaging, recycling and disposing of nonhazardous demolition and construction waste.
- B. The Owner has established that this Project shall generate the least amount of waste possible and processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
- C. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

1.2 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal of off-site waste and subsequent sale, recycling, reuse or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitability, corrosivity, toxicity or reactivity.
- E. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
- F. Recycle: Recovery of waste from the Project site to another site for subsequent processing in preparation for reuse
- G. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of recycling. Recycling does not include burning, incinerating, or thermally destroying waste.
- H. Salvage: To remove a waste material from the Project site for subsequent sale or reuse in another facility.

- I. Salvage and Reuse: Recovery of waste and subsequent incorporation into the Work

1.3 PERFORMANCE REQUIREMENTS

- A. Develop and implement a waste management program resulting in an end-of-project rates for salvage/recycling of minimum 65 percent by weight or volume of the total waste generated by the project. Refer the Contra Costa Cal Green Construction and Demolition. Debris Recovery Program and follow the CalGreen Applicant Instructions (<https://www.contracosta.ca.gov/DocumentCenter/View/61489/CalGreen-Applicant-Instructions---Non-Residential-Projects?bidId=>).
- B. Regulations: The Contractor shall be responsible for knowing and complying with regulatory requirements, Federal, State, and Local, pertaining to legal disposal of all construction and demolition waste materials.
- C. Coordination: Coordinate the recycling of materials with Owner and Subcontractors as required to conform to the Construction Waste Management Plan.
- D. Site Access and Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Waste Management Meetings: Conduct on-site waste management meetings with all subcontractors. Review and discuss the waste management plan, methods, procedures and each party's roles and responsibilities.
- C. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- D. Packing and Shipping
 - 1. Shipping: Coordinate the schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
 - 2. Packing: Arrange for the return of packing materials, such as wood pallets, where economically feasible.
- E. Handling
 - 1. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
 - 2. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
 - 3. Promptly return damaged shipments or incorrect orders to manufacturer for

credit or refund.

- F. Storage: Store products in accordance with manufactures recommendations and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.
- G. Preparation
 - 1. Storage and Protection:
 - a. Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
 - b. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials covered and off the ground, and store in a dry, secure area.
 - c. Prevent contact with material that may cause corrosion, discoloration, or staining.
 - d. Protect all materials and installations from damage by the activities of other trades.
- H. Waste Management
 - 1. Source separated waste: Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in order to prevent contamination of materials and to maximize recyclability and salvageability of identified materials.
 - 2. Comingled Waste: Waste may be comingled at the site and separated at a recycling facility.
 - 3. Return: Set aside and protect missed-delivered and substandard products and materials and return to supplier for credit.
 - 4. Reuse and Salvage: Set aside, sort, and protect separated products and materials for collection, re-use on site by contractor, and salvage by other.
 - 5. Recycling: Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

1.5 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to the requirements in this Section, as well as the requirements indicated in the LEED for Building Design and Construction New Construction Reference Guide, version 2009, under Materials and Resources Credit 2 – Construction Waste Management. Plan shall consist of the following sections: Waste Management Goals, Responsible Parties, Waste Identification, Waste Prevention and Diversion Measures, Contamination Prevention Measures, Communication and Education Measures, Onsite Recycling Operations, and Cost/Revenue Analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan. The plan shall result in end-of-Project rates for salvage/recycling of minimum 65 percent by weight or volume of the total waste generated by the work. Refer the Contra Costa Cal Green Construction and Demolition Debris Recovery Program and follow the CalGreen applicant Instructions.
[\(https://www.contracosta.ca.gov/DocumentCenter/View/61489/CalGreen-Applicant-Instructions---Non-Residential-Projects?bidId=\)](https://www.contracosta.ca.gov/DocumentCenter/View/61489/CalGreen-Applicant-Instructions---Non-Residential-Projects?bidId=) .

- B. Waste Identification: Indicate anticipated types and quantities of demolition, site- clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates
- C. The list of these materials is to include, at minimum, the following materials:
 - 1. Cardboard.
 - 2. Clean dimensional wood.
 - 3. Beverage containers.
 - 4. Land clearing debris.
 - 5. Concrete.
 - 6. Bricks.
 - 7. Concrete Masonry Units (CMU).
 - 8. Metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
 - 9. Drywall.
 - 10. Carpet and carpet pads.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project.
- B. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner, and the Owner's Representative.
- C. Instruction and Training: The Contractor shall provide on-site instruction and train workers, subcontractors and suppliers of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used.
- D. Separation facilities: The Contractor shall layout and label a specific area to facilitate separation of materials for potential recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials. Waste may be commingled at the site in a specific label area for pickup by the waste hauler and separated at a recycling facility.
- E. Hazardous wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.
- F. Contractor shall provide a monthly summary to the LEED Consultant with the following information:

- G. The amount (in tons or cubic yards) of material landfilled from the Project, the identity of the landfill, the total amount of tipping fees paid at the landfill, and the total disposal cost. Include manifests, weight tickets, receipt, and invoices.
- H. For each material recycled, reused, or salvaged from the Project, the amount (in tons or cubic yards), the date (removed from the jobsite, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of salvage or recycling each material). Attach manifests, weight tickets, receipts, and invoices.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.

- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Owner.

Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan
- D. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin. Regularly inspect bins for contamination.
- E. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
- F. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
- G. Store components off the ground and protect from the weather.
- H. Remove recyclable waste from Owner's property per approved Waste Management Plan.

3.3 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.4 INSTALLATION

- A. Install product(s) per manufacturer's recommendations to reduce damage to or waste of materials by required replacement.

3.5 TRANSPORTATION

- A. Transport materials in covered trucks to prevent contamination of product or littering of surrounding areas.

3.6 GENERAL CLEANING

- A. Control accumulation of waste materials and trash. Recycle or dispose of off-site at intervals approved by the Owner and in compliance with waste management procedures.
- B. Cleaning materials: Use cleaning materials that are non-hazardous.

3.7 FINAL CLEANING

- A. Cleaning Materials: Only non-hazardous cleaning materials shall be used in the final cleanup.
- B. Recycle, salvage, and return construction and demolition waste from Project.
- C. Arrange for pick-up of salvageable materials in accordance with the Waste Management Plan.
- D. Disposal Operations: Promptly and legally transport and dispose of any trash. Do not burn, bury, or otherwise dispose of trash on the Project site.

END OF SECTION

PART 1 – GENERAL**1.1 Section Includes**

- A. Cleaning throughout the construction period, and final project cleaning prior to the acceptance tour.

1.2 Quality Assurance

- A. Inspection: Conduct daily inspection, and more often if necessary, to verify that requirements of cleanliness are being met.
- B. Codes and Standards: In addition to the requirements specified herein, comply with pertinent requirements of authorities having jurisdiction.

PART 2 – PRODUCTS**2.1 Cleaning Materials and Equipment**

- A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 Compatibility

- A. Use cleaning materials and equipment that are compatible with the surfaces being cleaned, as recommended by the manufacturer of the material to be cleaned.

PART 3 – EXECUTION**3.1 Progress Cleaning**

- A. General:
 - 1. Retain stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
 - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for construction of this work. Debris shall be removed from the site and disposed of in a lawful manner. Disposal receipts or dump tickets shall be furnished to Architect upon request.
 - 3. At least twice each month, and more often if necessary, remove scrap debris, and waste material from the job site.

4. Provide adequate storage for items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.
- B. Site:
1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove items to the place designated for their storage. Flammable waste shall be kept in sealed metal containers until removed from the site.
 2. Weekly, and more often if necessary, inspect, arrangements of materials stored on the site; restack, tidy, or otherwise service arrangements to meet the requirements specified above.
 3. Maintain the site in a neat and orderly condition.
- C. Structures:
1. Weekly, and more often if necessary, inspect the structures and pick up scrap, debris, and waste material. Remove items to the place designated for their storage.
 2. Weekly, and more often if necessary, sweep interior spaces clean.
 - a. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a handheld broom, i.e., "broom-clean".
 3. As required preparatory to installation of succeeding materials, clean the structures of pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the required cleanliness.
 4. Following the installation of finish floor materials, clean the finish floor daily, and more often if necessary, and while work is being performed in the space in which finish materials have been installed.
 - a. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from foreign material that, in the opinion of the Architect, may be injurious to the finish floor material, i.e., "vacuum-clean".
- D. General: The General Conditions require general cleaning during construction. Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste, conduct final progress cleaning as described below.
- E. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions. Unless otherwise specifically directed by the Architect, water and broom clean paved areas on the site and public paved areas directly adjacent to the site. Remove resultant debris
- F. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
1. Remove labels that are not permanent labels.

2. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
- G. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition. Leave concrete floors broom clean. Vacuum carpeted surfaces. Sweep and mop vinyl and rubber surfaces.
- H. Structures:
3. Exterior: In areas affected by the work under this contract, visually inspect exterior surfaces and remove traces of soil, waste material, smudges, and other foreign matter. Remove traces of splashed material from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior of the structure.
 4. In the event of stubborn stains not removable with water, the Architect may require light sandblasting or other cleaning at no additional cost to the District.
- I. Interior: In areas affected by the work under this contract, visually inspect interior surfaces and remove traces of soil waste material, smudges, and other foreign matter. Remove traces of splashed materials from adjacent surfaces. Remove paint drippings, spots, stains, and dirt from finished surfaces. Use only the cleaning materials and equipment instructed by the manufacturer of the surface material.
- J. Glass: Clean glass inside and outside.
- K. Polished surfaces: On surfaces requiring the routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished. Glossy surfaces shall be cleaned and shined as intended by the manufacturer
5. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 6. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- L. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.
- M. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- N. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess

materials on the District's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

- O. Extra Materials: Where extra materials of value remain after completion of associated Work, they become the District's property. Dispose of these materials as directed by the Owner.
- P. Timing: Schedule final cleaning as accepted by the Architect to enable the District to accept a completely clean project.
- Q. Cleaning During District's Occupancy
 - 7. Should the District occupy the work or any portion thereof prior to its completion by the Contractor and acceptance by the District, responsibilities for interim and final cleaning of the occupied spaces shall be determined by the Architect in accordance with the General Conditions of the Contract.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Final Completion.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of work.
- B. 01 79 00 "Demonstration and Training" for requirements for instructing Owner's personnel.
- C. See Divisions 02 through 48 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.
 - 9. Submit test/adjust/balance records.
 - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 11. Advise Owner of changeover in heat and other utilities.
 - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 - 13. Complete final cleaning requirements, including touchup painting.
 - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 - 15. Successful completion of Functional Testing for equipment requiring LDD Commissioning.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final

Completion.

1.3 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment according to "Payment Procedures."
 - 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit electronic versions of list (including editable file and PDF file). Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file. Architect, through Construction Manager, will return annotate copy.

1.5 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8- 1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION**3.1 FINAL CLEANING**

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision- obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

- n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - r. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

PART 1 – GENERAL**1.1 SUMMARY**

- A. Commissioning is intended to achieve the following specific objectives; this section specifies the Contractor's responsibilities for commissioning:
 - 1. Verify that the work is installed in accordance with Contract Documents and the manufacturer's recommendations and instructions, and that it receives adequate operational checkout prior to startup: Startup reports and Prefunctional Checklists executed by Contractor are utilized to achieve this.
 - 2. Verify and document that functional performance is in accordance with Contract Documents: Functional Tests executed by Contractor and witnessed by the Commissioning Authority are utilized to achieve this.
 - 3. Verify that operation and maintenance manuals submitted to Airport are complete: Detailed operation and maintenance (O&M) data submittals by Contractor are utilized to achieve this.
 - 4. Verify that the Airport's operating personnel are adequately trained: Formal training conducted by Contractor is utilized to achieve this.
- B. The Commissioning Authority directs and coordinates all commissioning activities; this section describes some but not all of the Commissioning Authority's responsibilities.

1.2 RELATED REQUIREMENTS

- A. Section 01 77 00 - Closeout Submittals: Scope and procedures for operation and maintenance manuals and project record documents.

PART 2 – PRODUCTS**2.1 TEST EQUIPMENT**

- A. Provide all standard testing equipment required to perform startup and initial checkout and required Functional Testing; unless otherwise noted such testing equipment will NOT become the property of Airport.
- B. Calibration Tolerances: Provide testing equipment of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified. If not otherwise noted, the following minimum requirements apply:
 - 1. Temperature Sensors and Digital Thermometers: Certified calibration within past year to accuracy of 0.5 degree F and resolution of plus/minus 0.1 degree F.
 - 2. Pressure Sensors: Accuracy of plus/minus 2.0 percent of the value range being measured (not full range of meter), calibrated within the last year.

3. Calibration: According to the manufacturer's recommended intervals and when dropped or damaged; affix calibration tags or keep certificates readily available for inspection.
- C. Equipment-Specific Tools: Where special testing equipment, tools and instruments are specific to a piece of equipment, are only available from the vendor, and are required in order to accomplish startup or Functional Testing, provide such equipment, tools, and instruments as part of the work at no extra cost to Airport; such equipment, tools, and instruments are to become the property of Airport.
- D. Dataloggers: Independent equipment and software for monitoring flows, currents, status, pressures, etc. of equipment.
 1. Dataloggers required to for Functional Tests will be provided by the Commissioning Authority and will not become the property of Airport.

PART 3 – EXECUTION

3.1 COMMISSIONING PLAN

- A. Commissioning Authority has prepared the Commissioning Plan.
 1. Attend meetings called by the Commissioning Authority for purposes of completing the commissioning plan.
 2. Require attendance and participation of relevant subcontractors, installers, suppliers, and manufacturer representatives.
- B. Contractor is responsible for compliance with the Commissioning Plan.
- C. Commissioning Plan: The commissioning schedule, procedures, and coordination requirements for all parties in the commissioning process.
- D. Commissioning Schedule:
 1. Submit anticipated dates of startup of each item of equipment and system to Commissioning Authority within 60 days after award of Contract.
 2. Re-submit anticipated startup dates monthly, but not less than 4 weeks prior to startup.
 3. Prefunctional Checklists and Functional Tests are to be performed in sequence from components, to subsystems, to systems.
 4. Provide sufficient notice to Commissioning Authority for delivery of relevant Checklists and Functional Test procedures, to avoid delay.

3.2 STARTUP PLANS AND REPORTS

- A. Startup Plans: For each item of equipment and system for which the manufacturer provides a startup plan, submit the plan not less than 8 weeks prior to startup.

- B. Startup Reports: For each item of equipment and system for which the manufacturer provides a startup checklist (or startup plan or field checkout sheet), document compliance by submitting the completed startup checklist prior to startup, signed and dated by responsible entity.
- C. Submit directly to the Commissioning Authority.

3.3 PREFUNCTIONAL CHECKLISTS

- A. A Prefunctional Checklist is required to be filled out for each item of equipment or other assembly specified to be commissioned.
 - 1. No sampling of identical or near-identical items is allowed.
 - 2. These checklists do not replace manufacturers' recommended startup checklists, regardless of apparent redundancy.
 - 3. Prefunctional Checklist forms will not be complete until after award of the contract; the following types of information will be gathered via the completed Checklist forms:
 - a. Certification by installing contractor that the unit is properly installed, started up, and operating and ready for Functional Testing.
 - b. Confirmation of receipt of each shop drawing and commissioning submittal specified, itemized by unit.
 - c. Manufacturer, model number, and relevant capacity information; list information "as specified," "as submitted," and "as installed."
 - d. Serial number of installed unit.
 - e. List of inspections to be conducted to document proper installation prior to startup and Functional Testing; these will be primarily static inspections and procedures; for equipment and systems may include normal manufacturer's start-up checklist items and minor testing.
 - f. Sensor and actuator calibration information.
- B. Contractor is responsible for filling out Prefunctional Checklists, after completion of installation and before startup; witnessing by the Commissioning Authority is not required unless otherwise specified.
 - 1. Each line item without deficiency is to be witnessed, initialed, and dated by the actual witness; checklists are not complete until all line items are initialed and dated complete without deficiencies.
 - 2. Checklists with incomplete items may be submitted for approval provided the Contractor attests that incomplete items do not preclude the performance of safe and reliable Functional Testing; re-submission of the Checklist is required upon completion of remaining items.
 - 3. Individual Checklists may contain line items that are the responsibility of more than one installer; Contractor shall assign responsibility to appropriate installers or subcontractors, with identification recorded on the form.
 - 4. If any Checklist line item is not relevant, record reasons on the form.
 - 5. Contractor may independently perform startup inspections and/or tests, at Contractor's option.

6. Regardless of these reporting requirements, Contractor is responsible for correct startup and operation.
7. Submit completed Checklists to Commissioning Authority within two days of completion.
- C. Commissioning Authority is responsible for furnishing the Prefunctional Checklists to Contractor.
 1. Initial Drafts: Contractor is responsible for initial draft of Prefunctional Checklist where so indicated in Contract Documents.
 2. Provide all additional information requested by Commissioning Authority to aid in preparation of checklists, such as shop drawing submittals, manufacturers' startup checklists, and O&M data.
 3. Commissioning Authority may add any relevant items deemed necessary regardless of whether they are explicitly mentioned in Contract Documents or not.
 4. When asked to review the proposed Checklists, do so in a timely manner.
- D. Commissioning Authority Witnessing: Required for:
 1. Each piece of primary equipment, unless sampling of multiple similar units is allowed by the commissioning plan.
 2. A sampling of non-primary equipment, as allowed by the commissioning plan.
- E. Deficiencies: Correct deficiencies and re-inspect or re-test, as applicable, at no extra cost to Airport.
 1. If difficulty in correction would delay progress, report deficiency to the Commissioning Authority immediately.

3.4 FUNCTIONAL TESTS

- A. A Functional Test is required for each item of equipment, system, or other assembly specified to be commissioned, unless sampling of multiple identical or near-identical units is allowed by the final test procedures.
- B. Contractor is responsible for execution of required Functional Tests, after completion of Prefunctional Checklist and before closeout.
- C. Commissioning Authority is responsible for witnessing and reporting results of Functional Tests, including preparation and completion of forms for that purpose.
- D. Contractor is responsible for correction of deficiencies and re-testing at no extra cost to Airport; if a deficiency is not corrected and re-tested immediately, the Commissioning Authority will document the deficiency and the Contractor's stated intentions regarding correction.
 1. Deficiencies are any condition in the installation or function of a component, piece of equipment or system that is not in compliance with Contract Documents or does not perform properly.
 2. When the deficiency has been corrected, the Contractor completes the form certifying that the item is ready to be re-tested and returns the form to the

- Commissioning Authority; the Commissioning Authority will reschedule the test and the Contractor shall re-test.
3. Identical or Near-Identical Items: If 10 percent, or three, whichever is greater, of identical or near-identical items fail to perform due to material or manufacturing defect, all items will be considered defective; provide a proposal for correction within 2 weeks after notification of defect, including provision for testing sample installations prior to replacement of all items.
 4. Contractor shall bear the cost of Airport and Commissioning Authority personnel time witnessing re-testing.
 5. Contractor shall bear the cost of Airport and Commissioning Authority personnel time witnessing re-testing if the test failed due to failure to execute the relevant Prefunctional Checklist correctly; if the test failed for reasons that would not have been identified in the Prefunctional Checklist process, Contractor shall bear the cost of the second and subsequent re-tests.
- E. Functional Test Procedures:
1. Some test procedures are included in Contract Documents; where Functional Test procedures are not included in Contract Documents, test procedures will be determined by the Commissioning Authority with input by and coordination with Contractor.
 2. Examples of Functional Testing:
 - a. Test the dynamic function and operation of equipment and systems (rather than just components) using manual (direct observation) or monitoring methods under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint).
 - b. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc.
 - c. Systems are run through all the HVAC control system's sequences of operation and components are verified to be responding as the sequence's state.
 - d. Traditional air or water test and balancing (TAB) is not Functional Testing; spot checking of TAB by demonstration to the Commissioning Authority is Functional Testing.
- F. Deferred Functional Tests: Some tests may need to be performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions; performance of these tests remains the Contractor's responsibility regardless of timing.

3.5 SENSOR AND ACTUATOR CALIBRATION

- A. Calibrate all field-installed temperature, relative humidity, carbon monoxide, carbon dioxide, and pressure sensors and gauges, and all actuators (dampers and valves) on this

piece of equipment shall be calibrated. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.

- B. Calibrate using the methods described below; alternate methods may be used, if approved by Commissioning Authority and Owner beforehand. See PART 2 for test instrument requirements. Record methods used on the relevant Prefunctional Checklist or other suitable forms, documenting initial, intermediate and final results.
- C. All Sensors:
 - 1. Verify that sensor location is appropriate and away from potential causes of erratic operation.
 - 2. Verify that sensors with shielded cable are grounded only at one end.
 - 3. For sensor pairs that are used to determine a temperature or pressure difference, for temperature make sure they are reading within 0.2 degree F of each other, and for pressure, within tolerance equal to 2 percent of the reading, of each other.
 - 4. Tolerances for critical applications may be tighter.
- D. Sensors Without Transmitters - Standard Application:
 - 1. Make a reading with a calibrated test instrument within 6 inches of the site sensor.
 - 2. Verify that the sensor reading, via the permanent thermostat, gauge or building automation system, is within the tolerances in the table below of the instrument-measured value.
 - 3. If not, install offset, calibrate or replace sensor.
- E. Sensors With Transmitters - Standard Application.
 - 1. Disconnect sensor.
 - 2. Connect a signal generator in place of sensor.
 - 3. Connect ammeter in series between transmitter and building automation system control panel.
 - 4. Using manufacturer's resistance-temperature data, simulate minimum desired temperature.
 - 5. Adjust transmitter potentiometer zero until 4 mA is read by the ammeter.
 - 6. Repeat for the maximum temperature matching 20 mA to the potentiometer span or maximum and verify at the building automation system.
 - 7. Record all values and recalibrate controller as necessary to comply with specified control ramps, reset schedules, proportional relationship, reset relationship and P/I reaction.
 - 8. Reconnect sensor.
 - 9. Make a reading with a calibrated test instrument within 6 inches of the site sensor.
 - 10. Verify that the sensor reading, via the permanent thermostat, gauge or building automation system, is within the tolerances in the table below of the instrument-measured value.
 - 11. If not, replace sensor and repeat.
 - 12. For pressure sensors, perform a similar process with a suitable signal generator.
- F. Sensor Tolerances for Standard Applications: Plus/minus the following maximums:

1. Watthour, Voltage, Amperage: 1 percent of design.
 2. Pressure, Air, Water, Gas: 3 percent of design.
 3. Air Temperatures (Outside Air, Space Air, Duct Air): 0.4 degrees F.
 4. Relative Humidity: 4 percent of design.
 5. Barometric Pressure: 0.1 inch of Hg.
 6. Flow Rate, Air: 10 percent of design.
 7. Flow Rate, Water: 4 percent of design.
 8. AHU Wet Bulb and Dew Point: 2.0 degrees F.
- G. Critical Applications: For some applications more rigorous calibration techniques may be required for selected sensors. Describe any such methods used on an attached sheet.
- H. Valve/Damper Stroke Setup and Check:
1. For all valve/damper actuator positions checked, verify the actual position against the control system readout.
 2. Set pump/fan to normal operating mode.
 3. Command valve/damper closed; visually verify that valve/damper is closed and adjust output zero signal as required.
 4. Command valve/damper to open; verify position is full open and adjust output signal as required.
 5. Command valve/damper to a few intermediate positions.
 6. If actual valve/damper position does not reasonably correspond, replace actuator or add pilot positioner (for pneumatics).
- I. Isolation Valve or System Valve Leak Check: For valves not associated with coils.
1. With full pressure in the system, command valve closed.
 2. Use an ultra-sonic flow meter to detect flow or leakage.

3.6 TEST PROCEDURES – GENERAL

- A. Provide skilled technicians to execute starting of equipment and to execute the Functional Tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
- B. Provide all necessary materials and system modifications required to produce the flows, pressures, temperatures, and conditions necessary to execute the test according to the specified conditions. At completion of the test, return all affected equipment and systems to their pre-test condition.
- C. Sampling: Where Functional Testing of fewer than the total number of multiple identical or near-identical items is explicitly permitted, perform sampling as follows:
1. Identical Units: Defined as units with same application and sequence of operation; only minor size or capacity difference.
 2. Sampling is not allowed for:
 - a. Major equipment.

- b. Life-safety-critical equipment.
 - c. Prefunctional Checklist execution.
 - 3. XX = the percent of the group of identical equipment to be included in each sample; defined for specific type of equipment.
 - 4. YY = the percent of the sample that if failed will require another sample to be tested; defined for specific type of equipment.
 - 5. Randomly test at least XX percent of each group of identical equipment, but not less than three units. This constitutes the "first sample."
 - 6. If YY percent of the units in the first sample fail, test another XX percent of the remaining identical units.
 - 7. If YY percent of the units in the second sample fail, test all remaining identical units.
 - 8. If frequent failures occur, resulting in more troubleshooting than testing, the Commissioning Authority may stop the testing and require Contractor to perform and document a checkout of the remaining units prior to continuing testing.
- D. Manual Testing: Use hand-held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").
- E. Simulating Conditions: Artificially create the necessary condition for the purpose of testing the response of a system; for example apply hot air to a space sensor using a hair dryer to see the response in a VAV box.
- F. Simulating Signals: Disconnect the sensor and use a signal generator to send an amperage, resistance or pressure to the transducer and control system to simulate the sensor value.
- G. Over-Writing Values: Change the sensor value known to the control system in the control system to see the response of the system; for example, change the outside air temperature value from 50 degrees F to 75 degrees F to verify economizer operation.
- H. Indirect Indicators: Remote indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100 percent closed, are considered indirect indicators.
- I. Monitoring: Record parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending capabilities of the relevant control systems; where monitoring of specific points is called for in Functional Test Procedures:
- 1. All points that are monitored by the relevant control system shall be trended by Contractor; at the Commissioning Authority's request, Contractor shall trend up to 20 percent more points than specified at no extra charge.
 - 2. Other points will be monitored by the Commissioning Authority using dataloggers.
 - 3. At the option of the Commissioning Authority, some control system monitoring may be replaced with datalogger monitoring.

4. Provide hard copies of monitored data in columnar format with time down left column and at least 5 columns of point values on same page.
 5. Graphical output is desirable and is required for all output if the system can produce it.
 6. Monitoring may be used to augment manual testing.
- 3.7 OPERATION AND MAINTENANCE MANUALS

- A. Add design intent documentation furnished by Architect to manuals prior to submission.
- B. Submit manuals related to items that were commissioned to Commissioning Authority for review; make changes recommended by Commissioning Authority.
- C. Commissioning Authority will add commissioning records to manuals after submission.

- END OF SECTION

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PART 1 GENERAL**A.01 DESCRIPTION**

- A. This section specifies demolition and removal of buildings, portions of buildings, utilities, pavements, base courses, signage, pavement markings, other structures and debris from trash dumps shown.
- B. Includes removal of interior wood and suspended ceiling systems, lighting, raceways, conductors, and attachments to ceiling areas removed.
- C. Includes removal of interior floors, foundation coring, exterior pavements, trenching, barricades, patching, coordination, permitting and other work related to installation on new sanitary sewer underground piping and new lateral.
- D. Demolition materials shall be removed from site and costs for transportation and removal included in Bid. Including all pavements and base course materials.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 PROTECTION

- A. Perform demolition in such a manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent areas, utilities and structures or interruption of use of such utilities; and to provide free passage to and from such adjacent areas of structures.
- B. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel and aircraft during demolition and removal operations.
- C. Maintain fences, barricades, lights, and other similar items around exposed excavations until such excavations have been completely filled.
- D. Prevent spread of flying particles and dust. Sprinkle rubbish and debris with water to keep dust to a minimum. Do not use water if it results in hazardous or objectionable condition such as, but not limited to; ice, flooding, or pollution. Vacuum and dust the work area daily. Follow City requirements.
- E. In addition to previously listed fire and safety rules to be observed in performance of work, include following:
 - 1. No wall or part of wall shall be permitted to fall outwardly from structures.

2. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. Instruct all possible users in use of fire extinguishers.
 3. Keep hydrants clear and accessible at all times. Prohibit debris from accumulating within a radius of 15 feet of fire hydrants.
- F. Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The contractor shall take necessary precautions to avoid damages to existing items to remain in place, to be reused, or to remain the property of the site; any damaged items shall be repaired or replaced. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal works.

1.04 UTILITY SERVICES

- A. Demolish and remove outside utility service lines (water, sewer, storm water, gas, electrical and communications) shown to be removed and as required to install new utility lines and building.
- B. Remove abandoned outside utility lines that would interfere with installation of new utility lines and new construction.
- C. Coordinate removal of utilities with utility companies.
- D. Coordinate relocation of mainline sewer and water lines.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 DEMOLITION

- A. Completely demolish and remove buildings and structures, including all appurtenances related or connected thereto. Completely demolish pavements, curbs, walks, pads, irrigation systems, utility boxes, gutters, exterior signage, landscaping, landscape features, fencing and all other site features required to install new building and site elements.
 1. As required for installation of new utility service lines.
 2. To full depth within an area defined by hypothetical lines located 20 feet outside building lines of new structures.

3. As required to install new site/civil components.
- B. Debris, including brick, concrete, stone, metals and similar materials shall become the property of Contractor and shall be disposed daily, off the property to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Owner. Contractor shall dispose of debris in compliance with applicable federal, state or local permits, rules and/or regulations.
- C. Remove and legally dispose of all materials, other than earth to remain as part of project work. Materials removed shall become the property of the contractor and shall be disposed of in compliance with applicable federal, state or local permits, rules and/or regulations. Materials that are located beneath the surface of the surrounding ground.
- D. Remove existing utilities as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Owner. When utility lines are encountered that are not indicated on the drawings, the Owner shall be notified prior to further work in that area.

3.02 CLEAN-UP

- A. On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to Owner. Clean-up shall include off-site disposal of all items and materials not required to remain property of the Owner as well as all debris and rubbish resulting from demolition operations.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This Section includes the requirements for tests and inspections for site concrete work specified in Sections 03 20 00 Concrete Reinforcement and 03 30 00 Cast in Place Concrete.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit for review and approval.
 - 1. Design Data: Certified copies of mix designers for each concrete class specified
 - 2. Certifications that materials comply with requirements specified.
 - 3. Samples: As requested by the Testing Laboratory and accompanied by certification from vendor that samples originate from and are representative of each lot proposed for use.
 - 4. Test Reports
 - a. Mill test reports for reinforcement.
 - b. Reports from testing organization.

1.04 QUALITY ASSURANCE

- A. Referenced Standards
 - 1. California Building Code (CBC), 2019.
 - 2. ACI 301 – Specifications for Structural Concrete for Buildings.
 - 3. ACI 318 – Building Code Requirements for Structural Concrete.
 - 4. ASTM C143 / C143M-15a – Standard Test Method for Slump of Hydraulic-Cement Concrete

1.05 DELIVERY, STORAGE AND HANDLING

- A. Owner is responsible for all testing and inspection of concrete work. The owner shall retain the services of a certified testing laboratory to perform concrete testing.

PART 2 PRODUCTS

2.01 REINFORCEMENT

- A. The Testing Laboratory
 - 1. Take samples from bundles delivered to job site from the mill, unless bundles are identified by heat number and accompanied by mill certificates. When reinforced is not positively identified by heat numbers or when random sampling is intended two specimens will be taken from each 2 ½ tons or fraction thereof of each size and grade.
 - 2. Test for tensile and bending strength in accordance with CBC Chapters 17 and 19.

2.02 CAST IN PLACE CONCRETE

- A. The Testing Laboratory will:
 - 1. Review mix designs, compliance certificates and samples of materials proposed for use.
 - 2. Test and inspect materials according to CBC 1903 from compliance with requirements specified in Section 03 30 00 Cast-in-Place Concrete.
 - 3. Inspect batch plant prior to concrete being furnished to verify that:
 - a. Plant is equipped with approved metering devices for determining moisture content of fine aggregate.
 - b. Other plant quality controls are satisfactory.

PART 3 EXECUTION

3.01 CAST-IN-PLACE CONCRETE

- A. The Testing Laboratory will:
 - 1. Perform testing in accordance with ACI 318
 - 2. Test concrete slump in accordance with ASTM C143
 - 3. Test concrete for required compressive strength in conformance with CBC Section 1905, as follows.
 - a. Make and cure a minimum of five specimen cylinders according to ASTM C31 for each 150 cubic yards, or fraction thereof, of each class of concrete placed each day.

- b. As a minimum, one set of five specimen cylinders shall be made for each 5,000 square feet of slab or wall surface area or fraction thereof placed each day
 - c. Retain one cylinder for 7-day test, one for 14-day test, and two for 28-day test. Hold one or more cylinders for subsequent testing, in necessary.
 - d. Number each cylinder, date each set of cylinders and record placement represented by each set of cylinders.
 - e. Transport specimen cylinders from jobsite to laboratory.
 - f. Test specimen cylinders according to ASTM C30 from specified strength after cylinders have aged for 7 days, 14 days, and 28 days.
- B. Furnish to the Testing Laboratory the ready-mix delivery tickets for each batch of concrete delivered to the jobsite, each ticket bearing the following:
 - 1. Design mix number
 - 2. Time of batching
 - 3. Weight of cement, type and maximum size of aggregates, water, and admixtures in each batch.
 - 4. Total volume of concrete in each batch.
- C. When laboratory tests of specimen cylinders show compressive strengths below the minimum specified, the Contractor will be back charged for costs of the taking and testing core specimens of hardened concrete according to ASTM C42.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This section includes the requirements for furnishing and placing concrete formwork.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE

- A. Referenced Standards
1. California Building Code (CBC), 2019
 2. ACI 301 – Specifications for Structural Concrete for Buildings.
 3. ACI 318 – Building Code Requirements for Reinforced Concrete
 4. ACI 347R – Guide to Formwork for Concrete.
 5. CRSI Manual of Standard Practice
 6. PSI-95 US Product Standard for Construction and Industrial Plywood
 7. West Coast Lumber Inspection Bureau (WCLB) Standard.
 8. Western Wood Products Association (WWPA) Publication: Western Lumber Grading Rules.
- B. Design Criteria: Unless otherwise shown, noted, or specified, formwork shall be in conformance with ACI 347

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle materials subject to damage from dirt and moisture maintaining them clean and dry, off the ground, and suitably protected.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. General: Form materials shall be new at start of work.
- B. Form Lumber: Douglas Fir, Construction Grade, S1S2E
- C. Plywood Forms and Architectural Smooth Finish: Five-ply, 3/4-inch thick, APA A-A Plyform, Class I, Exterior Type, with mill-oiling treatment omitted for architecture smooth finish; or Owner approved equal.
- D. Flexible spring steel forms or laminated boards for forming radius bends.
- E. Form Accessories:
 - 1. Accessories which will be entirely or partially embedded in concrete, such as ties and hangers, shall be of metal and of standard manufacture; wire ties are not acceptable.
 - 2. The portion of embedded accessories remaining in concrete shall have no metal within one inch of face of concrete, and shall have no fractures, spalls, depressions, or other surface disfigurements exceeding 3/4 inch in diameter.
 - 3. Spreader cones on ties shall not exceed one inch in diameter.
- F. Form Sealer: Sealer shall eliminate grain raise as a result of moisture, and shall not interfere with color, bond, or subsequent treatment of or application of finishes to concrete surface; Sonneborn Building Products, Inc. "Form Saver," Grace Construction Materials "Form Film," Burke "Form Sealer," or approved equal.
- G. Form Release Agents:
 - 1. For Concrete Exposed to View in the Finished Work or to Receive Applied Finishes: Use chemically-active types producing water-insoluble soaps. Release agents shall contain no petroleum-based solvents such as creosote, paraffin, wax, or diesel oil.
 - 2. For ABS form liners, use only form release agents recommended by form liner manufacturer.
 - 3. For Unexposed Concrete: Any type that will not interfere with bond of finishes to be applied.

PART 3 EXECUTION**3.01 PREPARATION**

- A. Treat contact surface of plywood and board forms with a form sealer in accordance with the manufacturer's printed instructions.
- B. Clean form surfaces and reseal before each use. The use of form oil will not be permitted.

3.02 CONSTRUCTION

- A. Design, construct, and brace formwork and temporary falsework to safely support concrete and hold personnel during construction operations.
- B. Coordinate design, construction, and installation of formwork to accommodate openings, sleeves, chases, pipes, nailers, anchors, ties, inserts, and other embedded items.
- C. Construct forms of sufficient strength and rigidity to produce finished concrete of the size, shape, and location shown, without exceeding specified tolerances. Form assembly shall permit removal in proper sequence without damaging concrete.
- D. Use only new plywood form material for creating smooth architectural finish where required; reuse of forms not permitted for creating smooth architectural finish.
- E. Install form liners for architectural finishes in strict accordance with manufacturer's printed instructions and approved submittal.
- F. Arrange forms to permit single pours of exposed areas and panels without joints between adjacent form materials in the same plane.
- G. Construct forms for all exposed to view concrete full height and width between construction joints in surface of concrete. Do not break forms for pour or construction joints within such areas.
- H. Forms shall not extend higher than 12 inches above the top of a pour or construction joint.
- I. Form construction joints as specified in Section 03 30 00 – Cast-In-Place Concrete. Provide a surfaced pouring strip where construction joints intersect faces of surfaces to be exposed to view in the finished work; prior to subsequent pour, remove strip and tighten forms.
- J. Construction joints shall show no overlapping or offsetting of concrete surfaces and shall as closely as possible have the same appearance as butted board joints. Joints in a continuous line shall be straight and true.
- K. Provide cleanouts as required to permit inspection and thorough cleaning of loose dirt and debris. Cleanouts shall not be apparent on concrete surfaces exposed to view in finished work.
- L. Arrange forms to permit proper erection sequence and subsequent form removal without damaging concrete.
- M. Whenever concrete bases and foundations are required for equipment furnished as part of the work of other Sections, verify equipment dimensions prior to placing concrete.
- N. Forms for concrete surfaces exposed to view in the finished work shall be constructed to match existing concrete finish.
- O. Forms for unexposed concrete surfaces shall be undressed lumber, form plywood, or other suitable material.
- P. Formwork shall be clean and free of foreign material when concrete is placed.

3.03 FORM REMOVAL

- A. Do not remove forms until concrete has attained sufficient strength to support its own weight and anticipated construction live loads without damage, but in no case less than the following.
 - 1. Walls: Four (4) days
 - 2. Footings, Curbs, Walks, Paving: Side forms may be removed 24 hours after concrete placement.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. This section includes the requirements for furnishing and installing concrete reinforcement.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Shop Drawings: Complete bending and placing details of reinforcement.
 - 1. Details of reinforcement not shown on Drawings shall be in conformance with ACI 315 and ACI 318.
 - 2. Detailing, fabricating and spacing of reinforcement shall be in conformance with ACI 315 unless otherwise shown or noted.
- B. Test Reports: Certified copies of mill tests showing chemical and physical analyses of each heat or melt from which reinforcement was made.

1.04 QUALITY ASSURANCE

- A. Referenced Standards
 - 1. California Building Code (CBC), 2019.
 - 2. ACI 301 – Specifications for Structural Concrete for Buildings
 - 3. ACI 318 – Building Code Requirements for Reinforced Concrete
 - 4. ACI 347R – Guide to Formwork for Concrete
 - 5. CRSI Manual of Standard Practice
- B. Allowable Tolerances Fabricating/placing tolerances shall be in conformance with ACI 301.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver reinforcement from the mill in securely tied bundles, each bundle limited to one size and grade of reinforcement. Identify each bundle with readily visible metal or plastic tags identifying the reinforcement by the same item marking as on the approved shop

drawings; tags shall also identify the mill, heat or melt number, and the grade and size of reinforcement.

- B. After bundles are broken, identify by segregating reinforcement by sizes and grades.
- C. Store reinforcement off the ground, protected from the elements and foreign material which could adversely affect its bond with concrete.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Reinforcing Bars: ASTM A625, Grade 60 for all bars except where noted otherwise on plans.
- B. Wire for Ties, Stirrups, and Spiral Reinforcement: ASTM A82.
- C. Spacers, Bar Supports, and Other Accessories: In conformance with ACI 315. Where portions of accessories will be within 1/2 inch of concrete surfaces which will be exposed to the elements in the finished work, such accessories shall be of non-corrosive material or shall be corrosion-resistant treated; aluminum products will not be acceptable.

2.02 FABRICATION

- A. Fabricate reinforcement in accordance with the requirements of ACI 315, where specific details are not shown or where Contract Documents are not more restrictive.
- B. Fabrication of reinforcement shall begin only after approval of bar lists and shop drawings, with each item of reinforcement fabricated in conformance with such approved documents.
- C. Bend reinforcing steel cold; do not straighten/rebend, doing damage to the material.

PART 3 EXECUTION

3.01 INSTALLATION

- A. At time of concrete placement, reinforcement shall be free of dirt, oil, scale, loose rust, and other foreign material that could adversely affect the bond with concrete.
- B. Fasten reinforcement/support to prevent displacement beyond the tolerances specified in ACI 301, by construction loads and concrete placement. Sizes and dimensions of supports shall be as required to position the reinforcement as shown on the approved shop drawings and in conformance with the minimum concrete protective covering requirements of ACI 301.
- C. Furnish reinforcing bars full length whenever possible; splices will be permitted only where shown or noted on the approved shop drawings, or as otherwise permitted by the Owner.
- D. Splices may be made in horizontal reinforcement by lapping and placing ends of bars in contact and securely wiring; or bars may be separated sufficiently to permit the embedment of the entire surface of each bar in concrete.

1. Locate all splices as per drawings. Lap bars 48 diameters minimum.
 2. Stagger splices in adjacent bars.
- E. Obstructions: Should items to be embedded in concrete interfere with placement of reinforcements, notify the Owner to obtain written approval of procedure before starting.
- F. Concrete Cover: Install reinforcement to achieve the minimum concrete coverage shown or noted on the Drawings, unless otherwise specified.
- G. Welding: Reinforcing bars shall not have welded joints.
- H. Misplaced Reinforcing Bars:
1. If reinforcing bars are found to be misplaced after concrete placement, immediately notify the Owner for recommendations for correcting the misplacement; perform no corrective measures without such prior recommendations.
 2. Redesign, alterations, corrections, and replacement of concrete or reinforcing bars due to misplaced bars shall be performed at no additional expense to the Owner.

3.02 MAINTENANCE OF REINFORCEMENT

- A. Continuously inspect/maintain reinforcement in proper position during concreting operations.
- B. Where reinforcement cannot otherwise be kept properly aligned, provide additional bracing ties, stirrups, and other items as necessary.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This Section includes the requirements for furnishing and placing cast-in-place concrete, including cast-in-place architectural finish concrete, curing and finishing.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

SUBMITTALS

- B. Mix design for each class of concrete proposed for use. If concrete will be pneumatically placed, mixes shall be specifically designed and designated.
- C. Laboratory test reports for concrete mixes. Compression test data (field experience method) or results of testing (trial batch method) used to establish mix proportions.
- D. Product Data: Manufacturers' and suppliers' proprietary information on materials.
- E. Layout Drawings: Submit layout drawings showing proposed locations of construction joints, control joints, details of construction, and connections for approval prior to concrete placement.
- F. Submit delivery ticket to Owner for each batch of concrete delivered.

1.03 QUALITY ASSURANCE

- A. Reference Standards
 - 1. California Building Code (CBC), 2016.
 - 2. ACI 301 – Specifications for structural Concrete for Buildings.
 - 3. ACI 318 – Building Code Requirements for Reinforced Concrete.
- B. Quality Control: Contractor to retain the services of a qualified testing organization as specified in Testing Laboratory Services.
- C. Quality Control Supervisor: Owner will retain the services of an independent concrete contractor that will observe Contractor's work to achieve desired results.

- D. Allowable Tolerances: Deviation from plumb and level shall not exceed 1/8 inch within ten feet in any direction, as determined with a ten-foot straightedge. Cumulative deviation over the length or height of the building shall not exceed 3/8 inch in any direction.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle packaged materials in the manufacturers' original, sealed packages, each clearly identified with the manufacturer's name, and name and type of material.
- B. Deliver, store, and handle materials subject to damage from dirt and moisture maintaining them clean and dry, off the ground, and suitably protected.
- C. Store coarse and fine aggregates in separate, covered bins to prevent them from mixing, and to preserve moisture content of aggregate at batch plant.
- D. Store bulk cement in covered bins.

1.05 PROJECT CONDITIONS

- A. Environmental Requirements for Concrete Placement:
 - 1. Hot Weather: In conformance with ACI 305.
 - 2. Cold Weather: In conformance with ACI 306.
 - 3. During Precipitation: Do not place unless adequate protection is provided.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete, ready-mixed, ASTM C94.
 - 1. Cement: ASTM C150, Type II, Portland Cement.
 - 2. Aggregate:
 - a. Fine Aggregate: ASTM C33
 - b. Coarse Aggregate: ASTM C33
 - c. Source of aggregate shall remain constant for the duration of the work.
 - 3. Water: Clean, clear, and potable.
- B. Curing materials:

1. Liquid Membrane: ASTM C308, Type I.
2. Sheet material: ASTM C171.
- C. Admixtures
 1. Water reducing Admixture: ASTM C494, only with prior review of mix design.
 2. Air-Entraining Admixture: ASTM C260, for lightweight concrete only with prior review of mix design.
 3. Unspecified Admixtures: Not Permitted.
 4. Calcium Chloride: not Permitted.
 5. Hydrogen Chloride: Not Permitted
- D. Non-shrink Grout: Premixed, requiring only addition of specified water; Master Builders "Masterflow 928," or approved equal.
 1. Flowable, low shrinkage, 5,000 psi at 7 days.
 2. Non-metallic Type: For all uses.
 3. Metallic Type: Will not be permitted.
- E. Bonding Agent: Larsen Products Corp. "Weld-Crete," Sika Chemical Corp. "Sikastix 370" or "Sikadur Hi-Mod," or approved equal.
- F. Hardener: Clear, dust-on type; Sonneborn-Contech "Harcot Standard Natural," Upco Co. "Hydroment," Lambert Corp. "Colorhard," or approved equal.
- G. Sealer: Heavy penetrating type, from same manufacturer as hardener.
 1. Without wax or other constituent that will impair application of finishes.
- H. Epoxy Grout for Reinforcement and Bolt Installation: Hilti "HIT-RE 500-SD" Adhesive Anchor System", Simpson Strong-Tie "SET XP", or equal.
- I. Detectable Warning - Truncated Domes & Nosing:
 1. Spacing, height and configuration of truncated domes shall meet CBC 11B-705. Base diameter of 0.9 inch min. and 0.92 inch max, a top diameter of 0.45 inch minimum and 0.47 inch maximum, and a height of 0.2 inch. Dome spacing shall have center to center 2.3 inch min. and 2.4 inch max., and a base-to-base spacing of 0.65 inch minimum.
 2. Amstep Model 224A, 2-3/8 inches wide, and meets the California Title 24 code for the visually impaired. Tread 5/16 inch thick with continuous arrow profile anchor 5/8 inch deep. The abrasive filler shall consist of a mixture of aluminum

oxide and silicon granules in an epoxy resin and hardener mixture and locked into an extruded base, alloy 6063-T6. Coefficient of friction 1.02 dry, 0.98 wet per ASTM F 609. Abrasive filler color as selected.

2.02 MIXES

A. Design Criteria

1. Concrete shall develop the minimum compressive strength noted on the Contract Documents at 28 days on cylinders made and tested in accordance with referenced ASTM standards.
2. The average of the sets of three consecutive strength tests shall be equal to or greater than the specified strength, and no individual strength test results shall fall below the specified strength by more than 500 psi.

B. General

1. Mix designs shall be in conformance with CBC Section 1905, based on materials tested and approved by the Testing Laboratory.
2. If concrete will be pneumatically placed, mixes shall be specifically so designed and designated.
3. If concrete is to be pumped, mixes shall be specifically so designed and designated.

C. Nonshrink Grout: Mix in accordance with the manufacturer's printed instructions.

D. Dry Pack: Mix, in proportions by volume, one-part cement to two-and-one-half parts fine aggregate, screening out materials retained on a No. 4 sieve. Mix with water to a consistency so that when a ball of mixture is compressed in the hand, it will show finger marks but maintain its shape and not show any surface water.

E. Patching Mortar: Mix in proportion by volume, one part cement to two parts fine aggregate.

2.03 MIXING

A. Batch Plant:

1. Equipment and plant shall be capable of weighing, segregating, and efficiently handling materials. Automatic metering capable of determining moisture content of sand shall be utilized.
2. Equipment and plant shall be subject to the approval of the Testing Laboratory; equipment and processes not so approved shall not be used for the work.

B. General:

1. Mixing shall be in conformance with ASTM C94 and CBC.
 2. Mix cement, fine and coarse aggregate, admixtures, and water to exact proportions of approved mix designs.
 3. Measure fine and coarse aggregates separately according to approved method which affords accurate control and checking.
 4. Adjust grading to improve workability; do not add water unless otherwise recommended by the Owner.
- C. Admixtures: use automatic metering dispenser to incorporate admixtures into mix

2.04 CONCRETE CLASSES

A. Definitions:

1. Strength: Minimum compressive strength after 28 days, when tested in accordance with ASTM C39.
2. Aggregate: Maximum size.
3. Weight: Pounds per cubic foot, air dry.
4. Slump: When tested in accordance with ASTM C143.
5. Maximum water/ cement ratio of 0.45

B. Concrete Classes and Uses:

Class	Weight (psf)	Strength (psi)	Aggregate (inches)	Use
A	145	4000	3/4	Cast-In-Place Concrete, Concrete Foundations, Concrete Slabs, etc.
B	110	3000	5/8	Sand Lightweight Concrete over metal deck

PART 3 EXECUTION

3.01 PREPARATION

- A. Prior to concrete placement, determine finishes required to accommodate the work of other sections, and prepare for such finishes. Where determination for such finishes may be in question, refer to Owner for resolution.
- B. Remove loose dirt/foreign material from excavations and forms and standing and saturated soil from excavations and cavities. Placing concrete in standing water is not permitted.

- C. Thoroughly clean reinforcement and other items to be embedded in concrete of loose rust and other foreign matter which could inhibit bond with concrete.
- D. Thoroughly wet wood forms, except coated plywood, and adjacent concrete a minimum of one hour prior to placing concrete; securely close cleanout and inspection ports; repeat wetting as required to keep forms damp.
- E. Work form release agent into all areas of form liner as recommended by form manufacturer.
- F. Apply form release agent to form liners before each use and within the same day that concrete is placed.
- G. Subgrade and forms shall have been checked for line and grade, and work areas shall have been inspected by Engineer and observed by the Owner prior to starting concrete placement.
- H. Roughen surfaces +/- 1/4" amplitude at all joints and at all contact surfaces between new and existing concrete. Provide shear keys and prepare joints as per Drawings and Specifications. Apply bonding agent between existing and new concrete pours.

3.02 TRANSPORTING

- A. Transport concrete from the mixer to the place of final deposit as quickly as possible, and by methods which prevent the separation and loss of ingredients. Concrete shall be of uniform density when placed.
- B. Concrete shall not be freely dropped where reinforcement will cause segregation. Spouts, elephant trunks, or other approved means shall be utilized to prevent segregation.
- C. In no case shall concrete be freely dropped more than six (6) feet. Provide formwork with pour ports at four (4) feet or closer horizontally so that concrete will be deposited freely such that no more than six (6) feet is dropped at any location.
- D. Concrete may be pumped from the mixer to the place of deposit, provided that information on mix design adjustments, equipment, and procedures have received the Owner's written approval.

3.03 PLACING

- A. General:
 - 1. Notify Owner a minimum of 72 hours prior to each major concrete placement.
 - 2. Place concrete in a continuous operation until a section of approved size and shape has been completed.
 - 3. For horizontal surfaces, maintain a plastic surface essentially horizontal until completion of placement of the section.

4. Prevent displacement of reinforcement and other items to be embedded.
5. Before concrete sets, completely remove concrete spilled on forms and reinforcement in sections where concrete is not to be immediately installed.
6. An interruption of more than 60 minutes in concrete placement will be cause for shutting down the work and disposing of remaining mixed concrete. If such interruption occurs, provide construction joints where and as instructed, and cut concrete back to such line, cleaning forms and reinforcement as specified.
7. Record the date and time of concrete placement in each section. Retain records until completion of the work and make available at all times to the review of the Owner.

B. Consolidation:

1. Thoroughly consolidate concrete by puddling with suitable tools during placement, and by thoroughly working around reinforcement and other embedded items.
2. In addition to manual spading and tamping, internally vibrate concrete with high-speed mechanical vibrators of sufficient amplitude for thorough consolidation.
3. Prevent formation of shoulders and ledges.
4. Provide keys across vertical joints as shown on drawings. Place dowels across joints.
5. Joints for Slabs on Grade: Locate construction joints where approved and under partitions, whenever possible.

3.04 PROTECTION AND CURING

A. Protection:

1. Maintain concrete temperature above 50 degrees F during curing.
2. Protect concrete from sun and rain.
3. Do not subject concrete to loads until it has completely cured and attained minimum 28-day strength.
4. Water cure concrete continuously for minimum duration specified, including Saturdays, Sundays, and holidays; do not permit it to dry out until it has cured for the specified time.
5. Protect concrete during/after curing from damage from construction operations.

6. Cover traffic areas with kraft paper and plywood sheets; maintain protective covering in place and in good repair as long as necessary to protect concrete from damage.
 7. Keep finished areas free from traffic for a minimum of four days, or as long as necessary for concrete to have set sufficiently to prevent its being damaged.
- B. Curing: Curing shall immediately follow finishing and shall be performed as follows.
1. Flatwork Surfaces: Membrane cure for a minimum of seven days.

3.05 DEFECTIVE CONCRETE

- A. Repair or replace defective concrete as instructed by Owner, and at no additional expense to Owner. Repair materials shall include, as necessary, cements, aggregates, admixtures, and epoxy.
- B. With written approval of Owner, some minor defective work may be repaired by use of cement mortar; however, if the defects affect the strength of the structure, its appearance, or are otherwise detrimental, Owner may require the removal and replacement of that portion of the structure.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY****A. Section Includes:**

1. This Section includes a self-leveling underlayment that consists of a blend of Portland cement and other hydraulic cements and polymers that is used to level and smooth interior concrete, terrazzo, well-bonded ceramic & quarry tile, epoxy coating systems, wood, metal and properly prepared, non-water-soluble adhesive residue on concrete prior to the installation of finish flooring on all grade levels.

1.02 RELATED WORK**A. All Related Documents and Sections:** Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. ASTM C109M, Compressive Strength Air-Cure Only
- B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars
- C. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes
- D. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Safety Data Sheets.
- B. Qualification Data: For Installer

1.05 QUALITY ASSURANCE

- A. Installation of the product must be completed by a factory-trained applicator using mixing equipment and tools approved by the manufacturer.
- B. Product must have a hydraulic cement-based inorganic binder content as the primary binder which includes portland cement per ASTM C150: Standard Specification for Portland Cement and other specialty hydraulic cements. Gypsum-based products are not acceptable.

- C. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of work for not less than 10 years. Contact Manufacturer Representative prior to installation.

1.06 WARRANTY

- A. Contact Manufacturer for comprehensive warranty, depending on the system installed.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85°F (10° and 29°C) and protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

1.08 CONDITIONS

- A. Do not install material below 50°F (10°C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section. Install quickly if the substrate is warm and follow warm weather instructions per Manufacturer's instructions.

PART 2 PRODUCTS

2.01 MATERIAL

- A. Hydraulic Cement-Based Self-Leveling Underlayment

- 1. Basis-of-Design Products or approved equal:

- a. ARDEX K 15; Manufactured by ARDEX AMERICAS, USA, (724) 203-5000, www.ardexamericas.com

- i. Primer:

- 1) Standard Absorbent Concrete: ARDEX P 51 Primer
- 2) Extremely Absorbent Concrete: May require two applications of ARDEX P 51 to minimize the potential for pinholes forming in the ARDEX K 15.
- 3) Wood: ARDEX P 82 Ultra Prime
- 4) Metal: ARDEX EP 2000 Substrate Preparation Epoxy Primer
- 5) Other Non-Porous Substrates (burnished concrete, terrazzo, well-bonded ceramic, quarry and porcelain tiles, epoxy coating systems and non-water soluble adhesive residue on concrete and concrete treated with

silicate compounds): ARDEX P 82 Ultra Prime

- ii. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F+/-3°F (23° C+/-3°C) and 50% +/-5% relative humidity:
 - 1) Application: Barrel Mix or Pump
 - 2) Flow Time: 10 minutes
 - 3) Walkable: 2 to 3 hours
 - 4) Compressive Strength: 5,500 psi (385 kg/cm²) at 28 days, ASTM C109M
 - 5) Flexural Strength: 1,200 psi (84 kg/cm²) at 28 days, ASTM C348
 - 6) VOC: 0

2.02 WATER

- A. Water shall be clean, potable, and sufficiently cool (not warmer than 70°F).

PART 3 EXECUTION

3.01 PREPARATION

- A. General: Prepare substrate in accordance with manufacturer's instructions.
 - 1. Concrete:
 - a. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.
 - b. Substrates shall be inspected in accordance with ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering. For areas where moisture vapor emissions exceed the required limits coordinate with Basis-of-Design Manufacturer to install an appropriate Moisture Control System.
- B. Crack and Joint Preparation:
 - 1. Moving Joints and Moving Cracks – honor all expansion, isolation joints and moving cracks up through the underlayment. Install a flexible sealing compound per Basis-of Design Manufacturer's instructions.

2. Saw Cuts, Dormant Control Joints and Dormant Cracks – fill all dormant control joints and dormant cracks with a Low Viscosity Rigid Polyurethane Crack & Joint Repair or Cement-Based Finish Underlayment as recommended by the manufacturer.
- C. Wooden subfloors: The wood subfloor either must be solid hardwood flooring; a minimum of 3/4" (19 mm) tongue-and-groove, APA-rated Type 1, exterior exposure plywood; or an approved OSB equivalent. The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be refastened to create a sound, solid subfloor. The wood must be clean and free of all foreign matter. If necessary, sand down to bare wood. Vacuum to remove all dust. Do not use solvent, strippers or cleaners. Open joints should be filled as recommended by the Basis-of-Design manufacturer. It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to installation.
- D. Metal subfloors: Metal subfloors must be rigid, well supported, properly anchored and free of undue flex and vibration. They must also be clean and free of all rust, corrosion and foreign matter.
 1. Non-lead metal substrates must be mechanically cleaned and profiled to create a bonding surface. Please note that care must be taken when mechanically preparing thin metal foils so that the metal foil is not compromised. Use an #80 or #100 grit sanding screen to mechanically profile the metal surface. A hand or floor sander may be used. After sanding, thoroughly deep vacuum to remove all loose material, and then wipe the metal using a clean, white cloth dampened with 91% isopropyl alcohol. Repeat wiping using a new cloth on each pass until the degree of discoloration on the cloth remains consistent on subsequent passes (typically, approx. 5 – 7 passes). Lightly shot blasting also is suitable. From this point until the metal has been primed, disposable shoe covers should be worn by anyone traversing the surface of the prepared metal. Allow 15 – 20 minutes for residual alcohol to evaporate before proceeding. Contact the Technical Service Department for guidelines on preparing lead substrates.
- E. Adhesive residues on concrete must first be tested to make certain they are not water-soluble. Water-soluble adhesives must be completely mechanically removed down to clean concrete. Non- water-soluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute (www.rfci.com). The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.
- F. Non-porous subfloors such as ceramic, porcelain and quarry tile, burnished concrete, epoxy coating systems as well as terrazzo should be clean and free of all waxes, sealers, dust, dirt, debris and any other contaminant that may act as a bond breaker. If necessary, clean by mechanical methods such as shot blasting.

3.02 APPLICATION

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- C. Priming: Comply with manufacturer's printed instructions

- D. Mixing: Comply with manufacturer's printed instructions and the following.
1. For pump installations, the hydraulic cement underlayment shall be mixed using the Manufacturer's recommended Automatic Mixing Pumps.
- E. Application: Comply with manufacturer's printed instructions and the following:
1. Installations over metal and other non-porous substrates should be limited to a thickness of 1/2" (12.7 mm) unless otherwise approved by the Basis-of-Design Manufacturer. For all other substrates, self-leveling underlayment must be installed at a minimum thickness of 1/8" (3 mm) over the highest point in the floor, which typically results in an average thickness of 1/4" (6 mm) or more over the entire floor. Self-leveling underlayment can be installed up to 1 1/2" (4 cm) over large areas neat, and up to 5" (12.7 cm) with the addition of proper aggregate. Featheredge to match existing elevations. Confer with the Basis-of-Design Manufacturer if a true featheredge is needed.
 2. Pour or pump the liquid and spread into place with Spreader. Immediately use the Smoother to smooth the surface. Wear non-metallic cleats to avoid leaving marks in the liquid.
 3. Wood subfloors require mesh-reinforced Resilient Emulsion Underlayment System. After priming, install 3.4 galvanized diamond metal lath by stapling to the wooden subfloor approximately every 6 inches to center.
 4. Metal subfloors require Resilient Emulsion Underlayment System.
- F. Curing
1. Finished product can be walked on in 2-3 hours. Moisture-insensitive tiles such as ceramic, quarry and porcelain can be installed after 6 hours. All other finish floor coverings can be installed after 16 hours at 70°F (21°C). For resinous systems such as epoxy and polyurethane floors please contact the Basis-of-Design Manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Where specified, field sampling of the underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

3.04 PROTECTION

- A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

END OF SECTION

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PART 1 GENERAL**1.01 DESCRIPTION:**

- A. This section specifies structural steel shown and classified by Section 2, Code of Standard Practice for Steel Buildings and Bridges.

1.02 RELATED WORK:

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE:

- A. Fabricator and erector shall maintain a program of quality assurance in conformance with Section 8, Code of Standard Practice for Steel Buildings and Bridges. Work shall be fabricated in an AISC certified Category Std fabrication plant.
- B. Before authorizing the commencement of steel erection, the controlling contractor shall ensure that the steel erector is provided with the written notification required by 29 CFR 1926.752. Provide copy of this notification to the Resident Engineer.

1.04 TOLERANCES:

- A. Fabrication tolerances for structural steel shall be held within limits established by ASTM A6, by AISC 303, Sections 6 and 7, Code of Standard Practice for Buildings and Bridges, except as follows:
- B. Elevation tolerance for closure plates at the building perimeter and at slab openings prior to concrete placement is 6 mm (1/4 inch).

1.05 REGULATORY REQUIREMENTS:

- A. AISC 360: Specification for Structural Steel Buildings
- B. AISC 303: Code of Standard Practice for Steel Buildings and Bridges.

1.06 SUBMITTALS:

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples,
- B. Shop and Erection Drawings: Complete
- C. Certificates:
 - 1. Structural steel.

- 2. Steel for all connections.
 - 3. Welding materials.
 - D. Test Reports:
 - 1. Welders' qualifying tests.
 - E. Design Calculations and Drawings:
 - 1. Connection calculations, if required.
 - F. Record Surveys.
- 1.02 APPLICABLE PUBLICATIONS:
- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.
 - B. American Institute of Steel Construction (AISC):
 - 1. AISC 360-10 Specification for Structural Steel Buildings
 - 2. AISC 303-10 Code of Standard Practice for Steel Buildings and Bridges
 - C. American National Standards Institute (ANSI):
 - B18.22.1-65(R2008)..... Plain Washers
 - B18.22M-81(R2000)..... Metric Plain Washers
 - D. American Society for Testing and Materials (ASTM):
 - A6/A6M-11 Standard Specification for General Requirements for
Rolled Structural Steel Bars, Plates, Shapes, and Sheet
Piling
 - A36/A36M-08 Standard Specification for Carbon Structural Steel
 - A53/A53M-10 Standard Specification for Pipe, Steel, Black and Hot-
Dipped, Zinc-Coated Welded and Seamless
 - A123/A123M-09 Standard Specification for Zinc (Hot-Dip Galvanized)
Coatings on Iron and Steel Products
 - A242/A242M-04(R2009) Standard Specification for High-Strength Low- Alloy
Structural Steel

- A283/A283M-03(R2007) Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
- A307-10..... Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
- A325-10..... Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- A490-12..... Standard Specification for Heat-Treated Steel Structural Bolts 150 ksi Minimum Tensile Strength
- A500/A500M-10a Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
- A501-07 Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
- A572/A572M-07 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel A992/A992M-11..... Standard Specification for Structural Steel Shapes
- E. American Welding Society (AWS):
- D1.1/D1.1M-10 Structural Welding Code-Steel
- F. Research Council on Structural Connections (RCSC) of The Engineering Foundation:
- Specification for Structural Joints Using ASTM A325 or A490 Bolts
- G. Military Specifications (Mil. Spec.):
- MIL-P-21035 Paint, High Zinc Dust Content, Galvanizing, Repair
- H. Occupational Safety and Health Administration (OSHA):
- 29 CFR Part 1926-2001 Safety Standards for Steel Erection

PART 2 PRODUCTS

2.01 MATERIALS:

- A. Structural Steel: ASTM A572 W Shapes, A36 misc. steel

- B. Structural Tubing: ASTM A500, Grade B.
- C. Steel Pipe: ASTM A53, Grade B.
- D. Bolts, Nuts and Washers:
 - 1. High-strength bolts, including nuts and washers: ASTM A325 or A490 as noted.
 - 2. Bolts and nuts, other than high-strength or as shown on plans: ASTM A307, Grade A.
 - 3. Plain washers, other than those in contact with high-strength bolt heads and nuts: ANSI Standard B18.22.1.
- E. Zinc Coating: ASTM A123.
- F. Galvanizing Repair Paint: Mil. Spec. MIL-P-21035.

PART 3 EXECUTION

3.01 CONNECTIONS (SHOP AND FIELD):

- A. Welding: Welding in accordance with AWS D1.1. Welds shall be made only by welders and welding operators who have been previously qualified by tests as prescribed in AWS D1.1 to perform type of work required.
- B. High-Strength Bolts: High-strength bolts tightened to a bolt tension not less than 70% of their minimum tensile strength. Tightening done with properly calibrated wrenches, by turn-of-nut method or by use of direct tension indicators (bolts or washers). Tighten bolts in connections identified as slip-critical using Direct Tension Indicators. Twist-off torque bolts are not an acceptable alternate fastener for slip critical connections.

3.02 FABRICATION:

- A. Fabrication in accordance with Chapter M, AISC 360.

3.03 SHOP PAINTING:

- A. General: Shop paint steel with primer in accordance with AISC 303, Section 6.
- B. Do not apply paint to following:
 - 1. Surfaces within 50 mm (2 inches) of joints to be welded in field.
 - 2. Surfaces which will be encased in concrete.
 - 3. Surfaces which will receive sprayed on fireproofing.
 - 4. Top flange of members which will have shear connector studs applied.
- C. Structural steel in the interstitial space that does not receive sprayed on fireproofing shall be painted with primer in accordance with general requirement of shop painting.

3.04 ERECTION:

- A. General: Erection in accordance with AISC 303, Section 7B.
- B. Temporary Supports: Temporary support of structural steel frames during erection in accordance with AISC 303, Section 7

3.05 FIELD PAINTING:

- A. After erection, touch-up steel surfaces specified to be shop painted. After welding is completed, clean and prime areas not painted due to field welding.
- B. Finish painting of steel surfaces is specified in Section 09 91 00, PAINTING.

3.06 SURVEY:

- A. Upon completion of finish bolting or welding on any part of the work, and prior to start of work by other trades that may be supported, attached, or applied to the structural steel work, submit a certified report of survey to Resident Engineer for approval. Reports shall be prepared by Registered Land Surveyor or Registered Civil Engineer as specified in Section 01 00 00, GENERAL REQUIREMENTS. Report shall specify that location of structural steel is acceptable for plumbness, level and alignment within specified tolerances specified in the AISC Manual.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This section specifies items and assemblies fabricated from structural steel shapes and other materials as shown and specified.
- B. Items specified.
 - 1. Support for Wall and Ceiling Mounted Items
 - 2. Metal Railings
 - 3. Bollards

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Shop Drawings:
 - 1. Each item specified, showing complete detail, location in the project, material and size of components, method of joining various components and assemblies, finish, and location, size and type of anchors.
 - 2. Mark items requiring field assembly for erection identification and furnish erection drawings and instructions.
 - 3. Provide templates and rough-in measurements as required.
- C. Furnish setting drawings and instructions for installation of anchors to be preset into concrete and masonry work, and for the positioning of items having anchors to be built into concrete or masonry construction.

1.04 QUALITY ASSURANCE

- A. Each product type shall be the same and be made by the same manufacturer.
- B. Assemble product to the greatest extent possible before delivery to the site.

- C. Include additional features, which are not specifically prohibited by this specification, but which are a part of the manufacturer's standard commercial product.

1.05 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Mechanical Engineers (ASME):
 - B18.2.2-87(R2005)..... Square and Hex Nuts
- C. American Society for Testing and Materials (ASTM):
 - A36/A36M-08 Structural Steel
 - A47-99(R2009)..... Malleable Iron Castings
 - A53-10..... Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 - A123-09..... Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - A307-10..... Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
 - A653/A653M-10 Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
 - A786/A786M-09 Rolled Steel Floor Plate
 - C1107-08 Packaged Dry, Hydraulic-Cement Grout (Non-shrink)
 - F436-10..... Hardened Steel Washers
 - F1667-11..... Driven Fasteners: Nails, Spikes and Staples
- D. American Welding Society (AWS):
 - D1.1-10 Structural Welding Code Steel
 - D1.3-08 Structural Welding Code Sheet Steel
- E. National Association of Architectural Metal Manufacturers (NAAMM)
 - AMP 521-01 Pipe Railing Manual
 - AMP 500-06 Metal Finishes Manual
- Structural Steel Painting Council (SSPC)/Society of Protective Coatings:
 - SP 1-04 No. 1, Solvent Cleaning
 - SP 2-04 No. 2, Hand Tool Cleaning
 - SP 3-04 No. 3, Power Tool Cleaning

1.06 DESIGN CRITERIA

- A. In addition to the dead loads, design fabrications to support the following live loads unless otherwise specified.
- B. Ladders and Rungs: 120 kg (250 pounds) at any point.
- C. Railings and Handrails: 900 N (200 pounds) in any direction at any point.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Structural Steel: ASTM A36.
- B. Floor Plate:
 - 1. Steel ASTM A786.
 - 2. Aluminum: ASTM B632.
- C. Steel Pipe: ASTM A53.
 - 1. Galvanized for exterior locations.
 - 2. Coated for interior locations, see SECTION 09 06 00 for coating.
- D. Cast-Iron: ASTM A48, Class 30, commercial pattern.
- E. Grout: ASTM C1107, pourable type.
- F. Steel Pipe (Bollard): ASTM A53.
 - 1. Galvanized for exterior locations.
 - 2. Type S, Grade A unless specified otherwise.
 - 3. NPS (inside diameter) as shown.

2.02 HARDWARE

- A. Rough Hardware:
 - 1. Furnish rough hardware with a standard plating, applied after punching, forming and assembly of parts; galvanized, cadmium plated, or zinc-coated by electro-galvanizing process. Galvanized G-90 where specified.
 - 2. Use G90 galvanized coating on ferrous metal for exterior work unless non-ferrous metal or stainless is used.
- B. Fasteners:
 - 1. Bolts with Nuts:

- a. ASTM A307 for 415 MPa (60,000 psi) tensile strength bolts.
- b. ASTM F593 for stainless steel.
- c. Screws: ASME B18.6.1.
- d. Washers: ASTM F436, type to suit material and anchorage.
- e. Nails: ASTM F1667, Type I, style 6 or 14 for finish work.

2.03 FABRICATION GENERAL

A. Material

- 1. Use material as specified. Use material of commercial quality and suitable for intended purpose for material that is not named or its standard of quality not specified.
- 2. Use material free of defects which could affect the appearance or service ability of the finished product.

B. Size:

- 1. Size and thickness of members as shown.
- 2. When size and thickness is not specified or shown for an individual part, use size and thickness not less than that used for the same component on similar standard commercial items or in accordance with established shop methods.

C. Connections

- 1. Except as otherwise specified, connections may be made by welding, riveting or bolting.
- 2. Field riveting will not be approved.
- 3. Design size, number and placement of fasteners, to develop a joint strength of not less than the design value.
- 4. Holes, for rivets and bolts: Accurately punched or drilled and burrs removed.
- 5. Size and shape welds to develop the full design strength of the parts connected by welds and to transmit imposed stresses without permanent deformation or failure when subject to service loadings.
- 6. Use Rivets and bolts of material selected to prevent corrosion (electrolysis) at bimetallic contacts. Plated or coated material will not be approved.
- 7. Use stainless steel connectors for removable members machine screws or bolts.

D. Fasteners and Anchors

- 1. Use methods for fastening or anchoring metal fabrications to building construction as shown or specified.

2. Where fasteners and anchors are not shown, design the type, size, location and spacing to resist the loads imposed without deformation of the members or causing failure of the anchor or fastener, and suit the sequence of installation.
3. Use material and finish of the fasteners compatible with the kinds of materials which are fastened together and their location in the finished work.
4. Fasteners for securing metal fabrications to new construction only, may be by use of threaded or wedge type inserts or by anchors for welding to the metal fabrication for installation before the concrete is placed or as masonry is laid.
5. Fasteners for securing metal fabrication to existing construction or new construction may be expansion bolts, toggle bolts, power actuated drive pins, welding, self-drilling and tapping screws or bolts.

E. Workmanship

1. General:

- a. Fabricate items to design shown.
- b. Furnish members in longest lengths commercially available within the limits shown and specified.
- c. Fabricate straight, true, free from warp and twist, and where applicable square and in same plane.
- d. Provide holes, sinkages and reinforcement shown and required for fasteners and anchorage items.
- e. Provide openings, cut-outs, and tapped holes for attachment and clearances required for work of other trades.
- f. Prepare members for the installation and fitting of hardware.
- g. Cut openings in gratings and floor plates for the passage of ducts, sumps, pipes, conduits and similar items. Provide reinforcement to support cut edges.
- h. Fabricate surfaces and edges free from sharp edges, burrs and projections which may cause injury.

2. Welding:

- a. Weld in accordance with AWS.
- b. Welds shall show good fusion, be free from cracks and porosity and accomplish secure and rigid joints in proper alignment.
- c. Where exposed in the finished work, continuous weld for the full length of the members joined and have depressed areas filled and protruding welds finished smooth and flush with adjacent surfaces.
- d. Finish welded joints to match finish of adjacent surface.

3. Joining:
 - a. Miter or butt members at corners.
 - b. Where frames members are butted at corners, cut leg of frame member perpendicular to surface, as required for clearance.
4. Cutting and Fitting:
 - a. Accurately cut, machine and fit joints, corners, copes, and miters.
 - b. Fit removable members to be easily removed.
 - c. Design and construct field connections in the most practical place for appearance and ease of installation.
 - d. Fit pieces together as required.
 - e. Fabricate connections for ease of assembly and disassembly without use of special tools.
 - f. Joints firm when assembled.
 - g. Conceal joining, fitting and welding on exposed work as far as practical.
 - h. Do not show rivets and screws prominently on the exposed face.
 - i. The fit of components and the alignment of holes shall eliminate the need to modify component or to use exceptional force in the assembly of item and eliminate the need to use other than common tools.

F. Finish:

1. Finish exposed surfaces in accordance with NAAMM Metal Finishes Manual.
2. Aluminum: NAAMM AMP 501.
 - a. Mill finish, AA-M10, as fabricated, use unless specified otherwise.
 - b. Clear anodic coating, AA-C22A41, chemically etched medium matte, with Architectural Class 1, 0.7 mils or thicker.
 - c. Colored anodic coating, AA-C22A42, chemically etched medium matte with Architectural Class 1, 0.7 mils or thicker.
 - d. Painted: AA-C22R10.
3. Steel and Iron: NAAMM AMP 504.
 - a. Zinc coated (Galvanized): ASTM A123, G90 unless noted otherwise.
 - b. Surfaces exposed in the finished work:
 - 1) Finish smooth rough surfaces and remove projections.

- 2) Fill holes, dents and similar voids and depressions with epoxy type patching compound.
- c. Shop Prime Painting:
 - 1) Surfaces of Ferrous metal:
 - a) Items not specified to have other coatings.
 - b) Galvanized surfaces specified to have prime paint.
 - c) Remove all loose mill scale, rust, and paint, by hand or power tool cleaning as defined in SSPC-SP2 and SP3.
 - d) Clean of oil, grease, soil and other detrimental matter by use of solvents or cleaning compounds as defined in SSPC-SP1.
 - e) After cleaning and finishing apply one coat of primer as specified in Section 09 90 00, PAINTING.
- 4. Stainless Steel: NAAMM AMP-504 Finish No. 4.
- G. Protection:
 - 1. Spot prime all abraded and damaged areas of zinc coating which expose the bare metal, using zinc rich paint on hot-dip zinc coat items and zinc dust primer on all other zinc coated items.

2.04 SUPPORTS

- A. General:
 - 1. Fabricate ASTM A36 structural steel shapes where shown.
 - 2. Use clip angles or make provisions for welding hangers and braces to overhead construction.
 - 3. Field connections may be welded or bolted.
- B. For Wall Mounted Items:
 - 1. For items supported by metal stud partitions.
 - 2. Steel strip minimum of 150 mm (6 inches) wide, length extending one stud space beyond end of item supported.
- C. For Trapeze Bars:
 - 1. Construct assembly above ceilings as shown and design to support not less than a 340 kg (750 pound) working load at any point.
 - 2. Fabricate trapeze supports as shown, with all exposed members, including screws, nuts, bolts and washers, fabricated of stainless steel.

3. Continuously weld connections where welds shown.
4. Use modular channel where shown with manufacturers bolts and fittings.

2.05 GATE HINGES LATCH AND STOP

- A. Manufacturer: Tymetal, Hoover Fence Co., or approved equal
- B. Galvanized ASTM A123, G-90 after fabrication.
- C. Doors:
 1. Provide pre-fabricated steel hinged door and frame as shown.
 2. Color: to match fence color
 3. Hardware:
 - a. Install lock or latch specified in Section 08 71 00, DOOR HARDWARE.

2.06 METAL RAILING

- A. In addition to the dead load design railing assembly to support live load specified.
- B. Fabrication General:
 1. Provide continuous welded joints, dressed smooth and flush.
 2. Standard flush fittings, designed to be welded, may be used.
 3. Exposed threads will not be approved.
 4. Form handrail brackets to size and design shown.
 5. Interior Post Anchors:
 - a. Provide flanged fittings for securing fixed posts to floor with expansion bolts, unless shown otherwise.
 - b. Weld or thread flanged fitting to posts at base.
 - c. For securing removable posts to floor, provide close fitting sleeve insert or inverted flange base plate with stud bolts or rivets concrete anchor welded to the base plate.
 - d. Provide sliding flange base plate on posts secured with set screws.
 - e. Weld flange base plate to removable posts set in sleeves.
- C. Handrails:
 1. Close free ends of rail with flush metal caps welded in place except where flanges for securing to walls with bolts are shown.

2. Make provisions for attaching handrail brackets to wall, posts, and handrail as shown.
- D. Aluminum Railings:
1. Fabricate from extruded aluminum.
 2. Use tubular posts not less than 3 mm (0.125 inch) wall thickness for exterior railings.
 3. Punch intermediate rails and bottom of top rails for passage of posts and machine to a close fit.
 4. Where shown use extruded channel sections for top rail with 13 mm (1/2 inch) thick top cover plates and closed ends.
 5. Fabricate brackets of extruded or wrought aluminum as shown.
 6. Fabricate stainless pipe sleeves with closed bottom at least six inches deep having internal dimensions at least 13 mm (1/2 inch) greater than external dimensions of posts where set in concrete.

2.06 METAL LADDER

- A. Aluminum Ladders:
1. Fixed-rail type, constructed of structural aluminum, with mill finish.
 2. Fabricate side rails and rungs of size and design shown, with the rungs shouldered and headed into and welded to the rails.
 3. Where shown fabrication side rails curved, twisted and formed into gooseneck.
 4. Fabricate angle brackets at top and bottom and intermediate brackets where shown. Drill for bolting.
- B. Ladder Rungs:
1. Fabricate from 25 mm (one inch) diameter steel bars.
 2. Fabricate so that rungs will extend at least 100 mm (4 inches) into wall with ends turned 50 mm (2 inches), project out from wall 175 mm (7 inches), be 400 mm (16 inches) wide and be designed so that foot cannot slide off end.
 3. Galvanized after fabrication, ASTM A123, G-90 rungs for exterior use and for access to pits.

2.07 STEEL PIPE BOLLARD

- A. Provide bollard in accordance with ASTM A53 with dimensions as shown in standard detail SD320523-04. Anchor posts in concrete and fill solidly with concrete with a minimum compressive strength of 17 MPa 2500psi.

PART 3 EXECUTION**3.01 INSTALLATION, GENERAL**

- A. Set work accurately, in alignment and where shown, plumb, level, free of rack and twist, and set parallel or perpendicular as required to line and plane of surface.
- B. Set frames of access doors and similar items flush with finish floor and, where applicable, flush with side of opening.
- C. Field weld in accordance with AWS.
 - 1. Design and finish as specified for shop welding.
 - 2. Use continuous weld unless specified otherwise.
- D. Install anchoring devices and fasteners as shown and as necessary for securing metal fabrications to building construction as specified.
- E. Spot prime all abraded and damaged areas of zinc coating as specified and all abraded and damaged areas of shop prime coat with same kind of paint used for shop priming.

3.02 INSTALLATION OF SUPPORTS

- A. Anchorage to structure:
 - 1. Secure angles or channels and clips to overhead structural steel by continuous welding unless bolting is shown.
 - 2. Secure supports to concrete inserts by bolting as shown.
 - 3. Secure steel plate to studs as detailed.
- B. Supports for Wall Mounted items:
 - 1. Locate center of support at anchorage point of supported item.
 - 2. Locate support at top and bottom of wall hung cabinets.
 - 3. Locate support at top of floor cabinets and shelving installed against walls.
 - 4. Locate supports where required for items shown.
- C. Supports for Trapeze Bars:
 - 1. Secure plates to overhead construction with fasteners where shown.
 - 2. Secure angle brace assembly to overhead construction with fasteners where shown and bolt plate to braces.
 - 3. Fit modular channel unit to equipment and secure with modular channel unit manufacturer's standard fittings as shown.

3.03 CLEAN AND ADJUSTING

- A. Adjust movable parts including hardware to operate as designed without binding or deformation of the members centered in the opening or frame and, where applicable, contact surfaces fit tight and even without forcing or warping the components.
- B. Clean after installation exposed prefinished and plated items and items fabricated from stainless steel, aluminum and copper alloys, as recommended by the metal manufacture and protected from damage until completion of the project.

3.04 INSTALLATION OF STEEL PIPE BOLLARD

- A. Set bollards vertically in concrete piers. Compressive strength of concrete piers shall be 21MPa 3000psi. For dimensions of concrete piers

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. Provide labor, materials and equipment to complete all rough and finish carpentry work as indicated in the Contract Documents.
- B. Work of this section include rough carpentry, framing, plywood, composite lumber, sheathing, wood nailers, blocking, sleepers, curbs, cants, wood and hollow metal door frames rough framing, finish carpentry and miscellaneous installed finished items.
 - 1. Establish lines and levels for use of other trades.
 - 2. Create openings and lintels for increased door heights.
- C. Provide labor, materials and equipment to shore, brace either temporarily or permanently wood ceiling systems to remain that will be disturbed during demolition and preparation of new walls and ceiling systems.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. AHA A135.4 - Basic Hardboard; American Hardboard Association.
- B. ANSI A208.1 - Wood Particleboard.
- C. ASTM C1036 - Standard Specification for Flat Glass.
- D. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
- E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- F. AWI P-200 - Architectural Woodwork Quality Standards; Architectural Woodwork Institute.
- G. AWPAC2 - Lumber, Timbers, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes; American Wood Preservers Association.

- H. NWWDA I.S.4 - Industry Standard for Water-Repellent Preservative Non-Pressure Treatment for Millwork; National Wood Window and Door Association.
- I. NIST PS 1 - Construction and Industrial Plywood.
- J. NIST PS 20 - American Softwood Lumber Standard.
- K. WIC - Manual of Millwork; Woodwork Institute of California.
- L. Forest Products Society (FPS): National Design Specification for Stress Grade Lumber and its Fastening.

1.04 SUBMITTALS

- A. Product Data: Submit wood treatment certifications and instructions for proper use of each type of treated material.
- B. Wood Product Certifications:
 - 1. FSC Certification: Furnish certification indicating wood products are from "well-managed" forests.
 - 2. Toxicity Certification: Furnish certification plywood has no added formaldehyde and has no toxic materials as defined by LEED.

1.05 QUALITY ASSURANCE

- A. Lumber Grades: Provide visible grade stamp of an agency certified by FPS.
- B. Lumber Standard: Comply with US Product Standard PS20 for each indicated use, including moisture content and actual sizes related to indicated nominal sizes.
- C. Plywood Standard: Comply with PS1 (ANSI A199.1).
- D. FSC Certified Wood Products: Wood products to be from forests certified "well-managed" by an agency accredited by Forest Stewardship Council (FSC) including SmartWood Program and Forest Conservation Program.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Blocking: Provide dimensional lumber graded in accordance with FPS Grading Rules; Construction Grade, Douglas Fir; minimum S-Dry.
- B. Plywood: Provide minimum APA C-D exterior (CDX) plywood; stress rated where spanning between supporting members; fire retardant treated; minimum 3/4" thick unless otherwise indicated. Where plywood will be exposed in finished work with painted finish provide A-C/EXT-APA plywood with Grade A face exposed and Grade C face concealed

for exterior use: and A-C/INT-APA plywood with Grade A face exposed and Grade C face concealed for interior use.

1. General: Provide plywood certified with no added formaldehyde (NAF) and with no toxic materials as defined by LEED.
- C. Nails, Spikes and Staples: Galvanized; size and type to suit application.
- D. Bolts, Nuts, Washers, Lags, Pins and Screws: Medium carbon steel; galvanized; size and type to suit application.
- E. Fasteners: Provide fasteners as required for complete, secure installation of miscellaneous rough carpentry.
 1. Steel: Bolts or powder activated type.
- E. Hardwood Lumber: Graded in accordance with WIC Custom; of quality suitable for transparent finish. Species as directed by architect.
- F. Lumber for Shimming and blocking: Softwood lumber of Douglas fir species.
- G. Primer: Alkyd primer sealer type.
- H. Wood Filler: Solvent base, tinted to match surface finish color.
- I. Wood Treatment: Water Repellant Preservative Treatment by Dipping Method: NWWDA I.S.4, with 0.25 percent retainage.
- F. Wood Nailers
 1. All lumber for concealer blocking, roof curbs, roof nailers shall be preservative treated hemlock, pine, or fir and shall be new lumber of the best quality available, perfectly sound, well-seasoned, and free from sapwood, large loose or dead knots, streaks and evidence of disease or pests. Maximum moisture content shall be 15%.
- G. Building Paper
 1. 15 Lb. asphalt impregnated felt paper.
- H. Recessed Mount Key Box
 1. Knox Box, 3200 Series, recesses, 10 key steel vault, hinged door, color TBD. Located at main entry as directed by Owner.
 2. Recessed, 50 key steel vault, dark bronze, located in basement mechanical room as directed by Owner. Heavy duty box.
- I. Construction Adhesives
 1. Products of Contech Division of Rexnord Chemical Corporation or equal as approved by Architect.
 - a. Interior work dry areas – PL200
 - b. Exterior work and wet areas – PL 400

- c. Treated Wood – PL500

2.02 FABRICATION

- A. Wood Preservation: Treat lumber and plywood to comply with applicable requirements of American Wood Preservers Association.
 - 1. Decay Resistance Treatment: Pressure treat following items with water-borne preservatives for above ground use with AWP C-2.
 - a. Treat wood members in connection with roofing, flashing, vapor barriers and waterproofing.
 - b. Treat wood members in contact with masonry, with concrete, and below grade.
 - c. Kiln-dry wood to a maximum moisture content of 19% after treatment with water-borne preservative.
 - 2. Fire Retardant Treatment: Comply with AWP standards for pressure impregnation with fire-retardant chemicals to achieve flame-spread rating of not more than 25 in accordance with ASTM E84 or UL Test 723.
 - a. Treat interior wood and plywood complying with AWP C20 and C27, Interior Type A, and identify with FRTW.
 - 1) Exterior Type: Where indicated for exterior applications, provide fire treated wood passing ASTM D2898 rain test.
 - b. Provide UL label on each piece of fire-retardant wood and plywood.
 - c. Kiln-dry treated items to maximum moisture content of 19%.
 - 3. Complete fabrication of treated items prior to treatment, wherever possible; if cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.
 - 4. Inspect each piece after drying and discard damaged and defective pieces.

PART 3 EXECUTION

3.01 PLACEMENT

- A. Place miscellaneous rough carpentry true to lines and levels.
- B. Correlate location so attached work will comply with design requirements and be properly located.
- C. Construct members of continuous pieces of longest possible lengths.
- D. Fit carpentry work to other work; scribe and cope as required for accurate fit.
- E. Shim with metal or slate for bearing on concrete and masonry.

- F. Securely attach carpentry work to substrates by anchoring and fastening as required by recognized standards.
 - 1. Provide washers under bolt heads and nuts in contact with wood.
- G. Wood Blocking: Provide blocking of S4S lumber not less than 1-1/2" wide and of thickness required to provide adequate support or to properly locate attached material.
 - 1. Provide attachment to other work; form to shapes shown.
 - 2. Countersink bolts and nuts flush with surfaces.
 - 3. Remove temporary blocking when no longer needed.
 - 4. Anchor to formwork before concrete placement.
- H. Plywood: Comply with recommendations of American Plywood Association (APA) for fabrication and installation of plywood work.
 - 1. Provide attachment to other work; form to shapes shown.
 - 2. Align fasteners for exposed view aesthetic as shown.
 - 3. Fit carpentry work to other work.
 - 4. Adjust, trim and level.

END OF SECTION 06 10 00

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PART 1 GENERAL**1.01 SUMMARY**

- A. Section Includes: Provide mill fabricated architectural woodwork with accessories as required for complete finished installation.
 - 1. Provide wood veneer-faced cabinetwork.
 - 2. Provide solid surface counter.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Submit manufacturer's literature for manufactured items.
- C. Shop Drawings: Indicate materials and wood species, component profiles, fastening, joining details, finishes, and accessories.
 - 1. Certification: Provide WI MoM Certified Compliance Label on shop drawings.
- D. Samples: Furnish samples of each exposed material.
- E. Certificates: "Manual of Millwork" (WI MoM) certification is required.
 - 1. General: Before delivery to jobsite, provide WI MoM Certified Compliance Certificate indicating grade of millwork products to be furnished and certify WI MoM requirements for specified grades shall be met.
 - 2. Casework: Each unit to bear WI MoM Certified Compliance Label.
 - 3. Installation: Provide WI MoM Certified Compliance Certificate for Installation.
 - 4. FSC Certification: Furnish certification indicating wood products are from "well-managed" forests.

5. Toxicity Certification: Furnish certification plywood has no added formaldehyde and has no toxic materials as defined by LEED.

1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Member of Woodwork Institute (formerly Woodwork Institute of California) with minimum five years successful experience fabricating architectural woodwork similar to that required for Project.
- B. Standards: Perform architectural woodwork in accordance with recommendations Woodwork Institute "Manual of Millwork" (WI MoM).
- C. Seismic Anchorage: Provide seismic anchorage for wall cabinets as required by CBC.
- D. FSC Certified Wood Products: Wood products to be from forests certified "well-managed" by an agency accredited by Forest Stewardship Council (FSC) including SmartWood Program and Forest Conservation Program.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver architectural woodwork until site conditions are adequate to receive work; protect items from weather while in transit.
 1. Allow architectural woodwork shop finish to completely dry prior to delivery to site; allow materials to off-gas volatile organic compound (VOC) emissions off site.
- B. Store materials indoors, in ventilated areas with constant but minimum temperature of 60 degrees F and maximum relative humidity of 25% to 55%.
- C. Do not begin installation of architectural woodwork until space is fully enclosed and mechanical systems are fully operational.
 1. Maintain interior installation areas at 70 degrees F and 50% to 55% relative humidity.
- D. Immediately remove from site materials with visible mold and materials with mildew.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Wood Veneer Finished Casework:
 1. Casework doors and exposed panels: Veneer finish per Architectural Finishes List, Section 09 06 00.
 2. Factory Finish: Shop prime with polyurethane opaque finish;

- a. Color and veneer species per Architectural Finishes List, Section 09 06 00.
- B. Countertop:
 - 1. Solid Polymer Systems: Manufacturer's standard polymer system with color throughout thickness; provide manufacturer recommended joint adhesive; exposed surfaces finished to match top.
 - a. Quality: Comparable to WI MoM/Premium Grade.
 - b. Type: Not less than 1/2" thick sheet designed to accept bowls as indicated and as specified in Division 15 and with edge conditions as indicated on Drawings.
 - c. Color: Manufacturer's standard color as selected by Architect.
 - d. Manufacturers:
 - 1) DuPont Co./Corian.
 - 2) Avonite, Inc./Avonite.
 - 3) Formica Corp./Surell.
 - 2. Core: Provide plywood with no added formaldehyde and no toxic materials.
- C. Anchors, Nails and Screws: Select material, type, size and finish required by each substrate for secure anchorage; provide toothed steel or lead expansion bolt screws for drilled-in-place anchors.

2.02 FABRICATION

- A. General: Fabricate architectural woodwork in accordance with specified quality standards.
- B. Plastic Laminate:
 - 1. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes.
 - 2. Make corners and joints hairline; slightly bevel arises.
 - 3. Locate butt joints at least 2'-0" from cutouts.
 - 4. Cap exposed edges with plastic laminate of same finish and pattern.
 - 5. Apply laminate backing sheet to reverse side of laminate surfaces.

6. Provide cutouts for inserts, fixtures and fittings; verify locations from on-site dimensions.
7. Prime paint contact surfaces of cutouts.
- C. Use exposed fastening devices or nails only when approved and unavoidable; arrange neatly.
- D. Assemble woodwork in shop in sizes easily handled and to ensure passage through building openings.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible; do not delay job progress, allow for trimming and fitting.

3.02 INSTALLATION

- A. Install work consistent with specified quality grade, plumb, level, true and straight with no distortions.
 1. Shim as required, using concealed shims.
- B. Secure work to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation.
- C. Scribe and cut for accurate fit to other finished work.
- D. Route and prepare beams for installation of beam connectors and hangers.
- E. Attach connectors to wall anchors and solid wood beams.
- F. Attach architectural woodwork securely in place with uniform joints providing for thermal and building movements.
- G. Attach countertop material to casework per manufacturer.
- H. Acceptable Tolerances:
 1. Variation from True Position: Maximum 1/16" at any position and maximum 1/8" in any 10'-0" length.
 2. Adjoining Surfaces of Same Material: No variation permitted.
 3. Offset with Abutting Materials: Maximum 1/32".

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes rubber waterproofing for below grade structures.

1.2 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Show locations and extent of waterproofing.
 - 2. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.
- C. Sample warranty.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

1.5 WARRANTY

- A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace waterproofing that fails in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS**2.1 RUBBER WATERPROOFING**

- A. Two-Component, Reinforced, Rubber Waterproofing system: ASTM C836/C836M; coal-tar free.
 - 1. Basis-of-Design or Approved Equal:
 - a. Manufacturer: GCP Applied Technologies Inc., 2325 Lakeview Parkway, Suite 400, Alpharetta, GA 30009, USA; gcpat.com; 1-866-333-3726
 - b. Product: Procor Below Grade – Fluid applied waterproofing & all associated system components which include:
 - 1) Procor 75 Spray Grade – For horizontal and vertical applications
 - 2) Hydroduct Drainage Composites – Geocomposite Drainage Sheets
 - a) HYDRODUCT® 660 Drainage Composite for use on horizontal applications.
 - b) HYDRODUCT® 220 Drainage Composite for use on vertical applications.
 - 3) Bituthene Liquid Membrane – Detailing at pipe entries, etc.
 - 4) Preprufe Tape – For tie-ins of Procor, Bituthene, or Preprufe waterproofing sheet membranes.
 - 5) Preprufe 300R Plus – Pre-applied waterproofing membrane that bonds integrally to poured concrete
 - 2. Hydrostatic-Head Resistance: 65 feet minimum; ASTM D5385/D5385M.

2.2 AUXILIARY MATERIALS

- A. Primer: Manufacturer's standard primer, sealer, or surface conditioner; factory-formulated.
- B. Sheet Flashing: 50-mil- (1.3-mm-) minimum, nonstaining, uncured sheet neoprene.
 - 1. Adhesive: Manufacturer's recommended contact adhesive.
- C. Membrane-Reinforcing Fabric: Manufacturer's recommended fiberglass mesh or polyester fabric.
- D. Joint Reinforcing Strip: Manufacturer's recommended fiberglass mesh or polyester fabric.
- E. Joint Sealant: Multicomponent polyurethane sealant, compatible with waterproofing; and as recommended by manufacturer for substrate and joint conditions.
 - 1. Backer Rod: Closed-cell polyethylene foam.

2.3 PRE-APPLIED WATERPROOFING MEMBRANE – BELOW SLAB

- A. Pre-Applied waterproofing membrane: Composite membrane comprised of a heavy duty grade HDPE film, pressure sensitive adhesive, and weather resistant protective coating to form an integral bond to poured concrete. Designed for horizontal and vertical use below slabs.
 - 1. Thickness: 0.046 inch (1.2 mm), nominal
 - 2. Lateral water migration resistance:

3. Hydrostatic-Head Resistance: 231 feet minimum; ASTM D5385.
4. Tensile strength: 4,000 psi (27.6 Mpa)
5. Required overlap: 3" minimum

2.4 PROTECTION COURSE

- A. Protection Course: ASTM D6506, semirigid sheets of fiberglass- or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners and as follows:
 1. Thickness: 1/4 inch (6 mm), nominal, for vertical applications; 1/4 inch (6 mm), nominal, elsewhere.
 2. Adhesive: Rubber-based solvent type recommended in writing by waterproofing manufacturer.

2.5 MOLDED-SHEET DRAINAGE PANELS

- A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel with Polymeric Film: Composite subsurface drainage panel consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding No. 70 (0.21-mm) sieve laminated to one side of the core and a polymeric film bonded to the other side; and with a vertical flow rate through the core of [9 to 21 gpm per ft. (112 to 261 L/min. per m)].

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Close off deck drains and other deck penetrations to prevent spillage and migration of waterproofing fluids.
- D. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, acid residues, and other penetrating contaminants or film-forming coatings from concrete.
- E. Remove fins, ridges, and other projections, and fill honeycomb, aggregate pockets, holes, and other voids.
- F. Prepare surfaces at terminations and penetrations through waterproofing and at expansion joints, drains, sleeves, and corners according to waterproofing manufacturer's written instructions and to recommendations in ASTM C898/C898M.
- G. Apply waterproofing in two separate applications, and embed a joint reinforcing strip in the first preparation coat when recommended by waterproofing manufacturer.

- H. Prepare, treat, rout, and fill joints and cracks in substrate according to waterproofing manufacturer's written instructions and to recommendations in ASTM C898/C898M. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D4258.
- I. Install sheet flashing and bond to deck and wall substrates where required according to waterproofing manufacturer's written instructions.

3.2 WATERPROOFING APPLICATION

- A. Apply waterproofing according to manufacturer's written instructions and to recommendations in ASTM C898/C898M.
- B. Unreinforced Waterproofing Applications.
 - 1. Apply one or more coats of waterproofing to obtain a seamless membrane free of entrapped gases and pinholes, with a dry film thickness of 60 mils (1.5 mm).
- C. Install protection course with butted joints over waterproofing before starting subsequent construction operations.
 - 1. For horizontal applications, install protection course loose laid over fully cured membrane.
 - 2. For vertical applications, set protection course in nominally cured membrane, which will act as an adhesive. If membrane cures before application of protection course, use adhesive.
 - 3. Molded-sheet drainage panels may be used in place of a separate protection course for vertical applications when approved in writing by waterproofing manufacturer.

3.3 MOLDED-SHEET DRAINAGE PANEL INSTALLATION

- A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, according to manufacturer's written instructions. Use adhesive or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.
 - 1. For vertical applications, install protection course before installing drainage panels.

3.4 PROTECTION

- A. Do not permit foot or vehicular traffic on unprotected membrane.
- B. Protect waterproofing from damage and wear during remainder of construction period.
- C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Provide labor, material, equipment and services to furnish and install building insulation as shown on the drawings, as specified herein and as required for a complete and proper installation, including, but not limited to, the following:
 - 1. Thermal Insulation
 - 2. Acoustic Insulation

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Furnish manufacturer's literature for each type of insulation.
 - 1. Submit Underwriter's Laboratory approval numbers for required fire ratings; approvals of other laboratories contingent upon acceptance of applicable authorities.
- C. Certificates: Stating the type, thickness and "R" value (thermal resistance) of the insulation to be installed.

1.04 STORAGE AND HANDLING

- A. Store insulation materials in weathertight enclosure.
- B. Protect insulation from damage from handling, weather and construction operations before, during, and after installation.

1.05 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

- A. Federal Specifications (Fed. Spec.)
 - FF N 105B (3) Nails, Brads, Staples and Spikes: Wire, Cut and Wrought
- B. California Building Codes (CBC) 2019 Energy Codes

- C. American Society for Testing and Materials (ASTM):
 - C552 Cellular Glass Block and Pipe Thermal Insulation
 - C553 Mineral Fiber Blanket and Felt Insulation (Industrial Type)
 - C578 Preformed Cellular Polystyrene Thermal Insulation
 - C591 Unfaced Preformed Rigid Cellular Polyurethane Thermal Insulation
 - C612 Mineral Fiber Block and Board Thermal Insulation
 - C665 Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
 - C728 Perlite Thermal Insulation Board
 - C954 Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Base to Steel Studs From 0.033 inch to 0.112 inch in thickness
 - C1002 Steel Drill Screws for the Application of Gypsum Board

PART 2 PRODUCTS

2.01 MATERIALS

- A. Thermal Batt Insulation: Thermafiber SAFB, preformed slag mineral or glass fiber with thermosetting resin binders, conforming to ASTM C665, Type 1, HH-I-521F, unfaced; formaldehyde-free and with no toxic materials. Flame Spread/Smoke Density Rating: Maximum 0/0, ASTM E84. Combustibility: Pass ASTM E136.
- B. Acoustical Insulation
 - 1. Mineral Fiber Batt or Blankets: ASTM C665, Type 1. Thickness as shown; of widths and lengths to fit tight against framing.
- C. Rigid Insulation
 - 1. On the inside face of exterior walls.
 - 2. Cellular Glass Block, ASTM C552, Type 1.
- D. Accessories: Furnish as recommended by insulation manufacturer for insulation types, substrates, and conditions involved.
- E. Aerogel.
 - 1. Flexible gel filled blanket material: ASTM C1728, Type III, Grade 1A, 10 mm (0.4 in) thick, shown; of widths and lengths to fit tight against framing. Products similar to Pryogel HPS.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify substrate and adjacent materials are dry and ready to receive insulation; beginning installation signifies acceptance of conditions.
- B. Ensure mechanical and electrical items affecting work are properly placed, complete, and have been inspected by Architect prior to commencement of installation.

3.02 INSTALLATION

- A. Install batt or blanket insulation with tight joints and filling framing void completely. Seal cuts, tears, and un-lapped joints with tape.
- B. Fit insulation tight against adjoining construction and penetrations, unless specified otherwise. Install insulation in accordance with manufacturer's instructions.
- C. Cut and trim insulation neatly, to fit spaces.
- D. Fit insulation tight within spaces and tight to and behind mechanical and electrical services within insulation plane; leave no gaps or voids; maintain integrity of thermal barrier.
- E. Friction fit batt insulation in place; use tape or penetration supports as necessary to assure permanent installation.
- F. Fasten blanket insulation between metal studs and wall furring with continuous pressure sensitive tape along edges or adhesive.
- G. Pack insulation around door frames and windows and in cracks, expansion joints, control joints, door soffits and other voids. Pack behind outlets, around pipes, ducts, and services encased in wall or partition. Hold insulation in place with pressure sensitive tape or adhesive.
- H. Do not compress insulation below required thickness except where embedded items prevent required thickness.

END OF SECTION

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PART 1 - GENERAL**1.01 DESCRIPTION**

- A. Roof and deck insulation on new construction ready to receive roofing or waterproofing membrane over wood deck.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only. Editions of applicable publications current on date of issue of bidding documents apply unless otherwise indicated.
- B. American Society of Heating, Refrigeration and Air Conditioning (ASHRAE):
- 90.1-07Energy Standard for Buildings Except Low-Rise Residential Buildings
- C. ASTM International (ASTM):
- C208-08Cellulosic Fiber Insulating Board
- C552-07Cellular Glass Thermal Insulation
- C726-05Mineral Fiber Roof Insulation Board
- C728-05Perlite Thermal Insulation Board
- C1177/C1177M-08.....Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
- C1278/C1278M-07.....Standard Specification for Fiber-Reinforced Gypsum Panel
- C1289-10Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
- C1396/C1396M-09.....Standard Specification for Gypsum Board
- D41-05Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
- D312-06Asphalt Used in Roofing

- D1970-09 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- D2178-04 Asphalt Glass Felt Used in Roofing and Waterproofing
- D2822-05 Asphalt Roof Cement
- D4586-07 Standard Specification for Asphalt Roof Cement, Asbestos-Free
- E84-09..... Standard Test Method for Surface Burning Characteristics of Building Material
- F1667-05..... Driven Fasteners: Nails, Spikes, and Staples

- D. FM Approvals: RoofNav Approved Roofing Assemblies and Products.
 - 4450-89 Approved Standard for Class 1 Insulated Steel Deck Roofs
 - 4470-10 Approved Standard for Class 1 Roof Coverings
 - 1-28-09 Loss Prevention Data Sheet: Design Wind Loads.
 - 1-29-09 Loss Prevention Data Sheet: Above-Deck Roof Components
 - 1-49-09 Loss Prevention Data Sheet: Perimeter Flashing

- E. National Roofing Contractors Association: Roofing and Waterproofing Manual

- F. U.S. Department of Agriculture (USDA): USDA BioPreferred Catalog, www.biopreferred.gov

- G. Underwriters Laboratories, Inc. (UL): Fire Resistance Directory (2009)

- H. U.S. Department of Commerce National Institute of Standards and Technology (NIST):
 - DOC PS 1-09 U.S. Product Standard for Construction and Industrial Plywood
 - DOC PS 2-04 Performance Standard for Wood-Based Structural-Use Panels.

1.04 PERFORMANCE REQUIREMENTS

- A. Thermal Performance: Provide roof insulation meeting minimum overall average R-value of 33 (6 inches).
- B. FM Approvals: Provide roof insulation complying with requirements in FM Approvals 4450 and 4470 as part of specified roofing system, listed in FM Approvals "RoofNav" as part of roofing system meeting Fire/Windstorm Classification in Division 07 roofing section.

1.05 QUALITY CONTROL

- A. Requirements of Division 07 roofing section for qualifications of roofing system insulation Installer; Work of this Section shall be performed by same Installer.
- B. Requirements of Division 07 roofing section for inspection of Work of this Section and qualifications of Inspector.

- C. Unless specified otherwise, comply with the recommendations of the NRCA "Roofing and Waterproofing Manual" applicable to insulation for storage, handling, and application.
- D. Requirements of roofing system uplift pressure design for specified roofing system.
- E. Requirements of applicable FM Approval for specified roofing system insulation attachment.
- G. Bio-Based Materials: Where applicable, provide products designated by USDA and meeting or exceeding USDA recommendations for bio-based content, and products meeting Rapidly Renewable Materials and certified sustainable wood content definitions; refer to www.biopreferred.gov.

1.06 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Product Data:
 - 1. Asphalt and adhesive materials, each type.
 - 2. Roofing cement, each type.
 - 3. Roof insulation, each type.
- 4. Fastening requirements.
- C. Federal Sustainable Design Submittals:
 - 1. Product Data for Federally-Mandated Bio-Based Materials: For roof materials, indicating USDA designation and compliance with definitions for bio-based products, Rapidly Renewable Materials, and certified sustainable wood content.
- D. Shop Drawings: Include plans, sections, details, and attachments.
 - 1. Nailers, cants, and terminations.
 - 2. Layout of insulation showing slopes, tapers, penetration, and edge conditions.
- E. Samples:
 - 1. Roof insulation, each type.
 - 2. Nails and fasteners, each type.
- F. Certificates:
 - 1. Indicating type, thermal conductance, and minimum and average thickness of insulation.
 - 2. Indicating materials and method of application of insulation system meet the requirements of FM Approvals for specified roofing system.
- G. Laboratory Test Reports: Thermal values of insulation products.

- H. Layout of tapered roof system showing units required.
- I. Documentation of supervisors' and inspectors' qualifications.

1.07 DELIVERY, STORAGE AND MARKING

- A. Comply with the recommendations of the NRCA "Roofing and Waterproofing Manual" applicable to built-up roofing for storage, handling and installation requirements.

1.08 QUALITY ASSURANCE:

- A. Roof insulation on combustible or steel decks shall have a flame spread rating not greater than 75 and a smoke developed rating not greater than 150, exclusive of covering, when tested in accordance with ASTM E84, or shall have successfully passed FM Approvals 4450.
 - 1. Insulation bearing the UL label and listed in the UL Building Materials Directory as meeting the flame spread and smoke developed ratings will be accepted in-lieu-of copies of test reports.
 - 2. Compliance with flame spread and smoke developed ratings will not be required when insulation has been tested as part of a roof construction assembly of the particular type used for this project and the construction is listed as fire-classified in the UL Building Materials Directory or listed as Class I roof deck construction in the FM Approvals "RoofNav."
 - 3. Insulation tested as part of a roof construction assembly shall bear UL or FM labels attesting to the ratings specified herein.

PART 2 - PRODUCTS

2.01 ADHESIVE MATERIALS

- A. Adhesive Materials, General: Adhesive and sealant materials recommended by roofing system manufacturer for intended use, identical to materials utilized in approved listed roofing system, and compatible with roofing membrane.
 - 1. Liquid-type adhesive materials shall comply with VOC limits of authorities having jurisdiction.
 - 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Plastic Foam Adhesives: 50 g/L.
 - b. Multipurpose Construction Adhesives: 70 g/L.
 - c. Fiberglass Adhesives: 80 g/L.
 - d. Contact Adhesives: 80 g/L.

- e. Other Adhesives: 250 g/L.
 - f. Non-membrane Roof Sealants: 300 g/L.
 - g. Sealant Primers for Non-porous Substrates: 250 g/L.
 - h. Sealant Primers for Porous Substrates: 775 g/L.
- B. Primer: ASTM D41.
- C. Asphalt: ASTM D312, Type III or IV for vapor retarders and insulation.
- D. Modified Asphaltic Insulation Adhesive: Insulation manufacturer's recommended modified asphaltic, asbestos-free, cold-applied adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- E. Bead-Applied Urethane Insulation Adhesive: Insulation manufacturer's recommended bead-applied, low-rise, one- or multicomponent urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- F. Full-Spread Applied Urethane Insulation Adhesive: Insulation manufacturer's recommended spray-applied, low-rise, two-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- G. Roof Cement: Asbestos free, ASTM D2822, Type I or Type II, ; or, D4586, Type I or Type II.

2.02 ROOF AND DECK INSULATION

- A. Roof and Deck Insulation, General: Preformed roof insulation boards approved by roofing manufacturer and listed as component of FM Approvals-approved roofing system.
- B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
- C. Cellular Glass Board Insulation: ASTM C552, Type IV, kraft-paper sheet faced.
- D. Perlite Board Insulation: ASTM C728, expanded perlite, cellulosic fibers, binders, and waterproofing agents with top surface seal coated.
- E. Cellulosic Fiber Board Insulation: ASTM C208, Type II, Grade 1 for built-up asphalt or modified bitumen roofing.
- F. Tapered Roof Insulation System:
- 1. Fabricate of mineral fiberboard, polyisocyanurate, perlite board, or cellular glass. Use only one insulation material for tapered sections. Use only factory-tapered insulation.
 - 2. Cut to provide high and low points with crickets and slopes as shown.
 - 3. Minimum thickness of tapered sections; 38 mm (1-1/2 inch).

4. Minimum slope 1:48 (1/4 inch per 12 inches).

2.03 INSULATION ACCESSORIES

- A. Glass (Felt): ASTM D2178, Type VI, heavy duty ply sheet.
- B. Cants and Tapered Edge Strips:
 1. Wood Cant Strips: Refer to Division 06 Section "Rough Carpentry."
 2. Insulation Cant Strips: ASTM C208, Type II, Grade 1, cellulosic-fiber insulation board.
 3. Tapered Edge Strips: 1:12 (one inch per foot), from 0 mm (0 inches), 300 mm to 450 mm (12 inches to 18 inches) wide.
 - a. Cellulosic Fiberboard: ASTM C208.
 - b. Mineral Fiberboard: ASTM C726.
 - c. Perlite Board: ASTM C728.
- C. Vapor Retarder:
 1. Glass-Fiber Felts: ASTM D2178, Type IV, asphalt impregnated.
 2. Self-Adhering Sheet Vapor Retarder: ASTM D1970, minimum of 1.0-mm- (40-mil-) thick, polyethylene film laminated to layer of rubberized asphalt adhesive, or 0.76- to 1.0-mm- (30- to 40-mil-) thick, polyethylene film laminated to layer of butyl rubber adhesive; maximum permeance rating of 6 ng/Pa x s x sq. m (0.1 perm).

2.04 FASTENERS

- A. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with FM Approvals 4470, designed for fastening substrate board to roof deck.
- B. Staples and Nails: ASTM F1667. Type as designated for item anchored and for substrate.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Comply with requirements of Division 07 roofing section.

3.02 PREPARATION

- A. Comply with requirements of Division 07 roofing section.

3.03 RIGID INSULATION INSTALLATION

A. Insulation Installation, General:

1. Install roof insulation in accordance with roofing system manufacturer's written instructions.
2. Install roof insulation in accordance with requirements of FM Approval's Listing for specified roofing system.
3. Base Sheet: Where required by roofing system, install one lapped base sheet specified in Division 07 roofing section by mechanically fastening to roofing substrate prior to installation of insulation.
4. Cant Strips: Install preformed insulation cant strips at junctures of roofing system with vertical construction.

B. Insulation Thickness:

1. Thickness of roof insulation shown on drawings is nominal. Actual thickness shall provide the average thermal resistance "R" value of not less than that specified in Performance Requirements Article.
2. When thickness of insulation to be used is more or less than that shown on the drawings, make adjustments in the alignment and location of roof drains, flashing, gravel stops, fascias and similar items at no additional cost to the Government.
3. Where tapered insulation is used, the insulation thickness at high points and roof edges shall be as shown on the drawings; the thickness at the low point (drains) shall be not less than 38 mm (1-1/2 inches).
5. Use not less than two layers of insulation when insulation is 68 mm (2.7 inch) or more in thickness unless specified otherwise. Stagger joints minimum 150 mm (6 inches).

C. Lay insulating units with close joints, in regular courses and with cross joints broken. When laid in more than one layer, break joints of succeeding layers of roof insulation with those in preceding layer.

D. Lay units with long dimension perpendicular to the rolled (longitudinal) direction of the roofing felt.

E. Seal all cut edges at penetrations and at edges against blocking with bitumen or roof cement.

F. Cut to fit tight against blocking or penetrations.

G. Cover all insulation installed on the same day; comply with temporary protection requirements of Division 07 roofing section.

H. Installation Method:

1. Adhered Insulation:

- a. Prime substrate as required.
 - b. Set each layer of insulation firmly in solid mopping of hot asphalt.
 - c. Set each layer of insulation firmly in ribbons of bead-applied insulation adhesive.
 - d. Set each layer of insulation firmly in uniform application of full-spread insulation adhesive.
2. Mechanically Fastened Insulation:
- a. Fasten insulation in accordance with FM Approval's "RoofNav" requirement in Division 07 roofing section.
 - b. Fasten insulation to resist uplift pressures specified in Division 07 roofing section.
3. Mechanically Fastened and Adhered Insulation:
- a. Fasten first layer of insulation according to "Mechanically Fastened Insulation" requirements.
 - b. Fasten each subsequent layer of insulation according to "Adhered Insulation" requirements.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Manufacturer's requirements for the proper design, use, and installation of an Exterior Insulation and Finish System.
 - 1. The scope of this work includes creating EIFS infill panels at exterior precast panel openings with a heavy aggregate finish.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. ASTM B117 Test Method for Salt Spray (Fog) Testing
- B. ASTM C1135 Test Method for Determining Tensile Adhesion Properties of Structural Sealants
- C. ASTM D968 Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
- D. ASTM D1037 Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
- E. ASTM D2247 Practice for Testing Water Resistance of Coatings in 100 Percent Relative Humidity
- F. ASTM D2294 Standard Test Method for Creep Properties of Adhesives in Shear by Tension Loading (Metal-to-Metal).
- G. ASTM D2794 Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- H. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of
- I. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials
- J. ASTM E108 Standard Test Methods for Fire Tests of Roof Coverings
- K. ASTM E119 Standard Test Method for Fire Tests of Building Construction and Materials.
- L. ASTM E330 Test method for Structural Performance by Uniform Static Air Pressure Difference
- M. ASTM E331 Test Method for Water Penetration by Uniform Static Air Pressure Difference

- N. ASTM E695 Method for Measuring Relative Resistance to Impact Loading
- O. ASTM E2134 Standard Test Method for Evaluating the Tensile-Adhesion Performance of an Exterior Insulation and Finish System (EIFS)
- P. ASTM E2430 Standard Specification For Expanded Polystyrene ("EPS") Thermal Insulation Boards For Use In Exterior Insulation and Finish Systems ("EIFS")
- Q. ASTM E2485 Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water Resistive Barrier Coatings
- R. ASTM E2486 Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
- S. ASTM G155/ G153 Accelerated Weathering for Exposure of Nonmetallic Materials
- T. Fed. Spec. TT-C-555B Coating, Textured (For Interior and Exterior Masonry Surfaces)
- U. MIL STD 810B Military Standard, Environmental Test Methods
- V. NFPA 259 Test Method for Potential Heat of Building Materials
- W. NFPA 268 Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source
- X. NFPA 285 Standard Method of Test for the Evaluation of Flammability characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components Using the Intermediate-scale, Multistory Test Apparatus

1.04 SUBMITTALS

- A. Submit Samples, Evaluation Reports, warranties and Certificates.

1.05 QUALITY ASSURANCE

- A. Qualifications
 - 1. All EIFS assembly materials must be manufactured or sold by a single-source manufacturer.
 - 2. Applicator:
 - a. Must process a current manufacturer's certificate of education
 - b. Must be experienced and competent in installation of plaster-like materials

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in original packaging with manufacturer's identification
- B. Storage: Store materials in a cool, dry location, out of sunlight, protected from weather and other harmful environment, and at a temperature above 40°F (4°C) and below 110°F (43°C) in accordance with manufacturer's instructions.

1.07 SITE CONDITIONS

- A. Installation Ambient Air Temperature: Minimum of 40°F (4°C) and rising, and remain so for 24 hours thereafter.
- B. Substrate Temperature: Do not apply materials to substrates whose temperature are below 40°F (4°C) or contain frost or ice.
- C. Inclement Weather: Do not apply materials during inclement weather unless appropriate protection is employed.
- D. Sunlight Exposure: Avoid, when possible, installation of the materials in direct sunlight. Application of Acrylic Finishes in direct sunlight in hot weather may adversely affect aesthetics.
- E. Materials shall not be applied if ambient temperature exceeds 120°F (49°C) or falls below 40°F (4°C) within 24 hours of application. Protect materials from uneven and excessive evaporation during hot, dry weather.
- F. Prior to installation, the substrate shall be inspected for surface contamination, or other defects that may adversely affect the performance of the materials and shall be free of residual moisture.

1.08 WARRANTY

- A. Warranty: Manufacturer's 5 Year Warranty.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Manufacturer, Basis of Design: Parex USA, Inc.

2.02 MATERIALS

- A. Adhesives:
 - 1. Parex 302 ABC-N1 Base Coat & Adhesive: 100% acrylic polymer base, ready to use, applied without the addition of cement.
- B. Insulation Board: In compliance with manufacturer's requirements for Standard System EIFS.
 - 1. Produced and labeled under a third party quality program as required by applicable building code; and produced by a manufacturer approved by Parex USA.
 - 2. Shall conform to ASTM C578 and ASTM E2430, Type I and the Parex USA specification for Molded Expanded Polystyrene Insulation board.
 - 3. Maximum size shall be 2 ft x 4 ft (610 mm x 1219 mm).
 - 4. Thickness: 3/4 in, minimum (19 mm) after rasping.
- C. Base Coats:
 - 1. 302 ABC-N1 Base Coat & Adhesive: 100% acrylic polymer base, ready to use, applied without the addition of cement.

D. Reinforcing Mesh:

1. 358.10 Intermediate Impact 10 Mesh: Wight 12 oz per sq. yd. (407 g/sq m) Reinforcing mesh used with a Standard Sustem, to achieve ASTM E2486 intermediate impact strength.
2. 356 Short Detail Mesh: Reinforcing mesh used for backwrapping and details.

E. Primer:

1. Parex USA Primer: 100% acrylic based coating to prepare surfaces for acrylic or elastomeric finishes.
2. Variance VariPrime Sanded: 100% acrylic based coating to prepare surface for exposed aggregate specialty finishes

F. Finish:

1. Parex USA Variance. Acrylic-based specialty finish. Finish type, texture, and color per Section 09 06 00 Schedules for Finishes.
2. Parex USA Clear Sealer: 100% acrylic, transparent, permeable, dirt resistant sealter for use as a protective coating over acrylic finishes. Use 600 Clear or Matte Clear.
 - a. Variance Antiquing Gel: a water-based, tinted, semi-transparent, acrylic emulsion for staining, sealing, and protecting concrete, masonry and other cementitious substrates. Use as required to achieve desired finish.
3. Parex USA Clear Sealer: 100% acrylic, transparent, permeable, dirt resistant sealer for use as a protective coating over acrylic finishes. Use 600 Clear or 610 Matte Clear.

G. Portland Cement: ASTM C150, Type I or Type I-II.

H. Water: Clean, cool, potable water.

2.03 RELATED MATERIALS AND ACCESSORIES

A. Substrate Material: Concrete

B. Sealant System:

1. Sealant for expansion joints between panelized EIFS sections shall be ultra-low modulus designed for minimum 100% elongation and minimum 50% compression and as selected by Project Designer.
2. Sealant for perimeter seals around window and door frames and other wall penetrations shall be low modulus, designed for minimum 50% elongation and minimum 25% compression, and as selected by Project Designer.
3. Sealants shall conform to ASTM C 920, Grade NS.
4. Expansion joints between sections of EIFS shall have a minimum width of 3/4 in (19 mm).
5. Perimeter seal joints shall be a minimum width of 1/2 in (12.7 mm).

6. Sealant backer rod shall be closed-cell polyethylene foam.
7. Apply sealant to tracks or base coat of EIFS.
8. Refer to EIFS manufacturer's current bulletin for listing of sealants which have been tested and have been found to be compatible with EIFS materials.
9. Joint design, surface preparation, and sealant primer shall be based on sealant manufacturer's recommendations and project conditions.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify project site conditions.
- B. Compliance: Comply with manufacturer's instructions for installation.
- C. Substrate Examination: Examine prior to installation of EIFS assembly materials as follows:
 1. Substrate shall be examined for soundness, and other harmful conditions.
 2. Substrate shall be free of dust, dirt, laitance, efflorescence, and other harmful contaminants.
- D. Sealants and Backer Rod: To be installed, where required, in accordance with the sealant manufacturer's specifications and published literature, and using the sealant manufacturers recommended primers.
- E. Advise Contractor of discrepancies preventing proper installation of the EIFS materials. Do not proceed with the work until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Protection: Protect surrounding material surfaces and areas during installation of system.
- B. Clean surfaces thoroughly prior to installation.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 MIXING

- A. Mix materials in accordance with manufacturer's instructions.

3.04 APPLICATION

- A. General: Installation shall conform to this specification and manufacturer's written instructions.
- B. Insulation Board:
 1. Install back-wrap mesh or edge-wrap mesh at system terminations.
 2. Apply EIFS adhesive to backs of insulation boards with a notched trowel, with ribbons of adhesive oriented in a vertical direction (parallel to the 2 ft (61 mm) dimension of the EPS board).

- 3. Install insulation board without gaps in a running bond pattern and interlocked at corners.
- 4. Rasp irregularities off insulation board after adhesive has dried a minimum of 24 hours.
- C. Apply base coat and fully embed mesh in base coat; include diagonal mesh patches at corners of openings and reinforcing mesh patches at joints of track sections. Apply multiple layers of base coat and mesh where required for specified impact resistance classification.
- D. Apply primer to base coat after drying. Primer may be omitted if it is not required by the manufacturer's product data sheets for the specified finish coat or otherwise specified for the project.
- E. Finish Coat: Apply finish coat to match specified finish type, texture, and color. Do not apply finish coat to surfaces to receive sealant. Keep finish out of sealant joint gaps.

3.05 CLEAN-UP

- A. Removal: Remove and legally dispose of EIFS materials from job site.
- B. Clean surfaces and work area of foreign materials resulting from material installation.

3.06 PROTECTION

- A. Provide protection of installed materials from water infiltration into or behind them.
- B. Provide protection of installed materials from dust, dirt, precipitation, and freezing during installation, and continuous high humidity until fully cured and dry.
- C. Clean exposed surfaces using materials and methods recommended by the manufacturer of the material or product being cleaned. Remove and replace work that cannot be cleaned to the satisfaction of the Project Designer/Owner.

END OF SECTION 07 24 00

PART 1 GENERAL**1.01 SUMMARY**

- A. Vapor retarder under concrete slabs on grade.

1.02 RELATED SECTIONS

- A. All Sections listed in the Table of Contents are a Condition of this Section.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Submit for vapor retarder sheet and installation accessories. Include data from tests performed within 18 months of submittal showing compliance with specified standard.
- C. Shop Drawings: Show extent of vapor retarder work. Include details for edges at walls, grade beams, and the like. Include details for penetrating elements including conduit, piping, and structural membranes.

PART 2 PRODUCTS**2.01 VAPOR RETARDER**

- A. Plastic Sheet Vapor Retarder: Meeting ASTM E 1745, Class A. Minimum 15 mil thick polyolefin sheet.

Acceptable types include:

- 1. Stego Wrap by Stego Industries
- 2. Moistop Ultra A by Fortifiber Corp
- 3. VaporBlock 15 by Raven Industries
- 4. Perminator by W.R. Meadows

- B. Accessory Products

- 1. Provide manufacturer's recommended self-adhesive plastic seam tape for seams and penetrations.
- 2. Penetration boots: Provide manufacturer's recommended accessory system for sealing pipe and conduit penetrations.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify that surface to receive vapor retarder is compacted and trimmed smooth.
- B. Verify that all work that will penetrate vapor retarder is complete and rigidly installed.
- C. Confirm locations and details of vapor retarder termination.

3.02 VAPOR RETARDER INSTALLATION

- A. General: Comply with requirements of ASTM E 1643 and manufacturer's published instructions.
- B. Place plastic sheet vapor retarder directly on compacted granular fill. Place sheeting with longest dimension parallel with direction of pour.
- C. Lap joints 6 inches and seal with per manufacturer's recommendations with pressure sensitive tape.
- D. Tape seal vapor retarder at all perimeters.
- E. Tape seal vapor retarder around columns, pipe, and conduit penetrations.
- F. Avoid cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Section Includes: Provide materials and accessories as required for complete installation.
 - 1. Surface preparation.
 - 2. Application of liquid applied vapor permeable air barrier. May be referred to weather resistive barrier on Drawings.
 - 3. Application of materials to provide bridge and seal air leakage pathways in
 - a. Wall and roof connections and penetrations.
 - b. Walls, windows, louvers or doors
 - c. All other penetrations through the wall assembly.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. ASTM D412-98a(2002)e1 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- B. ASTM E96-00e1 (Method B) - Standard Test Methods for Water Vapor Transmission of Materials.
- C. ASTM E283-91 (1999) - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- D. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage through Installed Exterior Windows and Doors.
- E. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference.
- F. ASTM E2178-01 - Standard Test Method for Air Permeance of Building Materials.

- G. ASTM E2357 - 05 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Furnish manufacturer's literature for each type of insulation.
 - 1. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of air barrier.
 - 2. Shop Drawings: Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction. Include details of interfaces with other materials that form part of air barrier.
 - 3. Use an experienced installer and adequate number of skilled personnel who are thoroughly trained and experienced in the application of the air barrier.
 - 4. Obtain air/vapor barrier materials from a single manufacturer regularly engaged in manufacturing the product.
 - 5. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOCs).

1.05 MOCK-UP

- A. Before beginning installation of air barrier, build mockups of exterior wall assembly, full height by ten (10) feet wide, including parapet, backup wall construction, external cladding, window, door frame and sill, insulation, and flashing to demonstrate surface preparation, crack and joint treatment, and sealing of gaps, terminations, and penetrations of air barrier membrane.
 - 1. Coordinate construction of mockup to permit inspection of air barrier before external insulation and cladding is installed.
 - 2. Reconstruct mockups do not comply with requirements.
 - 3. Approved mockups may become part of the completed.
 - 4. Include installers of other construction connecting to air barrier, including roofing, waterproofing, composite metal wall panels, metal wall panels, sealants, windows, glazed curtain walls, and door frames.
 - 5. Review air barrier requirements including surface preparation, substrate condition and pretreatment, minimum substrate curing period, forecasted weather conditions, special details and sheet flashings, mockups, installation

procedures, sequence of installation, testing and inspecting procedures, and protection and repairs.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Store liquid materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by air barrier manufacturer.
- B. Store at temperatures at or above 40°F (4°C), free from contact with cold or frozen surfaces.
- C. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- D. Protect stored materials from direct sunlight.
- E. Protect materials during handling and application to prevent damage or contamination.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Do not proceed with product application if rainfall is forecast or imminent within 12 hours.
- C. Do not apply membrane when air or surface temperatures are below 40°F (4°C).
- D. Do not apply when air, material and surface temperatures are expected to fall below 32° F (0° C) within 24 hours of completed application.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Carlisle
- B. Grace
- C. Henry
- D. Rubber Polymer Corporation
- E. Tremco
- F. W.R. Meadows

2.02 FLUID-APPLIED MEMBRANE AIR BARRIER

- A. Fluid-Applied, Vapor Impermeable Membrane Air Barrier: Two-component, self-curing synthetic-rubber-based membrane, free of solvents, isocyanates and bitumen, suitable for spray application to wet film and dry film thickness of 60 mils.

- B. Basis-of-Design Product: Products specified to establish required level of performance, quality, and appearance are by Grace Construction Products, Perm-A-Barrier.

2.03 AUXILIARY MATERIALS

- A. General: Auxiliary materials recommended by air barrier manufacturer for intended use and compatible with air barrier membrane. Liquid-type auxiliary materials shall comply with VOC limits.
- B. Transition Membrane Primer: Grace Construction Products; "Perm-A-Barrier WB Primer." Liquid primer recommended for substrate by manufacturer of air barrier material when applying flashing and transition membranes directly to substrate.
- C. Flashing and Transition Membrane: Grace Construction Products; "Perm-A-Barrier Wall Flashing." Modified bituminous, 40-mil thick, self-adhering sheet consisting of 32 mils of rubberized asphalt laminated to an 8-mil thick, cross-laminated polyethylene film with release liner backing.
- D. Modified Bituminous Transition Membrane: Grace Construction Products; "Perm-A-Barrier Detail Membrane." Vapor-retarding, 40-mil- thick, smooth-surfaced, self-adhering; consisting of 36 mils of rubberized asphalt laminated to a 4-mil-thick polyethylene film with release liner backing.
- E. Joint Reinforcing Strip: Sheathing manufacturer's glass-fiber-mesh tape.
- F. Substrate Patching Membrane: Manufacturer's standard trowel-grade single component substrate filler.
- G. Adhesive and Tape: Air barrier manufacturer's standard adhesive and pressure-sensitive adhesive tape.
- H. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, 0.0250-inch-thick, and Series 300 stainless-steel fasteners.
- I. Sprayed Polyurethane Foam Sealant: 1- or 2-component, foamed-in-place, polyurethane foam sealant, 1.5 to 2.0 lb/cu. ft. density; flame spread index of 25 or less according to ASTM E 162; with primer and noncorrosive substrate cleaner recommended by foam sealant manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.
- B. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
- C. Verify that sheathing is attached with proper fasteners and spacing.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive air barrier.
- B. Clean and prepare surfaces to receive air barrier membrane in accordance with manufacturer's instructions.
- C. Do not apply membrane to surfaces unacceptable to manufacturer.
- D. Patch all holes and voids and smooth out any surface misalignments.
- E. Insure joints between dissimilar building materials are sealed with a strip of self-adhesive membrane 10" wide minimum, centered over the joint.
- F. Exterior Sheathing Panels:
 - 1. Panels are to be fastened according to sheathing panel manufacturer.
 - 2. Fill all panel joint with detailing compound prior to full application.
 - 3. Gypsum Sheathing: Fill joints greater than 1/4 inch with sealant according to ASTM C 1193 and with air barrier manufacturer's written instructions. Apply first layer of fluid air barrier membrane at joints. Tape joints with joint reinforcing strip after first layer is dry. Apply a second layer of fluid air barrier membrane over joint reinforcing strip.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.03 TRANSITION MEMBRANE INSTALLATION

- A. Install strips, transition membrane, and auxiliary materials according to air barrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier.
- B. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
- C. Install modified bituminous transition membrane on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over both substrates.
- D. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by air barrier sheet in same day. Re-prime areas exposed for more than 24 hours.
- E. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.
- F. Connect and seal exterior wall air barrier membrane continuously to roofing membrane air barrier, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings.

- G. At end of each working day, seal top edge of strips and transition membranes to substrate with termination mastic.
- H. Apply joint sealants forming part of air barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- I. Wall Openings: Prime concealed perimeter frame surfaces of windows, curtain walls, storefronts, doors and louvers. Apply modified bituminous transition membrane so that a minimum of 6 inches of coverage is achieved over both substrates. Maintain 6 inches of full contact over firm bearing to perimeter frames with not less than 2 inches of full contact.
- J. Modified Bituminous Transition Membrane: Roll firmly to enhance adhesion.
- K. Preformed Silicone-Sealant Extrusion: Set in full bed of silicone sealant applied to walls, frame, and membrane.
- L. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier membrane with foam sealant.
- M. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counter-flashings or ending in reglets with termination mastic.
- N. Repair punctures, voids, and deficient lapped seams in strips and transition membranes. Slit and flatten fish-mouths and blisters. Patch with transition membranes extending 10 inches beyond repaired areas in membrane direction.

3.04 AIR BARRIER MEMBRANE INSTALLATION

- A. Apply air barrier membrane to form a seal with strips and transition membranes and to achieve a continuous air barrier according to air barrier manufacturer's written instructions.
- B. Apply air barrier at walls, soffits and fascia to roof barrier.
- C. Apply within manufacturer's recommended application temperature ranges.
- D. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by air barrier sheet in same day. Re-prime areas exposed for more than 24 hours.
- E. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.
- F. Apply a continuous unbroken air barrier to substrates according to the following minimum thickness. Apply membrane in full contact around protrusions.
- G. Vapor-Impermeable Membrane Air Barrier: 60-mil wet film thickness, 60-mil dry film thickness.

- H. Apply strip and transition membrane overlapping or onto according to air barrier manufacturer's written instructions.
- I. Do not cover air barrier until it has been tested and inspected by testing agency.
- J. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

3.05 CLEANING AND PROTECTION

- A. Protect air barrier system from damage during application.
- B. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace vapor-impermeable air barrier exposed for more than 60 days.
- C. Keep barrier from contact with creosote, uncured coal-tar products, TPO, EPDM, flexible PVC membranes, and sealants not approved by air barrier manufacturer.
- D. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.
- E. Remove masking materials after installation.

END OF SECTION

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PART 1 GENERAL**1.01 DESCRIPTION**

- A. Thermoplastic Polyolefin (TPO) sheet roofing mechanically fastened to roof deck.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only. Editions of applicable publications current on date of issue of bidding documents apply unless otherwise indicated.
- B. American National Standards Institute/Single-Ply Roofing Institute (ANSI/SPRI):
- ANSI/SPRI ES-1-03 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
- C. American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI):
- ASCE/SEI-7-10 Minimum Design Loads for Buildings and Other Structures
- D. ASTM International (ASTM):
- C1371-04 Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers
- C1549-04 Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer
- D6878-08 Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing
- E108-10 Standard Test Methods for Fire Tests of Roof Coverings
- E408-71(R2008) Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques
- E1980-01 Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field

- E 2430 -05. Rigid Polystyrene Insulation
- C 168. Test method for Thermal Insulation
- C 177. Test for Steady State Heat flux Measurements, and Thermal insulation
- E. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
ASHRAE 90.1-2007Energy Standard for Buildings Except Low-Rise Residential Buildings, Appendix f.
- F. Cool Roof Rating Council:
CRRC-1Product Rating Program, www.coolroofs.org
- G. FM Approvals: Roof Nav Approved Roofing Assemblies and Products.
1-28-09 Loss Prevention Data Sheet: Design Wind Loads.
1-29-09 Loss Prevention Data Sheet: Above-Deck Roof Components
- H. National Roofing Contractors Association: Roofing and Waterproofing Manual
- I. U.S. Department of Energy (DoE): Roof Products Qualified Product List,
www.energystar.gov

1.04 PERFORMANCE REQUIREMENTS

- A. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- B. Roofing System Energy Performance Requirements: Provide a roofing system identical to components that that have been successfully tested by a qualified independent testing and inspecting agency to meet the following requirements:
- C. Energy Performance, Energy Star: Provide roofing system that is listed on DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.
www.energystar.gov.
 - 1. Solar Reflectance Index: Not less than 82 when calculated according to ASTM E1980 based on testing identical products by a qualified testing agency.
www.coolroofs.com.

1.05 QUALITY CONTROL

- A. Installer Qualifications:
 - 1. Licensed or approved in writing by manufacturer to perform work under warranty requirements of this Section.
 - 2. Employ full-time supervisors knowledgeable and experienced in roofing of similar types and scopes, and able to communicate with owner and workers.

- B. Inspector Qualifications: Inspection of work by third-party technical inspector or technical representative of manufacturer experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be an independent party certified as a Registered Roof Observer by the Roof Consultants Institute (RCI), retained by the Contractor and approved by the Manufacturer
- C. Product/Material Requirements:
1. Obtain products from single manufacturer or from sources recommended by manufacturer for use with roofing system and incorporated in manufacturer's warranty.
- D. Roofing system design standard requirements:
1. Recommendations of the NRCA "Roofing and Waterproofing Manual" applicable to Thermoplastic Polyolefin (TPO) roofing for storage, handling and application.
 2. Recommendations of FM Approvals 1-49 Loss Prevention Data Sheet for Perimeter Flashings.
 3. Recommendations of ANSI/SPRI ES-1 for roof edge design.
 4. Roofing System Design: Provide roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.
 - a. Corner Uplift Pressure: (75 lbf/sq. ft.).
 - b. Perimeter Uplift Pressure: (75 lbf/sq. ft.).
 - c. Field-of-Roof Uplift Pressure: (75 lbf/sq. ft.).
 5. FM Approvals Listing: Provide roofing membrane, base flashing, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a roofing system and that are listed in FM Approvals "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.
 - a. Fire/Windstorm Classification: Class 1A-75.
 - b. Hail Resistance: MH.
- E. Pre-Roofing Meeting:
1. Prior to roofing, discuss specific expectations and responsibilities, construction procedures, specification requirements, application, environmental conditions, job and surface readiness, material storage, and protection with COR to:
 - a. Verify that work of other trades which penetrates roof deck is completed.

- b. Determine adequacy of deck anchorage, presence of foreign material, moisture and unlevel surfaces, or other conditions that would prevent application of roofing system from commencing or cause a roof failure.
- c. Examine samples and installation instructions of manufacturer.

1.06 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, SAMPLES.
- B. Product Data:
 - 1. Adhesive materials.
 - 2. Membrane sheet roofing and flashing membrane.
 - 3. Roof Insulation
 - 3. Fastening requirements.
 - 4. Application instructions.
- C. Samples:
 - 1. Nails and fasteners, each type.
- D. Shop Drawings: Include plans, sections, details, and attachments.
 - 1. Base flashings and terminations.
 - 2. Layout of insulation, crickets, edge conditions and roof drains, scuppers etc.
- E. Certificates:
 - 1. Indicating materials and method of application of roofing system meets requirements of FM Approvals "RoofNav" for specified fire/windstorm classification.
 - 2. Indicating compliance with energy performance requirement.
 - 3. Laboratory test reports: Thermal values of insulation products.
 - 4. Indicating Thermal conductance, and minimum average thickness of insulation.
- F. Warranty: As specified.
- G. Documentation of supervisors' and inspectors' qualifications.
- H. Field reports of roofing inspector.
- I. Contract Close-out Submittals:
 - 1. Maintenance Manuals.

2. Warranty signed by installer and manufacturer.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Comply with the recommendations of the NRCA "Roofing and Waterproofing Manual" applicable to single ply membrane roofing for storage, handling and installation.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.09 WARRANTY

- A. Roofing work subject to 10 years.

1.10 QUALITY ASSURANCE:

- A. Roof insulation on steel deck shall have a flame spread rating no greater than 75 and a smoke developed rating not greater than 150, exclusive of covering, when tested in accordance with ASTM E 84, or shall have successfully passed FM Approvals 4450.

PART 2 PRODUCTS

2.01 TPO MEMBRANE ROOFING

- A. TPO Sheet: ASTM D6878, internally fabric or scrim reinforced, 1.5 mm (60 mils) thick, with no backing.
- B. Color: White.

2.02 ACCESSORIES

- A. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as TPO sheet membrane.
- B. Bonding Adhesive: Manufacturer's standard, water based.
- C. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 25 by 3 mm (1 by 1/8 inch) thick; with anchors.
- D. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 25 mm wide by 1.3 mm (1 inch wide by 0.05 inch) thick, prepunched.
- E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with FM Approvals 4470, designed for fastening membrane to substrate.
- G. Miscellaneous Accessories: Provide sealers, preformed flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories acceptable to manufacturer.

- H. Roof and Deck Insulation.

2.03 ADHESIVE AND SEALANT MATERIALS

- A. General: Adhesive and sealant materials recommended by roofing system manufacturer for intended use, identical to materials utilized in approved listed roofing system, and compatible with roofing membrane.
- B. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions with roofing Installer and roofing inspector to verify compliance with project requirements and suitability to accept subsequent roofing work. Correct unsatisfactory conditions before proceeding with roofing work.
- B. Do not apply roofing if roof surface will be used for subsequent work platform, storage of materials, or staging or scaffolding will be erected thereon unless system is protected.

3.02 PREPARATION

- A. Complete roof deck construction prior to commencing roofing work:
 - 1. Install curbs, blocking, edge strips, nailers, cants, and other components where insulation, roofing, and base flashing is attached to, in place ready to receive insulation and roofing.
 - 2. Complete deck and insulation to provide designed drainage to working roof drains.
 - 3. Document installation of related materials to be concealed prior to installing roofing work.
- B. Dry out surfaces, including the flutes of metal deck that become wet from any cause during progress of the work before roofing work is resumed. Apply materials to dry substrates.
- C. Sweep decks to broom clean condition. Remove all dust, dirt or debris.
- D. Remove projections that might damage materials.

3.04 INSTALLATION, GENERAL

- A. FM Approvals Installation Standard: Install roofing membrane, base flashings, wood cants, blocking, curbs, and nailers, and component materials in compliance with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system as listed in FM Approval's "RoofNav" for fire/windstorm classification indicated. Comply with recommendations in FM Approvals' Loss Prevention Data Sheet 1-49, including requirements for nailers and cants.

- B. NRCA Installation Standard: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations.
- C. Manufacturer Recommendations: Comply with roofing system manufacturer's written installation recommendations.
- D. Coordination with related work: Coordinate roof operations with roof insulation and sheet metal work so that insulation and flashings are installed concurrently to permit continuous roofing operations.
- E. Installation Conditions:
 - 1. Apply dry roofing materials. Apply roofing work over dry substrates and materials.
 - 2. Apply materials within temperature range and surface and ambient conditions recommended by manufacturer.
 - 3. Except for temporary protection, do not apply materials during damp or rainy weather, during excessive wind conditions, nor while moisture (dew, snow, ice, fog or frost) is present in any amount in or on the materials to be covered or installed:
 - a. Do not apply materials when the temperature is below 4 deg. C (40 deg. F).
 - b. Do not apply materials to substrate having temperature of 4 deg. C (40 deg. F) or less.

3.05 RIGID INSULATION INSTALLATION

- A. Insulation Installation, General:
 - 1. Install roof insulation in accordance with roofing system manufacturer's written instructions.
 - 2. Install roof insulation in accordance with requirements of FM Approval's Listing for specified roofing system.
 - 3. Base Sheet: Where required by roofing system, install one lapped base sheet specified in Division 07 roofing section by mechanically fastening to roofing substrate prior to installation of insulation.
 - 4. Cant Strips: Install preformed insulation cant strips strips at junctures of roofing system with vertical construction.
 - 5. Use same insulation as existing for roof repair and alterations unless specified otherwise.
- B. Insulation Thickness:
 - 1. Thickness of roof insulation shown on drawings is nominal. Actual thickness shall provide the average thermal resistance "R" value of not less than that specified in Performance Requirements Article.

2. Insulation on Metal Decks: Provide minimum thickness of insulation for metal decks recommended by the insulation manufacturer to span rib opening (flute size) of metal deck used. Support edges of insulation on metal deck ribs.
 3. When thickness of insulation to be used is more or less than that shown on the drawings, make adjustments in the alignment and location of roof drains, flashing, gravel stops, fascias and similar items at no additional cost to the Owner.
 4. Where tapered insulation is used, the thickness of the insulation at high points and roof edges shall be as shown on the drawings; the thickness at the low point (drains) shall be not less than 38 mm (1-1/2 inches).
 5. Use not less than two layers of insulation when insulation is 68 mm (2.7 inch) or more in thickness unless specified otherwise. Stagger joints minimum 150 mm (6 inches).
- C. Lay insulating units with close joints, in regular courses and with cross joints broken. When laid in more than one layer, break joints of succeeding layers of roof insulation with those in preceding layer.
- D. Lay units with long dimension perpendicular to the rolled (longitudinal) direction of the roofing felt.
- E. Seal all cut edges at penetrations and at edges against blocking with bitumen or roof cement.
- F. Cut to fit tight against blocking or penetrations.
- G. Cover all insulation installed on the same day; comply with temporary protection requirements of Division 07 roofing section.

3.06 INSTALLATION OF TPO ROOFING

- A. Do not allow the membrane to come in contact with surfaces contaminated with asphalt, coal tar, oil, grease, or other substances which are not compatible with TPO.
- B. Install the membrane so the sheets run perpendicular to the long dimension of the insulation boards.
- C. Commence installation at the low point of the roof and work towards the high point. Lap the sheets so the flow of water is not against the edges of the sheet.
- D. Position the membrane so it is free of buckles and wrinkles.
- E. Roll sheet out on deck; inspect for defects as being rolled out and remove defective areas. Allow for relaxing before proceeding.
1. Lap edges and ends of sheets 50 mm (two inches) or more as recommended by the manufacturer.
 2. Heat weld laps. Apply pressure as required. Seam strength of laps as required by ASTM D4434.
 3. Check seams to ensure continuous adhesion and correct defects.

4. Finish edges of laps with a continuous beveled bead of sealant to sheet edges to provide smooth transition.
 5. Finish seams as the membrane is being installed (same day).
 6. Anchor perimeter to deck or wall as specified.
- F. Repair areas of welded seams where samples have been taken or marginal welds, bond voids, or skips occurs.
- G. Repair fishmouths and wrinkles by cutting to lay flat and installing patch over cut area extending 100 mm (four-inches) beyond cut.
- H. Membrane Perimeter Anchorage:
1. Install metal fastening strip at the perimeter of each roof level, curb flashing, expansion joints and similar penetrations as indicated and in accordance with membrane manufacturer's instructions on top of roof membrane to deck or wall.
 2. Mechanically Fastened Metal Fastening Strip:
 - a. Set top of mechanical fastener set flush with top surface of the metal fastening strip. Space mechanical fasteners a maximum 300 mm (12 inches) on center starting 25 mm (one inch) from the end of the nailing strip.
 - b. When strips are cut round corners and eliminate sharp corners.
 - c. After mechanically fastening strip cover and seal strip with a six-inch wide roof membrane strip; heat weld to roof membrane and seal edges.
 - d. At roof edge metal, turn the membrane down over the front edge of the blocking or the nailer to below blocking. Secure the membrane to the vertical portion of the nailer; or, if required by the membrane manufacturer with fasteners spaced not over 300 mm (12 inches) on centers.
 - e. At parapet walls, intersecting building walls and curbs, secure the membrane to the structural deck with fasteners 300 mm (12 inches) on centers or as shown on NRCA manual.
- I. Mechanically-Attached System:
1. Secure the membrane to the structural deck with fasteners through stress plate or batten strips spaced and patterned in accordance with the membrane manufacturer's instructions to achieve specified wind uplift performance.
 2. When fasteners are installed within the laps of adjoining sheets, position the fastener so that the stress plates are a minimum 13 mm (1/2)inch) from the edge of the sheets.
 3. Where fasteners are installed over the membrane after the seams have been welded, cover the fasteners with a minimum 175 mm (seven inch) wide round TPO membrane cap centered over the fasteners. If batten strips are used cover the strip with a minimum 175 mm (seven inch) wide TPO strip centered over the

batten. Heat weld to the roof membrane and finish edges with sealant as specified. Finish edges with sealant as specified.

4. Before installing fasteners into cast in place concrete, pre-drill the correct size hole into the deck. Drill the hole 9 mm (3/8 inch) deeper than the fastener penetration.

3.07 INSTALLATION OF FLASHING

- A. Install flashings as the membrane is being installed. If the flashing cannot be completely installed in one day, complete the installation until the flashing is in a watertight condition and provide temporary covers or seals.
- B. Flashing Roof Drains:
 1. Install roof drain flashing as recommended by the membrane manufacturer, generally as follows:
 - a. Coordinate to set the metal drain flashing in asphalt roof cement, holding cement back from the edge of the metal flange.
 - b. Do not allow the roof cement to come in contact with the TPO roof membrane.
 - c. Adhere the TPO roof membrane to the metal flashing with the membrane manufacturer's recommended adhesive.
 2. Turn down the metal drain flashing and TPO roof membrane into the drain body and install clamping ring and strainer.
- C. Installing TPO Base Flashing and Pipe Flashing:
 1. Install TPO flashing membranes to pipes, wall or curbs to a height not less than eight-inches above roof surfaces and 100 mm (four inches) on roof membrane.
 - a. Adhere flashing to pipe, wall or curb with adhesive.
 - b. Form inside and outside corners of TPO flashing membrane in accordance with NRCA manual. Form pipe flashing in accordance with NRCA manual use pipe boot.
 - c. Lap ends not less than 100 mm (four inches).
 - d. Heat weld flashing membranes together and flashing membranes to roof membranes. Finish exposed edges with sealant as specified.
 - e. Install flashing membranes in accordance with NRCA manual.
 2. Anchor top of flashing to walls or curbs with fasteners spaced not over 200 mm (eight inches) on centers. Use fastening strip on ducts. Use pipe clamps on pipes or other round penetrations.
 3. Apply sealant to top edge of flashing.
- D. Installing Building Expansion Joints:

1. Install base flashing as shown.
 2. Coordinate installation with metal expansion joint cover or roof expansion joint system.
- E. Repairs to membrane and flashings:
1. Remove sections of TPO sheet roofing or flashing that is creased wrinkled or fish-mouthed.
 2. Cover removed areas, cuts and damaged areas with a patch extending 100 mm (four inches) beyond damaged, cut, or removed area. Heat weld to roof membrane or flashing. Finish edge of lap with sealant as specified.

3.08 FIELD QUALITY CONTROL

- A. Roofing Inspector: Contractor will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
1. Examine and probe seams in the membrane and flashing in the presence of Architect, Owner and Membrane Manufacturer's Inspector.
 2. Probe edge of welded seams with a blunt tipped instrument. Use sufficient hand pressure to detect marginal welds, voids, skips, and fish-mouths.
- C. Final Roof Inspection:
1. Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
 2. Notify Architect and Owner 7 days in advance of date and time of inspection.
- D. Repair or remove and replace components of roofing work where test results or inspections indicate that they do not comply with specified requirements. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.09 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of acceptance by Owner.
- C. Clean overspray and spillage from adjacent construction. Clean membrane and restore surface to like-new condition meeting solar reflectance requirements.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. Provide metal flashings and sheet metal including accessories as required for complete weather tight installation.
- B. Patch existing flashing and sheet metal as required by new construction.
- C. Provide concealed sealants used in conjunction with installation of metal flashing and sheet metal.
- D. Provide miscellaneous sheet metal flashing and reglets not provided by other trades or suppliers.
 - 1. Where reglets are to be installed in conjunction with other work, provide in adequate time for installation.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Furnish literature for manufactured products.
- C. Shop Drawings: Clearly indicate dimensioning, layout, general construction details including closures, flashings, locations and types of sealants, anchorages, and method of anchorage.
- D. Samples: Furnish samples of typical metal flashing fabrication indicating standard soldered joints and edge conditions.

1.04 QUALITY ASSURANCE

- A. Referenced Standards
 - 1. California Building Code (CBC), Latest Edition
 - 2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual, Latest Edition

- B. Design Requirements: Allow for movement of components without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to 100-year seasonal temperature ranges.
- C. Sheet metal fabricator and installer shall have a minimum five (5) years of experience with shop fabrication and installation of shop-fabricated roofing metal and flashings.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Provide strippable film protective covering on shop finished flashing materials to protect materials through shipping, fabrication and installation.

1.06 WARRANTY

- A. Special Warranty: Provide for correcting failure of metal flashing system to resist penetration of water and damage from wind.
 - 1. Special Warranty Period: Two years.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Flashing and Sheet Metal:
 - 1. Minimum gauge of aluminum per SMACNA. Minimum gauge of gutters, downspouts and roof edge, .040 aluminum, 20ga.
- B. Flexible Flashings: Reinforced self- adhered flexible flashing.
- C. Solder and Fasteners: As recommended by SMACNA and complying with applicable codes and regulations; hot dipped galvanized minimum coating comparable to G90.
- D. Concealed Sealant: Butyl type for use in conjunction with sheet metal; non-staining; non-corrosive; non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior concealed applications.
- E. Bituminous Paint: Acid and alkali resistant type; black color; asbestos free.
- F. Plastic Cement: Cutback asphaltic type; asbestos free.
- G. Sealing Compound: Type recommended by roofing manufacturer; asbestos free.
- H. Gaskets: Type suitable for use in conjunction with sheet metal; non-staining, non-corrosive, non-shrinking, non-sagging, ultra-violet resistant, and ozone resistant; for exterior concealed applications.
 - 1. Manufacturers:
 - a. Sandell Manufacturing Co./Polytite Joint Sealant.
 - b. Emseal USA, Inc./Emseal Secondary Seal.

2.02 FABRICATION

- A. Fabricate sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.
- B. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- C. Fabricate corners and intersections in shop with solder joints; watertight fabrication.
- D. Form sections in maximum 10'-0" lengths; make allowance for expansion at joints.
- E. Hem exposed edges on underside 1/2".
- F. Backpaint flashings with heavy bodied bituminous paint where in contact with cementitious materials or dissimilar metals.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install metal flashing and sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.
 - 1. Install tight in place, with corners square, surfaces true and straight in planes, and lines accurate to profiles as indicated on Drawings.
 - 2. Lap joints in direction of water flow.
 - 3. Install self-adhering flexible flashings and overlap metal flashing joints and adjacent materials in direction of water flow.
- B. Exercise care when cutting materials on site, to ensure cuttings do not remain on finished surfaces.
- C. Provide expansion joints concealed within system.
- D. Use concealed fasteners, continuous cleat type, except where specifically approved by Architect.
 - 1. Exposed fasteners may be used, where clearly indicated on shop drawings and approved by the Owner, at areas not exposed at exterior walls nor in sight of interior spaces.
- E. Apply sealing compound at junction of metal flashing and felt flashing.
- F. Lock seams and end joints; fit flashing tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- G. Install flashings with minimum joints and as long of section as possible.
- H. Install sealants where required to prevent direct weather penetration.
 - 1. Install continuous gasket behind surface-applied reglets.

- I. Completed installation shall be free of rattles, noise due to thermal and air movement, and wind whistles.
- J. Install metal flashing at all intersections to protect waterproofing, insulation and gypsum sheathing from UV exposure.
- K. Install dam flashing at window, louvers, openings and at intersecting horizontal and vertical surfaces.

3.02 CLEANING

- A. Remove protective coating from shop finished sheet metal when no longer required to protect roofing and flashing from construction.
- B. Touch-up scratched and damaged finish to match new; remove and replace sheet metal units that cannot be repaired to look identical to adjacent sheet metal when viewed from 5'-0" away.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. This section specifies the following materials and accessories as required for complete weathertight installation:
 - 1. Copings.

1.2 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of roof specialty and for each color and texture specified.
- C. Product Test Reports: For tests performed by a qualified testing agency.
- D. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing specialties to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class.

1.6 WARRANTY

- A. Roofing-System Warranty: Roof specialties are included in warranty provisions in Section 07 54 23 - Thermoplastic Polyolefin (TPO) Roofing.

- B. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. FM Approvals' Listing: Manufacture and install copings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90 Identify materials with FM Approvals' markings.
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C) material surfaces.

2.2 COPINGS

- A. Metal Copings: Manufactured coping system consisting of metal coping cap in section lengths not exceeding 12 feet (3.6 m), concealed anchorage; with corner units, end cap units, and concealed splice plates with finish matching coping caps.
 - 1. Metallic-Coated Steel Sheet Coping Caps: Zinc-coated (galvanized) steel, nominal 0.034-inch (0.86-mm) thickness.
 - a. Surface: Smooth, flat finish.
 - b. Finish: Three-coat metallic fluoropolymer.
 - c. Color: Dark Bronze
 - 2. Corners: Factory mitered and mechanically clinched and sealed watertight.
 - 3. Coping-Cap Attachment Method: Face leg hooked to continuous cleat with back leg fastener exposed, fabricated from coping-cap material.
 - a. Face-Leg Cleats: Concealed, continuous stainless steel.

2.3 MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 (Z275) coating designation.

- B. Stainless-Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304.

2.4 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements, complying with FM Approvals 4470.
- B. General: Adhesive and sealant materials recommended by roofing system manufacturer for intended use, identical to materials utilized in approved listed roofing system, and compatible with roofing membrane.
- C. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

2.5 FINISHES

- A. Coil-Coated Galvanized-Steel Sheet Finishes:
 - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with ASTM A755/A755M and coating and resin manufacturers' written instructions.
 - a. Three-Coat Metallic Fluoropolymer: AAMA 621. Fluoropolymer finish with suspended metallic flakes containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
 - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
 - 2. Provide uniform, neat seams with minimum exposure of solder and sealant.
 - 3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
 - 4. Torch cutting of roof specialties is not permitted.
 - 5. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of stainless-steel roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 - 2. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.

- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
 - 1. Space movement joints at a maximum of 12 feet (3.6 m) with no joints within 18 inches (450 mm) of corners or intersections unless otherwise indicated on Drawings.
 - 2. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.
- F. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F (4 deg C).

3.2 COPING INSTALLATION

- A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor copings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.
 - 1. Interlock face-leg drip edge into continuous cleat anchored to substrate at 16-inch (406-mm) centers. Anchor back leg of coping with screw fasteners and elastomeric washers at 16-inch (406-mm) centers.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as roof specialties are installed.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Provide labor, material, equipment and services to furnish and install firestopping systems required for the work as shown on the drawings, as specified herein and as required for a complete and proper installation, including, but not limited to, the following:
 - 1. Closures of openings in walls, floors, and roof decks against penetration of flame, heat, and smoke or gases in fire resistant rated construction.
 - 2. Closures of openings in walls against penetration of gases or smoke in smoke partitions.
 - 3. Sealants around penetrations in non-rated smoke barriers where indicated on Drawings.
 - 4. Closures of floor openings in vertical mechanical shafts against penetration of flame, heat, smoke and gases.
- B. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, and Division 1 Specification Sections, apply to this Section.

1.02 RELATED SECTIONS

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittals.
- B. Manufacturers literature, data, and installation instructions for types of firestopping and smoke stopping used.
- C. List of FM, UL, or WH classification number of systems installed.
- D. Certified laboratory test reports for ASTM E814 tests for systems not listed by FM, UL, or WH proposed for use.

1.04 DELIVERY AND STORAGE

- A. Deliver materials in their original unopened containers with manufacturer's name and product identification.
- B. Store in a location providing protection from damage and exposure to the elements.

1.05 QUALITY ASSURANCE

- A. FM, UL, or WH or other approved laboratory tested products will be acceptable.

1.06 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

- A. American Society for Testing and Materials (ASTM):
 - 1. E84 Surface Burning Characteristics of Building Materials
 - 2. E136 Behavior of Material in a Vertical Tube Furnace
 - 3. E814 Fire Tests of Through-Penetration Fire Stops
- B. Factory Mutual Engineering and Research Corporation (FM):
 - 1. Annual Issue Approval Guide Building Materials
- C. Underwriters Laboratories, Inc. (UL):
 - 1. Annual Issue Building Materials Directory
 - 2. Annual Issue Fire Resistance Directory
- D. Warnock Hersey (WH):
 - 1. Annual Issue Certification Listings

PART 2 PRODUCTS

2.01 FIRESTOP SYSTEMS

- A. Metallic Pipe or Conduits: Firestop systems shall comply with the following:
 - 1. Classified for use with the particular type of penetrating material used.
 - 2. Use either factory built (Firestop Devices) or field erected (through-Penetration Firestop Systems) to form a specific building system maintaining required integrity of the fire barrier and stop the passage of gases or smoke.
 - 3. Tested through-penetration firestop systems and firestop devices in accordance with ASTM E814 using the "T" rating to maintain the same rating and integrity as the fire barrier being sealed.
 - 4. Products requiring heat activation to seal an opening by its intumescence shall exhibit a demonstrated ability to function as designed to maintain the fire barrier.
 - 5. Firestop sealants used for firestopping or smoke sealing shall have following properties:
 - a. Contain no flammable or toxic solvents.
 - b. Have no dangerous or flammable outgassing during the drying or curing of products.
 - c. Water-resistant after drying or curing and unaffected by high humidity, condensation or transient water exposure.

- d. When used in exposed areas, shall be capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.
- 6. Maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E84.
- 7. FM, UL, or WH rated or tested by an approved laboratory in accordance with ASTM E814.
- 8. Materials to be asbestos free.
- B. Glass pipe, plastic pipe or conduits, unenclosed cables, or other non-metallic materials: Comply to requirements for metallic pipe and as follows:
 - 1. Penetrations containing loose electrical cables, computer data cables, and communications cables protected using firestopping systems that allow unrestricted cable changes without damage to the seal.
 - 2. Intumescent products which expand to seal the opening and act as fire, smoke, toxic fumes, and, water sealant.
- C. One-Hour Fire Barrier Sealant: One-component neutral-cure silicone rubber sealant.
 - 1. Manufacturers:
 - a. 3M "Fire Barrier 2000 or 2003 Sealant, Caulk Type CP25 or No. 303 Putty";
 - b. International Protective Coatings "Flame-Safe FS500 or FSP1000 Putty";
 - c. Fipro "A/D Silicone Firebarrier Sealant-SL";
 - d. Or equal.
 - 2. Two Hour Fire Barrier Sealant: 3M CP25 Sealant.

2.02 SMOKE STOPPING IN SMOKE PARTITIONS

- A. Non-Fire-rated Smoke Stop Partitions: Sealants around penetrations in smoke stop partitions or barriers not identified on the plans as part of a rated assembly shall comply as follows:
 - 1. Use silicone sealant in smoke partitions as specified in Section 07 90 00, Joint Sealers.
 - 2. Use mineral fiber filler and bond breaker behind sealant.
 - 3. Sealants shall have a maximum flame spread of 25 and smoke developed of 50 when tested in accordance with E84.
 - 4. When used in exposed areas capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.
- B. Fire-rated Smoke Stop Partitions: Sealants around penetrations in smoke stop partitions or barriers that are identified on the plans as part of a rated assembly shall comply as follows:

1. Use listed firestop system specified above.

2.03 ACCESSORIES

- A. Stuffing Material: Mineral fiber matting, permanent.
- B. Retainers: Clips to support mineral fiber matting.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Submit product data and installation instructions, as required by article, submittals, after an on site examination of areas to receive firestopping.
- B. Examine substrates and conditions for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping.

3.02 PREPARATION

- A. Remove dirt, grease, oil, loose materials, or other substances that prevent adherence and bonding or application of the firestopping or smoke stopping materials.
- B. Remove insulation on insulated pipe for a distance of six inches (150 mm) on either side of the fire rated assembly prior to applying the firestopping materials unless the firestopping materials are tested and approved for use on insulated pipes.
- C. Install backing materials to arrest liquid material leakage.

3.03 INSTALLATION

- A. Do not begin work until the specified material data and installation instructions of the proposed firestopping systems have been submitted and approved.
- B. Install firestopping systems with smoke stopping in accordance with FM, UL, WH, or other approved system details and installation instructions.
- C. Install smoke stopping seals in smoke partitions.

3.04 FIELD QUALITY CONTROL

- A. Owner's Fire Marshal will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.
- B. Do not proceed to enclose firestopping with other construction until reports of Owner Fire Marshal's examinations are issued.
- C. Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

3.05 CLEANING

- A. Remove materials, litter, and debris.
- B. Clean up spills of liquid type materials.

END OF SECTION 07 84 00

PART 1 GENERAL**1.01 SUMMARY**

- A. Provide joint sealants, for interior and exterior joints not specified elsewhere, with backing rods and accessories as required for complete installation. Joint sealers include sealants and caulking as indicated.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Furnish manufacturer's descriptive literature.
- C. Samples: Furnish samples of each type of exposed joint sealer in required colors.
- D. Certifications:
 - 1. Furnish manufacturer's certification joint sealers comply with Contract Documents and are suitable for Project applications.
 - 2. Furnish certification indicating installers are trained in proper use of specified products, qualified, and familiar with proper installation techniques.

1.04 QUALITY ASSURANCE

- A. Performance Requirements:
 - 1. Select materials for compatibility with joint surfaces and indicated exposures.
 - 2. Where not indicated, select modulus of elasticity and hardness or grade recommended by manufacturer for each application indicated.
 - 3. Comply with applicable limitations on volatile organic compound (VOC) emissions.
- B. Installer Qualifications: Firm with minimum five years successful experience on projects of similar type and size, using specified products.
 - 1. Installers shall be familiar with proper application procedures to ensure maximum joint sealer expansion and contraction capabilities.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, cure time, and mixing instructions.

1.06 SITE CONDITIONS

- A. Do not proceed with installation of joint sealers under unfavorable weather conditions.
- B. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer.

1.07 WARRANTY

- A. Special Warranty: Repair or replace joint sealers which fail to perform as intended, because of leaking, crumbling, hardening, shrinkage, bleeding, sagging, staining and loss of adhesion.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Elastomeric Sealants:
 - 1. Single-Component Low Modulus Silicone Sealant: ASTM C920 Type S, Class 25, Grade NS; minimum 50% expansion and compaction capability.
 - a. Provide at exterior locations not exposed to traffic.
 - b. Manufacturers:
 - 1) General Electric Co./Silpruf, Silglaz or GESIL.
 - 2) Dow Corning Corp./790 or 795.
 - 3) Pecora Corp./864 Architectural Silicone.
 - 4) Tremco/Spectrum 3.
 - 2. Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade P, Class 25, self-leveling; minimum 25% expansion and compaction capability.
 - a. Provide following at traffic bearing locations.
 - b. Manufacturers:
 - 1) Pecora Corp./NR-200 Urexpan.
 - 2) Tremco/Vulkem 245.
 - 3) Sonneborn Division of ChemRex /SL 2

3. Mildew-Resistant Silicone Rubber Sealant: ASTM C920, Type S, Grade NS, Class 25, compounded with fungicide, specifically for mildew resistance and recommended for interior joints in wet areas.
 - a. Provide at interior joints in wet areas.
 - b. Manufacturers:
 - 1) General Electric Co./SCS 1702 Sanitary Sealant.
 - 2) Dow Corning Corp./786 Bathtub Caulk.
 - 3) Pecora Corp./863 #345 White.
 - 4) Tremco/Tremsil 200.
- B. Non-Elastomeric Sealants:
 1. Acrylic-Emulsion Sealant: ASTM C834 acrylic or latex-rubber-modified acrylic sealant, permanently flexible, non-staining and non-bleeding; recommended for general interior exposure; compatible with paints specified in Section 09 90 00.
 - a. Provide at general interior applications.
 - b. Manufacturers:
 - 1) Pecora Corp./AC-20.
 - 2) Sonneborn Division of ChemRex/Sonolac.
 - 3) Tremco/Ultrem 1500
- C. Miscellaneous Materials:
 1. Primers/Sealers: Non-staining types recommended by joint sealer manufacturer for joint surfaces to be primed or sealed.
 2. Joint Cleaners: Non-corrosive types recommended by joint sealer manufacturer; compatible with joint forming materials.
 3. Bond Breaker Tape: Polyethylene tape as recommended by joint sealer manufacturer where bond to substrate or joint filler must be avoided for proper performance of joint sealer.
 4. Sealant Backer Rod: Compressible polyethylene foam rod or other flexible, permanent, durable non-absorptive material as recommended by joint sealer manufacturer for compatibility with joint sealer.
 - a. Oversize backer rod minimum 30% to 50% of joint opening.
- D. Colors: Provide colors indicated or as selected by Architect from manufacturer's full range of colors.

PART 3 EXECUTION

3.01 PREPARATION

- A. Prepare joint surfaces in accordance with ASTM C1193 and as recommended by joint sealer manufacturer.
- B. Clean joint surfaces immediately before installation of joint sealer; remove dirt, insecure materials, moisture and other substances which could interfere with bond of joint sealer.
- C. Prime or seal joint surfaces where recommended by joint sealer manufacturer; do not allow primer/sealer to spill or migrate onto adjoining surfaces.
- D. Ensure protective coatings on surfaces in contact with joint sealers have been completely stripped.

3.02 INSTALLATION

- A. Comply with manufacturer's printed instructions and ASTM C1193, except where more stringent requirements are shown or specified.
- B. Set sealant backer rods at proper depth or position in joint to coordinate with other work, including installation of bond breakers and sealant; do not leave voids or gaps between ends of backer rods.
 - 1. Do not stretch, twist, puncture or tear backer rods.
- C. Install bond breaker tape where required by manufacturer's recommendations to ensure joint sealers will perform properly.
- D. Size materials to achieve required width/depth ratios.
- E. Employ installation techniques that will ensure joint sealers are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of bond surfaces equally on opposite sides.
- F. Joint Configuration: Fill sealant joint to a slightly concave surface, slightly below adjoining surfaces, unless otherwise indicated.
- G. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture or dirt.
- H. Install joint sealers to depths recommended by joint sealer manufacturer but within the following general limitations, measured at center (thin) section of bead.
 - 1. Horizontal Joints: 75% width with minimum depth of 3/8".
 - 2. Elastomeric Joints: 50% width with minimum depth of 1/4".
 - 3. Non-Elastomeric Joints: 75% to 125% of joint width.
- I. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into voids of adjoining surfaces.
 - 1. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.

- J. Cure joint sealers in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.
- K. Maintain finished joints free of embedded matter, ridges and sags.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. Interior non-rated and fire-rated welded steel doors and frames.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.
- B. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- C. ANSI/SDI 100 - Standard Steel Door and Frames.
- D. ASTM A366 - Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- E. ASTM A525 - Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process.
- F. ASTM C976 - Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box.
- G. ASTM E90 - Measurement of Airborne-Sound Transmission Loss of Building Partitions.
- H. ASTM E413 - Classification for Rating Sound Insulation.
- I. SFM Standard 12-7-4

1.04 SUBMITTALS

- A. Section 01 33 00 - Submittals: Submittal Procedures.
- B. Shop Drawings: Indicate door and frame configuration, anchor types and spacings, location of cut-outs for hardware, glazing and louvers, reinforcement, and finish.
- C. Product Data: Fire rated doors and frames, showing conformance with CBC and Underwriters Laboratory, Inc., or Warnock Hersey or Factory Mutual fire rating requirements.
- D. Instructions: Submit manufacturer's installation instructions.
- E. Manufacturer's Certification: Certify that Products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

- A. Conform to the requirements of ANSI/SDI-100 and Americans with Disabilities Act (ADA) - Accessibility Guidelines for Buildings and Facilities.
- B. Verify that field measurements are as indicated on approved shop drawings.
- C. Performance Standards:
 - 1. Fire-Rated Assemblies: SFM Standard 12-7-4, and acceptable testing agency listing.
 - 2. Sound-Rated Assemblies at Mechanical Rooms: ASTM E1408 and ASTM E413.

1.06 REGULATORY REQUIREMENTS

- A. Fire rated doors and frames construction to conform to SFM Standard 12-7-4.
- B. Installed door and frame assemblies to conform to CBC for fire rated class indicated on schedule.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Prior to shipment label each door and frame to show location, size, door swing and other pertinent information.
- B. Accept doors and frames on site in manufacturer's packaging. Inspect for damage.

1.08 WARRANTY

- A. Provide five-year warranty against defects in manufacture and materials.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Ceco Door Products;
- B. Curries, "747 Series";
- C. Republic, "DS Series";
- D. Steelcraft, "Series B";
- E. Or approved equal.

2.02 DOORS AND FRAMES

- A. Interior Flush Doors: SD1-100, Heavy Duty, Grade 2, Model 1.
- B. Interior Frames: Welded 16 gage thick material, core thickness to suit model and grade of doors. Knockdown frames not permitted.
- C. Inserts, Bolts, and Fasteners: Manufacturer's standard units for the required application; hot-dip-galvanize items to be embedded in or in contact with concrete foundation wall or slab-on-grade.

2.03 DOOR CORES

- A. Core: Vertical steel stiffeners at flush doors.

2.04 ACCESSORIES

- A. Rubber Silencers: Resilient rubber.
- B. Glass: As specified in Section 08 80 00 - Glazing.
- C. Glazing Stops: Rolled steel channel shape, butted corners, prepared for countersink style tamperproof screws.

2.05 PROTECTIVE COATINGS

- A. Primer: Manufacturer's standard red-oxide/zinc-chromate primer for interior surfaces.
- B. Paint galvanized surfaces with zinc-dust/zinc-oxide primer.

2.06 FABRICATION

- A. Fabricate frames and doors in accordance with requirements of the Steel Door Institute specification SDI-100, and as indicated on drawings. Provide welded frames at interior doors.
- B. Fabricate doors and frames with hardware reinforcement plates welded in place. Drill and tap for surface-applied finish hardware. Provide mortar guard boxes where indicated.
- C. Accurately form and cut mitered corners of welded type frames. Weld on inside surfaces. Sand-welded joints to a smooth uniform finish. Use welded frames at all interior locations. Use of splice plates at corners is not acceptable.
- D. Fabricate frames of pairs of doors wider than 3'-6" of 12 gage steel.
- E. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.
- F. Prepare frame for silencers. Provide three single silencers for single doors on strike side, and two single silencers on frame head at double doors.
- G. Provide jamb and floor anchors in accordance with SDI-100.
- H. Attach channel or angle spreaders at bottom of welded type doorframes to ensure proper alignment while shipping.
- I. Fill surface depressions with metallic paste filler and sand to a smooth uniform finish.
- J. Provide prime coat on doors and frames, including backs of frames.
- K. Touch up areas with zinc rich paint where galvanized coating has been removed due to welding, sanding or handling.
- L. Attach fire rated label to each frame and door unit scheduled to be labeled.

2.07 FINISH

- A. Shop primer, compatible with finish paint specified in Section 09 90 00.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Section 01 31 00 - Project Management and Coordination.
- B. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION

- A. Install frames in accordance with SDI-100.
- B. Install adjustable frames in accordance with manufacturer's instructions.
- C. Install doors in accordance with DHI.
- D. Coordinate installation of glass and glazing.
- E. Install door louvers plumb and level.
- F. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.03 ADJUSTING

- A. Adjust doors for smooth operation and balanced door movement.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. This section specifies the installation of wood doors.
- B. Factory finished wood doors.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. ANSI/NWMA I. S. - Industry Standard for Wood Flush Doors.
- B. WIC - Woodwork Institute of California, Manual of Millwork Standards of the Woodwork Industry, latest edition.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, identify cutouts for glazing and louvers, blocking for hardware attachment.
- C. Product Data: Indicate door core materials and construction, veneer species, type and characteristics.
- D. Manufacturer's Installation Instructions: Indicate special installation instructions.
- E. Labeled fire rated doors showing conformance with NFPA 80.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with WIC, Section 20, Custom Grade.
- B. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three (3) years documented experience.
- C. Millwork Shop: Company specializing in custom cabinetry and doors specified in this section with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Package, deliver, and store doors in accordance with W.I.C. Section 20.

1.07 COORDINATION

- A. Coordinate work with door opening construction, door frame and door hardware installation.

1.08 WARRANTY

- A. Provide manufacturer's written standard lifetime warranty for full, unlimited, replacement for the life of the original installation for new interior doors.
- B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, telegraphing core construction.

PART 2 PRODUCTS

2.01 DOOR TYPES

- A. Interior Doors: 1-3/4 inch flush wood doors.
 - a. Veneer Finish per Architectural Finishes List, Section 09 06 00.
- B. Factory Finish: Shop prime with polyurethane opaque finish
 - a. Color and door veneer species per Architectural Finishes List, Section 09 06 00.

2.02 FABRICATION

- A. Fabricate wood doors in accordance with requirements of the Woodwork Institute of California (WIC).
- B. Make cut-outs and provide stops for glass and louvers. Refer to Drawings for size of openings required.
- C. Bevel strike edge of single acting doors 1/8 inch in 2 inches. Radius strike edge of double acting swing doors 2-1/8 inches.
- D. Prepare doors to receive hardware. Refer to Section 08 71 00 for hardware requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that opening sizes and tolerances are acceptable.
- B. Do not install doors in frame openings that are not plumb or are out of tolerances for size or alignment.

3.02 DOOR PREPARATION

- A. Field, shop or factory preparation: Do not violate the qualified testing and inspection agency label requirements for fire rated doors.
- B. Clearances between Doors and Frames and Floors:
 - 1. Maximum 3 mm (1/8 inch) clearance at the jambs, heads, and meeting stiles, and a 19 mm (3/4 inch) clearance at bottom, except as otherwise specified.
 - 2. Maximum clearance at bottom of sound rated doors, light-proofed doors, doors to operating rooms, and doors designated to be fitted with mechanical seal: 10 mm (3/8 inch).
- C. Provide cutouts for special details required and specified.
- D. Rout doors for hardware using templates and location heights specified in Section, 08 71 00 DOOR HARDWARE.
- E. Fit doors to frame, bevel lock edge of doors 3 mm (1/8 inch) for each 50 mm (two inches) of door thickness, undercut where shown.
- F. Immediately after fitting and cutting of doors for hardware, seal cut edges of doors with two coats of water-resistant sealer.
- G. Finish surfaces, including both faces, top and bottom and edges of the doors smooth to touch.
- H. Apply a steel astragal to meeting style of active leaf of pair of doors or double egress smoke doors.

3.03 INSTALLATION

- I. Install doors in accordance with W.I.C. Technical Bulletin No. 429 REV 1-99.
- J. Trim door width by cutting equally on both jamb edges.
- K. Trim door height by cutting bottom edges to a maximum of 3/4 inch.
- L. Pilot drill screw and bolt holes.
- M. Machine cut for hardware. Core for hardware and cylinders.
- N. Coordinate the installation of glass and glazing in wood doors.
- O. Prime and/or seal all factory-made cutouts prior to delivery.
- P. Finishing: All four edges and both faces of doors shall be factory finished.

3.04 INSTALLATION TOLERANCES

- A. Coordinate to W.I.C. requirements for fit and clearance tolerances.
- B. Conform to W.I.C. requirements for maximum diagonal distortion.

3.05 ADJUSTING

- A. Adjust doors for smooth and balanced door movement.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Steel access panels.

1.02 RELATED WORK

- A. All All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate sizes, materials, thickness, fabrication methods, panel door and frame reinforcement, anchorage, and installation details.
 - 2. Provide layout drawings, indicating dimensioned locations of proposed access panels, size of each panel, and installation details. Determine and indicate required access panels in finished surfaces, whether furnished under this section or as part of the Work of Fire Protection, Plumbing, Mechanical or Electrical Divisions.

1.04 QUALITY ASSURANCE

- A. Panels shall be provided with UL listings and labels.
- B. Access panels and frames shall be products of one manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Panels and Frames: Provide protection as required by manufacturer to protect panels from damage during storage.

PART 2 PRODUCTS

2.01 MATERIALS

A. Access Panels:

Non-Rated

Milcor

Karp

Nystrom

Plaster

K

DSC214M

APPW

Drywall

DW

DSC214M

APWB

Rated B-Label

Plaster

M

KRP150PR

APFR-WP

Drywall

M

KRP150FR

APFR-WP

B. Provide prime coat finish suitable for field painting for panels installed in other finishes.

PART 3 EXECUTION

3.01 GENERAL

- A. Provide access panels in finish construction, where indicated on the Drawings, wherever required for access to concealed mechanical and electrical equipment, and where required by codes. Panels indicated on Architectural Drawings shall be furnished under this section. Required panels for access to equipment, but not indicated on Architectural Drawings, shall be furnished as part of the Work requiring the access.

3.02 INSTALLATION

- A. Install panels accurately in location, perfect alignment, plumb, straight and true. Brace to prevent displacement by adjacent Work.
- B. Examine panels after installation for proper opening, closing and clearances. Replace damaged or defective panels.

3.03 CLEAN UP

- A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

3.04 PROTECTION

- A. Protect the Work of this Section until Substantial Completion.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. This section specifies aluminum entrances, storefronts and manual sliding doors and other components to make complete assemblies.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, Shop Drawings, Product Data, and Samples.
- B. Shop Drawings: (1/2 full scale) showing construction, anchorage, reinforcement, installation details and glass elevations and images.
- C. Manufacturer's Literature and Data:
 - 1. Doors, each type.
- D. Samples:
 - 1. Two samples of anodized aluminum of each color showing finish and maximum shade range. Glass showing color and finish.
- E. Manufacturer's Certificates:
 - 1. Stating that aluminum has been given specified thickness of anodizing.
 - 2. Indicating manufacturer's qualifications specified.

1.04 QUALITY ASSURANCE

- A. Approved by Architect is required of products of proposed manufacturer, or supplier, and will be based upon submission by Contractor certification.
- B. Certify manufacturer regularly and presently manufactures aluminum entrances and storefronts as one of their principal products.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, cure time, and mixing instructions.

- B. Store balanced glass door and aluminum material in weather-tight and dry storage facility.
- C. Protect from damage from handling, weather and construction operations before, during and after installation.

1.06 REFERENCES

- A. The publications listed below form a part of this specification to the extent reference. The publications are referenced in the text by the basic designation only.
- B. America Society for Testing and Materials (ASTM):
 - B209-07 Aluminum and Aluminum-Alloy Sheet and Plate
 - B221-08 Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - E283-04 Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - E331-00 (R2009) Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
 - F468-10 Nonferrous Bolts, Hex Cap Screws, and Studs for General Use
 - F593-03(R2008) Stainless Steel Bolts, Hex Cap Screws, and Studs
- C. National Association of Architectural Metal Manufacturers (NAAMM):
 - AMP 500 Series Metal Finishes Manual

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aluminum, ASTM B209 and B221:
 - 1. Alloy 6063 temper T5 for doors, door frames, fixed glass sidelights, storefronts, windows and transoms.
 - 2. For color anodized finish, use aluminum alloy as required to produce specified color.
 - 3. Sheet and plate to conform to ASTM-B209.
- B. Thermal Break: Manufacturer standard low conductive material retarding heat flow in the framework, where insulation glass is scheduled.
- C. Fasteners:
 - 1. Aluminum: ASTM F468, Alloy 2034.
 - 2. Stainless Steel: ASTM F593, Alloy Groups 1, 2 and 3.
- D. Aluminum Entrance
 - 1. Basis of Design: Aluminum entrance door shall be wide stile series as manufactured by Kawneer (Series 500) or Tubelite Architectural Products. Sizes and sidelites shall be as scheduled on the plans

2. Glazing strips shall be square glass stops, snap-in, tamperproof, with no exposed screws. Provide neoprene gaskets for glazing strips.
 3. Provide tempered insulated glazing as specified in Section 08 80 00.
 4. Provide intermediate horizontal rail, 8 1/4" high.
 5. Provide 12" high bottom and top rail.
- E. Framing
1. Provide nominal 2" x 4 1/2" thermally-broken aluminum framing system with positive mechanical bonding of interior and exterior aluminum sections at exterior frames, as manufactured by door manufacturers. Interior frames non-thermally broken.
 - a. Finish: To match door and framing.
 2. Position frame and secure in opening with concealed fasteners to maintain the integrity of thermal breaks in frame and wall, and in accordance with details provided.
- F. Glazing
1. See Section 08 80 00.
- G. Hardware
1. Application of materials to provide bridge and seal air leakage pathways in
 - a. Finish: To match door and framing.
 2. Threshold: Kawneer extruded aluminum threshold for use with offset pivot hinges – clear anodized aluminum.
 3. Hinges: Continuous Hinge
 4. Weatherstripping: Kawneer sealair weather stripping system for single acting offset pivot doors. Include optional sill sweep in door.
 5. Closers: As specified in Section 08 71 00.
 6. See Section 08 71 00 for Controlled Exit Device specification and Electrical Specifications.
- H. Sealant
1. Glazing Sealant: Clear structural silicone sealant, G.E. Dow, or approved equal.
 2. Frame to masonry component gun grade polyurethane, Tremco, Bostic, or Sonneborn or approved equal. Color to be selected by Architect/Engineer.
- I. Miscellaneous: .060" thick aluminum break metal cladding at windows or doors. Finish to framing metals which it adjoins. Extruded aluminum at appropriate locations to prevent damage to framing and break metal.

2.02 FABRICATION

- A. Fabricated doors, of extruded aluminum sections not less than 3 mm (0.125 inch) thick. Fabricate glazing beads of aluminum not less than 1.0 mm (0.050 inch) thick.
- B. Accurately form metal parts and accurately fit and rigidly assemble joints, except those joints designed to accommodate movement. Seal joints to prevent leakage of both air and water.
- C. Make welds in aluminum in accordance with the recommended practice AWA D1.2. Use electrodes and methods recommended by the manufacturers of the metals and alloys being welded. Make welds behind finished surfaces so as to cause no distortion or discoloration of the exposed side. Clean welded joints of welding flux and dress exposed and contact surfaces.
- D. Make provisions in doors and frames to receive the specified hardware and accessories. Coordinate schedule and template for hardware specified under Section 08 71 00, Door Hardware. Where concealed closers or other mechanisms are required, provide the necessary space, cutouts, and reinforcement for secure fastening.
- E. Fit and assemble the work at the manufacturer's plant. Mark work that cannot be permanently plant-assembled to assure proper assembly in the field.

2.03 PROTECTION OF ALUMINUM

- A. Isolate aluminum from contact with dissimilar metals other than stainless steel, white bronze, or zinc by any of the following:
 - 1. Coat the dissimilar metal with two coats of heavy-bodied alkali resistant bituminous paint.
 - 2. Place caulking compound, on non-absorptive tape, or gasket between the aluminum and the dissimilar metal.
 - 3. Paint aluminum in contact with mortar, concrete and plaster, with a coat of aluminum paint primer.

2.04 FINISH

- A. In accordance with NAAMM AMP 500 Series.
- B. Fluorocarbon Finish: AAMA 605.2, high performance coating. Color Finish: Chemically etched medium matte, with integrally colored anodic coating Class I Architectural, 7 mils thick. More than 50 percent variation of the maximum shade range approved will not be accepted in a single component or in adjacent components, stiles, and rails on a continuous series.
- C. Color: See specification section 09 06 00 – Schedule for Finishes

2.05 DISTRIBUTION

- A. Framing and door to accept glass as indicated on the drawings and specified in Section 08 81 00.

- B. Hardware
Existing aluminum frames will be retained. New aluminum doors to be provided.
Hardware to match existing and be replaced in kind.
1. AL-1: (Each leaf)
 - Hinge
 - Closer
 - Overhead Stop
 - Push/Pull Bar Set
 - Weatherstripping
 2. AL-2: (Each leaf)
 - Hinge
 - Concealed Vertical Rod Exit Device
 - Entrance Lockset
 - Cylinder
 - Closer
 - Overhead Stop
 - Drip Cap
 - Door Sweep
 - Threshold
 - Weatherstripping

PART 3 EXECUTION

3.01 INSPECTION

- A. Beginning of installation shall signify acceptance of substrate and adjacent conditions as being proper and acceptable. Corrections of defects due to installation of products on unacceptable substrata will be at Contractor's expense at no additional cost to Owner.

3.02 INSTALLATION

- A. Fabricate only from approved shop drawings.
- B. Install all doors, frames, sidelites and accessories per manufacturer's written instructions and final shop drawings.
- C. Anchor securely in place; install plumb, level and in true alignment. Isolate dissimilar materials to prevent corrosion.
- D. Allowable Installation Tolerances: Install work plumb and true, in alignment and in relation to lines and grades shown. Variation of 3 mm (1/8 inch) in 2400 mm (eight feet), non-accumulative, is maximum permissible for plumb, level, warp, bow and alignment.
- E. Install hardware specified under Section 08 71 00, Door Hardware.

3.03 PROTECTION, CLEANING AND REPAIRING

- A. Remove all mastic smears and other unsightly marks, and repair any damaged or disfiguration of the work. Protect the installed work against damage or abuse.

- B. Adjust and check each operating item of hardware to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application specified.
- C. Clean-up premises of all litter, dirt, and debris created by work of this Section.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

A. This Section includes the following types of automatic entrance doors:

1. Exterior bi-parting, sliding automatic entrance doors.

1.02 RELATED WORK

A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

A. Underwriters Laboratories (UL):

1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

B. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA):

1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products

C. American Society for Testing and Materials (ASTM):

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

D. American Association of Automatic Door Manufacturers (AAADM):

E. National Fire Protection Association (NFPA):

1. NFPA 101 – Life Safety Code.
2. NFPA 70 – National Electric Code.

- F. California Building Code, CBC.2019:
- G. Building Officials and Code Administrators International (BOCA), 1999:
- H. National Association of Architectural Metal Manufacturers (NAAMM):
 - 1. Metal Finishes Manual for Architectural and Metal Products.
- I. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
 - 2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
 - 3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

1.04 DEFINITIONS

- A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
- B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

1.05 PERFORMANCE REQUIREMENTS

- A. Provide automatic entrance door assemblies capable of withstanding structural loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Thermal Movements: Provide automatic entrance doors that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).
- D. Opening-Force Requirements for Egress Doors: Not more than 50 lbf (222 N) required to manually set door in motion if power fails, and not more than 15 lbf (67 N) required to open door to minimum required width.
- E. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.

1.06 SUBMITTALS

- A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Specification Sections.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.

- C. Closeout Submittals:
 - 1. Owner's Manual.
 - 2. Warranties.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained for installation and maintenance of units required for this Project with 10 years of experience installing and maintaining sliding automatic entrances.
- B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001 and with company certificate issued by AAADM.
- C. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
 - 1. ANSI/BHMA A156.10.
 - 2. NFPA 101.
 - 3. Underwriter's Laboratories 325 (UL) listed.
 - 4. IBC
- D. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.
- E. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Section 01 60 00 Product Requirements.
- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- G. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Installer and Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Mounting Surfaces: Installer and Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
- C. Other trades: Installer shall advise Contractor of any inadequate conditions or equipment.

1.09 COORDINATION

- A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrance doors to comply with indicated requirements.

- B. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.

1.10 WARRANTY

- A. Automatic Entrance Doors shall be free of defects in material and workmanship for a period of one (2) years from the date of substantial completion.
- B. During the warranty period the State shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the State.
- C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

PART 2 PRODUCTS

2.01 AUTOMATIC ENTRANCE DOORS

- A. Manufacturers: Stanley Access Technologies; Besam Entrance Solutions; or Horton Automatics.

2.02 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Headers, stiles, rails, and frames: 6063-T6
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - 3. Sheet and Plate: ASTM B 209.
- B. Sealants and Joint Fillers: Performed under Division 7 Section "Joint Sealants".

2.03 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

- A. Provide manufacturer's standard automatic entrance door assemblies including doors, sidelites, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.
- B. Sliding Automatic Entrance Doors:
 - 1. Bi-Parting sliding doors:
 - a. Configuration: Two sliding leaves and two full sidelites.
 - b. Traffic Pattern: Two-way.
 - c. Emergency Breakaway Capability: Sliding leaves only.
 - d. Mounting: Between jambs

1.04 COMPONENTS

- A. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.

1. Nominal Size: 1 ¾ inch by 4 ½ inch (45 by 115 mm).
- B. Stile and Rail Doors and Sidelites: Manufacturer's standard 1 ¾ inch (45 mm) thick glazed doors with extruded-aluminum tubular stile and rail members. Incorporate concealed tie-rods that span full length of top and bottom rails or mechanically fasten corners with reinforcing brackets that are welded.
 1. Glazing Stops and Gaskets: Snap-on, extruded-security aluminum stops and preformed gaskets.
 2. Stile Design: Narrow stile; 2 inch (51 mm) nominal width.
 3. Bottom Rail Design: Minimum 4 inch (102 mm) nominal height.
 4. Muntin Bars: Horizontal tubular rail member for each door; 2 inch (51 mm) nominal width.
- C. Glazing: Performed under Division 8 Section Glazing.
- D. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
 1. Mounting: Concealed, with one side of header flush with framing.
 2. Capacity: Capable of supporting doors up to 220 lb (100 kg) per leaf over spans up to 14 feet (4.3 m) without intermediate supports.
- E. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch; consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support doors from carrier assembly by 2 inch diameter anti-riser wheels with factory adjusted cantilever and pivot assembly. Minimum two ball-bearing roller wheels and two anti-rise rollers for each active leaf.
 1. Minimum Load Wheel Diameter: 2 1/2 inch (64 mm).
- F. Thresholds: Manufacturer's standard thresholds as indicated below:
 1. Continuous standard tapered extrusion double bevel.
 2. All thresholds to conform to details and requirements for code compliance.
- G. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
- H. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

2.05 DOOR OPERATORS

- A. Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under normal traffic load for type of occupancy indicated.

- B. Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
1. Operation: Power opening and power closing.
 2. Features:
 - a. Adjustable opening and closing speeds.
 - b. Adjustable back-check and latching.
 - c. Adjustable braking.
 - d. Adjustable hold-open time between 0 and 30 seconds.
 - e. Obstruction recycle.
 - f. On/Off switch to control electric power to operator.
 - g. Energy conservation switch that reduces door-opening width.
 - h. Variable rate open/closed speed control.
 - i. Closed loop speed control with active braking and acceleration.
 - j. Variable obstruction recycle time delay.
 - k. Self adjusting stop position.
 - l. Self adjusting closing compression force.
 - m. Optional Switch to open/Switch to close operation.
 3. Mounting: Concealed.
 4. Drive System: Synchronous belt type.
- C. Electrical service to door operators shall be provided under Division 26 Electrical. Minimum service to be 120 VAC, 5 amps.

2.06 ELECTRICAL CONTROLS

- A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Systems utilizing external magnets and magnetic switches are not acceptable. A single controller shall be capable of controlling up to 2 operators per entrance system.
- B. Life Cycle Data Counter: The microprocessor control shall incorporate a non-re-settable counter to track door operation cycles.
- C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
1. Automatic Reset Upon Power Up

2. Fuse Protection
 3. Electronic Surge Protection
 4. Internal Power Supply Protection.
 5. Software "Watchdog" protection in the case of software malfunction.
- D. Soft Start/Stop: A "soft-start" "soft-stop" motor driving circuit shall be provided for smooth normal opening and recycling.
- E. Safety Search Circuitry: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.
- F. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be software driven and shall be utilized via Palm® handheld interface. The following parameters may be adjusted via the configuration tool.
1. Operating speeds and forces as required to meet ANSI/BHMA A156.10.
 2. Adjustable and variable features as specified in 2.05, B., 2.
 3. Reduced opening position.
 4. Firmware update.
 5. Trouble Shooting
 - a. I/O Status.
 - b. Electrical component monitoring including parameter summary.
 6. Entrance profile copy/paste.
- G. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer's internet site.

2.07 ACTIVATION AND SAFETY DEVICES

- A. Motion Sensors: Motion sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10. Units shall be programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions.
- B. Presence Sensors: Presence sensors shall be provided to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10. Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be enabled simultaneously with the door-opening signal and shall emit

an elliptical shaped infrared presence zone, centered on the doorway threshold line. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.

- C. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting.

2.08 HARDWARE

- A. Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.
- B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
 - 1. Emergency breakaway feature shall include at least one adjustable detent device mounted in the top of each breakaway panel to control panel breakaway force.
- C. Exterior sliding doors shall be equipped keyed deadbolt, with indicating window and signed "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE OCCUPIED". Sign shall have letters not less than 1 inch in height and the color shall contrast to the background color.
- D. Provide solenoid lock assembly to automatic sliding doors. Solenoid lock assembly wired so that when the door "Enter" switch is set to the "Yes" or "Automatic" position that lock remains constantly unlocked. The inside and outside sensors operate the door. Provide 24VDC power supply. Door position switch, side screen switch and counter.
- E. Control Switch: Provide manufacturer's standard header mounted rocker switches to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
 - 1. Power On/Off
 - 2. Reduced Opening
 - 3. Open/Closed/Automatic
- F. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
- G. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

2.09 FABRICATION

- A. Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
 - 1. Form aluminum shapes before finishing.

2. Use concealed fasteners to greatest extent possible.
 - a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
 - b. Reinforce members as required to receive fastener threads.
- B. Framing: Provide automatic entrance doors as prefabricated assemblies.
 1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
 2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
 3. Form profiles that are sharp, straight, and free of defects or deformations.
 4. Prepare components to receive concealed fasteners and anchor and connection devices.
 5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.
- C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.
- D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.
- E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.
- F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

2.10 ALUMINUM FINISHES

- A. Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
- B. Class II, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
 1. AAMA 607.1
 2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.
- C. Color: See specification section 09 06 00 – Schedule for Finishes

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrance doors. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.
- B. Entrances: Install automatic entrance doors plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
 - 1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 - 2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.
- C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.
- D. Glazing: Install glazing as specified in Division 8 Section "Glazing".
- E. Sealants: Comply with requirements specified in Division 7 Section "Joint Sealants" to provide weather tight installation.

3.03 FIELD QUALITY CONTROL

- A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.04 ADJUSTING

- A. Adjust door operators, controls, and hardware for smooth and safe operation, for weather-tight closure, and complying with requirements in ANSI/BHMA A156.10.

3.05 CLEANING AND PROTECTION

- A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section "Glazing", for cleaning and maintaining glass.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. This section includes translucent sandwich panel skylights and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. ASTM International:
 - 1. ASTM E 84 Standard Test Method for flame spread and smoke development.
 - 2. ASTM D 635 Standard Test Method for burn extent.
 - 3. ASTM D 2244 in accordance with ASTM D 1435 Standard Test Method for Color change.
 - 4. UL 972 Standard Test Method for Impact strength.
 - 5. ASTM D 1037 Standard Test Method for Accelerated aging.
 - 6. ASTM C 297 Standard Test Method for Bond strength.
 - 7. ASTM D 1929 Standard Test Method for Self-ignition.
 - 8. ASTM E 108 Standard Test Method for Class A burning brand.
 - 9. ASTM E 283 Standard Test Method for Air infiltration.
 - 10. ASTM E 331 Standard Test Method for Water penetration.
 - 11. ASTM E 72 and E 330 Standard Test Method for Uniform load deflection.
 - 12. ASTM E 661 Standard Test Method for Concentrated and Impact.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including preparation

instructions and recommendations, storage and handling requirements, installation methods and maintenance instructions.

- B. Shop Drawings: Include plans, elevations, sections, and details, indicating dimensions, tolerances, profiles, anchorage, connections, fasteners, provisions for expansion and contraction, drainage, flashing, finish, glazing, and attachments to other Work.
- C. Samples:
 - 1. Submit sample sets of color chips for initial selection representing manufacturer's full range of available colors and finishes.
- D. Design Data:
 - 1. Submit manufacturer's structural calculations showing sizes of framing members and loads applied to supporting structure based on design loads.
- E. Test Reports: Submit certified test reports from a qualified independent testing agency, indicating skylights comply with specified requirements. Submit results from the following:
 - 1. Flame spread and smoke development, ASTM E 84.
 - 2. Burn extent, ASTM D 635.
 - 3. Color change, ASTM D 2244 in accordance with ASTM D 1435.
 - 4. Impact strength, exterior face sheets, UL 972.
 - 5. Accelerated aging, ASTM D 1037.
 - 6. Bond strength, ASTM C 297.
 - 7. Self-ignition, ASTM D 1929.
 - 8. Class A burning brand, ASTM E 108.
 - 9. Air infiltration, ASTM E 283.
 - 10. Water penetration, ASTM E 331.
 - 11. Uniform load deflection, ASTM E 72 and E 330.
 - 12. Concentrated and Impact, ASTM E 661.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum ten years documented experience in the fabrication of skylights of the type required for this project and capable of providing field service representation during installation.
- B. Installer Qualifications: Minimum five years documented experience in the work of this section, specializing in work similar to project requirements and approved by manufacturer.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and installation location.
- B. Storage/Handling: Store products above the floor and under cover in a clean, dry area until installation. Protect materials and finish from damage during handling and installation.

1.07 SITE CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.08 WARRANTIES

- A. Material Workmanship: Provide manufacturer's standard 5 year warranty.
- B. Exterior Fiberglass Color Change: Provide manufacturer's standard 10 year warranty.
- C. Fiberglass Fiberbloom: Provide manufacturer's standard 20 year warranty.
- D. Metal Finishes: 50% Kynar® Paint: Provide manufacturer's standard 5 year / optional 10 year warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design Manufacturer:
Major Industries Inc., 7120 Stewart Ave, Wausau, WI 54401
Contact: Charlie Kennedy, Collier Building Specialties, (415) 467-9235 x130.
- B. Acceptable manufacturers for approval include: Kalwall; or approved equal.

2.02 TRANSLUCENT SKYLIGHTS

- A. Basis of Design fiberglass sandwich panel skylight system, and associated products and accessories:
 - 1. Guardian 275® Translucent Skylight System; or approved equal.

2.03 DESIGN / PERFORMANCE REQUIREMENTS

- A. Performance Requirements:
 - 1. Framing Members: Sufficient sizes required to support design loads.
 - 2. Deflection Limits: Shall not exceed L/60 per IBC code requirements.
 - 3. Safety Factors: Allowable stresses shall incorporate the following safety factors, unless otherwise specified:
 - a. Load Carrying Members: 1.65
 - b. Load Carrying Fasteners: 2.0
 - 4. Expansion and Contraction: Design and install components with provisions for expansion and contraction due to a 100 degree F (56 degrees C) temperature variation.

5. Design Loads: Framing components shall be designed to support following loads:
 - a. Live Load / Wind Load: 0 PSF (interior installation, not exposed to exterior elements)

2.04 COMPONENTS

A. Translucent Panel Units:

1. Construction: Facings of ICC ES listed architectural-grade fiberglass reinforced polymer sheets bonded under controlled heat and pressure to a mechanically-interlocked aluminum I-beam grid core to form double-faced, self-supporting, structural composite sandwich panels.
 - a. Thickness: 2-3/4 inches (699 mm).
 - b. Panel Size: 4 feet wide x 20 feet long
 - c. Total Panel Count: 7
 - d. U-Factor: Center of Panel U-factor (for glazing comparison only).
 - a. 2-3/4 inch: 0.48 (No insulation).
 - e. Grid Pattern: In-line Shoji (12 inch x 24 inch maximum grid size).
 - f. Unbonded Areas: Maximum of 4 unbonded areas, a maximum of 3/64 inch (.11 mm) in diameter, in an area a maximum of 40 square feet of panel surface.
 - g. Panel Corners: Notch and interlock or reinforce with aluminum for radius conditions.
 - h. Assembly: Factory assembled. Field assembly of panels not allowed.
2. Physical Properties:
 - a. ASTM E 108 - Burning Brand: Class A rating.
 - b. ASTM E 72 and E 330 - Uniform Load Deflection.
3. I-Beam Grid Core:
 - a. Material: Mechanically interlocked Aluminum Alloy 6061-T6.
 - b. 7/16 inch (11 mm) minimum flange width, 0.050 inch (1.27 mm) web thickness.
 - c. Full surface contact with face sheets.
4. Adhesive:
 - a. Waterproof resin for use in laminating face sheet to aluminum grid core.

- b. Impact and Thermal Shock: Adhesive capable of withstanding impact and thermal shock normally encountered in exterior construction.
 - c. Adhesive Bond Line: Straight, black, cover entire width of I-beam, with neat edge.
 - d. Initial Adhesive Bond Strength: Shear Strength, ASTM D 1002: 563 psi., Tensile Strength, ASTM C 297: 557 psi minimum.
 - e. Aged Adhesive Bond Strength, ASTM D 1037: Shear Strength, ASTM D 1002: 1212 psi., Tensile Strength, ASTM C 297: 914 psi.
5. Translucent Face Sheets:
- a. Appearance of Face Sheets:
 - 1) Uniform in color to prevent splotchy appearance.
 - 2) Free of ridges, wrinkles, clusters of air bubbles and pinholes.
 - 3) ICC-ES listed (ESR-2855).
 - b. Exterior Face Sheet:
 - 1) ASTM D 2244: Color change shall not exceed 3.0 Delta E units after 5 years of weathering (accelerated Arizona / simulated South Florida testing).
 - 2) Impact Strength, UL 972 / Thickness:
 - a) Standard - 70 foot-pounds / 0.070 inches (1.77 mm).
 - 3) Color: Crystal.
 - c. Interior Face Sheet:
 - 1) Flame Spread, ASTM E 84: 10 maximum.
 - 2) Smoke Development, ASTM E 84: 300 maximum.
 - 3) Burn Rate, ASTM D 635: 1.0 inch per minute maximum.
 - 4) Self-Ignition, ASTM D 1929: Greater than 650 degrees F.
 - 5) Thickness: Standard - 0.045 inches.
 - 6) Color: White.
- B. Components and Framing:
- 1. Aluminum:
 - a. Extruded Aluminum: ASTM B 221, Alloy 6063-T5/T6, 6061-T5/T6.
 - b. Formed Aluminum Components and Flashing: ASTM B 209, Alloy 5005-

H34.

- c. Minimum Thickness: 0.040 inch.

2. Glazing Gaskets:

- a. Factory installed (in extruded dovetail slots) EPDM hybrid, 9/16 inch wide.
- b. Compression Deflection, 25% Deflection Limits, ASTM D 1056, 13 to 24 psi.
- c. Compression Set, 22 Hours at 158 Degrees F, ASTM D 395, Method B: 30 psi.
- d. Heat Aging, 70 Hours at 212 Degrees F, Change in Compression Values, ASTM D 865 and D 1056: 0 to 10 psi.
- e. Ozone Resistance at 40% Elongation, 100 Hours at 104 Degrees F, ASTM D 1149: Type I, 1 Ppm Ozone: No cracks / Type II, 3 Ppm Ozone: No cracks.
- f. Straining of Surface, ASTM D 925: Non-straining, no migratory strain.

- C. Expansion and Contraction: Design and install components with provisions for expansion and contraction due to a 100 degree F temperature variation.

D. Glazing Caps:

- 1. Extruded aluminum.
- 2. Attach glazing caps with glazing cap fasteners located at a maximum of 12 inches on center or as required to resist negative loading.

E. Fasteners:

- 1. Clips for Attachment of Rafter Bars: Aluminum - attach using bolted fastening methods.
- 2. Construction and Glazing Cap Fasteners: 18-8 stainless steel - include gasketed sealing washers.
- 3. Field Anchors: Cadmium plated, unless otherwise specified.
- 4. Exposed Fasteners: Finish to match aluminum.

2.05 FABRICATION

- A. Construct skylights of extruded aluminum shapes similar to sections indicated on the Drawings.

2.06 ALUMINUM FINISHES

- A. Pigmented Organic Coating: 50% Kynar® / AAMA 2604.
 - 1. Color: Selected from standard non-metallic/non-exotic colors.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Examine areas to receive translucent skylights with installer and manufacturer's representative present, including supporting structure and substrate for dimensions, tolerances, material conditions, and support.
- B. Notify Architect of conditions that would adversely affect installation or subsequent utilization of skylights and do not proceed until conditions are corrected.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Ensure supports to receive skylights are clean, flat, level, plumb, and square.
- C. Aluminum Protection: Where aluminum will contact dissimilar materials, apply a coating of bituminous paint or other neutral material or separate with a nonabsorbent isolator.

3.03 INSTALLATION

- A. Install skylights level, plumb, square, and accurately aligned, and in accordance with manufacturer's instructions at locations indicated on the approved drawings.
- B. Do not install skylight components with deficiencies or dimensional errors. Do not proceed with installation until unsatisfactory components are replaced.
- C. Anchor skylights securely to supports using attachment methods that permit adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
- D. Install skylights including flashings, fasteners, hardware, sealants, and glazing materials required for a complete, weatherproof installation.

3.04 CLEANING

- A. Clean skylights inside and outside, including member connections and inside corners, immediately after installation and after sealants have cured, but not more than 10 days after installation.
- B. Follow related cleaning instructions in accordance with manufacturer's recommendations.

3.05 PROTECTION

- A. Protect installed products until completion of scope of work.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This Section includes door hardware.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Submit product data including installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- C. Shop Drawings: Submit shop drawings with details of door hardware:
- D. Samples: Submit samples of exposed door hardware for each type indicated below, in specified finish. Tag with full description for coordination with the Door Hardware Schedule.
 - 1. Door Hardware: As follows:
 - a. Locks and latches.
 - b. Operating trim.
 - 2. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated into the Work, within limitations of keying requirements.
- E. Door Hardware Schedule: Submit door hardware schedule prepared by or under the supervision of door hardware supplier. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware. The Architect's review of schedule shall neither be construed as a complete check nor shall it relieve the Contractor of responsibility for errors, deviations, or omissions from the specified requirements to provide complete door hardware for the project.
 - 1. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.

- a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.
- 2. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware. Supply templates to door and frame manufacturer(s) to enable proper and accurate sizing and locations of cutouts for hardware. Detail any conditions requiring custom extended lip strikes, or any other special or custom conditions.
 - g. Door and frame sizes and materials.
- F. Warranties: Submit special warranties specified in this Section.
- G. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions for Owner's continued adjustment, maintenance, removal and replacement of door hardware. Written verification and testing results for door operating pressures.
- H. Installation Instructions: Provide manufacturer's installation instructions for each type of hardware item for owner's maintenance at completion of work.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Supplier Qualifications: Door hardware supplier, who has completed a minimum of three (3) projects over the last 5 years which were similar in material, design and extent to that indicated for the project - as determined by the Architect – and which have resulted in construction with a record of successful in service performance, and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
- C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
- D. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.

- E. Regulatory Requirements: Comply with the following:
 - 1. Provide hardware items complying with the applicable provisions for accessibility and usability by the disabled and handicapped in compliance with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)."
 - 2. NFPA 101: Comply with applicable provisions for means of egress doors.
- F. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
 - 1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2. Preliminary key system schematic diagram.
 - 3. Address for delivery of keys.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to electrified and mechanical door hardware including, but not limited to, the following:
 - 1. Inspect and discuss electrical roughing-in and other preparatory work performed by other trades.
 - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review required testing, inspecting, and certifying procedures.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule and include basic installation instructions with each item or package.

1.06 COORDINATION

- A. Templates: Furnish templates and door hardware schedules, coordinated for the application of door hardware items with door and frame details, to door opening fabricators and trades performing door opening work to permit the preparation of doors and frames to receive the specified door hardware. The fabricated prep and installation shall be in compliance with the lock manufacturer's recommendations, requirements and templating. Where the door hardware item scheduled is not adaptable to the finished size of door opening members requiring door hardware, submit an item having a similar operation and quality to the Architect for review. Each door hardware item shall be fabricated to templates.

1.07 WARRANTY

- A. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
 - 1. Faulty operation of door hardware.
 - 2. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

PART 2 PRODUCTS

2.01 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in this Section, door hardware sets are keyed to each scheduled door in the door and frame schedule, and the Door Hardware Schedule at the end of Part 3.
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturer's products.
 - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
 - 3. The hardware supplier shall review each hardware set and compare it with the door types, details, and sizes as shown and verify each hardware item for function, hand, backset, and method of fastening through shop drawing submittals.

2.02 HINGES AND PIVOTS

- A. Butt Hinge Products and Manufacturers:
 - 1. Standard Weight, Ball Bearing, 5 Knuckle, Steel: Complying with BHMA A156.1 A8112, one of the following:
 - a. BB5000; Bommer Industries, Inc. (BI).
 - b. BB1279; Hager Companies (HAG).
 - c. TA2714; McKinney Products Company (MCK).
 - d. FBB179; Stanley Commercial Hardware (STH).
 - 2. Heavy Weight, Ball Bearing, 5 Knuckle, Steel: Complying with BHMA A156.1 A8111, one of the following:
 - a. BB5004; Bommer Industries, Inc. (BI).
 - b. BB1168; Hager Companies (HAG).
 - c. T4A3786; McKinney Products Company (MCK).
 - d. FBB168; Stanley Commercial Hardware (STH).

3. Heavy Weight, Ball Bearing, 5 Knuckle, Stainless Steel: Complying with BHMA A156.1 A5111, one of the following:
 - a. BB5006; Bommer Industries, Inc. (BI).
 - b. BB1199; Hager Companies (HAG).
 - c. T4A3386-32D; McKinney Products Company (MCK).
 - d. FBB199(US32D); Stanley Commercial Hardware (STH).
 4. Heavy Weight, Ball Bearing, 5 Knuckle, Steel, Concealed Electric 24V, 4 Wire: Complying with BHMA A156.1 A8111, one of the following:
 - a. BB5064 (ETW04); Bommer Industries, Inc. (BI).
 - b. BB1168 x ETW-4; Hager Companies (HAG).
 - c. T4A3786 x CC-4; McKinney Products Company (MCK).
 - d. CEFBB168-54; Stanley Commercial Hardware (STH).
 5. Heavy Weight, Ball Bearing, 5 Knuckle, Stainless Steel, Concealed Electric 24V, 4 Wire: Complying with BHMA A156.1 A5111, one of the following:
 - a. BB5066 (ETW04); Bommer Industries, Inc. (BI).
 - b. BB1199 x ETW-4; Hager Companies (HAG).
 - c. T4A3386-32D x CC-4; McKinney Products Company (MCK).
 - d. CEFBB199(US32D)-54; Stanley Commercial Hardware (STH).
 6. Standard Weight, Ball Bearing, 5 Knuckle, Steel, Concealed Electric 24V, 4 Wire: Complying with BHMA A156.1 A8112, one of the following:
 - a. BB5060 (ETW04); Bommer Industries, Inc. (BI).
 - b. BB1279 x ETW-4; Hager Companies (HAG).
 - c. TA2714 x CC-4; McKinney Products Company (MCK).
 - d. CEFBB179-54; Stanley Commercial Hardware (STH).
- B. General Hinge Characteristics: Where door jamb or trim projects to such an extent that the width of leaf specified will not allow the door to clear such frame or trim, furnish hinges and pivots with leaves of sufficient width to clear. Hinges and pivots shall be template hinges conforming to BHMA A156.1 and in accordance with door and frame material requirements.
- C. Butt Hinge Quantity: Provide the following, unless otherwise indicated:
1. Two Hinges: For doors with heights up to and including 60 inches (1524 mm).

2. Three Hinges: For doors with heights of greater than 60 inches (1524 mm) to and including 90 inches (2286 mm).
 3. Four Hinges: For doors with heights greater than 90 inches (2286 mm) to and including 120 inches (3048 mm).
 4. Provide 4 hinges, plus 1 hinge for every 30 inches (750 mm) of door height greater than 120 inches (3048 mm).
- D. Butt Hinge Sizes: 4-1/2 inches (114 mm) h. by 4 inches (102 mm) or 4-1/2 inches (114 mm) w. for doors up to and including 36 inches (914 mm) in width; 5 inches (127 mm) h. by 4 inches (102 mm) or 4-1/2 inches (114 mm) w. for doors greater than 36 inches (914 mm) in width.
- E. Hinge Characteristics: Full mortise type with square corners. All butt hinges are to have nonrising pins for interior hinges and all exterior butt hinges are to be made of non-ferrous base metal. Hinges at all locked outswinging doors shall have non-removable pins (NRP). Provide only steel bodied butt and pivot hinges at labeled doors. All butt hinges shall be furnished with button tips.
- F. Electrified Functions for Hinges: Furnish fully concealed circuit, tamper resistant, wired hinges at doors requiring power transfer or door monitoring from jamb to door. Furnish junction box and mortar shield for use with each wired hinge and ship directly to the door and frame manufacturer(s) for fastening to frame.
- G. Fasteners: Package all hinges and pivots with machine and wood screws as required by door and frame construction.

2.03 LOCKS AND LATCHES

- A. Mortise Lock and Latch Sets: Heavy duty, commercial, mortise bodies complying with BHMA A156.13 Series 1000, Grade 1, with through-bolted lever trim. Furnish mortise type, field reversible, lock and latch sets with 1 or 2 piece anti-friction deadlocking brass or stainless steel latch-bolts having a minimum 3/4 inch (19 mm) throw, 2-3/4 inches (70 mm) backset, and UL listed for 3 hour doors. All lock and latch sets, to be furnished complete with heavy gage wrought steel zinc dichromate or chrome plated case, trim, adjustable beveled square cornered armored fronts, steel or stainless steel hubs, and 6 pin Best cylinders. Conceal fastenings, washers and bushings. Provide wrought, or black plastic, box strikes for each lock and latch set with curved lips of sufficient length to protect frames. Provide solid forged or cast levers with wrought roses. Where lock functions are scheduled provide non-handed guard bolt and stainless steel deadbolt with a minimum 1 inch (25 mm) throw. Where electro-mechanical locksets are scheduled provide transformers properly sized for conversion of power supply to the power characteristics of the electromechanical locksets. Use Schlage L mortise locks, Best6 pin cylinders. Trim will be cast stainless steel with antimicrobial finish unless otherwise specified.
1. Schlage L9000 Series, 17 Design x A Rose; Schlage Lock Company (SCH). Provide handed ANSI 4-7/8" curved lip strikes die punched to match bolts provided with latch-set functions only (Part No. XL11-820/XL11-821), provide non-handed standard curve lip strikes for all other functions 10-072. Where electro-mechanical locksets are scheduled provide L9000EL Series with trim matching mechanical locksets. Touch pads only on Exit Devices. No crossbar arm designs.

2.04 ELECTROMAGNETIC LOCKS

- A. Exposed, Surface Applied Type: Surface mount application with a minimum 1650 pound holding force at 24 V, provide complete with all cabling, rectifier kits, holding force sensors, adjustable time delay, and mounting hardware, complying with BHMA A156.23, Grade 1, high security, fail-safe operation.

1. Magnalock Model M62B; Securitron (SEC).

2.05 DOOR BOLTS

- A. Manual Flush Bolts: Provide flush bolts, with 1" wide fronts, in paired sets (top and bottom), with 1/2" diameter flattened bolt tip and standard 12" rod. Flush bolts shall fit ANSI A115.4 door and frame preparation. Flush bolts in wood and metal fire doors shall be A Label UL Listed. Bolts for fire doors to comply with BHMA A156.16, Type L14081, L14251 or L24081. Furnish rods of proper length to afford easy reach from the floor. Furnish manufacturers standard top strikes for top bolts.

1. Manual Flushbolts for Fire Rated Wood Doors: One of the following:

- a. No. 790F; Door Controls International (DCI).
- b. FB358; Ives: H. B. Ives (IVS).
- c. 3913; Triangle Brass Manufacturing Company, Inc. (TBM).
- d. 557; Rockwood Manufacturing Company (RM).

2. Manual Flushbolts for Fire Rated Metal Doors: One of the following:

- a. No. 780F; Door Controls International (DCI).
- b. FB458; Ives: H. B. Ives (IVS).
- c. 3917; Triangle Brass Manufacturing Company, Inc. (TBM).
- d. 555; Rockwood Manufacturing Company (RM).

- B. Self-Latching Flush Bolt Assemblies for Metal Fire Doors: BHMA A156.3, Type 27; one of the following:

1. No. 845 (805 top bolt x 840 automatic bottom bolt); Door Controls International (DCI).
2. FB51P (FB51T constant latching top bolt x FB31B automatic bottom bolt; Ives: H. B. Ives (IVS).
3. 3820 (3820 x 3810); Triangle Brass Manufacturing Company, Inc. (TBM).
4. 1845 automatic flush bolt x constant self-latching top bolt; Rockwood Manufacturing Company (RM).

2.06 EXIT DEVICES

- A. Exit Devices: Exit devices and exit device accessories shall conform to BHMA A156.3, Grade 1. Trim shall be wrought construction and commercial plain design with straight,

beveled or smoothly rounded sides, corners and edges. Keyed devices shall be furnished less cylinders. Cylinders shall be as herein specified keyed to building system.

- B. Push Pad Style Exit Devices:
 - 1. 98 series Function with Schlage Lever 17A and Trim as Scheduled Von Duprin in 630 (US32D) with antimicrobial finish. No substitutions.
- C. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
- D. Fire Exit Devices: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.
- E. Outside Trim: Match design for locksets and latchsets, unless otherwise indicated. Adjustable strikes provided for Rim and Vertical Rod Exit Devices. Exit Devices shall be installed with proprietary 32 series Medeco, I/C cylinders and cores

2.07 CYLINDERS AND KEYING

- A. Cylinders: Full faced interchangeable core cylinders with square shouldered (not tapered) compression rings, 6 pin cylinders, standard threaded, keyed into building system, with cams to suit lock functions. Provide cylinders for installation into all locks and key-operated electrical switching devices keyed to the instructions by the Best.
- B. Keying System: Final keying to determine lock cylinders, keyed alike sets, level of keying, master key groups, grandmaster keying system shall be as directed by the Owner. Supplier and Contractor shall meet with the Owner and obtain final instructions in writing.
 - 1. Construction Keyed Cylinders: Provide construction keyed cylinders in locks during construction and as may be necessary for security or as may be requested by the Owner. Upon completion of the construction phase, construction keyed cylinders shall be voided mechanically without removal of the cylinder housing from the locks. All construction keyed cylinders shall be individually keyed as required.

2.08 STRIKES

- A. Strikes for Locks and Latches: All strikes for locks and latches shall be provided by the lock and latch manufacturer unless otherwise specified or scheduled, refer to Article 'Locks and Latches'.
- B. Dustproof Floor Strikes: Complying with BHMA A156.16, Type L04251 or L14021, one of the following:
 - 1. No. 80; Door Controls International.
 - 2. DP2; H.B. Ives.
 - 3. 3910; Triangle Brass Manufacturing Company, Inc. (TBM).
 - 4. 570 x 571; Rockwood Manufacturing Company (RM).
- C. Dustproof Threshold Strikes: Complying with BHMA A156.16, Type L2402X or L14011, one of the following:

1. No. 81; Door Controls International.
2. DP1; H.B. Ives.
3. 3911; Triangle Brass Manufacturing Company, Inc. (TBM).
4. 572; Rockwood Manufacturing Company (RM).

2.09 OPERATING TRIM (PUSHES AND PULLS)

- A. Types as scheduled on Door Hardware Schedule.

2.10 ACCESSORIES FOR PAIRS OF DOORS

- A. Tubular Coordinators and Filler Bars: UL listed for use on labeled doors and complying with BHMA A156.3, Type 21A. Provide with filler piece of length as required to close the header area and mounting brackets at stop mounted hardware. Furnish extenders at active leaf levers where required to clear overlapping astragals on doors installed with pocket pivot hinges or jambs with deep jamb stops.
1. No. 600 Series x Filler Bar; Door Controls International (DCI).
 2. COR Series Coordinators x FL filler; H. B. Ives (IVS).
 3. 1600 Series; Rockwood Manufacturing Company (RM).
- B. Coordinator Brackets: UL listed for use on labeled doors and complying with BHMA A156.3, Type 21B. Minimum 7-inch (178-mm) projection.
1. No. 500 Coordinator; Door Controls International (DCI).
 2. CORG7; H. B. Ives (IVS).
 3. 576; Rockwood Manufacturing Company (RM).
- C. Carry Open Bars: UL listed for use on labeled doors and complying with BHMA A156.3, Type 21. Provide carry-open bars for inactive leaves of pairs of doors, unless automatic or self-latching bolts are used.
1. No. CB Carry Bar; Door Controls International (DCI).
 2. CB1 Carry Bar; H. B. Ives (IVS).
 3. 1100; Rockwood Manufacturing Company (RM).
- D. Astragals: UL listed for use on labeled doors, surface applied continuous extruded aluminum minimum 7/8" wide retaining EPDM gaskets for installation on both sides of all meeting stiles of doors:
1. 125NA; National Guard Products, Inc. (NGP).
 2. 305CN; Pemko Manufacturing Co., Inc. (PEM).
 3. WS235; Ultra Industries; a Macklanburg-Duncan Company (ULT).

- E. Lock Protectors: Fabricated from heavy gauge metal and in finish as scheduled. Fabricate lock protectors with no exposed fasteners on face of lock protector. Furnish protectors sized to cover the latch bolt area of the door and lock and narrow enough to clear rose and escutcheon lock trims, offset formed to clear strike projection. Machine lock protectors where required to accommodate rose and escutcheon trims, and cylinders.

- 1. LG Series Lock Guards; H. B. Ives (IVS).

2.11 CLOSERS

- A. Surface-Mounted Closers: Closers shall be certified by ETL laboratories and the manufacturer to a minimum of 8,000,000 cycles and meet BHMA A156.4, Grade 1. Closers shall be warranted by the manufacturer against defects in materials and workmanship for a minimum of 10 years. Closers used in conjunction with overhead stops and holders shall be templated and coordinated to function properly. Properly detail closers to meet application requirements by providing drop plates, brackets, etc. to meet application and installation requirements as indicated. Comply with manufacturers recommendations for size of door closer depending on size of door, stack pressure conditions, exposure to weather, and anticipated frequency of use. Closers shall have adjustable spring power, full rack and pinion, independent closing speed and latch regulating V-slotted valves, fully hydraulic with a high strength cast iron cylinder and solid forged steel arms, bore diameter of 1-1/2", pinion shaft diameter of 5/8", adjustable back check, cushion and built-in stop feature where scheduled, hold open arms where scheduled, delayed action where scheduled, arm finish to match closer cover finish scheduled. Provide metal covers of clean line design with plated or primed for paint finish as scheduled and that require removal in order to make adjustments to closer.

- 1. 4111/4011; LCN Closers (LCN).
 - 2. 4041; LCN Closers (LCN).
 - 3. 2030 series concealed in aluminum storefront; LCN Closers (LCN).

2.12 PROTECTIVE TRIM UNITS

- A. Kick and Armor Plates: Fabricate protection plates from minimum 0.050 inch (1.3 mm) thick stainless steel, beveled top and 2 sides (B3E), square corners, complying with BHMA A156.6, and fastened with oval head Phillips fasteners countersunk into plate surface.

- 1. Series 8400; Ives: H. B. Ives (IVS).
 - 2. K1050 Doorplate Series; Rockwood Manufacturing Company (RM).
 - 3. KA050-2 Armor Plate and KOO50 for Kickplates; Triangle Brass Manufacturing Company, Inc. (TBM).

- B. Size: Furnish kick and armor plates sized 2 inches (51 mm) less than door width. Furnish kickplates in 12 inches (305 mm) heights, furnish armor plates in 48 inches (1219 mm) heights unless otherwise indicated. Provide protective plates with cutouts for locks, louvers and windows to the extent indicated. Mount protective plates flush with bottom of door.

2.13 STOPS AND HOLDERS

- A. Concealed Overhead Door Holders: Heavy duty, concealed mounting, full mortised, bronze bodied, slide track design, with heavy shock absorber spring providing 5 to 7 degree compression before dead-stop, non-metal slide and shock blocks, 110 degree maximum opening, complying with BHMA A156.8 Type C11511 for hold open and Type C11541 for stop function. Provide stop, or hold open, functions as scheduled.
1. 1000 Series; Architectural Builders Hardware Mfg., Inc. (ABH).
 2. 100 Series; Glynn-Johnson (GJ).
 3. Checkmate Heavy Duty 1 Series; Rixson-Firemark, Inc. (RIX).
- B. Exposed Overhead Door Holders: Heavy duty, surface mounted, bronze bodied, slide track design, with heavy shock absorber spring providing 5 to 7 degree compression before dead-stop, non-metal slide and shock blocks, 110 degree maximum opening, complying with BHMA A156.8 Type C12511 for hold open and Type C12541 for stop function. Provide stop, or hold open, functions as scheduled.
1. 9000 Series; Architectural Builders Hardware Mfg., Inc. (ABH).
 2. 90 Series; Glynn-Johnson (GJ).
 3. Checkmate Heavy Duty 9 Series; Rixson-Firemark, Inc. (RIX).
- C. Electromagnetic Door Hold Opens for Labeled Fire and Smoke Door Assemblies: Provide each electromagnetic door hold open with fail-safe operation, concealed wiring, door mounted contact plates with concealed mounting fasteners, shims, extensions, and installed approximately 6 inches in from lock edge of door. Comply with BHMA A156.15 for wall mounted single unit, water resistant floor mounted single unit, water resistant floor mounted double unit for back to back mounting to the extent indicated. Coordinate voltage and current characteristics with power supplied to holders, in addition coordinate with fire detectors and interface with fire alarm system.
1. Wall Mounted Single Unit – Low Profile:
 - a. Model 989; Rixson-Firemark, Inc. (RIX).
 - b. Model 2100 with #20100 1" extension; Architectural Builders Hardware Mfg., Inc. (ABH).
- D. Silencers for Metal Door Frames: BHMA A156.16, Type L03011; grey rubber, minimum diameter 1/2 inch (13 mm); fabricated for drilled-in application to frame, specifically designed to form an air pocket to absorb shock and reduce noise of door closing. Provide 2 silencers for each pair of doors, 3 silencers for each single door.
1. 8S; Door Controls International (DCI).
 2. SR64; H. B. Ives (IVS).
 3. 1229A; Triangle Brass Manufacturing Company, Inc. (TBM).
 4. 608; Rockwood Manufacturing Company (RM).

- E. Wall Stops: Cast disc type with concave rubber bumper, having a 2-1/2 inch (63.5 mm) diameter base with nominal 1 inch (25 mm) projection and concealed attachment to substrate.
1. For Attachment to Masonry: Complying with BHMA A156.16, Type L12251 or L12101.
 - a. WS401CCV, WS407CVX; H.B. Ives (IVS).
 - b. 1276CCS; Triangle Brass Manufacturing Company, Inc. (TBM).
 2. For Attachment to Gypsum Wallboard: Complying with BHMA A156.16, Type L12251 or L12101.
 - a. WS402CCV, WS407CVX; H.B. Ives (IVS).
 - b. 1274CCS; Triangle Brass Manufacturing Company, Inc. (TBM).

2.14 DOOR GASKETING

- A. Type 1: Self-adhesive flexible silicone type, continuous gaskets for installation at all heads and jambs of doors:
1. 5050C; National Guard Products, Inc. (NGP).
 2. S88BL; Pemko Manufacturing Co., Inc. (PEM).
 3. 188BK; Zero International, Inc. (ZRO).Type
- B. Type 2: Self-adhesive flexible silicone type, continuous gaskets for installation at all heads and jambs of doors, extruded aluminum automatic door bottoms with two lines of flexible, silicone type, continuous gaskets for mortised installation at door bottoms.
1. 5050C x 320S automatic door bottom; National Guard Products, Inc. (NGP).
 2. S88BL x 420ASL automatic door bottom; Pemko Manufacturing Co., Inc. (PEM).
 3. WS108BL x DB044 automatic door bottom; Ultra.Thresholds.
- C. Smoke Gasket:
- Self-adhesive flexible silicone type, continuous gaskets for installation at all heads and jambs of doors:
1. 5050C; National Guard Products, Inc. (NGP).
 2. S88BL; Pemko Manufacturing Co., Inc. (PEM).
 3. 188BK; Zero International, Inc. (ZRO).Types
- D. Perimeter Gasket:
- Rigid jamb weatherstrip seals gaps to reduct sound infiltration, continuous gaskets for installation at all heads and jambs of door.

1. 303_S (PG) Standard Perimeter Gasketing; Pemko Manufacturing Co., Inc. (PEM).

2.15 MISCELLANEOUS DOOR HARDWARE

- A. Boxed Power Supplies: Modular unit in NEMA ICS 6, Type 4 enclosure; filtered and regulated; voltage rating and type matching requirements of door hardware served; and listed and labeled for use with fire alarm systems.

2.16 FABRICATION

- A. Manufacturer's Nameplate: Provide each door hardware item without exposed manufacturers labels, names, or designs.
- B. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturer's specified fastener for each application intended. Provide Phillips oval-head screws with finished heads to match surface of door hardware item being attached. Machine screws and expansion shields shall be used for attaching hardware to concrete and masonry. Use through-bolts for renovation work only where existing door blocking and reinforcements are unknown.
 1. Concealed Fasteners: All new doors and door frames have been specified with adequate blocking and reinforcement provisions to eliminate exposed through-bolting of hardware items. Doors installed with exposed through-bolts will be rejected and replaced by the Contractor at no cost to the Owner. Where through bolts are used on existing doors provide sleeves for each through bolt.

2.17 FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Appearance of Finished Work: Finishes of the same designation, that come from 2 or more sources, shall match when the items are viewed at arms-length and approximately 2' apart. Unless otherwise scheduled, match each hardware item in a single hardware set with the scheduled latch or lock set finish. Painting of BHMA 600 (USP) surfaces is required and is specified under Division 09 Section "Painting."
- C. Designations: The abbreviations used to schedule hardware finishes are generally BHMA (Federal Standards where indicated in parenthesis) designations. Comply with base material and finish requirements indicated by the following:
 1. BHMA 600 (USP): Primed for painting.
 2. BHMA 626 (US26D): Satin chromium plated.
 3. BHMA 628 (US28): Satin aluminum, clear anodized.
 4. BHMA 630 (US32D): Satin stainless steel.
 5. Alum.: Aluminum.

2.18 DOOR SIGNAGE

- A. Adhesive Sign - Self adhesive – Post on egress size of door vertically on frame as required by CBC. "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED".

2.19 SECURITY HARDWARE

- A. HID Global Door Access Control Systems.
 - 1. Card Readers: ProPro II 5455, Mini 5365 at mullions
 - 2. Controller VertX EVO V1000 Network Controller
 - 3. Door Position Sensors

PART 3 EXECUTION

3.01 INSTALLATION

- A. Mounting Heights: Mount door hardware units at the following heights, unless specifically indicated on the drawings or required to comply with governing regulations. Accessible hardware must be centered between 34" and 44" above finish floor per accessibility requirements:
 - 1. Locks and Latches: 38 inches to center of lever from finish floor.
 - 2. Door Pulls: 34 inches from finish floor to center of grip. Pull bases centered on door stiles, unless otherwise indicated.
 - 3. Door Pulls: Pull bases centered on top and bottom door rails and spaced from lock edge of door stile as indicated, or recommended, by the pull manufacturer.
 - 4. Push Plates: 40 inches from finish floor to center of plate. Coordinate with pull location.
 - 5. Butt Hinges: 10 inches to bottom of lowest hinge from finish floor; 5 inches to top of upper hinge from top of door; space intermediate hinges equally between lower and upper hinges.
 - 6. Deadbolts: Not more than 44 inches from finish floor to operating trim.
- B. Install each door hardware item to comply with manufacturer's written instructions. Install overhead surface closers for maximum degree of opening obtainable. Place on room side of corridor doors, stair side of stair doors, secondary corridor side of doors between corridors. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be finished, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Section 09 90 00 "Paint". Do not install surface-mounted items until finishes have been completed on substrates involved.
- C. Do not install permanent key cylinders in locks until the time of preliminary acceptance by the Owner. At the time of preliminary acceptance, and in the presence of the Owner's representative, permanent key all lock cylinders. Record and file all keys in the key control system specified, and turn system over to Owner for sole possession and control.

- D. Thresholds: Thresholds shall be secured with a minimum of 3 fasteners per single door width and 6 fasteners per double door width with a maximum spacing of 12 inches. Minimum screw size shall be No. 10 length, dependent on job conditions, with a minimum of 3/4 inch thread engagement into the floor or anchoring device used. Screw heads to be countersunk and flush with face of threshold. Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Section 07 09 00 "Joint Sealants".

3.02 ADJUSTING

- A. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every hardware component. Replace hardware components that cannot be adjusted to operate as intended.
- B. Adjust and check each door closer. The maximum effort to operate doors shall not exceed 5 pounds for exterior and interior doors per code.

3.03 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation. Clean hardware components as necessary to restore proper finish. Provide protection during the progress of the work and maintain conditions that ensure door hardware is in perfect working order and without damage or deterioration at time of Substantial Completion.

3.04 DOOR HARDWARE SCHEDULE – SCHEDULED DOORS

- A. Door Hardware Schedule follows at end of this Section.

DOOR HARDWARE

The Owner is seeking best bid on items specified. Any questions or concerns regarding the items or equals specified must be brought to the attention of the Owner's Representative before bid submittal. Owner will make all final decisions regarding the products to be used. If, after bid acceptance, Contractor presents hardware items that are not named equals, there may be a charge to the Contractor for evaluation of those products.

Hinge quantity will vary with size of door; follow manufacturer's recommendations. Hinges on all Exterior Doors to be nonferrous stainless-steel material and have non-removable pins.

All cylinders to be full-faced interchangeable core cylinders with square shouldered (not tapered) compression rings, 6 pin, standard threaded, keyed into the Owner's standard, with cams to suit lock functions. Provide cylinders for installation into all locks.

HARDWARE GROUPS

GROUP #1

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F07 (storage function)	Schlage
1 Cylinder	to match system	Best
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Wall Stop	WS407CCV	Ives
3 Mutes	SR64	Ives

GROUP #2 (Sliding Door)***Security Door Hardware – Group 2**

1 Door Contact
 1 Card Reader
 1 Power Supply

GROUP #3

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F04 (office function)	Schlage
1 Cylinder	to match system	Best
1 Wall Stop	WS407CVX	Ives
3 Mutes	SR64	Ives

GROUP #4

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F02 (privacy)	Schlage
	W "Occupied" indicator and "EZ" thumb turn	
1 Cylinder	to match system	Best
1 Wall Stop	WS407CCV	Ives
3 Mutes	SR64	Ives

GROUP #5 (Exterior Door)

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F07 (storage function)	Schlage
1 Cylinder	to match system	Best
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Overhead Stop	90 Series	GJ
1 Perimeter Gasket	303AS	Pemko
1 Drip Cap	346C	Pemko
1 Threshold	14/1A	Pemko
1 Sill Sweep		
1 Latch Guard	321	Rockwood
3 Mutes	SR64	Ives

GROUP #6

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F01 (passage function)	Schlage
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Wall Stop	WS407CVX	Ives
3 Mutes	SR64	Ives
1 Perimeter Gasket	303AS	Pemko

GROUP #7 (Exterior Door)

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F07 (entrance function)	Schlage
1 Cylinder	to match system	Best
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Overhead Stop	90 Series	GJ
1 Perimeter Gasket	303AS	Pemko

1 Drip Cap	346C	Pemko
1 Threshold	14/1A	Pemko
1 Sill Sweep		
1 Latch Guard	321	Rockwood
3 Mutes	SR64	Ives

GROUP #8

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F04 (office function)	Schlage
1 Cylinder	to match system	Best
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Wall Stop	WS407CVX	Ives
3 Mutes	SR64	Ives

GROUP #9

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F20 (entrance function)	Schlage
1 Cylinder	to match system	Best
1 Wall Stop	WS407CVX	Ives
3 Mutes	SR64	Ives

GROUP #10

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F07 (storage function)	Schlage
1 Cylinder	to match system	Best
3 Mutes	SR64	Ives

GROUP #11 (Exterior Door)

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F07 (storage function)	Schlage
1 Cylinder	to match system	Best
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Overhead Stop	90 Series	GJ
1 Perimeter Gasket	303AS	Pemko
1 Drip Cap	346C	Pemko
1 Threshold	14/1A	Pemko
1 Sill Sweep		
1 Latch Guard	321	Rockwood
3 Mutes	SR64	Ives

GROUP #12

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	Fixed outside/free inside	Schlage
1 Electric Strike	6200 Series	Von Duprin
1 Cylinder	to match system	Best
1 Power Transfer Hinge	EPT-10C x SP28 w. connectors	Von Duprin
1 Door Wire Harness	to be determined	Von Duprin
1 Door Contact	2507A	GE Security
1 Closer	4041	LCN
1 Kickplate	K1050 12" bevel 4 sides	Rockwood
1 Wall Stop	WS407CVX	Ives
1 Perimeter Gasket	303AS	Pemko
1 Drip Cap	346C	Pemko
1 Threshold	14/1A	Pemko

1 Latch Guard	321	Rockwood
3 Mutes	SR64	Ives

***Security Door Hardware – Group 12**

1 Door Contact
1 Card Reader
1 Power Supply

GROUP #13

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F07 (storage function)	Schlage
1 Electric Strike	6200 Series	Von Duprin
1 Cylinder	to match system	Best
1 Wall Stop	WS407CVX	Ives
3 Mutes	SR64	Ives

***Security Door Hardware – Group 13**

1 Door Contact		HID Global
1 Card Reader	Secured Side	
1 Power Supply		

GROUP #14

1 1/2 Pair Butts	BB1279	Hager
1 Lockset	F04 (office function)	Schlage
1 Cylinder	to match system	Best
1 Wall Stop	WS407CVX	Ives
3 Mutes	SR64	Ives

***Security Door Hardware – Group 14**

1 Door Contact		HID Global
1 Card Reader	Secured Side	
1 Power Supply		

GROUP #15

*See Specifications Section 10 22 39 - Folding Glass Partitions for additional information.

1 Lockset	F07 (entrance function)	Schlage
1 Cylinder	to match system	Best

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. This section specifies glass, related glazing materials and accessories. Glazing products specified apply to factory or field glazed items.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 LABELS

- A. Temporary Labels:
 - 1. Provide temporary label on each light of glass identifying manufacturer or brand and glass type, quality and nominal thickness.
 - 2. Label in accordance with NFRC (National Fenestration Rating Council) label requirements.
 - 3. Temporary labels shall remain intact until glass is approved by the Owner.
 - 4. Permanent labels:
 - a. Locate in corner for each pane.
 - b. Label in accordance with ANSI Z97.1:
 - 1) Tempered glass
 - 2) Organic coated glass

1.04 PERFORMANCE REQUIREMENTS

- A. Glass Thickness:
 - 1. Select thickness of exterior glass to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7 and the CBC
 - 2. Test in accordance with ASTM E 1300
 - 3. Thicknesses listed are minimum. Coordinate thicknesses with framing system manufacturers

1.05 SUBMITTALS

- A. Manufacturer's Certificates:
 - 1. Certificate on shading coefficient
 - 2. Certificate on "R" value when value is specified
- B. Warranty: Submit written guaranty, conforming to General Condition requirements, and to "Warranty of Construction" Article in this Section.
- C. Manufacturer's Literature and Data:
 - 1. Glass, each kind required
 - 2. Insulating glass units
 - 3. Glazing cushion
 - 4. Sealing compound
- D. Samples:
 - 1. Size: 6 inches by 6 inches
 - 2. Tempered Low-E glass
 - 3. Insulated glass
 - 4. Glass Film
- E. Preconstruction Adhesion and Compatibility Test Report: Submit glazing sealant manufacturer's test report indicating glazing sealants were tested for adhesion to glass and glazing channel substrates and for compatibility with glass and other glazing materials.

1.06 MOCK-UP

- A. Insulated Tempered Glass: Contractor to provide multiple Mock-Ups to determine new glazing system to match appearance of exterior glazing system.
 - 1. Architect to select final glazing system from mock-ups on site.
 - 2. Mock-Up to be minimum of 12"x12".

1.07 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Schedule delivery to coincide with glazing schedules so minimum handling of crates is required. Do not open crates except as required for inspection for shipping damage.
- B. Storage: Store cases according to printed instructions on case, in areas least subject to traffic or falling objects. Keep storage area clean and dry.

- C. Handling: Unpack cases following printed instructions on case. Stack individual windows on edge leaned slightly against upright supports with separators between each.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Field measure openings before ordering tempered glass products. Be responsible for proper fit of field measured products.

1.09 WARRANTY

- A. Warranty: Conform to terms of "Warranty of Construction"
 - 1. Insulating glass units to remain sealed for 10 years.

1.010 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extend referenced. Publications are referenced in text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - C794-10 Adhesion-in-Peel of Elastomeric Joint Sealants
 - C864-05 Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
 - C920-11 Elastomeric Joint Sealants
 - C964-07 Standard Guide for Lock-Strip Gasket Glazing
 - C1036-06 Flat Glass
 - C1048-12 Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass
 - C1376-10 Pyrolytic and Vacuum Deposition Coatings on Flat Glass
 - E84-10 Surface Burning Characteristics of Building Materials
 - E119-10 Standard Test Methods for Fire Test of Building Construction and Material
 - E413-16 Classification for Rating Sound Insulation
 - E2190-10 Insulating Glass Unit
- C. Code of Federal Regulations (CFR):
 - 16 CFR 1201 Safety Standard for Architectural Glazing Materials; 2010
- D. National Fenestration Rating Council (NFRC)
- E. Glass Association of North America (GANA):
 - 1. Glass Manual (Latest Addition)

2. Sealant Manual (2009)
- F. American Society of Civil Engineers (ASCE):
ASCE 7-16 Wind Load Provisions

PART 2 PRODUCTS

2.01 GL-1: INSULATED TEMPERED GLASS - EXTERIOR DOORS

- A. 1–3/16" Laminated Insulating Acoustical Unit
 1. ASTM C1048, Kind FT, Type I, Class 1, Quality q3
 2. Basis of design unit: Thickness, 6 mm (1/4 inch), Solarban 70XL, Optigray, Low E coated, tempered
 - a. Contractor to provide multiple Mock-Ups per Section 1.06. Coordinate final selection with Architect.
 3. Air space, 13.2 mm (1/2 inch)
 4. Thickness, 4.7 mm (3/16 inch), tempered
 5. 1.5 mm (0.060 inch) clear thick interlayer PVB
 6. Thickness, 4.7 mm (3/16 inch), tempered
 7. Performance: VLT 34; SHGC .22, Shading .26, Reflectance 10%, U value-W .29, U value-S .27.

2.02 GL-2: INTERIOR TEMPERED GLASS – STOREFRONT

- A. Tempered Glass:
 1. ASTM C1048, Kind FT, Type I, Class 1, Quality q3
 2. Thickness, 6 mm (1/4 inch), tempered
 3. Color: Clear

2.03 GL-3: INSULATED TEMPERED SPANDREL GLASS - EXTERIOR

- A. Low-E Insulated Tempered Glass:
 1. ASTM C1048, Kind FT, Type I, Class 1, Quality q3 with low emissivity pyrolytic coating having an E of 0.15
 2. Basis of design unit: 1-inch insulated unit with exterior pane of (1/4 inch) Vitro Solarban 60 (2) and interior pane of 6mm (1/4 inch) Optigrey tempered glass and 4th surface opacifier with 13.2 mm (1/2 inch) air space

- a. Contractor to provide multiple Mock-Ups per Section 1.06. Coordinate final selection with Architect.

2.04 GL-4: INSULATED TEMPERED GLASS - EXTERIOR

A. Low-E Insulated Tempered Glass:

1. ASTM C1048, Kind FT, Type I, Class 1, Quality q3 with low emissivity pyrolytic coating having an E of 0.15
2. Basis of design unit: 1-inch insulated unit with exterior pane of 6mm (1/4 inch) Vitro tempered Solarban 70XL (2) Optigray sputtered and interior pane of 6mm (1/4 inch) clear tempered glass with 13.2 mm (1/2 inch) air space
 - a. Contractor to provide multiple Mock-Ups per Section 1.06. Coordinate final selection with Architect.
3. Performance: VLT 47; SHGC .24, Shading .28, Reflectance 8%, U value-W .28, U value-S .26.

2.05 ACCESSORIES

- A. As required to supplement the accessories provided with the items to be glazed and to provide a complete installation. Ferrous metal accessories exposed in the finished work shall have a finish that will not corrode or stain while in service.

B. Setting Blocks: ASTM C864:

1. Channel shape; having 1/4 inch internal depth
2. Shore a hardness of 80 to 90 Durometer
3. Block lengths: two inches except four to six inches for insulating glass
4. Block width: Approximately 1/16 inch less than the full width of the rabbet
5. Block thickness: Minimum 3/16 inch, sized for rabbet depth, as required

C. Spacers: ASTM C864:

1. Channel shape having a 1/4 inch internal depth
2. Flanges not less 3/32 inch thick and web 1/8 inch thick
3. Lengths: One to one to three inches
4. Shore a hardness of 40 to 50 Durometer

D. Sealing Tapes:

1. Semi-solid polymeric based material exhibiting pressure sensitive adhesion and withstanding exposure to sunlight, moisture, heat, cold, and aging.
2. Shape, size and degree of softness and strength suitable for use in glazing application to prevent water infiltration.

- E. Glazing Gaskets : ASTM C864:
 - 1. Soft, closed-cell with locking key for sash key
 - 2. Flanges may terminate above the glazing beads or terminate flush with top of beads.
- F. Glazing Sealants: ASTM C920, silicone neutral cure:
 - 1. Type S
 - 2. Class 25
 - 3. Grade NS
 - 4. Shore A hardness of 25 to 30 Durometer
- G. Color:
 - 1. Color of glazing compounds, gaskets, and sealants used for aluminum color frames shall match color of the finished aluminum and be non-staining.
 - 2. Color of other glazing compounds, gaskets, and sealants which will be exposed in the finished work and unpainted shall be black.
- H. Glass Film:
 - 1. 3M Fasara Glass Finishes. Type and configuration as shown on window elevations and per architect direction. Pressure sensitive adhesive polyester film with pattern.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:
 - 1. Examine openings for glass and glazing units; determine they are proper size; plumb; square; and level before installation is started.
 - 2. Verify that glazing openings conform with details, dimensions and tolerances indicated on manufacturer's approved shop drawings.
- B. Advise Contractor of conditions which may adversely affect glass and glazing unit installation, prior to commencement of installation: Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. For sealant glazing, prepare glazing surfaces in accordance with GANA-02 Sealant Manual.

- B. Determine glazing unit size and edge clearances by measuring the actual unit to receive the glazing.
- C. Shop fabricate and cut glass with smooth, straight edges of full size required by openings to provide GANA recommended edge clearances.
- D. Verify that components used are compatible.
- E. Clean and dry glazing surfaces.
- F. Prime surfaces scheduled to receive sealants, as determined by preconstruction sealant-substrate testing.

3.03 INSTALLATION – GENERAL

- A. Install in accordance with GANA-01 Glazing Manual and GANA-02 Sealant Manual unless specified otherwise.
- B. Glaze in accordance with recommendations of glazing and framing manufacturers, and as required to meet the Performance Test Requirements specified in other applicable sections of specifications.
- C. Set glazing without bending, twisting, or forcing of units.
- D. Do not allow glass to rest on or contact any framing member.
- E. Glaze doors and operable sash, in a securely-fixed or closed-and-locked position, until sealant, glazing compound, or putty has thoroughly set.
- F. Tempered Glass: Install with roller distortions in horizontal position unless otherwise directed.
- G. Insulating Glass Units:
 - 1. Glaze in compliance with glass manufacturer's written instructions.
 - 2. When glazing gaskets are used, they shall be of sufficient size and depth to cover glass seal or metal channel frame completely.
 - 3. Do not use putty or glazing compounds.
 - 4. Do not grind, nip, cut, or otherwise alter edges and corners of fused glass units after shipping from factory.

3.04 REPLACEMENT AND CLEANING

- A. Clean new glass surfaces removing temporary labels, paint spots, and defacement.
- B. Replace cracked, broken, and imperfect glass, or glass which has been installed improperly.
- C. Leave glass, putty, and other setting material in clean, whole, and acceptable condition.

3.05 PROTECTION

- A. Protect finished surfaces from damage during erection, and after completion of work. Strippable plastic coatings on colored anodized finish are not acceptable.

3.06 GLAZING SCHEDULE

- A. Tempered Glass:
 - 1. Install in full and half glazed doors unless indicated otherwise.
 - 2. Use clear, tempered glass on interior side lights and doors unless otherwise indicated or specified.
- B. Tempered Glass Low E Glass:
 - 1. Install Sealed Edge Unit (SEU) Low-E tempered in exterior pane of dual glazed storefronts.

END OF SECTION

DIVISION 3 – CONCRETE

03 30 00	Cast-In-Place Concrete	Clear Seal
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DIVISION 5 – METALS

05 50 00	Metal Fabrications	
	Guard and Rails	See section 09 90 00 below.

DIVISION 6 – WOOD AND PLASTIC

06 40 23	Interior Architectural Millwork Cabinetwork	
	Faces:	Natural Select Cherry, Plain Sliced.
	Stain/Finish:	To match Doors, see spec. section 08 14 00
	Locks:	626 Brushed/Satin Chrome
	Pulls:	626 Brushed/Satin Chrome
	S-1 Countertop:	Manufacturer: Corian Material: Quartz Color/Style: Valente Pearl

DIVISION 7 – THERMAL MOISTURE PROTECTION

07 24 00	Insulation & Finish System (EIFS) Color & Texture:	Provide Architect with options to best match adjacent surfaces. Final selection per Architect selection.
07 62 00	Sheet Metal Flashing and Trims Coping: Flashing and Counter Flashing	Custom: Per Architect Selection Stainless Steel
07 90 00	Joint Sealants Color:	Provide Architect with options to best match adjacent surfaces. Final selection per Architect selection.

DIVISION 8 – DOORS AND WINDOWS

08 11 13	Hollow Metal Doors & Frames	
	Paint:	Per Architect Selection in Section 09 90 00
08 14 00	Wood Doors	
	Interior Flush Door:	Masonite Architectural Series: Aspiro Species: Cherry wood Slice: Plain
	Wood Door Stain:	Masonite Architectural Series: Aspiro

		Stain Color: Stout
08 31 00	Access Doors and Frames	Paint to match adjacent surfaces
08 41 13	Aluminum-Framed Storefronts, including sliding doors and hardware	
	Framing Color:	Anodized Aluminum Dark Bronze
08 42 29	Sliding Automatic Entrances, including door, frame, and hardware	
	Framing Color:	Anodized Aluminum Dark Bronze
08 71 00	Door Hardware	
	Locksets:	US26D, Brushed/Satin Chrome
	Closers:	US26D, Brushed/Satin Chrome
	Butts:	US26D, Brushed/Satin Chrome
	Exit Devices:	US26D, Brushed/Satin Chrome
	Weather-stripping	Aluminum, Dark Bronze
08 80 00	Glazing	
	GL-1: Exterior Doors	Color: Clear
	GL-2: Interior Tempered	Color: Clear

DIVISION 9 – FINISHES

09 30 13	Porcelain Tile	
	CT-1 (floor):	Daltile
	Style:	Emerson Wood
	Color:	EP01 Butter Pecan Plank
	Finish:	Matte
	Shade Variation:	Random (V4)
	Size:	6"x48"
	Thickness:	5/16"
	Joints:	1/8"
	Pattern:	33% running bond
	CT-2 (toilet wall):	Daltile
	Collection:	Linear, Color Wheel Collection - Glazed Ceramic
	Color:	0190, Artic White
	Pattern:	Horizontal, straight stack
	Finish:	Semi-gloss
	Size:	4" x 16"
	Joints:	1/16"
	CT3 (drinking fountain):	Garden State Tile
	Collection:	Slash Collection
	Color:	Slash White W Dots Deco (SLSH1 73W)
	Pattern:	Horizontal, straight stack
	Finish:	Semi-Gloss
	Size:	3"x12"

	Joints:	1/16"
	CT-B (wall base)	Daltile
	Collection:	Linear, Color Wheel Collection - Glazed Ceramic
	Color:	0190, Artic White
	Trim Base:	S44D9 / 4x16
		*Installed @ painted GWB walls only
	Finish:	Semi-gloss
	Size:	4" x 16"
	Joints:	1/16"
	GRT-1 (floor tile grout):	Color: Mapei, 107 Iron or Per Architect's selection Mold and Mildew resistant
	GRT-2 (wall tile grout):	Color: Mapei, 00 White or Per Architect's selection Mold and Mildew resistant
09 51 00	Acoustical Ceilings	
	ACT-1:	Armstrong Cirrus, Angled Tegular, 24"x24"x15/16" Color: White finish. NRC 0.70
	ACT-2:	Armstrong Ceramaguard, 24" x 24" x 15/16" square edge. Color: White. NRC 0.70
	Ceiling Grid:	Type1: Exposed Grid, 15/16, Prelude XL Color: Standard White
09 65 00	Resilient Flooring and Base	
	RF-1 (Flooring):	Interface, High performance LVT Collection: Stargazing Collection Product: A017, Scorpio Color: Silverlight Size: 19.6"x19.6" Pattern: Monolithic Thickness: 0.18 inch (4.5 mm)
	RF-2 (Stair Tread/Riser):	Mannington Commercial/Burke Stairway System Collection: Linear Series Style: Visually Impaired Safety Stair Treads Tread Material: Type TP (Thermoplastic Rubber) Riser Material: Type TP (Thermoplastic Rubber) Profile: Linear Nose: Square Color: Rocky 660 ADA Tread Insert: 2" Abrasive Strip, Black
	RF-3 (Rubber flooring @ Stair landing):	Mannington Commercial Collection: Color Anchor Rubber

Style: ColorScape Tile
 Material: Thermoset Rubber Tile
 Classification: ASTM F1344, Type 1 (A), Grade 1
 Thickness: 1/8"
 Profile: Sculptured
 Color: Rocky 660
 Size: 36" x 36"

RB-1 (base):

Mannington Commercial
 Collection: Edge Effects
 Classification: ASTM F1861, Group 1
 Type: Type TP (Thermoplastic Rubber)
 Style: Etched EEETC
 Color: Black 701
 Finish: Matte
 Thickness: 1/4"
 Profile Height: 6"
 Profile: Smooth

09 65 19 Static Dissipative Resilient Flooring

SDT-1 (flooring):

Armstrong, Static Dissipative Tile
 Product Line: Excelon SDT
 Construction: Vinyl Composition Tile
 Color: Pearl White - 51953
 Size: 12" x 12"
 Pattern: 1/4 turn
 Thickness: 1/8 inch (3.2 mm)

09 68 13 Carpet Tile

CPT-1

Interface
 Collection: Net Effect Collection
 Product: B701, planks
 Color: 102893 Caspian
 Pattern: Ashlar
 Backing: GlasBac

09 90 00 Painting

PT-1 - Ceiling

Sherwin Williams, High Reflective White, SW-7757,
 Location Number: 256-C1

PT-2 - Interior walls

Sherwin Williams, Pure White, SW-7005,
 Location Number: 255-C1

**PT-3 - Interior Hollow Metal Door
 Frames, Interior Hollow
 Metal Doors &
 Handrails**

Sherwin Williams, Caviar, SW-6990
 Location Number: 251-C2

PT-4 - Exterior Doors

Sherwin Williams, to match existing Anodized
 Aluminum Dark Bronze framing OR per architect
 selection

PT-5 – Exterior Door Frames	Sherwin Williams, to match existing Anodized Aluminum Dark Bronze framing OR per architect selection
PT-6 – Exterior Guard rails & Handrails	Sherwin Williams, to match existing Anodized Aluminum Dark Bronze framing OR per architect selection
PT-7 – Additional accent colors	per Architect selection.
PT-8 – Exterior troweled flat Concrete @ new windows	Sherwin Williams, to match existing paint at smooth concrete adjacent to existing windows
ST-1 – Wood Stain	Masonite Architectural, Aspiro Series Color: Stout

DIVISION 10 – SPECIALTIES

10 14 00	Signage Interior Signage: Background Color: Text Color: Exterior Signage: Site Signs:	Beige Black Per ADA, CBC and Transportation Standards
10 22 39	Folding Glass Partitions Framing Color:	Anodized Aluminum Dark Bronze
10 26 00	Wall Protection Accessories: Height: Finish:	Stainless Steel corner guards 48" high unless otherwise noted in Drawings No. 4 Stainless Steel - Satin
10 28 00	Toilet Accessories Accessories: Grab Bars: Mirror:	No. 4 Stainless Steel Satin Finish Stainless Steel Stainless Steel Framing
10 44 13	Fire Extinguisher Cabinets Finish:	Larsen, Architectural Series, Solid Door with vertical engraved letters, #8 Stainless Steel

DIVISION 12 – FURNISHING

Not Used

DIVISION 14 – CONVEYING EQUIPMENT

14 24 00 Elevator

Flooring:	Armstrong, Luxe, A6746
Wall Panel:	Plastic Laminate Color, Wood Grained per Architect selection.
Reveals:	20 ga, match frame finish
Base:	6" high stainless steel, #4 satin
Handrail:	1 1/2" diameter stainless steel, #4 satin, with end caps, 3 sides.
Ceiling:	Nine (9) painted panels per Architect selection with center light.
Lighting:	LED in each panel
Doors:	Stainless steel
Jamb:	Stainless steel

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 17 23	Pavement Markings	
	Line Paint:	White
	ADA Paint:	per CBC

GENERAL NOTES – Schedule for Finishes:

- A. See Architectural Finishes Schedule, specifications, and interior elevations for additional finishes information.
- B. Miscellaneous metals to be painted per Architect color selection.
- C. Paint interior handrails, PT3.
- D. Paint interior hollow metal door frames, high gloss, PT3.
- E. Paint remaining hollow metal door frames per architect's selection.

END OF SECTION

PART 1 GENERAL**1.01 DESCRIPTION**

- A. This section specifies steel studs wall systems, ceiling or soffit suspended or furred framing, wall furring, fasteners, and accessories for the screw attachment of gypsum board, plaster bases or other building boards.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 TERMINOLOGY

- A. Description of terms shall be in accordance with ASTM C754, ASTM C11, ASTM C841 and as specified.
- B. Underside of Structure Overhead: The underside of structure overhead shall be the underside of the roof/floor construction supported by beams.
- C. Thickness of steel specified is the minimum bare (uncoated) steel thickness.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Manufacturer's Literature and Data:
 - 1. Studs, runners and accessories.
 - 2. Furring channels.
 - 3. Screws, clips and other fasteners.
- C. Shop Drawings:
 - 1. Typical ceiling suspension system.
 - 2. Typical metal stud and furring construction system including details around openings, access panels and corner details.
 - 3. Typical support for external attachments

1.05 DELIVERY, IDENTIFICATION, HANDLING AND STORAGE

- A. In accordance with the requirements of ASTM C754.

1.06 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society For Testing And Materials (ASTM)
 - A123-09.....Zinc (Hot-dip Galvanized) Coatings on Iron and Steel Products
 - A653/A653M-09Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process
 - A641-09.....Zinc-Coated (Galvanized) Carbon Steel Wire
 - C11-10 Terminology Relating to Gypsum and Related Building Materials and Systems
 - C645-09 Non-Structural Steel Framing Members
 - C754-09 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
 - C841-03 (R2008) Installation of Interior Lathing and Furring
 - C954-07 Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
 - E580-09.....Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Moderate Seismic Restraint.

PART 2 PRODUCTS

2.01 PROTECTIVE COATING

- A. Galvanize steel studs, runners (track), rigid (hat section) furring channels, "Z" shaped furring channels, and resilient furring channels, with coating designation of G-60, per ASTM A123.

2.02 STEEL STUDS AND RUNNERS (TRACK)

- A. ASTM C645, modified for thickness specified and sizes as shown.
 - 1. Use ASTM A653 steel, 0.8 mm (0.0329 inch) thick bare metal (33 mil).
 - 2. Runners same thickness as studs.

- B. Provide not less than two cutouts in web of each stud, approximately 300 mm (12 inches) from each end, and intermediate cutouts on approximately 600 mm (24 inch) centers.
- C. Doubled studs for openings as shown.
- D. Studs 3600 mm (12 feet) or less in length shall be in one piece.

2.03 FURRING CHANNELS

- A. Rigid furring channels (hat shape): ASTM C645.
- B. Resilient furring channels:
 - 1. Not less than 0.45 mm (0.0179 inch) thick bare metal.
 - 2. Semi-hat shape, only one flange for anchorage with channel web leg slotted on anchorage side, channel web leg on other side stiffens fastener surface but shall not contact anchorage surface other channel leg is attached to.
- C. "Z" Furring Channels:
 - 1. Not less than 0.45 mm (0.0179 inch) thick bare metal, with 32 mm (1-1/4 inch) and 19 mm (3/4 inch) flanges.
 - 2. Web furring depth to suit thickness of insulation with slotted perforations.
- D. Rolled Steel Channels: ASTM C754, cold rolled; or, ASTM C841, cold rolled.

2.04 FASTENERS, CLIPS, AND OTHER METAL ACCESSORIES

- A. ASTM C754, except as otherwise specified.
- B. Fasteners for steel studs thicker than 0.84 mm (0.033 inch) thick. Use ASTM C954 steel drill screws of size and type recommended by the manufacturer of the material being fastened.
- C. Clips: ASTM C841 (paragraph 6.11), manufacturer's standard items. Clips used in lieu of tie wire shall have holding power equivalent to that provided by the tie wire for the specific application.
- D. Concrete ceiling hanger inserts (anchorage for hanger wire and hanger straps): Steel, zinc-coated (galvanized), manufacturers standard items, designed to support twice the hanger loads imposed and the type of hanger used.
- E. Tie Wire and Hanger Wire:
 - 1. ASTM A641, soft temper, Class 1 coating.
 - 2. Gage (diameter) as specified in ASTM C754 or ASTM C841.
- F. Attachments for Wall Furring:
 - 1. Manufacturers standard items fabricated from zinc-coated (galvanized) steel sheet.

2. For concrete walls: Metal slots with adjustable inserts or adjustable wall furring brackets. Spacers may be fabricated from 1 mm (0.0396 inch) thick galvanized steel with corrugated edges.

PART 3 EXECUTION

3.01 INSTALLING STUDS

- A. Install studs in accordance with ASTM C754, except as otherwise shown or specified.
- B. Space studs not more than 610 mm (24 inches) on center.
- C. Cut studs 6 mm to 9 mm (1/4 to 3/8 inch) less than floor to underside of structure overhead when extended to underside of structure overhead.
- D. Where studs are shown to terminate above suspended ceilings, extend studs to underside of structure overhead.
- E. Extend studs to underside of structure overhead.
- F. Frame jambs of openings as shown.
- G. Fasten studs as shown.
- H. Form building expansion joints as shown.

3.02 INSTALLING WALL FURRING FOR FINISH APPLIED TO ONE SIDE ONLY

- A. In accordance with ASTM C754, or ASTM C841 except as otherwise specified or shown.
- B. Wall furring-Stud System:
 1. Framed with 63 mm (2-1/2 inch) or narrower studs, 600 mm (24 inches) on center.
 2. Brace as specified in ASTM C754 for Wall Furring-Stud System or brace with sections or runners or studs placed horizontally at not less than three foot vertical intervals on side without finish.
 3. Securely fasten braces to each stud with two Type S pan head screws at each bearing.
- C. Direct attachment to concrete; rigid channels or "Z" channels:
 1. Install rigid (hat section) furring channels at 600 mm (24 inches) on center, horizontally or vertically.
 2. Install "Z" furring channels vertically spaced not more than 600 mm (24 inches) on center.
 3. At corners where rigid furring channels are positioned horizontally, provide mitered joints in furring channels.
 4. Ends of spliced furring channels shall be nested not less than 200 mm (8 inches).

5. Fasten furring channels to walls with power-actuated drive pins or hardened steel concrete nails. Where channels are spliced, provide two fasteners in each flange.
 6. Locate furring channels at interior and exterior corners in accordance with wall finish material manufacturers printed erection instructions. Locate "Z" channels within 100 mm (4 inches) of corner.
- D. Installing Wall Furring-Bracket System: Space furring channels not more than 400 mm (16 inches) on center.

3.03 INSTALLING SUPPORTS REQUIRED BY OTHER TRADES

- A. Provide for attachment and support of electrical outlets, plumbing, heating fixtures, access panel frames, wall bumpers, recessed fire extinguisher cabinets and other items like auto door buttons and auto door operators supported by stud construction.
- B. Provide additional studs where required. Install metal backing plates, or special metal shapes as required, securely fastened to metal studs. Including locations for future County supplied and installed accessories and equipment such as; toilet accessories, caulk boards, projection screens and similar.

3.04 INSTALLING FURRED AND SUSPENDED CEILINGS OR SOFFITS

- A. Install furred and suspended ceilings or soffits in accordance with ASTM C754 or ASTM C841 except as otherwise specified or shown for screw attached gypsum board ceilings and for plaster ceilings or soffits.
 1. Space framing at 600 mm (24 inch) centers for gypsum board anchorage.
- B. Use clips, bolts, or wire ties for direct attachment to steel framing.
- C. Existing concrete construction exposed:
 1. Use power actuated fasteners either eye pin, threaded studs or drive pins for type of hanger attachment required.
 2. Install fasteners at approximate mid height of concrete beams or joists. Do not install in bottom of beams or joists.
- D. Do not fasten to steel decking.
- E. Construct and install ceiling bracing system as shown and in accordance with ASTM E580.

3.05 TOLERANCES

- A. Fastening surface for application of subsequent materials shall not vary more than 3 mm (1/8 inch) from the layout line.
- B. Plumb and align vertical members within 3 mm (1/8 inch.)
- C. Level or align ceilings within 3 mm (1/8 inch.)

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. Section Includes: Provide gypsum board systems including gypsum board, joint treatment, acoustical accessories, and general accessories for complete installation.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Furnish manufacturer's literature for gypsum board, insulation, and acoustical accessories.
- C. Manufacturer's Certification: Furnish manufacturer's certification indicating products comply with Contract Documents and applicable codes.

1.04 PROJECT CONDITIONS

- A. Do not begin installation of interior gypsum board until space is enclosed, space is not exposed to other sources of water, and space is free of standing water.
- B. Maintain areas to receive gypsum board at minimum 50 degrees F for 48 hours prior to application and continuously after application until drying of joint compound is complete; comply with ASTM C840.
- C. Immediately remove from site gypsum board for interior use exposed to water, including gypsum board with water stains, with signs of mold, and gypsum board with mildew.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. National Gypsum Co.
- B. Georgia-Pacific Corp.
- C. United States Gypsum Co., USG Corp.

2.02 PERFORMANCE REQUIREMENTS

- A. General: Perform gypsum board work in accordance with ASTM C840 unless otherwise specified.

2.03 MATERIALS

A. Exterior Gypsum Board:

- 1. ASTM C1177/ C1177M, water-resistant core, 16 mm (5/8 inch) thick.

B. Gypsum Board: Comply with ASTM C840; maximum permissible lengths; ends square cut, tapered edges on boards to be finished.

- 1. Typical: ASTM C1396, Type X, fire rated gypsum board, unless otherwise indicated.
- 2. Tile Substrates: Cementitious backer units ASTM C1178, specified in Section 09 30 13 - Tiling.
- 3. Abuse Resistive: ASTM C1629, 16 mm (5/8 inch) thick., Type X.

C. Gypsum Board Accessories: Comply with ASTM C840.

- 1. Provide protective coated steel corner beads and edge trim; type designed to be concealed in finished construction by tape and joint compound.
- 2. Corner Beads: Manufacturer's standard metal beads.
- 3. Edge Trim: "J", "L", "LK", or "LC" casing beads.
- 4. Reinforcing Tape, Joint Compound, Adhesive, Water, Fasteners: Types recommended by system manufacturer and conforming to ASTM C475.
 - a. Typical Joint Compound: Chemical hardening type for bedding and filling, ready-mixed or powder vinyl type for topping.
- 5. Control Joints: Back to back casing beads.
 - a. Back control joints with 4 mil thick polyethylene air seal.

D. Acoustical Accessories:

- 1. Acoustical Sealant: ASTM C919, type recommended for use in conjunction with gypsum board. Paintable, non-shrinking and non-cracking where exposed, non-drying, non-skinning, non-staining, and non-bleeding where concealed. Provide as required for acoustical ratings and at non-fire-rated partitions to seal edges of gypsum board.
- 2. Electrical Box Pads: Provide at outlet, switch and telephone boxes in walls with acoustical insulation.
 - a. Manufacturers for Non-Fire Rated Partitions:
 - 1) Harry A. Lowry & Associates (800.772.2521)/Lowry's Electrical Box Pads.

- 2) Tremco Sheet Caulking (650.572.1656).

PART 3 EXECUTION

3.01 INSTALLATION

- A. Openings: Obtain dimensions and locations from other trades and provide openings and enclosures for accessories, specialties, equipment, and ductwork.
- B. Gypsum Board Installation: Install in accordance with ASTM C840 and manufacturer's recommendations.
 1. Use screws when fastening gypsum board to furring and to framing.
 2. Erect gypsum board with ends and edges occurring over firm bearing.
 - a. Ensure joints of second layer do not occur over joints of first layer in double layer applications.
 3. Place control joints to be consistent with lines of building spaces and as directed by Architect.
 - a. Provide where system abuts structural elements.
 - b. Provide at dissimilar materials.
 - c. Wings of "L", "U" and "T" shaped ceilings.
 4. Place corner beads at external corners; use longest practical lengths.
 5. Place edge trim where gypsum board abuts dissimilar materials.
 6. Tape, fill, and sand exposed joints, edges, corners and openings to produce surface ready to receive finishes; feather coats onto adjoining surfaces.
 7. Finishing: Comply with Gypsum Association (GA) "Levels of Gypsum Board Finish".
 - a. Level 4, three-coat finish to achieve special smooth surface ready for applied paint finishes.
 8. Remove and replace defective work.
- C. Acoustical Accessories Installation:
 1. Place acoustical insulation tight within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
 2. Place acoustical sealant within partitions in accordance with manufacturer's recommendations; install acoustical sealant at gypsum board perimeter at:
 - a. Wood Framing: One or two beads.

- b. Base layer and face layer.
 - c. Penetrations of partitions.
- 3. Tolerance: Maximum 1/4" space between gypsum board at floor, ceiling, and penetrations.
- 4. Install electrical box pads with pads molded and pressed on back side of box, closing openings, in accordance with manufacturer's instructions, for complete acoustical barrier.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. This Section describes the requirements for furnishing and installing ceramic tile, accessories and related materials as indicated on the Drawings and as specified herein.
 - 1. Floor tile.
 - 2. Toilet room wall tile and base.
 - 3. Drinking fountain alcove.
 - 4. Backsplash, break room.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. American National Standards Institute (ANSI): Standard Specifications for the Installation of Ceramic Tile.
 - 1. ANSI A108.4: Installation of ceramic tile with Water-Resistant Organic Adhesive.
 - 2. ANSI A108.5: Installation of ceramic tile, with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
 - 3. ANSI A108.10: Installation of Grout in Tilework.
 - 4. ANSI A118.1: Dry-Set Portland Cement Mortar.
 - 5. ANSI A118.4: Latex Portland Cement Mortar.
 - 6. ANSI A118.6: Ceramic Tile Grout.
 - 7. ANSI A137.1: Standard Specifications for Ceramic Tile.
- B. Tile Council of America (TCA): "Handbook for Ceramic Tile Installation".

1.04 SYSTEM DESCRIPTION

- A. Design Requirements: Floor tile tested both wet and dry shall have minimum static coefficient of friction of 0.60 in accordance with ASTM C1028.

1.05 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Samples:
 - 1. Tile: Submit three full-sized samples of each color, size and type of tile specified
 - 2. Trim Shapes: Each color, type, and shape
- C. Product Data:
 - 1. Pictorial information or samples showing manufacturer's full line of standard patterns and colors.
 - 2. Upon completion of ceramic tile Work, submit two copies of a list of recommended maintenance products and procedures.
- D. Mock-Up
 - 1. One full toilet room wall with accessories shall be installed prior for Owner approval, prior to completion of remaining tile work.
 - 2. Tile not meeting TCA standards and visual observations of architect for lippage and square shall be removed.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver tile in manufacturer's original cartons, grade-sealed by manufacturer in accordance with ANSI A137.1, and with grade seals unbroken.
- B. Deliver dry-set mortar in moisture-proof containers.
- C. Manufactured mortars and grouts shall be from one manufacturer for each system, shall contain hallmarks certifying compliance with specified TCA and other referenced standards and shall be recommended by tile manufacturer for the application intended.
- D. Organic adhesive containers shall bear hallmark of either Adhesive and Sealant Council or Tile Contractors of America certifying compliance with ANSI A136.1.
- E. Store materials in accordance with manufacturer's directions and under cover in manner to prevent damage or contamination.
- F. Handle materials carefully to avoid chipping and breakage.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Ambient Temperature: At least 50 degrees F and rising, when setting and grouting with Portland-cement mortar for at least 7 days after completion of installation.
- B. Follow manufacturer's requirements for ambient temperature when setting and grouting with other than Portland-cement mortar.

- C. Moisture Conditions: In accordance with tile and installation materials manufacturers' requirements.
- D. Protect adjoining work surfaces before tile work begins.
- E. Close spaces in which tile is being set to traffic and other work; keep closed until firmly set.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Tile, General:
 - 1. Tile shall conform to ANSI A137.1, Standard Grade, and shall be the product of Daltile Company or approved equal.
 - 2. Units shall be factory made. Furnish bases, caps, stops, returns, trimmers, and other shapes for a complete installation within limits of selected manufacturer's type group. Vertical internal corners and external corners shall be bull-nosed, including all transitions. Corners shall use special shapes that avoid straight edges, end of tile runs shall be bull-nosed. Finish shall match that of wall tile.
- B. Ceramic Tile Type:
 - 1. See Section 09 06 00. Schedules of Finishes.
- C. Trim Shapes and Bases:
 - 1. Provide bull-nose, returns, trimmers, and other shapes, both standard and special, to finish installation. See Drawings and Tile Trim in Section 2.02 Setting Materials for additional information.

2.02 SETTING MATERIALS

- A. Concrete Primer: As recommended by waterproofing membrane manufacturer.
- B. Waterproofing Membrane: Elastomeric-based, polyurethane coating, 3M Company "Scotch-Clad Brand Deck Coating Base Coat," or accepted equal.
- C. Dry-Set Mortar: Conforming to ANSI A118.1.
- D. Latex Portland Cement Mortar: Conforming to ANSI A118.4.
- E. Organic Adhesive: In conformance with ANSI A136.1, Type I, low VOC.
- F. Water: Clean and potable.
- G. Setting Blocks.
- H. Raimondi - Leveling System
- I. Tile Trim/Floor Material Transition - Schluter Schiene, Anodized Aluminum
- J. Corner Trim, Outside Corner - Schluter Rondec, Anodized Aluminum

- K. Floor to Wall Transition – Schluter DILEX-AHK, Anodized Aluminum

2.03 GROUTING MATERIALS

- A. Latex-Portland Cement Grout, or accepted equal, mastic grout: Special latex emulsions with commercial Portland cement grout, replacing all or part of water according to directions specified by latex manufacturer.
- B. Grout: Custom Building Products, Polyblend (color to be selected by Architect), sanded grout at floor (1/8-inch joints), non-sanded grout at walls (1/8-inch joints).
- C. Elastomeric Sealant: One part, mildew-resistant silicone and low VOC.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that conditions are satisfactory for the installation of ceramic tile and does not adversely affect the quality and execution of tile installation.
- B. Condition of surfaces to receive tile:
 - 1. Surfaces shall be firm, dry, clean and free of oily or waxy films.
 - 2. Grounds, anchors, plugs, hangers, bucks, and electrical and mechanical work in or behind tile shall be installed prior to proceeding with tile Work.
- C. Do not commence the installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install tile in accordance with the requirements of the specified TCA Method from the TCA "Handbook for Ceramic Tile Installation" appropriate to the tile and surface specified herein.
 - 1. Set tile in a manner to produce solid bedding, smooth even surfaces, and uniform joints, accurately aligned and symmetrically arranged. Avoid use of tile less than half size. Cut and drill tile neatly without marring the tile and grind rough exposed edges.
 - 2. Whenever possible, turn cut to inside corner. Terminate tile at center lines of doors, unless otherwise indicated.
 - 3. Establish lines of borders where applicable, prior to spreading setting bed, centering field work in both directions. Lay tile from center line of wall or floor surface outward, with adjustments made at junction with other floor or wall surfaces.
 - 4. Omit tile where floor or wall area is covered by permanently built-in equipment such as toilet fixtures and recessed accessories.
 - 5. Patch existing tilework, layout shall match existing tile pattern. Align joints vertically and horizontally.

- B. Wall Tile: Install in conformance with ANSI A108.4, using TCA Method W242. Utilize tile leveling systems. Use stainless steel trim system at all edges and terminations.
- C. Curing: Apply non-staining laminated and reinforced Kraft paper having a bituminous or latex binder over floor tile as soon as pointing, grouting and cleaning are completed.
 - 1. Lap the sheets at least 4 inches, and seal the laps against the escape of moisture.
 - 2. Leave curing paper in place until job is ready for final cleaning.
 - 3. Keep traffic off floors during the curing period (7 days).
 - 4. Do not permit cement grouts to dry out until cured a minimum of 72 hours.

3.03 CLEANING

- A. Clean surfaces after installation and grouting as recommended by tile manufacturer.
- B. Remove grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.
- C. Rinse tile work thoroughly with clean water before and after using chemical cleaners. Do not use acids or abrasive soaps on tile, except as approved by tile manufacturer.
- D. Replace damaged, cracked, stained, or broken surfaces before time of final acceptance.

3.04 PROTECTION

- A. Apply a protective coat of neutral cleaner solution, one part cleaner to one part water, to clean, completed tile walls and floors.
- B. Maintain curing paper cover on floor tile to protect from construction dirt.
- C. Place board walkways on newly tiled floors for at least 7 days where floors must be used as passageways by workmen.
- D. Just before final acceptance of tile work, remove paper and rinse protective coat of neutral cleaner from tile surfaces.

END OF SECTION

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PART 1 GENERAL**1.01 SECTION INCLUDES**

- A. Suspended metal grid ceiling systems
- B. Acoustical panels
- C. Perimeter trim
- D. Replace and patching of existing ceiling systems.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Provide product data on metal grid system components and acoustic units.
- C. Submit two samples 6x6 inch in size, illustrating material and finish of acoustic units.
- D. Submit two samples each, 12 inches long of suspension system main runner, cross runner and edge trim.
- E. Manufacturer's Literature and Data:
 - 1. Ceiling suspension system, each type, showing complete details of installation.
 - 2. Acoustical units, each type.
- F. Manufacturer's Certificates:
 - 1. Acoustical units, each type, in accordance with specification requirements.
 - 2. Drilled Expansion Anchors: ICBO Evaluation Report.

1.04 APPLICABLE STANDARDS

The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

- A. American Society for Testing and Materials (ASTM):

A526/A526M	Steel, Zinc-Coated (Galvanized by the Hot-Dip Process, Commercial Quality)
A641	Zinc-coated (Galvanized) Carbon Steel Wire
A653	Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
C423	Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
C634	Standard Terminology Relating to Environmental Acoustics
C635	Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
C636	Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
E84	Standard Test Method for Surface Burning Characteristics of Building Materials
E119	Fire Tests of Building Construction and Materials
E597	Determining a Single-Number Rating of Airborne Sound Isolation for Use in Multi-unit Building Specifications
E580	Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint
E1111	Standard Test Method for Measuring the Interzone Attenuation of Ceiling Systems (for open plan products)
E1264	Classification for Acoustical Ceiling Products
E1414	Standard Test Method for Airborne Sound Attenuation between Rooms Sharing a Common Ceiling Plenum
E1477	Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers
G21	Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi (for HumiGuard Plus products)

B. Federal Specification (Fed. Spec):

FF-F-395B	Pin, Drive, Guided and Pin Drive, Power Actuated (Fasteners for Power Actuated Hand Fastening Tools)
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C. International Conference of Building Officials (ICBO):

D. California Building Code (CBC): Chapter 25, Section 2504 and Table A.

1.05 QUALITY ASSURANCE

A. Qualifications of Installer: Minimum of three project installations of extent comparable to

proposed project.

- B. Single Source Responsibility: To ensure proper interface and color match, all acoustical panel units and grid components shall be produced or supplied by a single manufacturer. Materials supplied by more than one manufacturer are not permissible.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver with manufacturer's labels indicating brand name, pattern, size, and thickness.
- B. Protect against exposure to moisture, sunlight, surface contamination and other unacceptable conditions.
- C. Store cartons open at each end to stabilize moisture content and temperature in accordance with manufacturer's recommended limitations.
- D. Do not begin installation until sufficient materials to complete a room are received.

1.07 PROJECT CONDITIONS

- A. Do not install ceilings until building is enclosed, sufficient heat is provided, dust generating

Activities have terminated and overhead mechanical work is completed, tested and approved.
- B. Allow wet work to dry prior to commencement of installation.
- C. Maintain a uniform temperature minimum of 60 degrees and humidity of 20 percent to 40 percent prior to and during installation of materials or as recommended by the manufacturer.
- D. Coordinate acoustical ceiling work with installers of related work including, but not necessarily limited to, building insulation, gypsum drywall, light fixtures, mechanical systems, and electrical systems.

1.08 MAINTENANCE

- A. Extra Material: Deliver extra material to owner; furnish extra material described below matching products installed. Package with protective covering for storage and identify with appropriate labels.
 - 1. Acoustical Ceiling Units: Furnish quantity of full-sized units equal to 5% of the amount installed.
 - 2. Exposed Suspension Systems Components: Furnish quantity of each suspension component equal to 2% of the amount installed.

1.09 WARRANTY

- A. Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels or grid that fails within the warranty period. Failures include, but are not limited to:
 - 1. Acoustical Panels: Sagging and warping.

- 2. Grid System: Rusting and manufacturers' defects.
- B. Warranty period for acoustical panels shall be one (1) year for standard products.
- C. Warranty period for grid system shall be ten (10) years from date of Acceptance of the Work.
- D. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to the run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS – Suspension Systems

- A. Acoustical Ceiling Panels: Acceptable manufacturers for approval include Armstrong Ceiling Systems; Chicago Metallic Corporation; USG Interiors; or approved equal.
- B. Suspension System: Acceptable manufacturers for approval include Chicago Metallic, USG Donn Corp., or approved equal.

2.02 SUSPENSION SYSTEM MATERIALS

- A. Grid: ASTM C635. Heavy duty, non-fire rated, exposed T, components die cut and interlocking. Catalog numbers of acceptance manufacturer are indicated on drawings.
- B. Accessories: Stabilizer bars, clips, splices and edge moldings required for suspended grid system.
- C. Grid Material: Commercial quality cold rolled steel with galvanized coating.
- D. Grid Finish: Off-white color, baked enamel.
- E. Support Channels and Hangers: Galvanized steel, size and type to suit application to rigidly secure acoustic ceiling system including integral mechanical and electrical components as detailed on drawings.
- F. Compression strut: ASTM A513, telescoping design as detailed on drawings, galvanized $\frac{3}{4}$ inch diameter 14 gage rigid steel tubing with crimped end attached to roof framing and secured to $\frac{1}{2}$ inch diameter 14 gage rigid steel tubing with crimped end to main runners or equivalent pre-manufactured compression post supplied by ceiling grid manufacturer.
- G. Hanger Wire: ASTM C641, Class 1 coating (galvanized), soft temper, No 12 gage.

2.03 ACCEPTABLE MANUFACTURERS – Acoustic Units

- A. Armstrong World Industries
- B. USG Interiors, Inc.
- C. Chicago Metallic Ceiling Systems

D. Substitutions: Under provision of Division 01.

2.04 ACOUSTIC UNIT MATERIALS

A. Acoustic Panels: Provide ACT-1 as called for on the drawings, and conforming to ASTM E 1264 and the following:

1. ACT-1 – Equivalent to Armstrong Cirrus Acoustical tiles.

- | | | |
|------|----------------------|--|
| (1) | Type: | Cirrus |
| (2) | Form: | Angled Tegral |
| (3) | Pattern Designation: | Nodular, medium texture, Factory-applied latex paint |
| (4) | Size: | 24x24 inches |
| (5) | Thickness: | 15/16 inches |
| (6) | Composition: | Wet-formed Mineral Fiber |
| (7) | Light Reflectance: | 0.85 to 0.88 |
| (8) | NRC Range: | 0.55 to 0.75 |
| (9) | CAC range: | 35 to 39 |
| (10) | Edge: | Angled Tegral |
| (11) | Surface Color: | White |
| (12) | Flame Spread: | (0-25) Class A, UL 723 |
| (13) | Smoke Density: | (0- 50) when tested in accordance with NFPA 286 |

B. Acoustic Panels: Provide ACT-2 as called for on the drawings, and conforming to ASTM E 1264 and the following:

1. ACT-2 – Equivalent to Armstrong Ceramaguard Acoustical tiles.

- | | | |
|-----|----------------------|--|
| (1) | Type: | Ceramaguard |
| (2) | Form: | Square Lay-in |
| (3) | Pattern Designation: | medium texture |
| (4) | Size: | 24x24 inches |
| (5) | Thickness: | 15/16 inches |
| (6) | Composition: | Wet-formed ceramic and mineral fiber composite |

(7)	Light Reflectance:	0.75 to 0.85
(8)	NRC Range:	0.55 to 0.75
(9)	CAC range:	35 to 40
(10)	Edge:	Square Lay-In 15/16
(11)	Surface Color:	White
(12)	Flame Spread:	(0-25) Class A, UL 723
(13)	Smoke Density:	(0- 50) when tested in accordance with NFPA 286

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that existing conditions are ready to receive work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
- B. Measure each ceiling area and establish the layout of acoustical board to balance border widths at opposite edges of each ceiling. Avoid using less than half widths units at borders, and conform to the layout indicated on Drawings.
- C. Edges of panels shall be tooled to drop into ceiling system.

3.03 CEILING TREATMENT

- A. Treatment of ceilings shall include sides and soffits of ceiling beams, furred work 24 inches wide and over, and vertical surfaces at changes in ceiling heights unless otherwise shown.
- B. Lay out acoustical units symmetrically about center lines of each room or space unless shown otherwise on reflected ceiling plan.
- C. Moldings:
 - 1. Install metal wall molding at perimeter of room, column, or edge at vertical surfaces.
 - 2. Install special shaped molding at changes in ceiling heights and at other breaks in ceiling construction to support acoustical units and to conceal their edges.

3. Install metal trim and wood wrapped aluminum veneer at edges of floating linear wood ceiling systems.

D. Perimeter Seal:

1. Install perimeter seal between vertical leg of wall molding and finish wall, partition, and other vertical surfaces.
2. Install perimeter seal to finish flush with exposed faces of horizontal legs of wall molding.

3.04 CEILING SUSPENSION SYSTEM INSTALLATION

A. General:

1. Install metal suspension system for acoustical tile and lay-in panels in accordance with ASTM C636 and ASTM E580 as supplemented in this Section and with notes on the drawings entitled Metal Suspension System for Lay-in Panel Ceilings.
2. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
3. Hang systems independent of columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
4. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest effected hangers and related carrying channels to span the extra distance.
5. Compression struts to be installed at each main runner not exceeding 12'-0" o.c. in both directions and not more than 8" from end of main runner. Insert main $\frac{3}{4}$ inch tube over $\frac{1}{2}$ inch tube with a minimum 6 inch lap. Secure crimped end of main $\frac{3}{4}$ inch tube to structural framing with metal screws and $\frac{1}{2}$ inch tube to main runner with metal screws. Secure tube sections together with 2 set screws. Install prefabricated compression post according to manufacturer's recommendations.
6. Locate system on room axis according to reflected plan.
7. Do not eccentrically load system or produce rotation of runners.
8. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junction with other interruptions. Bend to match ceiling curve profile.

B. Seismic Ceiling Bracing System:

1. Construct system in accordance with ASTM E580 and as additionally detailed on plans.
2. Connect bracing wires to structure above as specified for anchorage to structure and to ceiling suspension system as additionally detailed.

3.05 ACOUSTICAL UNIT INSTALLATION

- A. Field reveal cut edge of perimeter tiles to match factory reveal edge. Paint cut surface if necessary to match surface of tile.
- B. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Lay directional patterned units one way in room. Fit border neatly against abutting surfaces.
- D. Lay Install acoustic units level, in uniform plane and free from twist, warp and dents.
- E. Custom cut, route, texture and paint MDF infill panels at column/ceiling intersections.

3.06 ADJUSTING AND CLEANING

- A. Maintain tolerances in accordance with manufacturer requirements.
- B. Variation from Flat and Level Surface: 1/8 inch in 10 feet
- C. Variation from Plumb of Grid Members caused by eccentric loads: 2 degrees maximum.
- D. Cut and patch adjacent ceiling systems as required to integrate with new remodeled ceiling area for final finished appearance.

3.07 TOLERANCES

- A. Replace damaged, discolored, dirty, cracked and broken acoustical units and grid tees.
- B. Touch up scratches, abrasion, voids, and other defects in painted surfaces.
- C. Leave finished work free from defects.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. High performance luxury vinyl tile.
- B. Resilient base (rubber).
- C. Resilient floor tile (rubber).
- D. Resilient stair treads and risers (rubber).

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE

- A. Furnish each style and color of resilient flooring from a single mill run. Submit manufacturer's certified compliance.
- B. Maintain complete manufacturer's installation directions for all products at the job site throughout installation.
- C. Qualifications of Installer: Minimum of three project installations of extent comparable to proposed Project.
- D. Regulatory Requirements:
 - 1. Materials shall have the following flammability ratings, according to ASTM E84:
 - a. Flame Spread: 75 or less.
 - b. Smoke Density: 450 or less.
 - 2. Slip Resistance: In accordance with ADA Section A4.5 recommendations, flooring shall have a minimum static coefficient of friction of 0.6 for floors ASTM D2047 "Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine".

1.04 SUBMITTALS

- A. Comply with requirements of Section 01 33 00 – Submittal Procedures.
- B. Manufacturer's Literature and Data:
 - 1. Description of each product.

2. Resilient material manufacturers recommendations for adhesives, underlayment, primers and polish.
 3. Application and installation instructions.
- C. Samples:
1. Tile: Three 12 inches by 12 inches (300 mm by 300 mm) tile for each type, pattern and color.
 2. Base: Three 6 inch (150 mm) long pieces for each type and color.
- D. Extra Material: Deliver to the State at completion of work extra materials as listed below. Furnish all products from same mill runs as the installed products. Deliver in original wrappings, properly identified.
1. Each type and color of flooring: 5%.
 2. Each type and color of rubber top-set: 5%.
- E. Upon completion of work, submit three (3) copies of manufacturer's maintenance and installation

1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery and Storage: Deliver material to the job site and store in their original unopened containers with all labels intact and legible at time use. Store materials at not less than 70 degrees F. for not less than 24 hours immediately before installation.
- B. Store in strict accordance with the manufacturers' recommendations.
- C. Protection: Use all means necessary to protect materials of the section before, during and after installation and to protect installed work and material of all other trades.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary for approval by the State and at no additional cost to the State.

1.06 APPLICABLE STANDARDS: The latest edition of publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

- A. American Society for Testing and Materials (ASTM):

D4078	Water Emulsion Floor Finish
D3564	Application of Floor Polishes to Maintain Vinyl Asbestos Tile or Flooring
F510	Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grit Feed Method
F710	Preparing Concrete Floors and other Monolithic Floors to Receive Resilient Flooring
F1066	Vinyl Composition Floor Tile

B. Federal Specifications (Fed. Spec):

SS-T-312B	Tile, Floor: Asphalt, Rubber, Vinyl, and Vinyl
SS-W-40A	Wall Base; Rubber, And Vinyl Plastic
INT AMD 2	Composition
MMM-A-115C-79	Adhesive, Asphalt, Water Emulsion Type (For Asphalt And Vinyl Composition Tiles)

C. National Fire Protection Association (NFPA):

NFPA 253	Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using Radiant Heat Energy Source
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D. Resilient Floor Covering Institute (RFCI):

ADH-1	Vinyl Composition Tile Adhesive
ADH-2	Wall Base Adhesive
ID-2	Concrete Treating Compounds Installation Specifications for Vinyl Composition, Solid Vinyl and Asphalt Tile Floorings
CL-1	Cleaners for Use on Resilient Floor Coverings (Revised 1988)
TM-6	Determination of Quality of Cut (Joint Tightness and Corner Openings) of Resilient Tile

1.07 GUARANTEE / WARRANTY

- A. Section 01 77 00 - Closeout Procedures.
- B. Provide State with a guarantee, signed by the Contractor and cosigned by the installer, stating that resilient base will stay fully adhered to substrate for a minimum period of two (2) years after Completion Date, and that any resulting failures will be repaired at no additional cost to the client.
- C. Failures include any and all delamination of the resilient base from the substrate other than for causes of excessive abuse.

PART 2 PRODUCTS

2.01 TILE MANUFACTURERS

- A. Interface
- B. Armstrong World Industries
- C. Mannington Commercial
- D. Roppe
- E. Nora

2.02 GENERAL

- A. Furnish product type, materials of the same production run.
- B. Use adhesives, underlayment, primers and polish recommended by the floor resilient material manufacturer.
- C. Interior Floor Finishes For Corridors, Stairs, and Halls: Flame spread not to exceed 25, Smoke developed not to exceed 450 per ASTM E84.
- D. Interior Floor Finishes For Remaining Areas: Flame spread not to exceed 75, Smoke developed not to exceed 450 per ASTM E84.

2.03 FLOOR TILE: Interface, Mannington Commercial, Armstrong, Roppe, Nora or approved equal.

- A. Tile: See Section 09 06 00, Schedules for Finishes, colors to be selected; or approved equal.
- B. Tile Standard:
 - a. Rubber tile: ASTM F1344, Class I-A, Homogeneous Rubber Tile, solid color.
 - b. High performance luxury vinyl tile: ASTM F1700, Class III Printed Vinyl Tile.
- C. Rubber Hardness: Grade 1, minimum hardness of 85, measured using Shore, Type A durometer according to ASTM D2240.
- D. Wearing Surface: See Schedule for Finishes Specification section 09 06 00.
- E. Molded-Pattern Figure: See Schedule for Finishes Specification section 09 06 00.
- F. Thickness: See Schedule for Finishes Specification section 09 06 00.
- G. Size: See Schedule for Finishes Specification section 09 06 00.
- H. Color: See Schedule for Finishes Specification section 09 06 00.
- I. Pattern: See Schedule for Finishes Specification section 09 06 00.

2.04 RUBBER STAIR TREADS: Mannington Commercial, Armstrong, Roppe, Nora or approved equal.

- A. Rubber Stair Treads & Risers: See Section 09 06 00, Schedules for Finishes, colors to be selected; or approved equal.
- B. Tile Standard: ASTM F2169, Type TS, Class 1 and 2, Group 1 and 2.
- C. Hardness: Grade 1, minimum hardness of 85, measured using Shore, Type A durometer according to ASTM D2240.
- D. Slip Resistance: ASTM D2047, ≥ 0.5 SCOF (ADA compliant)
- E. Flammability: ASTM E648, Class 1 (≥ 0.45 W/cm²)

- F. Smoke Density: ASTM E662, ≤ 450 .
- 2.05 RUBBER BASE: Mannington Commercial, Armstrong, Roppe, Nora or approved equal.
 - A. Tile Base: See Section 09 06 00, Schedules for Finishes, colors to be selected; or approved equal.
 - B. Provide pre-molded outside corners.
- 2.06 ADHESIVE
 - A. Adhesives at floor tile and wall base: Provide adhesives as recommended by the floor system manufacturer.
 - B. Comply with applicable regulations regarding toxic and hazardous materials Green Seal (GS-36) for commercial adhesive.
 - C. Use low-VOC adhesive during installation. Water based is preferred over solvent based adhesives.
- 2.07 PRIMER
 - A. Primer (for concrete subfloors): As recommended by the adhesive and floor tile system manufacturer.
- 2.08 LEVELING COMPOUND
 - A. Leveling compound: Provide cementitious products with latex or polyvinyl acetate resins in the mix as recommended by the floor tile system manufacturer.
 - B. Determine the type of underlayment selected for use by the condition to be corrected.
- 2.09 POLISH AND CLEANERS
 - A. Polish: As recommended by the floor tile system manufacturer.
 - B. Cleaner: As recommended by the floor tile system manufacturer.
- 2.10 TRANSITION & EDGE STRIPS
 - A. 1-1/8 inch (28 mm) wide unless shown otherwise.
 - B. Bevel from maximum thickness to minimum thickness for flush joint unless shown otherwise.
 - C. Extruded aluminum, mill finish, mechanically cleaned:
 - 1. Drill and counter sink edge strip for flat head screws.
 - 2. Space holes near ends and approximately 225 mm (9 inches) on center between.
- 2.11 SCREWS
 - A. Stainless steel flat head screw.

PART 3 EXECUTION**3.01 PROJECT CONDITIONS**

- A. Maintain temperature of materials at a minimum of 70 degrees F (22 degrees C,) for 48 hours before installation.
- B. Maintain the temperature of rooms where work occurs between 70 degrees and 80 degrees F (21 degrees and 27 degrees C), for at least 48 hours, before, during and after installation.
- C. Do not install flooring until building is permanently enclosed and wet construction in or near areas to receive tile materials is complete, dry and cured.

3.02 SUBFLOOR PREPARATION

- A. Examine surfaces on which resilient flooring is to be installed.
- B. Correct conditions which will impair proper installation.
- C. Fill cracks, joints and other irregularities in concrete with leveling compound and level floors for a maximum wave variation of 1/8-inch in 10 feet (1:1000) (non-accumulative).
 - 1. Do not use adhesive for filling or leveling purposes.
 - 2. Do not use leveling compound to correct imperfections which can be corrected by spot grinding.
 - 3. Trowel to smooth surface free of trowel marks, pits, dents, protrusions, cracks or joints.
- D. Clean floor of oil, paint, dust, and deleterious substances: Leave floor dry and cured free of residue from existing curing or cleaning agents.
- E. Concrete Subfloor Testing:
 - 1. Apply a 1-meter (three foot) square test patch to the prepared concrete subfloor in room or area to be tiled in accordance with RFCI ID-2.
 - 2. After the test patches have remained on the floor for a period of 72 hours, check adherence to surface by scraping test patches for ease of removal.
- F. Perform additional subfloor preparation to obtain satisfactory adherence of flooring if subfloor test patches allows easy remove of tile.
- G. Prime the concrete subfloor if the primer will seal slab conditions that would inhibit bonding, or if priming is recommended by the tile or adhesive manufacturers.
- H. Conduct and Comply with all manufacturer required testing prior to installation.

3.03 INSTALLATION

- A. Install in accordance with RFCI INS and manufacturer's instructions for application and installation unless specified otherwise.

- B. Mix tile from at least two containers. An apparent line either of shades or pattern variance will not be accepted.
- C. Tile Layout:
 - 1. If layout is not shown on drawings, lay tile symmetrically about center of room or space with joints aligned.
 - 2. No tile shall be less than 6-inches and of equal width at walls.
 - 3. Place tile pattern in the same direction; do not alternate tiles.
- D. Trim tiles to touch for the length of intersections at pipes and vertical projections, seal joints at pipes with waterproof cement.
- E. Application:
 - 1. Apply adhesive uniformly with no bare spots.
 - a. Conform to RFC1-TM-6 for joint tightness and for corner intersection unless layout pattern shows random corner intersection.
 - b. More than 5 percent of the joints not touching or any joint more than 0.005-inch wide will not be accepted.
 - 2. Roll tile floor with a minimum 100-pound roller. No exceptions.
 - 3. The State Representative may have test tiles removed to check for non-uniform adhesion, spotty adhesive coverage, and ease of removal. Install new tile for broken removed tile.
- F. Installation of Transition Strips:
 - 1. Locate transition strips under centerline of doors unless otherwise shown.
 - 2. Set resilient edge strips in adhesive. Anchor metal edge strips with anchors and screws specified.
 - 3. Where tile edge is exposed, butt edge strip to touch along tile edge.
 - 4. Where thin set ceramic tile abuts resilient tile, set edge strip against floor file and against the ceramic tile edge.

3.04 TILE LOCATION

- A. Unless otherwise specified or shown, install tile on floor under areas where casework and other equipment occurs, except where mounted in wall recesses.
- B. Extend tile and sheet vinyl flooring for room into adjacent closets and alcoves.

3.05 BASE INSTALLATION

- A. Location:
 - 1. Unless otherwise specified or shown, where base is scheduled, install base over

toe space of base of casework, lockers, laboratory, pharmacy furniture island cabinets and where other equipment occurs.

2. Extend base scheduled for room into adjacent closet, alcoves, and around columns.

B. Application:

1. Apply adhesive uniformly with no bare spots.
2. Set base with joints aligned and tightly butted to touch for entire height. Joints not to exceed 5 mils (0.005 inch) as measured in accordance with RFCI TM-6.
3. Before starting installation, layout base material to provide the minimum number of joints with no strip less than 24 inches (600 mm) length.
 - a. Short pieces to save material will not be permitted.
 - b. Locate joints as remote from corners as the material lengths or the wall configuration will permit.

C. Form corners and end stops as follows:

1. Use pre-molded corners for external corners
2. Score face of inside corner and notch cove.

D. Roll base for complete adhesion.

3.06 CLEANING AND PROTECTION

- A. Clean adhesive marks on exposed surfaces during the application of resilient materials before the adhesive sets. Exposed adhesive is not acceptable.
- B. Keep traffic off resilient material 72 hours after installation.
- C. Clean and polish materials in the following order:
 1. For the first two weeks sweep and damp mopped only.
 2. After two weeks, scrub resilient materials with a minimum amount of water and a mild detergent. Leave surface clean and free of detergent residue.
 3. Apply wax polish to the floors in accordance with the polish manufacturer's instructions.
- D. When construction traffic occurs over tile, cover resilient materials with reinforced craft paper. At entrances and where wheeled vehicles or carts are used, cover tile with plywood, hardboard, or particleboard over paper. All protective surfaces are to be properly secured and maintained.
- E. When protective materials are removed and immediately prior to acceptance, replace any damage tile, re-clean resilient materials, lightly re-apply polish and buff floors.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Static dissipative resilient flooring and accessories as shown on the drawings and schedules and as indicated by the requirements of this section.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. ASTM International:
 - 1. ASTM E 648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
 - 2. ASTM E 662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 - 3. ASTM F 710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
 - 4. ASTM F 1066 Standard Specification for Vinyl Composition Tile
 - 5. ASTM F 1482, Standard Guide to Wood Underlayment Products Available for Use Under Resilient Flooring
 - 6. ASTM F 1861 Standard Specification for Resilient Wall Base
 - 7. ASTM F 1869 Standard Test Method for Measuring Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
 - 8. ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- B. National Fire Protection Association (NFPA):
 - 1. NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
 - 2. NFPA 258 Standard Test Method for Measuring the Smoke Generated by Solid Materials
- C. ANSI/ESD Standards
 - 1. ANSI/ESD STM 7.1 :Floor Materials—Resistive Characterization of Materials

2. ANSI/ESD STM 97.1: Floor Materials and Footwear—Resistance in Combination with a Person
 3. ANSI/ESD STM 97.2: Floor Materials and Footwear Voltage Measurement in Combination with a Person
- D. Resilient Floor Covering Institute (RFCI):
1. ADH-1 Vinyl Composition Tile Adhesive
 2. ADH-2 Wall Base Adhesive
 3. ID-2 Concrete Treating Compounds Installation Specifications for Vinyl Composition, Solid Vinyl and Asphalt Tile Floorings
 4. CL-1 Cleaners for Use on Resilient Floor Coverings (Revised 1988)
 5. TM-6 Determination of Quality of Cut (Joint Tightness and Corner Openings) of Resilient Tile

1.04 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide flooring which has been manufactured, fabricated and installed to performance criteria certified by manufacturer without defects, damage, or failure.
- B. Administrative Requirements
1. Pre-installation Meeting: Conduct an on-site pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.
- C. Sequencing and Scheduling
1. Do not install flooring over concrete slabs until they are sufficiently dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond, moisture tests and pH test.

1.05 QUALITY ASSURANCE

- A. Single-Source Responsibility: provide types of flooring and accessories supplied by one manufacturer, including moisture mitigation systems, primers, leveling and patching compounds, and adhesives.
- B. Furnish each style and color of resilient flooring from a single mill run. Submit manufacturer's certified compliance.
- C. Maintain complete manufacturer's installation directions for all products at the job site throughout installation.
- D. Qualifications of Installer: Select an installer who is experienced and competent in the installation of resilient vinyl composition tile flooring and the use of subfloor preparation products. Minimum of three project installations of extent comparable to proposed Project.

1. Confirm installer's certification by requesting their credentials
- E. Fire Performance Characteristics: Provide resilient vinyl composition tile flooring with the following fire performance characteristics as determined by testing material in accordance with ASTM test methods indicated below by a certified testing laboratory or other testing agency acceptable to authorities having jurisdiction:
 1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I
 2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less
 3. Slip Resistance: In accordance with ADA Section A4.5 recommendations, flooring shall have a minimum static coefficient of friction of 0.6 for floors ASTM D2047 "Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine".

1.06 SUBMITTALS

- A. Comply with requirements of Division 1 for Submittal Procedures.
- B. Manufacturer's Literature and Data:
 1. Description of each product.
 2. Resilient material manufacturers recommendations for adhesives, underlayment, primers and polish.
 3. Application and installation instructions.
- C. Samples:
 1. Tile: Three 12 inches by 12 inches (300 mm by 300 mm) tiles for each type, pattern and color.
- D. Extra Material: Deliver to the State at completion of work extra materials as listed below. Furnish all products from same mill runs as the installed products. Deliver in original wrappings, properly identified.
 1. Each type and color of flooring: 5%.
 2. Each type and color of rubber top-set: 5%.
- E. Upon completion of work, submit three (3) copies of manufacturer's maintenance and installation

1.07 DELIVERY, STORAGE AND HANDLING

- A. Comply with Division 1 Product Requirements Sections
- B. Delivery: Deliver material to the job site and store it in original unopened containers with all labels intact and legible at time use.
- C. Installation: Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of 85°F (29°C) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, the temperature should never rise above 100°F (38°C) nor fall below 55°F (13°C). Protect all materials from

the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. Refer to manufacturer's product installation recommendations for a complete guide to project conditions.

- D. Storage: Store in strict accordance with the manufacturers' recommendations.
- E. Protection: Use all means necessary to protect materials of the section before, during and after installation and to protect installed work and material of all other trades.
- F. Replacements: In the event of damage, immediately make all repairs and replacements necessary for approval by the State and at no additional cost to the State.

1.08 GUARANTEE / WARRANTY

- A. See Division 1 for Closeout Procedures.
- B. Resilient Flooring: Submit a written warranty executed by the manufacturer, agreeing to repair or replace resilient flooring that fails within the warranty period.
- C. Limited Warranty Period: 5 years
- D. Limited Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.09 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials from the same production run as products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - 1. Quantity: Furnish quantity of flooring units equal to 5% of amount installed.
 - 2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra material.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Acceptable manufacturers of static dissipative resilient tile flooring system, adhesives and subfloor preparation products and accessories are as follows:
 - 1. Armstrong World Industries
 - 2. Roppe
 - 3. Flexco
 - 4. Ployfor

2.02 GENERAL

- A. Furnish product type, materials of the same production run.
- B. Use adhesives, underlayment, primers and polish recommended by the floor resilient material manufacturer.
- C. Interior Floor Finishes For Corridors, Stairs, and Halls: Flame spread not to exceed 25, Smoke developed not to exceed 450 per ASTM E84.
- D. Interior Floor Finishes For Remaining Areas: Flame spread not to exceed 75, Smoke developed not to exceed 450 per ASTM E84.

2.03 STATIC DISSIPATIVE FLOOR TILE:

- A. Description: Static dissipative vinyl tile composed of polyvinyl chloride resin, plasticizers, fillers, pigments, and antistatic additive with colors and texture dispersed uniformly throughout its thickness:
 - 1. See Section 09 06 00, Schedules for Finishes, for size, thickness, and colors to be selected; or approved equal.
- B. Tile shall meet size, thickness, indentation, impact, deflection, dimensional stability, resistance to chemicals, squareness, and resistance to heat requirements of ASTM F 1066 Standard Specification for Vinyl Composition Tile, Class 2, through pattern.

2.04 STATIC DISSIPATIVE WALL BASE MATERIAL

- A. For wall base selection, see Section 09 06 00, Schedules for Finishes.

2.05 STATIC DISSIPATIVE ADHESIVE

- A. Adhesives at floor tile and wall base: Provide adhesives as recommended by the floor system manufacturer
- B. Copper ground-connection strips: Provide size, occurrence, and location of copper ground-connection strips under the floor tile as recommended by the floor system manufacturer
- C. Comply with applicable regulations regarding toxic and hazardous materials Green Seal (GS-36) for commercial adhesive.
- D. Use low-VOC adhesive during installation. Water based is preferred over solvent based adhesives.

2.06 STATIC DISSIPATIVE PRIMER

- A. Primer (for concrete subfloors): As recommended by the adhesive and floor tile system manufacturer.

2.07 STATIC DISSIPATIVE LEVELING COMPOUND

- A. Static dissipative leveling compound: Provide cementitious products with latex or polyvinyl acetate resins in the mix as recommended by the floor tile system manufacturer.

- B. Determine the type of underlayment selected for use by the condition to be corrected.

2.08 STATIC DISSIPATIVE POLISH AND CLEANERS

- A. Static dissipative polish: As recommended by the floor tile system manufacturer.
- B. Static dissipative cleaner: As recommended by the floor tile system manufacturer.

2.09 STATIC DISSIPATIVE TRANSITION & EDGE STRIPS

- A. 1-1/8 inch (28 mm) wide unless shown otherwise.
- B. Bevel from maximum thickness to minimum thickness for flush joint unless shown otherwise.
- C. Extruded aluminum, mill finish, mechanically cleaned:
 - 1. Drill and counter sink edge strip for flat head screws.
 - 2. Space holes near ends and approximately 225 mm (9 inches) on center between.

2.10 SCREWS

- A. Stainless steel flat head screw.

2.11 STATIC DISSIPATIVE FLOOR SYSTEM ACCESSORIES

- A. As recommended by the floor tile system manufacturer.

PART 3 EXECUTION

3.01 PROJECT CONDITIONS

- A. Maintain temperature of materials at a minimum of 70 degrees F (22 degrees C,) for 48 hours before installation.
- B. Maintain the temperature of rooms where work occurs between 70 degrees and 80 degrees F (21 degrees and 27 degrees C), for at least 48 hours, before, during and after installation.
- C. Do not install flooring until the building is permanently enclosed and wet construction in or near areas to receive tile materials is complete, dry and cured.

3.02 SUBFLOOR PREPARATION

- A. Examine surfaces on which resilient flooring is to be installed.
- B. Correct conditions which will impair proper installation.
- C. Fill cracks, joints and other irregularities in concrete with leveling compound and level floors for a maximum wave variation of 1/8-inch in 10 feet (1:1000) (non-accumulative).
 - 1. Do not use adhesive for filling or leveling purposes.

2. Do not use leveling compound to correct imperfections which can be corrected by spot grinding.
 3. Trowel to smooth surface free of trowel marks, pits, dents, protrusions, cracks or joints.
- D. Clean floor of oil, paint, dust, and deleterious substances: Leave floor dry and cured free of residue from existing curing or cleaning agents.
- E. Concrete Subfloor Testing:
1. Apply a 1-meter (three foot) square test patch to the prepared concrete subfloor in room or area to be tiled in accordance with RFCI ID-2.
 2. After the test patches have remained on the floor for a period of 72 hours, check adherence to surface by scraping test patches for ease of removal.
- F. Perform additional subfloor preparation to obtain satisfactory adherence of flooring if subfloor test patches allow easy remove of tile.
- G. Prime the concrete subfloor if the primer will seal slab conditions that would inhibit bonding, or if priming is recommended by the tile or adhesive manufacturers.
- H. Conduct and Comply with all manufacturers required testing prior to installation.

3.03 INSTALLATION

- A. Install in accordance with RFCI INS and manufacturer's instructions for application and installation unless specified otherwise.
- B. Mix tile from at least two containers. An apparent line either of shades or pattern variance will not be accepted.
- C. Tile Layout:
1. If layout is not shown on drawings, lay tile symmetrically about center of room or space with joints aligned.
 2. No tile shall be less than 6-inches and of equal width at walls.
 3. Place tile pattern in the same direction; do not alternate tiles.
- D. Trim tiles to touch for the length of intersections at pipes and vertical projections, seal joints at pipes with waterproof cement.
- E. Application:
1. Apply adhesive uniformly with no bare spots.
 - a. Conform to RFC1-TM-6 for joint tightness and for corner intersection unless layout pattern shows random corner intersection.
 - b. More than 5 percent of the joints not touching or any joint more than 0.005-inch wide will not be accepted.
 2. Roll tile floor with a minimum 100-pound roller. No exceptions.

3. The State Representative may have test tiles removed to check for non-uniform adhesion, spotty adhesive coverage, and ease of removal. Install new tiles for broken removed tiles.

F. Installation of Transition Strips:

1. Locate transition strips under the centerline of doors unless otherwise shown.
2. Set resilient edge strips in adhesive. Anchor metal edge strips with anchors and screws specified.
3. Where tile edge is exposed, butt edge strip to touch along tile edge.
4. Where thin set ceramic tile abuts resilient tile, set edge strip against floor file and against the ceramic tile edge.

3.04 TILE LOCATION

- A. Unless otherwise specified or shown, install tile on floor under areas where casework and other equipment occurs, except where mounted in wall recesses.
- B. Extend tile and sheet vinyl flooring for room into adjacent closets and alcoves.

3.06 CLEANING AND PROTECTION

- A. Clean adhesive marks on exposed surfaces during the application of resilient materials before the adhesive sets. Exposed adhesive is not acceptable.
- B. Keep traffic off resilient material 72 hours after installation.
- C. Clean and polish materials in the following order:
 1. For the first two weeks sweep and damp mopped only.
 2. After two weeks, scrub resilient materials with a minimum amount of water and a mild detergent. Leave surface clean and free of detergent residue.
 3. Apply wax polish to the floors in accordance with the polish manufacturer's instructions.
- D. When construction traffic occurs over tile, cover resilient materials with reinforced craft paper. At entrances and where wheeled vehicles or carts are used, cover tile with plywood, hardboard, or particleboard over paper. All protective surfaces are to be properly secured and maintained.
- E. When protective materials are removed and immediately prior to acceptance, replace any damage tile, re-clean resilient materials, lightly re-apply polish and buff floors.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Furnish labor, materials, equipment, and services to install carpet tile materials and related components and accessories as shown on the Drawings, as specified herein and as required for a complete and proper installation.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE

- A. Regulatory Requirement: Provide carpet tile with a minimum critical radiant flux limit of 0.22 watts/cm² in compliance with National Fire Protection Association (NFPA) 253.
- B. Maintain complete manufacturer's installation directions for all products at the job site throughout installation. Installation shall conform to CRI 104 Standards.
- C. Qualifications of Installer: Minimum of three years experience on at least three project installations of extent comparable to proposed Project.
- D. Carpet Materials:
 - 1. Face yarns shall be of same dye batch and finish material shall be of same mill run in each unit.
 - 2. Conform to applicable codes for flame/smoke rating requirements in accordance with ASTM E84.

1.04 SUBMITTALS

- A. Procedures: In accordance with Section 01 33 00 – Submittals.
- B. Product Data:
 - 1. Manufacturer's specifications, installation instructions, maintenance recommendations, and form of guarantee offered for each type of carpet.
- C. Certification: Letter of certification that materials proposed comply with specified requirements.
- D. Samples:
 - 1. Carpet tile - submit three full size carpet tiles for each type and color.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in factory wrapping with manufacturer's registry numbers attached and intact to prevent damage and deterioration during shipment, handling, and storage.
- B. Maintain protective coverings in place and in good repair until removal is necessary for the Work.
- C. Protect products against damage during shipment, field handling, and installation.
- D. Store products inside enclosed storage facilities or closed building, supported above grade and slabs-on-grade.
- E. Environmental Requirements:
 - 1. Maintain storage spaces and products in dry condition at all times, and within temperature extremes recommended by manufacturer.
 - 2. Store materials for one day prior to installation in area of installation to achieve temperature stability.
- F. Follow manufacturer's special instructions.

1.06 COORDINATION

- A. Existing Substrates.
 - 1. Furnish instructions for condition required for such substrates, which are to receive new or replacement carpet.
- B. Painting Work in areas to receive carpet shall have been completed prior to installation of carpet.
- C. Metal thresholds at fire-rated door openings and elsewhere indicated or scheduled adjacent to carpet areas shall have been installed prior to carpet installation.

1.07 EXTRA MATERIALS

- A. Carpet Tile: Furnish the Owner with a minimum of 5 percent of each type and color of material used in this project from same dye lot or production run for compatibility with the installed materials.
- B. Deliver to Owner unused carpet pieces over 2 square feet and 8 inches in least dimension.
- C. Store where indicated by Owner.
- D. Provide the Owner with a signed receipt indicating materials and quantities upon delivery.

1.08 GUARANTEE

- A. Guarantee directly or through carpet mill or fiber manufacturer the surface pile in any given area against abrasive wear of more than 10 percent within 15 years for carpet tile as properly installed and maintained. Misuse, damage, or improper cleaning methods

shall not apply. Carpet areas, which fail to perform, shall be replaced at no additional cost to Owner.

PART 2 PRODUCTS

2.01 GENERAL

- A. Carpet Schedule:
 - a. See Section 09 06 00, Schedules for Finishes.
- B. Carpet shall have a Critical Panel Flux of not less than .45 watts per square centimeter, in accordance with ASTM E648.
- C. When tested in accordance with ASTM E662, smoke density shall not exceed 450.
- D. Carpet shall meet requirements of DOC FF 1-70.

2.02 ACCESSORY MATERIALS

- A. Edge Binder: Molded vinyl type designed for carpet in manufacturer's standard color; Flexco, Mercer, or accepted equal.
- B. Carpet Adhesive: Release type recommended by carpet tile manufacturer.
- C. Subfloor Filler: Latex base type as recommended by carpet tile manufacturer.
- D. Miscellaneous: Tape, thread, and other items necessary for installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which carpet is to be installed. Do not install carpet over substrate, which is uneven, cracked, or has other detrimental conditions that could affect the performance and appearance of the carpet. Do not proceed with the Work until unsatisfactory conditions have been corrected.
- B. Before installation, inspect carpet tile for manufacturing flaws, shipping damage, and other non-compliant conditions. Do not install carpet found not in compliance with Specifications.
- C. Maintain spaces to receive carpet tile at 70 degrees F. minimum, for at least 48 hours previous to, during, and for 48 hours after installation of carpet.

3.02 SUBSTRATE PREPARATION

- A. Clean substrates free from dust and other foreign and residual materials, which could inhibit proper bonding.
- B. Fill cracks exceeding 1/16 inch in width, holes, and depressions to level surfaces. Maximum allowable variation of 1/4 inch in 10 feet. See Specification section "03 54 16 - Hydraulic Cement Underlayment".
- C. Prime substrates when and as recommended by manufacturer.

- D. Confirm compatibility of adhesive with sealers or curing agency on concrete floors.

3.03 INSTALLATION

- A. Install carpet tile and associated materials in accordance with manufacturer's printed instructions.
- B. Install carpet tile prior to installation of movable fixtures.
- C. Apply adhesive in accordance with manufacturer's printed instructions, and for uniform coverage directly onto floor. Remove excess cement with approved solvent.
- D. Cut evenly along walls, cut and fit evenly around projections, corners, pipes, electrical outlets, floor air or heating elements, and trim strips.
- E. Securely fasten carpet edging binder to floor wherever carpet tiles meet different flooring material and no threshold or other divider is noted.
- F. Extend carpet tile materials under all open-bottomed and raised bottom obstructions, and under removable flanges of obstructions. Extend carpet tiles into closets and alcoves of rooms indicated to receive carpeting, unless another material is specifically identified to be used in that space. Carpet tile shall be installed under all movable furniture and equipment.
- G. Neatly trim carpet free from loose thread ends and projecting frays. Finish installation shall be free from visual defects.
- H. After each area of carpet has been installed, protect from soiling and damage.
- I. Installation shall not receive furniture or heavy traffic for 48 hours after installation.

3.04 CLEANING AND COMPLETION

- A. When complete, carpet joint lines shall be straight and free from stagger and offsets not intended.
- B. Finished carpet surfaces shall be flat, true to plane, and free from offsets across Joints.
- C. Units shall lay fully in place and free from warps, bulges, and lifting at edges.
- D. Replace or repair any damaged base and door trim.
- E. Vacuum-clean completed installation using equipment of type recommended by carpet manufacturer. Carpet base and walls shall be cleaned and free from stains, blemishes and other foreign materials.
- F. In all carpeted areas subject to traffic, provide a temporary non-staining paper pathway in the direction of traffic. Remove temporary pathway upon final acceptance by the Owner.

END OF SECTION

PART 1 GENERAL**1.01 DESCRIPTION**

- A. Painting and finishing of exposed exterior and interior surfaces as required to complete finishing of the Work as indicated on the Drawings including the following items:
 - 1. Mechanical diffusers.
 - 2. Visible interior of ductwork.
 - 3. Electrical Sub-panels painted to match adjacent wall surface.
 - 4. Visible piping and electrical components.
- B. The Work includes painting and finishing of new and existing interior and exterior exposed items and surfaces throughout project, except as otherwise indicated.
 - 1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of work.
- C. Surfaces Not to be Painted:
 - 1. Factory pre-finished items as specified in various Sections.
 - 2. Pre-finished wall, ceiling, and floor coverings.
 - 3. Painting specified elsewhere and included in respective Sections, including but not necessarily limited to, shop priming.
 - 4. Code-Required Labels: Keep equipment identification and fire rating labels free of paint.
 - 5. Surfaces concealed in walls and above ceilings except as specifically indicated otherwise.
 - 6. Ducts, piping, conduit, and equipment concealed in walls and ceilings, unless specifically indicated otherwise.
- D. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- E. Paint exposed surfaces whether or not colors are designated in "schedules", except where natural finish of material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint same as adjacent similar materials or areas. If color of finish is not designated, Architect will select these from standard colors available for materials systems specified.

1.02 RELATED WORKS

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data:
 1. Not less than 30 days before beginning work, submit a complete list of materials proposed for use, together with manufacturer's specifications.
 2. Paint materials and products shall be subject to the Architect's acceptance.
- C. Samples:
 1. Custom and Stock Colors: Submit 8x8 inch brush-out samples for Architect's review of each color and texture. Provide a listing of material and application for each coat of each finish sample.
 2. Samples shall be resubmitted as requested until required sheen, color, and texture is achieved.
 3. Label and identify each sample as to location and application.
- D. Field Samples: On actual wall surfaces and other exterior and interior building components in areas designated by Architect, duplicate painted finishes of prepared samples in 4 ft. sq. areas. Simulate finished lighting conditions for Architect's and Owner's review of in-place Work. Colors may require adjustment at no additional cost to Owner.

1.04 QUALITY ASSURANCE

- A. Include on label of containers:
 1. Manufacturer's name
 2. Type of paint
 3. Manufacturer's stock number
 4. Color
 5. Instructions for reducing, where applicable
- B. Field Quality Control:
 1. Request review by the Architect of first finished room, space, or item of each color scheme required for color, texture, and workmanship.
 2. Use first acceptable room, space, or item as the Project standard for each color scheme.

C. Regulatory Requirements:

1. Comply with the regulations of the Southern California Air Quality Management District (SCAQMD) for Volatile Organic Contents (VOC's).
2. Paint shall be certified by the manufacturer as "non-lead" (less than 0.06 percent lead by weight in the dried film) as defined in Part 1303 of the Consumer Product Safety Act.
3. Work to be painted may contain excessive levels of lead-based paint. Contractor shall retain and pay for the services of a Testing Agency to perform and report on tests for such suspected material

1.05 DELIVERY AND STORAGE

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

1. Name or title of material
2. Manufacturer's stock number and date of manufacturer
3. Manufacturer's name
4. Contents by volume, for major pigment and vehicle constituents
5. Thinning instructions
6. Application instructions
7. Color name and number

B. Storage of Materials:

1. Store only acceptable project materials on project site.
2. Store in a suitable location.
3. Restrict storage to paint materials and related equipment.
4. Comply with health and fire regulations.

1.06 PROJECT CONDITIONS

A. Environmental Requirements:

1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be stored and applied.
2. Do not apply paint in rain, fog or mist; or when relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer's printed instructions.

3. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

1.07 WARRANTY

A. Color and Life of Film:

1. At the end of 1 year, colors of surfaces shall have remained free from serious fading, and variations (if any) shall be uniform.
2. Materials shall have their original adherence at end of 1 year and there shall be no evidence of blistering, running, peeling, scaling, chalking, streaking, or stains at end of this period.

1.08 MAINTENANCE

A. Extra Materials:

1. At completion of the Work, deliver to the Owner extra stock of paint equaling approximately 5 percent of each color used in each coating material used.
2. Stock shall be in tightly sealed and clearly labeled containers.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Product numbers specified in Article 3.06, "Paint Systems", are as manufactured by Sherwin Williams, unless otherwise indicated. Equivalent products manufactured by Sinclair Paint Co., Benjamin Moore, Dunn-Edwards, ICI Paints, Fuller O'Brien or Glidden are acceptable.
- B. Materials selected for coating system of each type of surface shall be the product of a single manufacturer.
- C. Thinner: As recommended by each manufacturer for his respective product for use only within recommended limits.
- D. Colors used shall be selected for their permanence and non-fading qualities. In addition, colors that are used over concrete and plaster surfaces shall be lime-proof.
- E. Unsuitability of Specified Products: Claims concerning unsuitability of any materials specified will not be entertained, unless such claim is made in writing to the Architect before the Work is started.
- F. Texturing: Match texture of adjacent textures when new materials abut textured areas.

2.02 MATERIAL QUALITY

- A. Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.

- B. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

2.03 COLORS

- A. Colors: Colors to be selected by Architect from manufacturer's color chart.
- B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
- C. Paint Coordination: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on characteristics of finish material proposed for use, to ensure compatible prime coats are used. Provide barrier coats over incompatible primers or remove and re-prime as required. Notify Architect in writing of any anticipated problems using specified coating systems with substrates primed by others.

2.04 MIXING AND TINTING

- A. Deliver paints ready mixed to jobsite.
- B. Accomplish job mixing and job tinting only when acceptable to the Architect.
- C. Mix only in mixing pails placed in suitable sized nonferrous or oxide-resistant metal pans.
- D. Use tinting colors recommended by manufacturer for specific type of finish.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.
- B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.02 SURFACE PREPARATION

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
- B. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, re-install removed items.

- C. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces. Do not paint until all interior gypsum board is installed, taped and sanded.
- D. Gypsum Board:
 - 1. Fill narrow, shallow cracks and small holes with spackling compound.
 - 2. Rake deep, wide cracks and deep holes.
 - a. Dampen with clear water.
 - b. Fill with thin layers of drywall joint cement.
 - 3. Allow to dry.
 - 4. Sand smooth after drying; do not raise nap of paper on gypsum board.
 - 5. See Section 09 25 00 for requirements for gypsum board finishing.
- E. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
 - 1. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.
- F. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum-based solvent.
- G. Surfaces which cannot be prepared or painted as specified shall be immediately brought to the attention of the Architect in writing.
 - 1. Starting of work without such notification will be considered acceptance by the Contractor of surface involved.
 - 2. Contractor shall replace unsatisfactory work caused by improper or defective surfaces, as directed by the Architect, at no additional cost to the Owner.

3.03 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density, and stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3.04 APPLICATION

- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
 - 1. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
 - 3. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.
 - 4. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.
- B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pre-treated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. Allow sufficient time between successive coatings to permit proper drying. Do not re-coat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- D. Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.
 - 1. Re-coat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.
- E. Stipple Eggshell Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling such as laps, irregularity in texture, skid marks, or other surface imperfections.
- F. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

3.05 CLEAN-UP AND PROTECTION

- A. Clean-up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.

1. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- B. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
 1. Provide "Wet Paint" signs as required to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
 2. At the completion of work of other trades, touch up and restore all damaged or defaced painted surfaces.

3.06 PAINT SYSTEMS

- A. General:
 1. Exterior paint systems are specified and identified by number and interior paint systems by letter.
 2. Only major areas are scheduled, but miscellaneous and similar items and areas within room or space shall be treated with suitable system.
 3. Number of coats scheduled is minimum.
 - a. Additional coats shall be applied at no additional cost if necessary to completely hide base material, produce uniform color, and provide satisfactory finish result.
 4. This specification shall serve as a guide and is meant to establish procedure and quality.
- B. Acceptance of Final Colors: Final coat of paint for both exterior and interior shall not be applied until colors have been accepted by the Architect based on Field Samples noted in 1.03.C above.
- C. Interior Coating Systems: Provide the following finish coating systems for the various substrates, as shown on the Finish Plan. Provide coats as indicated and sufficient to cover.
 1. Gypsum Wallboard:
 - a. Flat: (ceilings, except as noted)
 - 1) Prime Coat: 220-22 PVA Sealer.
 - 2) Second Coat: One coat 209-00 Alkyd Wall Primer Sealer.
 - 3) Finish Coat: One coat 202-XX Flat Latex Wall Finish.
 - b. Stipple Eggshell: (walls, except as noted)
 - 1) Prime Coat: One coat 220-22 PVA Sealer.

- 2) Second Coat: 209-05 Satin Latex Stipple.
 - 3) Finish Coat: One coat 212-XX Eggshell Latex Enamel.
 - 2. Galvanized Metal (trim and access doors, except structural steel, etc.):
 - a. Semi-gloss:
 - 1) Prime Coat (delete if shop primed): One coat 621-04 BLOX-RUST Alkyd Metal Primer.
 - 2) Two coats 619-6X Ultra-Color Alkyd Semi-Gloss Enamel.
 - 3. Ferrous Metal or Aluminum (miscellaneous)
 - a. Semi-gloss:
 - 1) Prime Coat (delete if shop primed): 15 Red Oxide Primer
 - 2) Second Coat: 1790 Latex Enamel Undercoater
 - 3) Finish Coat: 4000 Acrylic Latex Enamel
- D. Other Coating Systems:
 - 1. Plaster
 - a. Semi-gloss:
 - 1) Prime Coat: 18 Epoxy Water-Base Primer
 - 2) Finish Coat: 4400 Acrylic Emulsion

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This section specifies interior and exterior identification signs, building identification signs, parking and regulatory signs.
- B. Interior signs.
 - 1. Toilet Rooms
 - 2. Lobby Entry
 - 3. No Smoking distance at building access doors
 - 4. Accessible Signs at Entries
 - 5. Accessible Parking Stalls
 - 6. Fire Extinguishers
 - 7. Exit Signage

1.03 MANUFACTURER'S QUALIFICATIONS

- A. Sign manufacturer shall provide evidence that they regularly and presently manufactures signs similar to those specified in this section as one of their principal products.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Manufacturer's Literature:
 - 1. Showing the methods and procedures proposed for the concealed anchorage of the signage system to each surface type.
 - 2. Manufacturer's printed specifications, anchorage details, installation and maintenance instructions.
- C. Shop Drawings:
 - 1. Sign location plan, showing location, type and total number of signs required.
 - 2. Scaled drawings for manufacture and fabrication of sign types. Identify materials, show joints, welds, anchorage, accessory items, mounting and finishes.
- D. Samples:
 - 1. All sign colors.

1.05 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.06 DELIVERY, STORAGE, AND PROTECTION

- A. Deliver materials to job in manufacturer's original sealed containers with brand name marked thereon. Protect materials from damage.
- B. Package to prevent damage or deterioration during shipment, handling, storage and installation. Maintain protective covering in place and in good repair until removal is necessary.
- C. Deliver signs only when the site and mounting services are ready for installation work to proceed.
- D. Store products in dry condition inside enclosed facilities.

1.07 QUALITY ASSURANCE

- A. Regulatory Requirements: Products shall meet requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and local amendments and modifications.
- B. 2019 CBC – California Building Code

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Signs of type, size and design shown on the drawings and as specified.
- B. Signs complete with lettering, framing and related components for a complete installation.
- C. Provide graphics items as completed units produced by a single manufacturer, including necessary mounting accessories, fittings and fastenings.
- D. Do not scale drawings for dimensions. Contractor to verify and be responsible for all dimensions and conditions shown by these drawings. Owner's Representative to be notified of any discrepancy in drawing, in field directions or conditions, and/or of any changes required for all such construction details.
- E. The Sign Contractor, by commencing work of this section, assumes overall responsibility, as part of his warranty of work, to assure that assemblies, components and parts shown or required within the work of the section, comply with the Contract Documents. The

Contractor shall further warrant: That all components, specified or required to satisfactorily complete the installation are compatible with each other and with conditions of installations.

2.02 SIGN MATERIALS

- A. General: For items exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surfaces exhibit pitting, seam marks, roller marks, rolled trade names or roughness.
- B. Aluminum:
 - 1. Sheet and Plate: ASTM B209.
 - 2. Extrusions and Tubing: ASTM B221.
 - 3. Castings: ASTM B26.
- C. Concrete Post Footings: See Section 03 30 00, CAST-IN-PLACE CONCRETE.
- D. Steel:
 - 1. Posts: ASTM A53 Grade B, Schedule 40 pipe, Galvanized G90.
 - 2. Sheet: ASTM A1008, ASTM A591 electrolytic zinc coated.
- E. Stainless Steel:
 - 1. Sheet: ASTM A480.
 - 2. Posts: ASTM 6063.
 - 3. Billets: ASTM A314.
- F. Sign Face: High impact polyester acrylate resins, pressure molded into a single polymerized component, using manufacturer's co-molding process.
- G. Tactile Graphics and Text: Provide tactile copy and grade 2 Braille raised 1/32 inch minimum from plaque surface using manufacturer's co-molding process.
 - 1. Provide lettering and graphics precisely formed, uniformly opaque to comply with relevant ADA regulations and requirements indicated for size, style, spacing, content, position, and colors.
- H. Colors: High contrast semi-matte integral colors for graphics. All integral resins are U.V. stabilized resins utilizing automotive grade pigments.
- I. Traffic Regulatory Signs: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner, complying with the following minimum requirements:
 - 1. Steel Sheet: 0.0625 inch thick, painted.
- J. Posts: As shown on the drawings.

1. 3 inch square aluminum tubing, painted.
 2. 2 inch round standard pipe, galvanized.
- K. Accessories:
1. Anchors and inserts: Provide hot-dipped galvanized anchors and inserts for exterior installations. Use toothed steel devices for drilled in anchors. Furnish inserts to be set into concrete or masonry work. Furnish galvanized through bolts for attachment to posts.
- L. Letterforms: All letterforms and arrows shall be vinyl applied graphics. Clear film with printed graphics applied to the sign panel is not acceptable.
- M. Symbol of accessibility: Adhesive Mylar symbol at (4) four exterior aluminum doors.

2.03 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Baked Enamel: Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating and painting.
- D. Depth: 0.25-inch thickness.
- E. Panel Appearance: Colors per 2019 CBC requirements.
- F. Surface Texture: Matte Non-Glare.
- G. Letter Style: Sans Serif.

2.04 FABRICATION

- A. Design components to allow for expansion and contraction for a minimum material temperature range of 56 °C (100 °F), without causing buckling, excessive opening of joints or over stressing of adhesives, welds and fasteners.
- B. Form work to required shapes and sizes, with true curve lines and angles. Provide necessary rebates, lugs and brackets for assembly of units. Use concealed fasteners whenever and wherever possible.
- C. Shop fabricate so far as practicable. Joints fastened flush to conceal reinforcement, or welded where thickness or section permits.
- D. Contact surfaces of connected members be true. Assembled so joints will be tight and practically unnoticeable, without use of filling compound.
- E. Signs shall have fine, even texture and be flat and sound. Lines and miters sharp, arises unbroken, profiles accurate and ornament true to pattern. Plane surfaces be smooth flat and without oil-canning, free of rack and twist. Maximum variation from plane of surface plus or minus 0.3 mm (0.015 inches). Restore texture to filed or cut areas.

- F. Level or straighten wrought work. Members shall have sharp lines and angles and smooth surfaces.
- G. Extruded members to be free from extrusion marks. Square turns and corners sharp, curves true.
- H. Drill holes for bolts and screws. Conceal fastenings where possible. Exposed ends and edges mill smooth, with corners slightly rounded. Form joints exposed to weather to exclude water.
- I. Coat aluminum exterior signs with low VOC acrylic polyurethane. Paint coatings are to be UV and graffiti resistant and able to maintain a consistent color and durability.
- J. All painted surfaces properly primed. Finish coating of paint to have complete coverage with no light or thin applications allowing substrate or primer to show. Finished surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, foreign matter and other imperfections. All exposed surfaces (front and back including edges) shall be painted.
- K. All signs are to be constructed in a manner where front faces are free of exposed fasteners.
- L. Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.
- M. No signs are to be manufactured until final sign message schedule and location review has been completed by the Owner & forwarded to contractor.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Site Verification of Conditions: Verify installation conditions previously established under other sections are acceptable for product installation in accordance with manufacturer's instructions.
- B. Scheduling of installation by the client implies that substrate and conditions are prepared and ready for product installation. Proceeding with installation implies installer's acceptance of substrate and conditions.

3.02 INSTALLATION

- A. Install product in accordance with supplier's instructions.
- B. Install product in locations indicated using mounting methods recommended by sign manufacturer and free from distortion, warp, or defect adversely affecting appearance.
- C. Install product level, plumb, and at heights indicated.
- D. Install product at heights to conform to Americans with Disabilities Act Accessibility Guidelines (ADAAG) and applicable local amendments and regulations.

- E. Install signs within the following tolerances and in accordance with manufacturer's recommendations:
 - 1. Interior Signs: Within 1/4 inch vertically and horizontally of intended location.

3.03 CLEANING AND PROTECTION

- A. Repair scratches and other damage which might have occurred during installation. Replace components where repairs were made but are still visible to the unaided eye from a distance of 5 feet.
- B. Remove temporary coverings and protection to adjacent work areas. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project in accordance with provisions in Division 1.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Section includes furnishing and installing a sliding-folding thermally broken, acoustically rated, aluminum-framed glass panel system that includes:
 - a. Aluminum frame.
 - b. Threshold.
 - c. Aluminum framed panels.
 - d. Sliding-folding and locking hardware.
 - e. Sound gasketing.
 - f. Panel Catch.
 - g. Glass and glazing.
 - h. Accessories as required for a complete working installation.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCES

- A. Reference Standards in accordance with Division 01 and current editions from the following:
 - a. AAMA. American Architectural Manufacturers Association; www.aamanet.org
AAMA 205-15, In-Plant Testing Guidelines for Manufacturers and Independent Laboratories.
AAMA 502, Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
AAMA 611, Voluntary Specification for Anodized Architectural Aluminum.
AAMA 920-11, Specification for Operating Cycle Performance of Side-Hinged Door System.
AAMA 1304, Voluntary Specification of Forced Entry Resistance of Side-Hinged Door Systems.
AAMA 2604, Voluntary Specifications, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
AAMA/WDMA/CSA 101/1.S.2/A440-17, NAFS, North American Fenestration Standard Specification for Windows, Doors and Skylights.
 - b. ANSI. American National Standards Institute; www.ansi.org
ANSI Z97.1, Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
 - c. ASTM. ASTM International; www.astm.org
ASTM C1036, Standard Specification for Flat Glass.

ASTM C1048, Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.

ASTM E90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

ASTM E413-16, Classification for Rating Sound Insulation.

ASTM E2068-00 (2016), Standard Test Method for Determination of Operating Force of Sliding Windows and Doors.

ASTM E987-88 (2017), Standard Test Methods for Deglazing Force of Fenestration Products.

ASTM F842, Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact.

d. CPSC. Consumer Product Safety Commission; www.cpsc.gov

CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate Folding Glass Partition system and framing R.O.
 - a. Pre-installation Meetings: See Division 01 (Special Provisions) in the specifications.

1.05 SUBMITTALS

- A. For Contractor submittal procedures see Division 01 (Special Provisions) in the specifications.
 - a. Product Data: Submit manufacturer's printed product literature for each Folding Glass Partition system to be incorporated into the Work. Show performance test results and details of construction relative to materials, dimensions of individual components, profiles, and colors.
 - b. Product Drawings: Indicate Folding Glass Partition system component sizes, dimensions and framing R.O., configuration, swing panels, direction of swing, stacking layout, typical head jamb, side jambs and sill details, type of glazing material, handle height and field measurements.
 - c. Manufacturers' Instructions: Submit Owner's Manual from manufacturer which includes installation instructions, operation, and maintenance data: Identify with project name, location and completion date, and type and size of unit installed.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer capable of providing complete, precision built, engineered, pre-fitted units with a minimum thirty (30) years' experience in the sale of folding-sliding door systems for large openings in the North American market.
- B. Installer Qualifications: Installer experienced in the installation of manufacturer's products or other similar products for large openings. Installer to provide reference list of at least three (3) projects of similar scale and complexity successfully completed in the last three (3) years.
 - a. Installer to be trained and certified by manufacturer.
- C. Single Source Responsibility: Furnish Folding Glass Partition system materials from one manufacturer for entire Project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's instructions and recommendations, Special Provisions specifications section, and as follows:
 - a. Deliver materials to job site in sealed, unopened cartons or crates.Upon receipt, inspect the shipment to ensure it is complete, in good condition and meets

project requirements.

- b. Store material under cover in a clean and dry location, protecting units against weather and defacement or damage from construction activities, especially to the edges of panels.

1.08 FIELD CONDITIONS

- A. Field Measurements: Contractor to field verify dimensions of rough openings (R.O.) and threshold depressions to receive sill. Mark field measurements on product drawings submittal.

1.09 WARRANTY

- A. Manufacturer Warranty: Provide Folding Glass Partition system manufacturer's standard limited warranty as per manufacturer's published warranty document in force at time of purchase, subject to change, against defects in materials and workmanship.
 - a. Warranty Period beginning with the earliest of 120 days from Date of Delivery or Date of Substantial Completion:
 - Rollers and Glass Seal Failure: Ten (10) years
 - All Other Components: Ten (10) years
 - 1). Exception: Five (5) years if NOT installed by manufacturer's specific system approved or certified trained installer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Manufacturer & Product:
 - a. Basis-of-Design Manufacturer:
 - b. Nana Wall Systems, Inc. (www.nanawall.com)
 - 100 Meadow Creek Drive, Corte Madera, CA 94925
 - Toll Free (800) 873-5673
 - Telephone: (415) 383-3148
 - Fax: (415) 383-0312
 - Email: info@nanawall.com
 - c. Basis-of-Design Product: NW Acoustical 645, folding glass partition (ALU)
 - d. Substitution Procedures: See Division 1 specifications section for substitution procedures.

2.02 PERFORMANCE / DESIGN CRITERIA

- A. Performance Criteria:
 - a. Acoustic Performance (STC)
 - System STC 35 with 1/4-inch (6 mm) STC 35 laminated glass.
 - b. Swing Panel - Operation / Cycling Performance (AAMA 920): 500,000 cycles
 - c. Forced Entry (AAMA 1304): Pass
 - d. Forced Entry Resistance (ASTM F842): Meets Grade 40: +F2
- B. Design Criteria:

- a. Sizes and Configurations: As indicated by the Drawings for selected number and size of panels, location of swing and folding panels, and number of panels stacking to the left and to the right.
- b. Unit Operation: Adjustable sliding & folding hardware with top & bottom tracks
- c. Mounting Type: Floor track supported with upper guide track
- d. Panel Configuration: Straight
- e. Stack Storage Configuration: Outswing type and stack storage outside jamb
- f. Sill Type: Minimal surface mounted flush sill - ADA compliant
- g. Swing Panel Type: Hinged, Without Entry/Egress panel hinged to side jamb.
- h. Panel Pairing Configuration: Bi-folding panels hinged to side jamb (See Drawings)

2.03 MATERIALS

- A. Basis of Design: Model NW Acoustical 645. Thermally Broken Aluminum Framed Folding Glass
Description: Nominal frame stile width of 3-7/8 inch (99 mm) between folding panels, floor track supported system. Manufacturer's standard thermally broken frame and panel profiles, with head track, side jambs, sill and panels with dimensions as shown on Drawings.
 - a. System Components: Aluminum frame, threshold, panels, sliding-folding and locking hardware, weather-stripping, glass and glazing, panel catch and thermal break.
 - b. Panels: Single lite; standard
 - c. Panel Size (W x H): As indicated on Drawings.
 - 1). Rail Depth: 2-5/8 inch (67 mm)
 - 2). Top Rail and Stile Width: 2-7/8 inch (73 mm)
 - 3). Bottom Rail Width: Manufacturer's standard kickplate on all panels (swing panel included). Height of 10 inches (254 mm)
 - 4). Frame Depth: 2-15/16 inch (74 mm)
 - 5). Head Track Width: 2-13/16 inch (72 mm) standard
 - 6). Side Jamb Width: 2 inches (51 mm)
 - 7). Sill Finish: Black anodized finish.
 - d. Aluminum Extrusion: AlMgSi0.5 alloy, 6063-T5
 - 1). Thickness: 0.078 inch (2.0 mm) nominal
 - 2). Acoustic Break: 1-1/4 inch (32 mm) wide glass fiber reinforced (GFR) polyamide for panels.
 - e. Aluminum Finish: One color inside and outside.
 - 1). Finish Type: Dark Anodized Bronze-T
- B. Glass and Glazing:
 - a. Safety Glazing: In compliance with ASTM C1036, ASTM C1048, and ANSI Z97.1.
 - b. Manufacturer's glass lites, dry glazed with glass stops on the inside.
 - 1). 1/4" (6 mm) STC 35 laminated glass to achieve unit System STC of 35.
- C. Locking Hardware and Handles:
 - a. Pairs of Folding Panels: Provide manufacturer's flat handles and concealed two-point locking hardware operated by 180° turn of handle between each pair. Face applied Surface Mounted

Minimal bolt locking NOT acceptable.

- 1). Handle Type: Flat handle stainless steel
 - i. Flat Handle Finish: Black titanium stainless steel, standard
 - b. Handle Height: 41-3/8 inch (105 cm) centered from bottom of panel.
 - c. Locking rods with standard end caps at the top and bottom. Rods to have a stroke of 15/16 inch (24 mm)
 - d. Additional profile cylinders to be **Keyed differently**.
 - e. Burglary Resistance to be **Standard**.
 - f. Panel Catch: Panel catch to hold swing panel to adjacent folding panel to prevent incorrect operation when moving the panel.
- D. Sliding-Folding Hardware: Provide manufacturer's standard combination sliding and folding hardware with top and bottom tracks and threshold. All running carriages to be with sealed, self-lubricating, double ball bearing multi-rollers. Surface mounted hinges and running carriages NOT acceptable.
- a. Lower Running Carriage Carrying Capacity: 250 lb. (120 kg). Lower running carriage provided with two vertical stainless-steel wheels with double row of ball bearings and two horizontal polyamide wheels.
 - b. Vertical wheels with Gothic arch feature to ride on top of stainless-steel guide track covers over the full length of the sill track. Wheels riding on aluminum surfaces NOT acceptable.
 - c. Upper guide carriage with two horizontal polyamide guiding wheels. For configurations with pairs of panels that can slide left or right, additional concealed, additional vertical tilt protection hardware.
 - d. Rollers: **Black** double ball bearing stainless-steel wheels.
 - e. Hinges: **Black** anodized aluminum with stainless steel security hinge pins and set-screws.
 - f. Optional Spring-Loaded Pull Handle: For outswing units with larger panel sizes, a spring loaded- pull handle is supplied for ease of closing the system. The pull handle is located above the flat handle. When not in use, the handle lays flat against the adjacent panel and is supplied with bumpers to avoid metal to metal contact.
 - 1). Pull Handle – Brushed satin finish.
- E. Sound Gasketing: Manufacturer's double layer EPDM between panels and EPDM gasket, Q-Ion gasket, or brush seal between panel and frame, or brush seals with a two-layer fiberglass reinforced polyamide fin attached at both inner and outer edge of bottom of door panels with a recessed sill or on frame for sealing between panels and between panel and frame.
- F. Fasteners: Installation plates for connecting frame components made of stainless steel with sealing cushion to avoid thermal connectivity.
- 2.04 FABRICATION
- A. Folding Glass Wall: Extruded aluminum frame and panel profiles, corner connectors and hinges, sliding and folding hardware, locking hardware and handles, glass and glazing and sound gasketing.
- a. Each unit factory pre-assembled and shipped with complete system components and installation instructions.
 - b. Exposed work to be carefully matched to produce continuity of line and design with all joints.
 - c. No raw edges visible at joints.

2.05 ACCESSORIES

- A. Provide sidelights, transoms, corner posts, or single or double doors as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examination and Acceptance of Conditions per Section 01 70 00 and as follows:
 - a. Carefully examine rough openings with Installer present, for compliance with requirements affecting Work performance.

Examine surfaces of openings and verify dimensions; verify rough openings are level, plumb, and square with no unevenness, bowing, or bumps on the floor; and other conditions as required by the manufacturer for readiness to receive Work.

Verify structural integrity of the header for deflection with live and dead loads limited to the lesser of $L/720$ of the span or 1/4 inch (6 mm). Provide structural support for lateral loads, and both wind load and eccentric load when the panels are stacked open.

- b. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install Folding Glass Partition system in accordance with the Drawings, approved submittals, manufacturer's recommendations, and installation instructions, and as follows:
 - a. Properly seal around opening perimeter to reduce sound infiltration from surroundings.
 - b. Securely attach anchorage devices to rigidly fit frame in place, level, straight, plumb, and square. Install frame in proper elevation, plane, and location, and in proper alignment with other work.
 - c. Install panels, handles, lockset, gasketing and other accessories in accordance with manufacturer's recommendations and instructions.

3.03 FIELD QUALITY CONTROL

- A. Field Tests and Inspections per Section 01 40 00 of the following:
 - a. Verify the Folding Glass Partition system operates and functions properly. Adjust hardware for proper operation.
- B. Non-Conforming Work: Repair or replace non-conforming work as directed by the Architect; see General and Supplementary Conditions, and Division 01, General Requirements.

3.04 CLEANING AND PROTECTION

- A. Keep units closed and protect Folding Glass Partition installation against damage from construction activities.
- B. Remove protective coatings and use manufacturer recommended methods to clean exposed surfaces.

END OF SECTION

PART 1 - GENERAL**1.1 DESCRIPTION**

- A. This section specifies corner guards.

1.2 RELATED WORK

- A. All Sections listed in the Table of Contents are a Condition of this Section.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Manufacturer with a minimum of three (3) years' experience in providing items of type specified.
 - 1. Obtain wall and door protection from single manufacturer.
- B. Installer's Qualifications: Installers are to have a minimum of three (3) years' experience in the installation of units required for this project.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings: show design and installation details.
- C. Manufacturer's Literature and Data:
 - 1. Corner Guards.
- D. Manufacturer's qualifications.
- E. Installer's qualifications.
- F. Manufacturer's warranty.

1.5 DELIVERY AND STORAGE

- A. Deliver materials to the site in original sealed packages or containers marked with the name and brand, or trademark of the manufacturer.
- B. Protect from damage from handling and construction operations before, during and after installation.
- C. Store in a dry environment of approximately 21 degrees C (70 degrees F) for at least 48 hours prior to installation.

1.6 WARRANTY

- A. Construction Warranty: Comply with FAR clause 52.246-21 "Warranty of Construction".
- B. Manufacturer Warranty: Manufacturer shall warranty their wall and door protection for a minimum of five (5) years from date of installation and final acceptance by the

Government. Submit manufacturer warranty.

1.7 APPLICABLE PUBLICATIONS

- A. publications listed below form a part of this specification to extent referenced. publications are referenced in text by basic designation only.
- B. ASTM International (ASTM):
 - A240/A240M-20 Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and For General Applications
 - E84-20 Surface Burning Characteristics of Building Materials
- C. American Architectural Manufacturers Association (AAMA):
 - 611-14 Voluntary Specification for Anodized Architectural Aluminum
- D. Code of Federal Regulation (CFR):
 - 40 CFR 59(2020) Subpart D National Volatile Organic Compound Emission Standards for Architectural Coatings
- E. The National Association of Architectural Metal Manufacturers (NAAMM):
 - AMP 500-06 Metal Finishes Manual
- F. National Fire Protection Association (NFPA):
 - 80-2019 Standard for Fire Doors and Other Opening Protectives
- G. Underwriters Laboratories Inc. (UL):
 - Annual Issue Building Materials Directory

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: A240/A240M, Type 304.
 - 1. 16 gauge

2.2 CORNER GUARDS

- A. Basis of Design or approved equal:
 - 1. IPC Door and Wall Protection Systems, InPro Corporation; Stainless Steel Corner Guard:
 - a. 2" (51 mm) wing, 1/8" corner radius.
 - b. Height: See Specification Section 09 06 00 – Schedule for Finishes

2.3 FASTENERS AND ANCHORS

- A. Provide fasteners and anchors as required for each specific type of installation.
- B. Where type, size, spacing or method of fastening is not shown or specified in construction documents, submit shop drawings showing proposed installation details.

2.4 FINISH

- A. Stainless Steel: In accordance with NAAMM AMP 500 finish Number 4.

PART 3 - INSTALLATION**3.1 STAINLESS STEEL CORNER GUARDS**

- A. Mount guards on external corners of interior walls, partitions and columns as shown on construction documents.
- B. Where corner guards are installed on walls, partitions or columns finished with plaster or ceramic tile, anchor corner guards as shown on construction documents. Coat back surfaces of corner guards, where shown on construction documents, with a non-flammable, sound deadening material. Corner guards to overlap finish plaster surfaces.
- C. Where corner guards are installed on gypsum board, clean surface and anchor guards with a neoprene solvent-type contact adhesive specifically manufactured for use on gypsum board construction. Remove excess adhesive from around edge of guard and allow curing undisturbed for 24 hours.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. Furnish labor, materials, equipment and services to install toilet and related accessories and components as shown on the Drawings, as specified herein and as required for a complete and proper installation, including, but not limited to the following:
 - 1. Toilet room accessories.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Accessories and their installation shall conform to applicable requirements for the disabled.
- B. Design Criteria: Grab bars shall be capable of withstanding a force of 900 pounds, minimum, when installed in accordance with the manufacturer's instructions.
- C. Accessories shall be the product of a single manufacturer unless otherwise specified.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Manufacturer's descriptive and technical data and illustrations, marked to indicate specific product types, variations, and materials.
- C. Shop Drawings: Indicate layouts and installation details necessary for proper preparation of toilet partitions and other construction supporting grab bars or other accessory items.
- D. Test data or certification that grab bars meet the specified design criteria.
- E. Maintenance data, operating instructions, and keys required for each type of accessory and lock.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Quality designation and guarantee label shall be attached to each mirror, or manufacturer's certification that mirrors meet specified requirements shall be submitted.
- B. Protection:

1. Maintain protective coatings or coverings on units until installation is complete.
 2. Remove protective coverings at final cleanup of installation.
- C. Handle so as to prevent damage to finished surfaces.
- D. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.

1.06 PROJECT CONDITIONS

- A. Coordinate submission of installation instructions so that backing, blocking, framing and formwork can be properly installed, and work of other trades will not be delayed.

1.07 WARRANTY

- A. Warrant mirrors for 5 years against silver spoilage.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Stainless Steel Sheet: ASTM A167, commercial grade, Type 304, standard gage.
- B. Stainless Steel Tubing: ASTM A269, commercial grade, seamless welded.
- C. Sheet Steel: ASTM A366, cold-rolled stretcher leveled; with G90 galvanized coating.
- D. Mirrors: ¼ inch thick polished float glass, silver-coated and electrolytically copper-plated.
1. Protect edges with vinyl tape or other protective coating.
 2. Channel Edged
- E. Adhesive: Epoxy type contact cement.
- F. Attachment Devices: Hot dip galvanized; furnish backing plates, brackets, and hardware required for a complete installation as recommended by accessory manufacturer for component and substrate.
1. Fastening shall be concealed and theft-proof when available.
- G. Locks: Provide locks and furnish keys for standard lockable items.
- H. Grab Bars: 1-1/4 to 1-1/2 inches O.D., mandrel bent, with welded end flanges, exposed mounting, and peened or other approved safety-grip finish; anchor plates for each bar.

2.02 FINISHES

- A. Provide manufacturer's finish for each item indicated in accessory schedule, stainless-steel where available.

1. Where there are choices of available finishes, not including satin stainless steel, provide chart for Architect's selection.
- B. Exposed Finishes: Stainless steel No. 4, satin finish; satin chrome finish acceptable where stainless steel not available for accessory item scheduled.

2.03 ACCESSORY SCHEDULE

- A. Model numbers indicated in the Schedule below are those of Bobrick Washroom Equipment, Inc. (unless noted otherwise) and are used to establish a standard of quality, utility. Equivalent products of other manufacturers may also be acceptable, subject to conformance with the requirements specified herein and indicated. All accessories brushed stainless steel, unless otherwise noted.
 1. Provide one item for each location indicated on Drawings.
 2. All items shall be satin finish, unless otherwise specified or indicated.
- B. Schedule (itemized below as referenced on Drawings):
 1. B-3944-130, Towel Mate – Semi Recessed combination towel dispenser waste receptacle (PTD).
 2. B-3013 – Recessed Toilet-Seat-Cover Dispenser. (SCD)
 3. B2888 – Surface Mounted Multi-Roll Toilet Tissue Dispenser. (TPD)
 4. B-5806 – 1-1/4 inch (32mm) Diameter Stainless Steel Grab Bars with Snap-Flange Cover. (GB1, GB2)
 5. B-165 – Mirror with Stainless Steel Channel Frame. Rectangular. (MR1)
 6. B254 – Partition Mounted Sanitary Napkin Disposal. (SND)
 7. B2112 – Surface Mounted 40 oz Soap Dispenser. (SD)
 8. Robe Hook (RH)
 9. ASI Model 0487 - Combination Toilet Paper Holder, Dispenser and Seat Cover Dispenser
 10. Shower Seat – “L” Shaped and sized per CBC Chapter 11B.

2.04 FABRICATION

- A. Corners: Weld and grind smooth; leave no open miters.
- B. Form exposed surfaces from one sheet of stock, free of joints.
- C. Provide steel anchor plates and anchor components for installation on building finish.
- D. Form surfaces flat without distortion; maintain flat surfaces without scratches or dents.
- E. Back paint components where contact is made with building finishes, to prevent electrolysis.

- F. Hot-dip galvanize components; package complete with anchors and fittings.
- G. Locked dispensing units: Key alike for all accessories.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Check openings scheduled to receive recessed units for correct dimensions, plumbness of blocking or frames, and preparation that would affect installation of accessories.
- B. Check areas to receive surface-mounted units for conditions that would affect quality and execution of Work.
- C. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected.

3.02 INSTALLATION

- A. Install accessories in locations and at heights indicated.
- B. Install true, plumb and level, securely and rigidly anchor accessories to substrate in accordance with manufacturer's instructions.
- C. Use tamper-proof, security type fasteners.
- D. Attach grab bars to backing installed in wall to withstand loads prescribed by CBC.
- E. Install accessories in strict dimensional tolerance to CBC and Accessibility codes, diagrams and standards.

3.03 ADJUSTMENT AND CLEANING

- A. Remove protective coatings in accordance with the manufacturer's instructions.
- B. Adjust accessories for proper operation.
- C. After completion of installation, clean and polish all exposed surfaces.
- D. Deliver keys and instruction sheets to the Owner's Representative.

3.04 COMPLETION

- A. When complete, accessories shall be set plumb and level, accurately aligned, and securely attached.
- B. Exposed surfaces shall be clean and free from scratches, dents, tool marks, stains, discoloration, and other defects and damage.

END OF SECTION

PART 1 GENERAL**1.01 DESCRIPTION**

- A. This section covers recessed fire extinguisher cabinets.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Manufacturer's Literature and Data: Fire extinguisher cabinet including installation instruction and rough opening required.

1.04 APPLICATION PUBLICATIONS

The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

- A. American Society of Testing and Materials (ASTM):
- D4802-10.....Poly (Methyl Methacrylate) Acrylic Plastic Sheet

PART 2 PRODUCTS**2.01 FIRE EXTINGUISHER CABINET**

- A. Semi-Recessed type with flat trim. See Section 09 06 00 as reference.

2.02 FABRICATION

- A. Form body of cabinet from 0.9 mm (0.0359 inch) thick sheet steel.
- B. Fabricate door and trim from 1.2 mm (0.0478 inch) thick sheet aluminum with all face joints fully welded and ground smooth.
1. Glaze doors with 6 mm (1/4 inch) thick ASTM D4802, clear acrylic sheet, Category B-1, Finish
 2. Design doors to open 180 degrees.

3. Provide continuous hinge, pull handle, and adjustable roller catch.

2.03 FINISH

- A. Finish interior of cabinet body with baked-on semigloss white enamel.
- B. Finish door, frame with manufacturer's standard clear satin anodized aluminum.

PART 3 EXECUTION

- A. Install fire extinguisher cabinets in prepared openings and secure in accordance with manufacturer's instructions.
- B. Install cabinet so that bottom of cabinet is 975 mm (39 inches) above finished floor.
- C. Install signage as required to indicate obscured extinguisher locations.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Provide seismic restraint in accordance with the requirements of this section in order to maintain the integrity of nonstructural components of the building so that they remain safe and functional in case of seismic event.
- B. Definitions: Non-structural building components are components or systems that are not part of the building's structural system whether inside or outside, above or below grade. Non-structural components of buildings include:
 - 1. Electrical Elements: Power and lighting systems; selector and controller panels; fire protection and alarm systems; and telephone and communication systems.
 - 2. Mechanical Elements: Heating, ventilating, and air-conditioning systems; roof drainage piping; sprinkler systems.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY CONTROL

- A. Shop-Drawing Preparation:
 - 1. Have seismic-force-restraint shop drawings and calculations prepared by a professional structural engineer experienced in the area of seismic force restraints. The professional structural engineer shall be registered in California.
 - 2. Submit design tables and information used for the design-force levels, stamped and signed by a professional structural engineer registered in California.
- B. Coordination:
 - 1. Do not install seismic restraints until seismic restraint submittals are approved by the Owner.
 - 2. Coordinate and install trapezes or other multi-pipe hanger systems prior to pipe installation.
- C. Seismic Certification: Permanent equipments and components are to have Special Seismic Certification in accordance with requirements of section 13.2.2 of ASCE 7, and shall comply with section 13.2.6 of ASCE 7.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Submit a coordinated set of equipment anchorage drawings prior to installation including:
 - 1. Description, layout, and location of items to be anchored or braced with anchorage or brace points noted and dimensioned.
 - 2. Details of anchorage or bracing at large scale with all members, parts brackets shown, together with all connections, bolts, welds etc. clearly identified and specified.
 - 3. Numerical value of design seismic brace loads.
 - 4. For expansion bolts, include design load and capacity if different from those specified.
- C. Submit prior to installation, a coordinated set of bracing drawings for seismic protection of piping, with data identifying the various support-to-structure connections and seismic bracing structural connections, include:
 - 1. Single-line piping diagrams on a floor-by-floor basis. Show all suspended piping for a given floor on the same plain.
 - 2. Type of pipe (Copper, steel, cast iron, insulated, non-insulated, etc.).
 - 3. Pipe contents.
 - 4. Structural framing.
 - 5. Location of all gravity load pipe supports and spacing requirements.
 - 6. Numerical value of gravity load reactions.
 - 7. Location of all seismic bracing.
 - 8. Numerical value of applied seismic brace loads.
 - 9. Type of connection (Vertical support, vertical support with seismic brace etc.).
 - 10. Seismic brace reaction type (tension or compression): Details illustrating all support and bracing components, methods of connections, and specific anchors to be used.
- D. Submit prior to installation, bracing drawings for seismic protection of suspended ductwork and suspended electrical and communication cables, include:
 - 1. Details illustrating all support and bracing components, methods of connection, and specific anchors to be used.
 - 2. Numerical value of applied gravity and seismic loads and seismic loads acting on support and bracing components.

3. Maximum spacing of hangers and bracing.
4. Seal of registered structural engineer responsible for design.
- E. Submit design calculations prepared and sealed by the registered structural engineer specified above in paragraph 1.03A.

1.05 APPLICABLE PUBLICATIONS

- A. The Publications listed below (including amendments, addenda revisions, supplements and errata) form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only.
- B. American Society of Civil Engineers (ASCE 7) Latest Edition.
- C. California Building Code (CBC) 2019
- E. National Uniform Seismic Installation Guidelines (NUSIG)
- F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
Seismic Restraint Manual - Guidelines for Mechanical Systems, 1998 Edition and
Addendum

1.06 REGULATORY REQUIREMENT

- A. CBC, 2019.
- B. Exceptions: The seismic restraint of the following items may be omitted:
 1. Equipment weighing less than 400 pounds, which is supported directly on the floor or roof.
 2. Equipment weighing less than 20 pounds, which is suspended from the roof or floor or hung from a wall.
 3. Gas piping less than 2 ½ inches inside diameter.
 4. Piping in boiler plants and equipment rooms less than 1 ¼ inches inside diameter.
 5. All other piping less than 2 ½ inches inside diameter, except for automatic fire suppression systems.
 6. All piping suspended by individual hangers, 12 inches or less in length from the top of pipe to the bottom of the support for the hanger.
 7. All electrical conduits, less than 2 ½ inches inside diameter.
 8. All rectangular air handling ducts less than six square feet in cross sectional area.
 9. All round air handling ducts less than 28 inches in diameter.
 10. All ducts suspended by hangers 12 inches or less in length from the top of the duct to the bottom of support for the hanger.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION**3.01 CONSTRUCTION, GENERAL**

- A. Provide equipment supports and anchoring devices to withstand the seismic design forces, so that when seismic design forces are applied, the equipment cannot displace, overturn, or become inoperable.
- B. Provide anchorages in conformance with recommendations of the equipment manufacturer and as shown on approved shop drawings and calculations.
- C. Construct seismic restraints and anchorage to allow for thermal expansion.

3.02 EQUIPMENT RESTRAINT AND BRACING

- A. See drawings for equipment to be restrained or braced.

3.03 MECHANICAL DUCTWORK AND PIPING; ELECTRICAL BUSWAYS, CONDUITS, AND CABLE TRAYS; AND TELECOMMUNICATION WIRES AND CABLE TRAYS

- A. Support and brace mechanical ductwork and piping; conduits and cable trays; and telecommunication wires and cable trays to resist directional forces (lateral, longitudinal and vertical).
- B. Brace duct and breeching branches with a minimum of 1 brace per branch.
- C. Provide supports and anchoring so that, upon application of seismic forces, piping remains fully connected as operable systems which will not displace sufficiently to damage adjacent or connecting equipment, or building members.
- D. Piping Connections: Provide flexible connections where pipes connect to equipment. Make the connections capable of accommodating relative differential movements between the pipe and equipment under conditions of earthquake shaking.

3.04 CEILINGS AND LIGHTING FIXTURES

- A. At regular intervals, laterally brace suspended ceilings against lateral and vertical movements, and provide with a physical separation at the walls.
- B. Independently support and laterally brace all lighting fixtures.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Section Includes: Holeless Hydraulic Elevator for a full and complete code compliant and operational elevator and associated building systems, including electrical, mechanical, fire protection, plumbing, shaft, structural and special systems. Includes smoke protection system at elevator hoist way openings.
- B. Products Supplied But Not Installed Under this Section:
 - 1. Pit Ladder
 - 2. Inserts mounted in concrete walls at pit and steel tube column supports at shaft partition walls for rail attachments.
 - 3. Any additional items required to meet operation and code requirements.
- C. Work Supplied Under Other Sections:
 - 1. Temporary lighting, including temporary lighting in hoistway for machine space with switch located in hoistway on the strike jamb side of top landing door.
 - 2. Hoistway ventilation shall be in accordance with local and national building code requirements.
 - 3. Guide Rail Support shall be structurally adequate to extend from pit floor to top of hoistway, with spans in accordance with requirements of authority having jurisdiction and final layouts.
 - 4. Removable barricades at all hoistway openings, in compliance with OSHA 29 CFR 1926.502 in addition to any local code requirements.
 - 5. Lifeline attachments capable of withstanding 5000 lb load in accordance with OSHA 29 CFR 1926.502. Provide a minimum of 2 at the top, front of each hoistway.
 - 6. Pit lighting: Fixture with switch and guards. Provide illumination level equal to or greater than that required by ASME A17.1/CSA B44 2000, or applicable version.
 - 7. Control space lighting with switch. Coordinate switch with lighting for machine space as allowable by code.
 - 8. Electrical service and disconnects.
 - 9. Ferromagnetic metal wrapped MDF header panel over elevator door.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.

2. All Specification Sections listed in the Table of Contents.

1.03 INDUSTRY AND GOVERNMENT STANDARDS:

- A. ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities
- B. ADAAG - Accessibility Guidelines for Buildings and Facilities
- C. ANSI/NFPA 70, National Electrical Code
- D. ANSI/NFPA 80, Standard for Fire Doors and Fire Windows
- E. ASME/ANSI A17.1, Safety Code for Elevators and Escalators.
- F. CBC, California Building Code, 2019
- G. American Society of Mechanical Engineers (ASME)
A17.2.....Inspectors Manual for Electric Elevators and Escalators
- H. National Fire Protection Association:
NFPA 72.....National Fire Alarm and Signaling Code
NFPA 252.....Fire Test of Door Assemblies
- I. NFPA 1784, ASTM E84 and UL 864.

1.04 DESCRIPTION OF ELEVATOR

- A. Elevator Equipment: Holeless Hydraulic Elevator
- B. Equipment Control: Per selected manufacturer
- C. Quantity of Elevators: 1
- D. Landings: 2
- E. Openings: 2 Front Openings
- F. Travel: 12 feet 0 inches, plus or minus
- G. Rated Capacity: 2500 lbs
- H. Rated Speed: 100 fpm
- I. Clear Inside Dimensions (W x D): Per plan
- J. Cab Height: 8' 0"
- K. Clear height under suspended ceiling: Cab Height + 60" to Max 16
- L. Entrance Width and Type: Side per plan
- M. Entrance Height: 7' 0" Entrance Width: 3' 0" minimum
- N. Main Power Supply: 208, 480 Volts + 10%, three-phase, per electrical drawings controls specification.

- O. Operation: Simplex
- P. Machine Location: Machine Room
- Q. Control Space Location: Machine Room
- R. Maintenance Service Period: 12 months

1.05 PERFORMANCE REQUIREMENTS

- A. The elevators shall be capable of meeting the highest standards of the industry and specifically the following:
 - 1. Contract speed is high speed in either direction of travel with rated capacity load in the elevator. Speed variation under all load conditions, regardless of direction of travel, shall not vary more than five (5) percent.
 - 2. The controlled rate of change of acceleration and retardation of the car shall not exceed 0.1G per second and the maximum acceleration and retardation shall not exceed 0.2G per second.
 - 3. Starting, stopping, and leveling shall be smooth and comfortable without appreciable steps of acceleration and deceleration.
- B. The door operator shall open the car door and hoistway door simultaneously at 2.5-feet
- C. Floor level stopping accuracy shall be within 3 mm (1/8 in.) above or below the floor, regardless of load condition.
- D. System Performance
 - 1. Vertical Vibration (maximum): 15-17 mg
 - 2. Horizontal Vibration (maximum): 10-12 mg
 - 3. Jerk Rate (maximum): 3.3 – 5.25 ft/sec³
 - 4. Acceleration (maximum) 1.6 – 2.6 ft/sec²
 - 5. In Car Noise: = 55 dB(A)
 - 6. Leveling Accuracy: ±0.1 inches
 - 7. Starts per hour (maximum): 240

1.06 SUBMITTALS

- A. Comply with Section 01 13 00 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product literature for each proposed system.
 - 1. Cab design, dimensions and layout.
 - 2. Layout, finishes, and accessories and available options.
 - 3. Controls, signals and operating system.
 - 4. Color selection charts for cab and entrances.

5. Furnish certificates as required under: Paragraph "QUALIFICATIONS".

C. Shop Drawings:

1. Clearances and travel of car.
2. Clear inside hoistway and pit dimensions.
3. Location and layout of equipment and signals.
4. Car, guide rails, buffers and other components in hoistway.
5. Maximum rail bracket spacing.
6. Maximum loads imposed on building structure.
7. Hoist beam requirements.
8. Location and details of hoistway door and frames.
9. Electrical characteristics and connection requirements.
10. Controller
11. Starters and Overload Current Protection Devices.
12. Electric Door Operator; HP rating and RPM of motor.
13. Hoistway Door Interlocks.
14. Car Buffers; maximum and minimum rated load, maximum rated striking speed and stroke.
15. Cab Ventilation Unit; HP rating and CFM rating.
16. Sill details including sill support.
17. Door operator, infrared curtain units.
18. Cuts or drawings showing details of controllers and supervisory panels.
19. Door opening protection system.

D. WIRING DIAGRAMS

1. Provide three complete sets of field wiring and straight line wiring diagrams showing all electrical circuits in the hoistway, machine room and fixtures. Install one set coated with an approved plastic sealer and mounted in the elevator machine room as directed by the Owner.
2. In the event field modifications are necessary during installation, diagrams shall be revised to include all corrections made prior to and during the final inspection. Corrected diagrams shall be delivered to the Owner within 30 days of final acceptance.
3. Provide the following information relating to the specific type of microprocessor controls installed:

- a. Owner's information manual, containing job specific data on major components, maintenance, and adjustment.
 - b. System logic description.
 - c. Complete wiring diagrams needed for field troubleshooting, adjustment, repair and replacement of components. Diagrams shall be base diagrams, containing all changes and additions made to the equipment during the design and construction period.
 - d. Changes made during the warranty period shall be noted on the drawings in adequate time to have the finalized drawings reproduced for mounting in the machine room no later than six months prior to the expiration of the warranty period.
- E. Operation and maintenance data:
- 1. Provide manufacturer's standard maintenance and operation manual.
- F. Diagnostic Tools
- 1. Prior to seeking final acceptance for the completed project as specified by the Contract Documents, the Elevator Contractor shall deliver to the Owner any specialized tool(s) that may be required to perform diagnostic evaluations, adjustments, and/or parametric software changes and/or test and inspections on any piece of control or monitoring equipment installed. This shall include any specialized tool(s) required for monitoring, inspection and/or maintenance where the means of suspension other than conventional wire ropes are furnished and installed by the Elevator Contractor. Any and all such tool(s) shall become property of the Owner. Any diagnostic tool provided to the Owner by the Elevator Contractor shall be configured to perform all levels of diagnostics, systems adjustment and parametric software changes which are available to the Elevator Contractor. In those cases where diagnostic tools provided to the Owner require periodic recalibration/or re-initiation, the Elevator Contractor shall perform such tasks at no additional cost to the Owner for a period equal to the term of the maintenance agreement from the date of final acceptance of the completed project. During those intervals in which the Owner might find it necessary to surrender a diagnostic tool for recalibration, re-initiation, or repair, the Elevator Contractor shall provide a temporary replacement for the tool at no additional cost to the Owner. The Elevator Contractor shall deliver to the Owner, printed instructions for the proper use of any tool that may be necessary to perform diagnostic evaluations, system adjustment, and/or parametric software changes on any unit of microprocessor-based elevator control equipment and means of suspension other than standard elevator steel cables furnished and install by the Elevator Contractor. Accompanying the printed instructions shall be any and all access codes, password, or other proprietary information that is necessary to interface with the microprocessor-control equipment.

1.07 QUALITY ASSURANCE

- A. Manufacturer: Minimum of fifteen years experience in the fabrication, installation and service of elevators of the type and performance of the specified. The manufacturer shall have a documented quality assurance program.
- B. Installer: The equipment manufacturer shall install the elevator.
- C. Inspection and Testing: In accordance with requirements of local jurisdiction, obtain required permits, inspections and tests.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's recommendations for delivery, storage and handling.

1.09 WARRANTY

- A. Submit all labor and materials furnished in connection with elevator system. The one year Warranty shall commence after final inspection, completion of performance test, and upon full acceptance of the installation and shall concur with the guarantee period of service.

1.10 MAINTENANCE SERVICE

- A. The elevator manufacturer shall provide maintenance service consisting of regular examinations and adjustments of the elevator equipment for a period of 12 months after date of substantial completion. Replacement parts shall be produced by the original equipment manufacturer.
- B. Maintenance service be performed during regular working hours of regular working days and shall include emergency 24-hour call back service.
- C. Maintenance service shall not include adjustments, repairs or replacement of parts due to negligence, misuse, abuse or accidents.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Provide holeless hydraulic elevator systems subject to compliance with the design and performance requirements of this specification.
 - 1. Other acceptable holeless hydraulic elevator manufacturer with minimum 15 years experience in manufacturing, installing, and servicing elevators of the type required for the project.

2.02 PUMP UNIT ASSEMBLY

- A. Completely integrate the pump unit for the control of the elevator and self-contain in a unit fabricated of structural steel. The unit shall consist of a hydraulic fluid pump driven by an induction motor together with oil control valves, piping, etc. Enclose unit on four open sides of the power unit frame with not less than 16 gauge steel removable panel sections. Provide a minimum 50 mm (2 in.) air space between the top of the panels and bottom of tank. Line panels on the interior side with one-inch rigid acoustical insulation board.
- B. Control valves shall be electronically controlled. Hydraulic fluid flow shall be controlled to insure speed variation of not more than five (5) percent under all load conditions.
- C. Hydraulic system working pressure shall not exceed 500 psi under any load condition.
- D. Pump shall be positive displacement, rotary screw type, specifically designed for hydraulic elevator service, having a steady discharge without pulsation to give smooth and quiet operation. Pump output shall be capable of lifting elevator car with rated capacity, with a speed variation of no more than five (5) percent between no load and full load. Pump shall operate under flooded suction in an accurately

machined case with the clearance required to assure maximum efficiency. Hydraulic fluid by-pass shall discharge directly into storage tank.

- E. Motor shall be squirrel-cage, drip proof, ball bearing, and induction type, with a synchronous speed not in excess of 1800 RPM. Design motor specifically for elevator service, not to exceed nameplate full load current by more than 10% and be continuously rated 120 starts per hour without exceeding a rise of 40 degrees C. Include closed transition SCR soft start.
- F. Connect motor and pump with multiple V-belt. Size belts and sheaves for duty involved and design to prevent any metallic contact between motor and pump shaft. Provide isolation units of rubber in shear to prevent transmission of pump and motor vibration to the building. Install expanded metal sheave guard that can be easily removed for servicing and inspection.
- G. Hydraulic equipment may be installed within the oil storage tank if applicable for elevator size, speed, and duty rating.
- H. Design motor, pump, tank, and piping to accommodate future travel, if specified.

2.03 HYDRAULIC SYSTEM

- A. Construct the storage tank of sheet steel, welded construction, and a steel cover with suitable means for filling, a minimum one-inch protected vent opening, an overflow connection, and a valve drain connection. Tank shall act as a storage tank only, and sized to pass through machine room door as shown on drawings. Provide marked gauge to monitor hydraulic fluid level. Tank shall be of capacity to hold volume of hydraulic fluid required to lift elevator to top terminal landing, plus a reserve of not less than ten gallons. Provide a baffle in the bottom of the tank to prevent entry of any sediment or foreign particles into hydraulic system. Baffle shall also minimize aeration of hydraulic fluid. Permissible minimum hydraulic fluid level shall be clearly indicated. Hydraulic fluid shall be of good grade to assure free flow when cool, and have minimum flash point of 400 degrees F. Provide initial supply of hydraulic fluid for operation of elevator.
 - 1. Thermostatically control the viscosity of the hydraulic fluid with thermal cooling unit and temperature thermostat to maintain the fluid temperature in the reservoir, pump and valves at a constant operating viscosity.
 - 2. Provide a data plate on the tank framing indicating the characteristics of the hydraulic fluid used.
- B. Furnish and install connections between the storage tank, pump, muffler, operating valves, and cylinder complete with necessary valves, pipe supports, and fittings. All connections between the discharge side of the pump, check valve, muffler, cylinder, lowering valves shall be of schedule 40 steel with threaded, flanged, or welded mechanical couplings. Size of pipe and couplings between cylinder and pumping unit shall be such that fluid pressure loss is limited to 10 percent.
- C. Do not subject valves, piping, and fittings to working pressure greater than those recommended by the manufacturer.
- D. Support all horizontal piping. Place hangers or supports within 305 mm (12 in.) on each side of every change of direction of pipeline and space supports not over 3.0 meters (10 ft) apart. Secure vertical runs properly with iron clamps at sufficiently close intervals to carry weight of pipe and contents. Provide supports under pipe to floor.

1. Provide all piping from machine room to hoistway, including necessary supports or hangers. If remote piping is underground or in damp inaccessible areas, install hydraulic piping thru PVC sleeve pipe.
- E. Install pipe sleeves where pipes pass through walls or floors. Set sleeves during construction. After installation of piping, equip the sleeves with snug fitting inner liner of either glass or mineral wool insulation.
- F. Install blowout-proof, non-hammering, oil-hydraulic muffler in the hydraulic fluid supply pressure line near power unit in machine room. Design muffler to reduce to a minimum any pulsation or noises that may be transmitted through the hydraulic fluid into the hoistway.
- G. Arrange control valves to operate so hydraulic fluid flow will be controlled in positive and gradual manner to ensure smooth starting and stopping of elevator.
- H. Provide safety check valve between cylinder and pump connection which will hold elevator with specified load at any point when pump stops or pressure drops below minimum operating levels.
- I. Provide an automatic shut-off valve in the oil supply line at the cylinder inlet. Weld pipe protruding from cylinder at inlet and thread to receive shut-off valve. Activate the automatic shut-off valve when there is more than a ten percent increase in high speed in the down direction. When activated, this device shall immediately stop the descent of the elevator and hold the elevator until it is lowered by use of the manual lowering feature of the valve. Arrange the manual lowering feature of the automatic shut-off valve to limit the maximum descending speed of the elevator to 15 fpm. The exposed adjustments of the automatic shut-off valve shall have their means of adjustment sealed after being set to their correct position.
- J. Provide external tank shut-off valve to isolate hydraulic fluid during maintenance operations.
- K. Provide all pump relief and other auxiliary valves to comply with the requirements of the ASME A17.1 Section 3.19 and to insure smooth, safe, and satisfactory operation of elevator.
- L. Furnish and adjust bypass and relief valve in accordance with ASME A17.1 Rule 3.19.4.2.
- M. Install check valve to hold the elevator car with rated load at any point when the pump stops.
- N. Provide shut-off valves in the pit near the cylinder and in the machine room capable of withstanding 150 percent of design operating pressure. Each manual valve shall have an attached handle.
- O. Conveniently locate the manual lowering valve, easily accessible, and properly identified with a red arrow and not concealed within the storage tank. Mark the operating handle in red.
- P. Provide a low oil control feature which shall shut off the motor and pump and return the elevator to the lowest landing. Upon reaching the lowest landing, doors will open automatically allowing passengers to leave the car. Then doors shall close. All control buttons, except the door open button, shall be made ineffective.
- Q. Provide oil-tight drip pan for assembled pumping unit, including storage tank. Pan shall be not less than 16 gauge sheet steel, with one-inch sides.

- R. The entire hydraulic system, including muffler, shall be tested to withstand a pressure equal to twice the calculated working pressure.
- S. Submit certification that test has been performed.

2.04 EQUIPMENT: HOISTWAY COMPONENTS

- A. Materials, devices and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items. Items not meeting this requirement, but meet technical specifications which can be established through reliable test reports or physical examination of representative samples, will be considered.
- B. When two or more devices of the same class of materials or equipment are required, these units shall be products of one manufacturer.
- C. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit.
- D. Motor nameplates shall state manufacturers' name, rated horsepower, speed, volts, amperes and other characteristics required by NEMA Standards and shall be securely attached to the item of equipment in a conspicuous location.
- E. The elevator equipment, including controllers, door operators, and supervisory system shall be non-proprietary, the product of manufacturers of established reputation, provided such items are capably engineered and produced under coordinated specifications to ensure compatibility with the total operating system. Mixing of manufactures related to a single system or group of components shall be identified in the submittals.
- F. Where key operated switches are furnished in conjunction with any component of this elevator installation, furnish four (4) keys for each individual switch or lock. Provide different key tumblers for different switch and lock functions. Each and every key shall have a tag bearing a stamped or etched legend identifying its purpose. Barrel key switches are not acceptable, except where required by code.

2.05 EQUIPMENT: HOISTWAY COMPONENTS

- A. Buffers: Car and Counterweight
- B. Hoistway Operating Devices:
 - 1. Emergency stop switch in the pit
 - 2. Terminal stopping switches.
 - 3. Emergency stop switch on the machine
 - 4. Emergency opening smoke protection system.
- C. Positioning System: System consisting of magnets and proximity switches.
- D. Guide Rails and Attachments: Steel rails with brackets and fasteners.
- E. The counterweight frame will be equipped with a safety device designed to stop the counterweight in the event of actuation of the over speed governor.

2.06 EQUIPMENT: HOISTWAY ENTRANCES

- A. Hoistway Entrances
 - 1. Frames: Sheet steel, bolted construction.
 - 2. Typical Sill Finish: Mill Aluminum
 - 3. Lobby Sill Finish: Mill Aluminum
 - 4. Doors: Hollow metal construction with vertical internal channel reinforcements.
 - 5. Fire Rating: Entrance and doors shall be UL fire-rated for 1-1/2 hour.
 - 6. Lobby Entrance Finish: Ferromagnetic. Min. 14 ga with 2-inch wide flat profile.
 - 7. Entrance Markings Jamb Plates: Provide standard entrance jamb tactile markings on both jambs, at all floors.
 - 8. Plate Mounting: Refer to manufacturer drawings.

2.07 EQUIPMENT: CAR COMPONENTS

- A. Car Frame: Provide car frame with adequate bracing to support the platform and car enclosure.
- B. Car Safeties: Device will be provided and mounted under the car platform, securely bolted to the Car Frame. The safety will be actuated by a centrifugal governor mounted at the top of the hoistway. The Safety is designed to operate in case the car attains excessive descending speed.
- C. Platform, Heavy Loading Type: The car platform shall be arranged to accommodate one-piece loads weighing up to 25% of the rated capacity.
- D. Car Guides: Provide guide-shoes mounted to top and bottom of both car and counterweight frame. Each roller guide assembly shall be arranged to maintain constant contact on the rail surfaces. Provide retainers in areas with Seismic design requirements.
- E. Canopy: Reinforced 16-guage milled steel. White baked enamel finish standard.
- F. Cab Finish:
 - 1. Car Wall Panels: Plastic Laminate
 - 2. Baseboard: Stainless Steel - Satin
 - 3. Ceiling and Lighting:
 - a. Round LED Down Light Drop Ceiling - LF-88: Satin Finished Stainless Steel three panel suspended ceiling with two holes per panel for Round LED lights.
 - 4. Handrail:

- a. Flat Solid Metal handrail of 3/8-inch thick by 4 inches tall. Material to be satin stainless steel finish. Rails to be located on side and back wall of car enclosure.
 - b. Clearance between support rails and adjacent surfaces shall be 11/2 inches . Top of support rails shall be 32 inches above the floor of the car.
5. Flooring: Flooring per Schedule for Finishes.
6. Threshold: Aluminum
7. Protective pad hooks and quilted fire retardant protective pads: Pad Buttons will be provided with non-suspended ceiling.
8. Provide electrical contact on the car-top exit.
- G. Emergency Car Signals
 1. Emergency Siren: Siren mounted on top of cab that is activated when the alarm button in the car operating panel is engaged. Siren shall have rated sound pressure level of 80 dB(A) at a distance of three feet from device. Siren shall respond with a delay of not more than one second after activation of alarm button.
 2. Emergency Car Lighting: Provide emergency power unit employing a 12-volt sealed rechargeable battery and totally static circuits shall illuminate the elevator car and provide current to the alarm bell in the event of building power failure.
- H. Ventilation: Fan.

2.08 EQUIPMENT: SIGNAL DEVICES AND FIXTURES

- A. Car Operating Panel: Provide vandal resistant car operating panel with all push buttons, key switches, and message indicators for elevator operation.
 1. Flush mounted car operating panel shall contain a bank of round, mechanical, illuminated buttons marked to correspond to landings served, emergency call button, door open button, door close button, and key switches for lights, inspection, and exhaust fan. Buttons have white illumination (halo). All buttons to have raised text and Braille marking on left hand side. The car operating display panel shall be white DOT-matrix. All texts, when illuminated, shall be white. The car operating panel shall have a brushed stainless steel finish.
 2. Additional features of car operating panel shall include:
 - a. Car Position Indicator within operating panel white.
 - b. Elevator Data Plate marked with elevator capacity and car number on car top.
 - c. Help buttons with raised markings.
 - d. In car stop switch per local code.
 - e. Firefighter's hat.

- f. Firefighter's Phase II Key-switch.
 - g. Call Cancel Button.
 - h. Emergency Two Way Communication Device
 - i. Independent Service
 - j. Firefighter's Phase II emergency in-car operating instructions.
 - k. Landing Passing Signal
- B. Hall Fixtures: Wall mounted vandal resistant hall fixtures shall be provided with necessary push buttons and key switches for elevator operation. Wall mounted hall fixtures shall have a brushed stainless steel finish.
 - 1. Vandal Resistant Hall fixtures shall feature round, mechanical, illuminated buttons in flush fixture housings. Hall fixtures shall correspond to options available from that landing.
- C. Emergency Two Way Communication/Video Device: An Emergency Two Way Communication device shall be furnished in the car-operating panel. Necessary wires for the device shall be included and connected to the car traveling cable. (IBC 2018 and ASME A17.1-2019/CSA B44-19).
 - 1. Provide ADA compliant communication device. Communications equipment and connections to the building service system shall be furnished and installed by others. System shall include 24/7 video motoring capable system. Touch screen display with easy-to-read, 2-way messaging.
- D. Car Lantern and Chime: A [vandal resistant] directional lantern visible from the corridor shall be provided in the car entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel and a chime will sound. The chime will sound once for up and twice for down.
- E. Hall call cutout key-switches to disable activation of hall buttons, locate at landing
- F. Access key-switch at top floor in entrance jamb.
- G. Access key-switch at lowest floor in entrance jamb.
- H. Landing Passing Signal: A chime bell shall sound in the car to tell a passenger that the car is either stopping at or passing a floor served by the elevator.
- I. Open 3 seconds, fully open.

2.09 EQUIPMENT: ELEVATOR OPERATION AND CONTROLLER

- A. Elevator Operation: Provide microprocessor-based control system, which utilizes on-board diagnostics for servicing, trouble-shooting, and adjusting without requiring the use of an outside service tool. If an on-board diagnostic system is not provided, a handheld service tool (or laptop), owner's license, operation manual, and tool instructions must be provided in addition to the control system.
 - 1. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

B. Car Operating Features

1. On/Off Light Switch
2. Car-Stall Protection
3. Firefighters
4. Ascending Car uncontrolled Movement Protection.
5. Top of Car Inspection
6. Load Weight Bypass
7. Intercom, video, and touchscreen provisions.
8. Provision for Card Reader in Car (Future Card Reader)
9. Express Priority Service with key switches at landing
10. Provisions for Elevator Management System
11. Automatic Standby Power Operation with Manual Override.
 - a. This operation shall return each car automatically to a designated landing when the system is initially switched to standby power. One or more cars are returned at a time. Preference is given to loaded cars over empty cars in order to reduce passenger-waiting times. A car must respond by beginning to move toward the designated landing within a pre-determined time. If a car does not respond, it is automatically placed in a "Not Available" mode while other cars are moved. If a car was not returned to the designated landing on the first try, a second attempt is made. If the second attempt is not successful, the car will remain in a "Not Available" mode and can only be moved by manual means. Once each car has returned to the designated landing, the doors will remain open for a predetermined amount of time.
 - b. When all cars have successfully returned to the designated landing or have attempted to move twice, automatic selection of the car(s) to run on normal operation will occur.
 - c. If for any reason a car selected for normal operation under stand by power is delayed for 60 seconds, the car will be placed in a "Not Available" mode and another car will be selected for normal operation based on the priorities listed above.
 - d. Manual Override of Standby Power Operation is achieved by a manual input for each car via a rotary selector, individual key switch for each car switch. A manually selected car may be run either in a return operation to a designated landing or in normal operation under standby power. If a manually selected car has not yet returned to the designated landing, it will perform this operation first then immediately go into normal operation.
 - e. If a manually selected car is delayed, no other car can be selected in the group unless it is manually selected.

- f. If Manual Override changes car selection while a car is running in return or normal operation under standby power, the newly selected car will not be permitted to run until the car that is running has stopped, opened its doors, and gone into the Standby Power Wait state.)

C. Elevator Control System for Inspections and Emergency

1. Provide devices within controller to run the elevator in inspection operation.
2. Provide devices on car top to run the elevator in inspection operation.
3. Provide within controller an emergency stop switch to disconnect power from the brake and prevents motor from running.
4. Provide the means from the controller to mechanically lift and control the elevator brake to safely bring car to nearest available landing when power is interrupted.
5. Provide the means from the controller to reset the governor over speed switch and also trip the governor.
6. Provide the means from the controller to reset the emergency brake when set because of an unintended car movement or ascending car over speed.
7. Provide the means for the control to reset elevator earthquake operation.

2.10 EQUIPMENT: DOOR OPERATOR AND CONTROL

- A. Door Operator: A closed loop permanent magnet PWM high-performance door operator shall be provided to open and close the car and hoist-way doors simultaneously. Door movement shall be cushioned at both limits of travel. Electro-mechanical interlock shall be provided at each hoist-way entrance to prevent operation of the elevator unless all doors are closed and locked. An electric contact shall be provided on the car at each car entrance to prevent the operation of the elevator unless the car door is closed.
- B. The door operator shall be arranged so that, in case of interruption or failure of electric power, the doors can be readily opened by hand from within the car, in accordance with applicable code. Emergency devices and keys for opening doors from the landing shall be provided as required by local code.
- C. Doors shall open automatically when the car has arrived at or is leveling at the respective landings. Doors shall close after a predetermined time interval or immediately upon pressing of a car button. A door open button shall be provided in the car. Momentary pressing of this button shall reopen the doors and reset the time interval.
- D. Door hangers and tracks shall be provided for each car and hoist-way door. Tracks shall be contoured to match the hanger sheaves. The hangers shall be designed for power operation with provisions for vertical and lateral adjustment. Hanger sheaves shall have polyurethane tires and pre-lubricated sealed-for-life bearings.
- E. Electronic Door Safety Device. The elevator car shall be equipped with an electronic protective device extending the full height of the car. When activated, this sensor shall prevent the doors from closing or cause them to stop and reopen if they are in the process of closing. The doors shall remain open as long as the flow of traffic continues and shall close shortly after the last person passes through the door opening.

2.11 TWO-STOP AUTOMATIC OPERATION

- A. Provide two-stop automatic operation for passenger elevators.
- B. Design system so that when the car is standing at either terminal landing, pressing on car button for the other terminal landing shall automatically dispatch car to that landing. Pressing a call button at either landing shall call the car automatically to that landing. If a call is registered while the car is making its trip that call shall remain registered until the car responds to that call. Provide time limit relay arranged to hold car at landing at which it has stopped for predetermined time after car stops. After all car and hall calls have been answered, car shall remain parked at landing where last used with car and hoist-way doors closed, until another call is registered.
- C. Pressing the call button at the floor at which car is parked shall automatically open car and hoist-way doors.
- D. Car lights and fan in the elevator shall not shut off when elevator is idle. Arrange circuits so that power to lights and outlets on top and bottom of car shall not be interrupted.

2.12 SEISMIC REQUIREMENTS

- A. Support and maintain pump unit, controller, rails, rail brackets, conduit, buffers, piping, scavenger pumps and jack unit assembly in place as to effectively prevent any part from sliding, rotating or overturning or jumping under conditions imposed by seismic forces not less than that required to produce an acceleration of gravity horizontally and 1/2 gravity vertically acting simultaneously. Design the total system to continue operation without interruption under specified seismic acceleration,
- B. Support all vertical conduits and duct systems within the hoistway at points above the center of gravity of riser. Provide lateral guides at regular intervals.
- C. Car guide rail brackets and rail clip bolts shall be guarded against snagging on the side of the rail adjacent to the point of suspension of the traveling cables.
- D. Provide car guide rails with at least one intermediate bracket between brackets located at each floor so that bracket spacing does not exceed 2400 mm (8 ft). If intermediate brackets cannot be installed because of lack of structural support, reinforce rails with 225 mm (9 in.) channel or approved equal backing.
- E. Guide rails shall not be less than 22.5 kg/m (15 lb/ft).
- F. The stresses in parts of structural members made of steel shall not exceed 88 percent of the minimum elastic strength of the material used in the fastenings.
- G. Provide car enclosure ceiling panels and fluorescent tubes with latching devices that shall restrain the panels and LEDs. Devices shall be readily removable for cleaning or replacing panels and re-lamping.
- H. Submittals are required for all equipment anchors, supports, restraints and detectors. Submittals shall include weight, dimensions, center of gravity, standard connections, calculations, manufacturer's recommendations, behavior problems (vibration, thermal, expansion, etc.,) so that design can be properly reviewed.
- I. Provide an Earthquake Detection device in machine room to activate "GO SLOW ELEVATORS" operation. The following are references:
 - 1. Emergency Service:
 - a. Earthquake emergency operation Section 304(d)

- b. Title 8, Industrial Relations, Division 01
- c. Department of Industrial Relations, Chapter 4
- d. Division of Industrial Safety, Sub Chapter 6, Elevator Safety Order

2.13 WORKMAN'S LIGHTS AND OUTLETS

- A. Provide duplex GFCI protected type receptacles and lamp, with guards on top of elevator car and beneath platform.
- B. The receptacles shall be in accordance with Fed. Spec. W-C-596 for Type D7, 2-pole, 3-wire grounded type rated for 15 amperes and 125 volts.

2.14 CAR LEVELING DEVICE

- A. Car shall be equipped with a two-way leveling device to automatically bring the car to within 3 mm (1/8 in.) of exact level with the landing for which a stop is initiated regardless of load in car or direction.
- B. If the car stops short or travels beyond the floor, the leveling device, within its zone shall automatically correct this condition and maintain the car within 3 mm (1/8 in.) of level with the floor landing regardless of the load carried.
- C. Provide encoded steel tape, steel tape with magnets or steel vanes with magnetic switches. Submit design for approval.

2.15 EMERGENCY STOP SWITCHES

- A. Provide an emergency stop switch for each top-of-car device, pit, machine spaces, service panel and firefighters' control panel inside the elevator. Mount stop switches in the pit adjacent to pit access door, at top of the pit ladder 1220 mm (48 in.) above the bottom landing sill and 1220 mm (48 in.) above the pit floor adjacent to the pit ladder.
- B. Each stop switch shall be red in color and shall have "STOP" and "RUN" positions legibly and indelibly identified.

2.16 MAIN CAR OPERATING PANEL

- A. Locate the main car operating panel in the car enclosure on the front return panel for passenger/service elevators and the front of the side wall for freight elevators. The top floor car call push button shall not be more than 1220 mm (48 in.) above the finished floor. Car call push buttons and indicator lights shall be round with a minimum diameter of 25 mm (1 in.), LED white light illuminated.
- B. One piece front faceplate, with edges beveled 15 degrees, shall have the firefighters' service panel recessed into the upper section and the service operation panel recessed into the lower section, fitted with hinged doors. Doors shall have concealed hinges, be in the same front plane as the faceplate and fitted with cylinder type key operated locks. Secure the faceplate with stainless steel tamperproof screws.
- C. All terminology on the main car operating panel shall be raised or engraved. Use 6 mm (1/4 in.) letters to identify all devices in upper section of the main car operating panel. The handicapped markings with contrasting background shall be recessed .030 inch in the faceplate, square or rectangular in shape, with the finished face of the 12 mm (1/2 in.) numerals and markings flush with the faceplates. Surface mounted plates are not acceptable.

- D. The upper section shall contain the following items in order listed from top to bottom:
1. Engrave elevator number, 25 mm (1 in.) high with black paint for contrast.
 2. Engrave capacity plate information with black paint for contrast with freight loading class and number of passengers allowed.
 3. Emergency car lighting system consisting of a rechargeable battery, charger, controls, and LED illuminated light fixture. The system shall automatically provide emergency light in the car upon failure or interruption of the normal car lighting service, and function irrespective of the position of the light control switch in the car. The system shall be capable of maintaining a minimum illumination of 1.0 foot-candle when measured 1220 mm (48 in.) above the car floor and approximately 305 mm (12 in.) in front of the car operating panel, for not less than four (4) hours.
 4. LED illuminated digital car position indicator with direction arrows. Digital display floor numbers and direction arrows shall be a minimum of 50mm (2 in.) high.
 5. Firefighters' Emergency Operation Panel shall conform to the requirements of ASME A17.1 Section 2.27. Firefighters' Panel shall be 1676 mm (66 in.) minimum to 1830 mm (72 in.) maximum to the top of the panel above finished floor.
 6. Firefighters' Emergency Indicator Light shall be round with a minimum diameter of 25 mm (1 in.).
 7. Independent Service switch, see Section 2.30 for detailed description.
 8. Provide a Door Hold button on the faceplate next to the independent service key switch. It shall have "DOOR HOLD" indelibly marked on the button. Button shall light when activated. When activated, the door shall stay open for a maximum of one minute. To override door hold timer, push a car call button or door close button. Door Hold button is not ADA required and Braille is not needed.
 9. Complete set of round car call push buttons, minimum diameter of 25 mm (1 in.), and LED white light illuminated, corresponding to the floors served. Car call buttons shall be legibly and indelibly identified by a floor number and/or letter not less than 12mm (1/2 in.) high in the face of the call button. Stack buttons in a single vertical column for low rise buildings up to six floors with front openings only.
 10. Door Open and Door Close buttons shall be located below the car call buttons. They shall have "OPEN" and "CLOSE" legibly and indelibly identified by letters in the face of the respective button. The Door Open button shall be located closest to the door jamb as required by ADA.
 11. Red Emergency Alarm button that shall be located below the car operating buttons. Mount the emergency alarm button not lower than 890 mm (35 in.) above the finished floor. It shall be connected to audible signaling devices as required by A17.1 Rule 2.27.1.2. Provide audible signaling devices including the necessary wiring.
 12. Emergency Help push button shall activate two way communications by Auto Dial telephone system as required by ASME A17.1 Rule 2.27.1.1.3. Help button shall be LED white light illuminated and flash when call is acknowledged. Legibly and indelibly label the button "HELP" in the face of the button with 12 mm (1/2 in.) high letters.

13. Provide a corresponding Braille plate on the left side of each button. The handicapped markings with contrasting background shall be recessed .030 inch in the faceplate, square or rectangular in shape, with the finished face of the 12 mm (1/2 in.) numerals and markings flush with the faceplates. Surface mounted plates are not acceptable.
- E. The service operation panel, in the lower section shall contain the following items:
1. Light switch labeled "LIGHTS" for controlling interior car lighting with its two positions marked "ON" and "OFF".
 2. Inspection switch that will disconnect normal operation and activate hoistway access switches at terminal landings. Switch shall be labeled "INSPECTION" with its two positions marked "ON" and "OFF".
 3. Three position switch labeled "FAN" with its positions marked "HIGH", "LOW" and "OFF" for controlling car ventilating blower.
 4. Two position, spring return, toggle switch or push button to test the emergency light and alarm device. It shall be labeled "TEST EMERGENCY LIGHT AND ALARM".

2.17 AUTO DIAL TELEPHONE SYSTEM

- A. Furnish and install a complete ADA compliant intercommunication system.
- B. Provide a two-way communication device in the car with automatic dialing, tracking and recall features with shielded wiring to car controller in machine room. Provide dialer with automatic rollover capability with minimum two numbers.
- C. "HELP" button shall illuminate and flash when call is acknowledged. Button shall match floor push button design.
- D. Provide "HELP" button tactile symbol engraved signage and Braille adjacent to button mounted integral with car operating panels.
- E. The auto dial system shall be located in the auxiliary car operating panel. The speaker and unit shall be mounted on the backside of the perforated stainless steel plate cover.
- F. Each elevator shall have an individual phone number.
- G. If the operator ends the call, the phone shall be able to redial immediately.

2.18 CORRIDOR OPERATING DEVICE FACEPLATES

- A. Fabricate faceplates for elevator operating and signal devices from not less than 3 mm (1/8 in.) thick flat stainless steel with all edges beveled 15 degrees. Install all faceplates flush with surface on which they are mounted.
- B. Corridor push button faceplates shall be at least 127 mm (5 in.) wide by 305 mm (12 in.) high. The centerline of the landing push buttons shall be 1067 mm (42 in.) above the corridor floor.
- C. Elevator Corridor Call Station Pictograph shall be engraved in the faceplate.
- D. Fasten all car and corridor operating device and signal device faceplates with stainless steel tamperproof screws.

- E. Design corridor push button faceplates so that pressure on push buttons shall be independent of pressure on push button contacts.
- F. Engraved legends in faceplates shall have lettering 6 mm (1/4 in.) high filled with black paint.
- G. Provide a corresponding Braille plate on the left side of each button. The handicapped markings with contrasting background shall be recessed .030 inch in the faceplate, square or rectangular in shape, with the finished face of the 12 mm (1/2 in.) numerals and markings flush with the faceplates. Surface mounted plates are not acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Field measure and examine substrates, supports, and other conditions under which elevator work is to be performed.
- B. Do not proceed with work until unsatisfactory conditions are corrected.
- C. Prior to start of Work, verify hoist-way is in accordance with shop drawings. Dimensional tolerance of hoist-way from shop drawings: -0 inches +2 inches. Do not begin work of this section until dimensions are within tolerances.
- D. Prior to start of Work, verify projections greater than 2 inches (4 inches if ASME A17.1/CSA B44 2000 applies) must be beveled not less than 75 degrees from horizontal.
- E. Prior to start of Work, verify landings have been prepared for entrance sill installation. Traditional sill angle or concrete sill support shall not be required.
- F. Prior to start of Work, verify elevator pit has been constructed in accordance with requirements, is dry and reinforced to sustain vertical forces, as indicated in approved submittal. Verify that sumps or sump pumps located within pit will not interfere with installed elevator equipment.
- G. Prior to start of Work, verify control space has been constructed in accordance with requirements, with access coordinated with elevator shop drawings, including Sleeves and penetrations.
- H. Verify installation of GFCI protected 15-amp in pit and adjacent to each signal control cabinet in control space.
- I. Before fabrication, take necessary job site measurements, and verify where work is governed by other trades. Check measurement of space for equipment, and means of access for installation and operation. Obtain dimensions from site for preparation of shop drawings.
- J. Ensure the following preparatory work, provided under other sections of the specification has been provided. If the Elevator Contractor requires changes in size or location of trolley beams, or their supports, trap doors, etc., to accomplish their work, he must make arrangements, subject to approval of the Owner and include cost in their bid. Where applicable, locate controller near and visible to its respective hydraulic pump unit. Work required prior to the completion of the elevator installation:
 - 1. Supply of electric feeder wires to the terminals of the elevator control panel, including circuit breaker.

2. Provide light and GFCI outlets in the elevator pit and machine room.
 3. Furnish electric power for testing and adjusting elevator equipment.
 4. Furnish circuit breaker panel in machine room for car and hoistway lights and receptacles.
 5. Supply power for cab lighting and ventilation from an emergency power panel specified in Division 26, ELECTRICAL.
 6. Machine room enclosed and protected from moisture, with self-closing, self-locking door and access stairs.
 7. Provide fire extinguisher in machine room.
- K. Supply for installation, inserts, anchors, bearing plates, brackets, supports and bracing including all setting templates and diagrams for placement.

L. Operating Devices

1. Provide one riser of landing call buttons located as shown on contract drawings.
2. Fixtures for intermediate landings shall contain "UP" and "DOWN" buttons. Fixtures for terminal landings shall contain a single "UP" or "DOWN" button.
3. Each button shall contain an integral registration LED white light which shall illuminate upon registration of a call and shall extinguish when that call is answered.
4. The direction of each button shall be legibly and indelibly identified by arrows not less than 12 mm (1/2 in.) high in the face of each button.
5. Two or more risers of landing call buttons, if specified, shall be cross-connected so that either "UP" or "DOWN" buttons at a floor shall be capable of registering a call to that floor for the entire elevator group. Registration of a landing call shall illuminate "UP" or "DOWN" buttons simultaneously, and upon satisfaction of that call, both buttons shall be extinguished simultaneously.
6. Landing push buttons shall not re-open the doors while the car and hoistway doors are closing at that floor, the call shall be registered for the next available elevator. Calls registered shall be canceled if closing doors are re-opened by means of "DOOR OPEN" button or infrared curtain unit.

M. Lantern/Position Indicator

1. Provide each car with combination corridor lantern/position indicator digital display mounted over the hoistway entrances at each and every floor. Provide each terminal landing with "UP" or "DOWN", minimum 64 mm (2 1/2 in.) high digital arrow lanterns and each intermediate landing with "UP" and "DOWN" digital arrow lanterns. Each lens shall be LED illuminated of proper intensity, so shielded to illuminate individual lens only. The lenses in each lantern shall be illuminated green to indicate "UP" travel and red to indicate "DOWN" travel. Lanterns shall signal in advance of car arrival at the landing indicating the direction of travel whether or not corridor button has been operated at that floor. Hall calls shall receive immediate assignment to individual cars and hall lantern shall sound and illuminate. Corridor lanterns shall not be illuminated when a car passes a floor without stopping. Each

lantern shall be equipped with a clearly audible electronic chime which shall sound once for "UPWARD" bound car and twice for "DOWNWARD" bound car. Audible signal shall not sound when a car passes the floor without stopping. Provide adjustable sound level on audible signal. Car riding lanterns are not acceptable.

2. Provide alpha-numeric digital position indicators directly over hoistway landing entranceways between the arrival lanterns at each and every floor. Indicator faceplate shall be stainless steel. Numerals shall be not less than 50 mm (2 in.) high with direction arrows. Cover plates shall be readily removable for re-lamping. The appropriate direction arrow shall be illuminated during entire travel of car in corresponding direction.
3. Provide LED illumination in each compartment to indicate the position and direction the car is traveling by illuminating the proper alpha-numeric symbol. When the car is standing at a landing without direction established, arrows shall not be illuminated.

3.02 PREPARATION

- A. Coordinate installation of anchors, bearing plates, brackets and other related accessories.

3.03 INSTALLATION

- A. Perform work with competent Certified Elevator Mechanics and Apprentices skilled in this work and under the direct supervision of the Elevator Contractor's experienced foreman.
- B. Set hoistway entrances in alignment with car openings, and true with plumb sill lines.
- C. Erect hoistway sills, headers and frames prior to erection of rough walls and doors. Erect fascias and toe guards after rough walls are finished.
- D. Install machinery, guides, controls, car and all equipment and accessories in accordance with manufacturer's instructions, applicable codes and standards.
- E. Isolate and dampen machine vibration with properly sized sound-reducing anti-vibration pads.
- F. Grout sills and hoistway entrance frames.

3.04 CONSTRUCTION

- A. Interface with Other Work:
 1. Guide rail brackets attached to steel shall be installed prior to application of fireproofing.
 2. Coordinate construction of entrance walls with installation of door frames and sills. Maintain front wall opening until elevator equipment has been installed.
 - a. Ensure adequate support for entrance attachment points at all landings.
 - b. Coordinate wall openings for hall push buttons, signal fixtures and sleeves. Each elevator requires sleeves within the hoistway wall.

- c. Coordinate emergency power transfer switch and power change pending signals as required for termination at the primary elevator signal control cabinet in each group.
- d. Coordinate interface of elevators and fire alarm system.
- e. Coordinate interface of dedicated telephone line.
- f. Coordination installation of pit ladder.
- g. Coordination installation of Shut Trip by electrical contractor.

3.05 WORKMANSHIP AND PROTECTION

- A. Installations shall be performed by Certified Elevator Mechanics and Apprentices to best possible industry standards. Details of the installation shall be mechanically and electrically correct. Materials and equipment shall be new and without imperfections.
- B. Recesses, cutouts, slots, holes, patching, grouting, refinishing to accommodate installation of equipment shall be included in the Contractor's work. All new holes in concrete shall be core drilled.
- C. Structural members shall not be cut or altered. Work in place that is damaged or defaced shall be restored equal to original condition.
- D. Finished work shall be straight, plumb, level, and square with smooth surfaces and lines. All machinery and equipment shall be protected against dirt, water, or mechanical injury. At final completion, all work shall be thoroughly cleaned and delivered in perfect unblemished condition.
- E. Sleeves for conduit and other small holes shall project 50 mm (2 in.) above concrete slabs.
- F. Exposed gears, sprockets, and sheaves shall be guarded from accidental contact in accordance with ASME A17.1 Section 2.10.

3.06 TESTING AND INSPECTIONS

- A. Perform recommended and required testing in accordance with authority having jurisdiction. Perform adjustments and modifications required by the authority having justification without and additional Cost to Owner weather or not specified or defined by the construction documents. This project (elevator, hoist way and elevator lobbies) shall be bid and constructed to meet all Federal, State and Local laws and regulatory requirements and technical requirements for this type of elevator regardless of items specified or defined in the drawings, including all electrical, mechanical, plumbing, fire protection and special systems. This shall include supports for elevator, guide rails, hoist beams, machine supports and elevator shaft construction.
- B. Pre-test the elevators and related equipment in the presence of the Owner or his authorized representative for proper operation before requesting final inspection. Conduct final inspection at other than normal working hours, if required by Owner.
 - 1. Procedure outlined in the Inspectors Manual for Hydraulic Elevators, ASME A17.2 shall apply.
 - a. Final test shall be conducted in the presence of and witnessed by an ASME QEI-1 Certified Elevator Inspector.

2. Contractor shall furnish the following test instruments and materials on-site and at the designated time of inspection: properly marked test weights, oil pressure gauge, voltmeter, amp probe, thermometers, direct reading tachometer, megohm meter, vibration meter, sound meter, light meter, stop watch, and a means of two-way communication.
 3. If during the inspection process the Inspector determines the need, the following instruments shall be available within a four-hour period: Megohm meter, vibration meter, sound meter, and a light meter.
- C. Inspection of workmanship, equipment furnished, and installation for compliance with specification.
- D. Full-Load Run Test: Elevators shall be tested for a period of one hour continuous run with full contract load in the car. The test run shall consist of the elevator stopping at all floors, in either direction of travel, for not less than five or more than ten seconds per floor.
- E. Speed Test: The actual speed of the elevator shall be determined in both directions of travel with full contract load and no load in the elevator. Speed shall be determined by certified tachometer. The actual measured speed of the elevator with all loads in either direction shall be within five (5) percent of specified rated speed. Full speed runs shall be quiet and free from vibration and sway.
- F. Temperature Rise Test: The temperature rise of the pump motor shall be determined during the full load test run. temperatures shall be measured by the use of thermometers. Under these conditions, the temperature rise of the equipment shall not exceed 50 degrees Centigrade above ambient temperature. Test shall start when all machine room equipment is within 5 degrees Centigrade of the ambient temperature. Other tests for heat runs on motors shall be performed as prescribed by the Institute of Electrical and Electronic Engineers.
- G. Car Leveling Test: Elevator car leveling devices shall be tested for accuracy of leveling at all floors with no load in car and with contract load in car in both directions of travel. Accuracy of floor level shall be within plus or minus 3 mm (1/8 in.) of level with any landing floor for which the stop has been initiated regardless of load in car or direction of travel. The car leveling device shall automatically correct over travel as well as under travel and shall maintain the car floor within plus or minus 3 mm (1/8 in.) of level with the landing floor regardless of change in load.
- H. Insulation Resistance Test: The elevator's complete wiring system shall be free from short circuits and ground faults and the insulation resistance of the system shall be determined by use of megohm meter, at the discretion of the Elevator Inspector conducting the test.
- I. Safety Devices Tests: Safety devices shall be tested as required by ASME A17.1 Section 8.10.
- J. Overload Devices: Test all overload current protection devices in the system at final inspection.
- K. Limit Stops:
1. The position of the car when stopped by each of the normal limit stops with no load and with contract load in the car shall be accurately measured.
 2. Final position of the elevator relative to the terminal landings shall be determined when the elevator has been stopped by the final limits. The lower limit stop shall be made with contract load in the elevator. Elevator shall be

operated at inspection speed for both tests. Normal limit stopping devices shall be inoperative for the tests.

- L. Setting of Car Door Contacts: The position of the car door at which the elevator may be started shall be measured. The distance from full closure shall not exceed that required by ASME A17.1. The test shall be made with the hoistway doors closed or the hoistway door contact inoperative.
- M. Setting of Interlocks: The position of the hoistway door at which the elevator may be started shall be measured and shall not exceed ASME A17.1 requirements.
- N. Operating and Signal System: The elevator shall be operated by the operating devices provided and the operation signals and automatic floor leveling shall function in accordance with requirements specified. Starting, stopping and leveling shall be smooth and comfortable without appreciable steps of acceleration or deceleration.
- O. Performance of the Elevator supervisory system shall be witnessed and approved by the representative of the Owner.
- P. Evidence of malfunction in any tested system or parts of equipment that occurs during the testing shall be corrected, repaired, or replaced at no additional cost to the Owner, and the test repeated.
- Q. If equipment fails test requirements and a re-inspection is required, the Contractor shall be responsible for the cost of re-inspection; salaries, transportation expenses, and per-diem expenses incurred by the representative of the Owner.

3.07 DEMONSTRATION

- A. Prior to substantial completion, instruct Owner's Representative on the proper function and required daily maintenance of elevators. Instruct personnel on emergency procedures.

3.08 INSTRUCTION OF PERSONNEL

- A. Provide competent instruction to the Owner regarding the operation of equipment and accessories installed under this contract, for a period equal to one eight hour work day. Instruction shall commence after completion of all work and at the time and place directed by the Owner.
- B. Written instructions in triplicate relative to care, adjustments and operation of all equipment and accessories shall be furnished and delivered to the Owner in independently bound folders. DVD recordings will also be acceptable. Written instructions shall include correct and legible wiring diagrams, nomenclature sheet of all electrical apparatus including location of each device, complete and comprehensive sequence of operation, complete replacement parts list with descriptive literature, and identification and diagrammatic cuts of equipment and parts. Information shall also include electrical operation characteristics of all circuits, relays, timers, and electronic devices, as well as R.P.M. values and related characteristics for all rotating equipment.
- C. Provide supplementary instruction for any new equipment that may become necessary because of changes, modifications or replacement of equipment or operation under requirements of paragraph entitled "Warranty of Construction".

END OF SECTION

PART 1 GENERAL**1.01 DESCRIPTION****A. Definitions:**

1. Exposed: Piping and equipment exposed to view in finished rooms.
2. Option or optional: Contractor's choice of an alternate material or method.

1.02 RELATED WORK**A. All Related Documents and Sections:** Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE**A. Products Criteria:**

1. Standard Products: Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products for at least 3 years. See other specification sections for any exceptions.
2. Equipment Service: Products shall be supported by a service organization which maintains a complete inventory of repair parts and is located reasonably close to the site.
3. Multiple Units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.
4. Assembled Units: Manufacturers of equipment assemblies, which use components made by others, assume complete responsibility for the final assembled product.
5. Nameplates: Nameplate bearing manufacturer's name or identifiable trademark shall be securely affixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped or otherwise permanently marked on each item of equipment.
6. Asbestos products or equipment or materials containing asbestos shall not be used.

B. Manufacturer's Recommendations: Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished to the Owner prior to installation. Installation of the item will not be allowed to proceed until

the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.

- C. Guaranty: Warranty of Construction, according to Division 01 requirements.
- D. Supports for sprinkler piping shall be in conformance with NFPA 13 and section 13 05 41.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Manufacturer's Literature and Data:
 - 1. Equipment and materials identification.
 - 2. Fire-stopping materials.
 - 3. Hangers, inserts, supports and bracing. Provide load calculations for variable spring and constant support hangers.
 - 4. Wall, floor, and ceiling plates.
- C. Coordination Drawings: Provide detailed layout drawings of all piping systems. Provide details of the following.
 - 1. Sprinkler head layout.
 - 2. Hangers, inserts, supports, and bracing.
 - 3. Pipe sleeves.
 - 4. Penetrations of floors, walls, or ceilings.
- D. Maintenance Data and Operating Instructions:
 - 1. Maintenance and operating manuals in accordance with Division 01, OPERATING AND MAINTENANCE MANUALS, for systems and equipment.
 - 2. Provide a listing of recommended replacement parts for keeping in stock supply, including sources of supply, for equipment.

1.05 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - A36/A36M-2001 Carbon Structural Steel
 - A53/A53M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - A575-96..... Steel Bars, Carbon, Merchant Quality, M-Grades R (2002)

E84-2003..... Standard Test Method for Burning Characteristics of Building Materials

E119-2000..... Standard Test Method for Fire Tests of Building Construction and Materials

C. National Fire Protection Association (NFPA):

13-2013 Installation of Sprinkler Systems

25-2014 Inspection, Testing and Maintenance of Water-Based Fire Protection Systems

101-2015 Life Safety Code

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS IDENTIFICATION

A. Valve Tags and Lists:

1. Valve tags: Engraved black filled numbers and letters not less than 13 mm (1/2-inch) high for number designation, and not less than 6.4 mm (1/4-inch) for service designation on 19 gage 38 mm (1-1/2 inches) round brass disc, attached with brass "S" hook or brass chain.
2. Valve lists: Typed or printed plastic-coated card(s), sized 216 mm (8-1/2 inches) by 280 mm (11 inches) showing tag number, valve function and area of control, for each service or system. Punch sheets for a 3-ring notebook.
3. Provide detailed plan for each floor of the building indicating the location and valve number for each valve. Identify location of each valve with a color-coded thumb tack in ceiling.

2.02 FIRESTOPPING

- A. Section 07 84 00, FIRESTOPPING specifies an effective barrier against the spread of fire, smoke and gases where penetrations occur for piping.

2.03 GALVANIZED REPAIR COMPOUND

- A. Mil. Spec. DOD-P-21035B, paint form.

2.04 PIPE PENETRATIONS

- A. Install sleeves during construction for other than blocked out floor openings for risers in mechanical bays.
- B. To prevent accidental liquid spills from passing to a lower level, provide the following:
1. For sleeves: Extend sleeve 25 mm (one inch) above finished floor and provide sealant for watertight joint.

2. For blocked out floor openings: Provide 40 mm (1-1/2 inch) angle set in silicone adhesive around opening.
 3. For drilled penetrations: Provide 40 mm (1-1/2 inch) angle ring or square set in silicone adhesive around penetration.
- C. Penetrations are not allowed through beams or ribs or beam flanges. Any deviation from this requirement must receive prior approval of Structural Engineer.
- D. Sheet Metal, Plastic, or Moisture-resistant Fiber Sleeves: Provide for pipe passing through floors, interior walls, and partitions, unless brass or steel pipe sleeves are specifically called for below.
- E. Sleeves are not required for wall hydrants for fire department connections or in drywall construction.
- F. Sleeve Clearance: Sleeve through floors, walls, partitions, and beam flanges shall be one inch greater in diameter than external diameter of pipe. Sleeve for pipe with insulation shall be large enough to accommodate the insulation. Interior openings shall be caulked tight with fire stopping material and sealant to prevent the spread of fire, smoke, and gases.
- G. Sealant and Adhesives: Shall be as specified in Section 07 90 00, JOINT SEALER.

2.05 WALL, FLOOR AND CEILING PLATES

- A. Material and Type: Chrome plated brass or chrome plated steel, one piece or split type with concealed hinge, with set screw for fastening to pipe, or sleeve. Use plates that fit tight around pipes, cover openings around pipes and cover the entire pipe sleeve projection.
- B. Thickness: Not less than 2.4 mm (3/32-inch) for floor plates. For wall and ceiling plates, not less than 0.64 mm (0.025-inch) for up to 80 mm (3-inch pipe), 0.89 mm (0.035-inch) for larger pipe.
- C. Locations: Use where pipe penetrates floors, walls and ceilings in exposed locations, in finished areas only. Provide a watertight joint in spaces where brass or steel pipe sleeves are specified.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Coordinate location of piping, sleeves, inserts, hangers, and equipment. Locate piping, sleeves, inserts, hangers, and equipment clear of windows, doors, openings, light outlets, and other services and utilities. Follow manufacturer's published recommendations for installation methods not otherwise specified.
- B. Protection and Cleaning:
1. Equipment and materials shall be carefully handled, properly stored, and adequately protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations and as approved by the

Owner. Damaged or defective items in the opinion of the Owner, shall be replaced.

- C. Concrete and Grout: Use concrete and shrink compensating grout 25 MPa (5000 psi) minimum, specified in Section 03 30 00, CAST-IN-PLACE CONCRETE.
- D. Install gages, valves, and other devices with due regard for ease in reading or operating and maintaining said devices. Locate and position gages to be easily read by operator or staff standing on floor or walkway provided. Servicing shall not require dismantling adjacent equipment or pipe work.
- E. Switchgear Drip Protection: Every effort shall be made to eliminate the installation of pipe above electrical and telephone switchgear. If this is not possible, encase pipe in a second pipe with a minimum of joints.
- F. Inaccessible Equipment:
 - 1. Where the Owner determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, equipment shall be removed and reinstalled or remedial action performed as directed at no additional cost to the Owner.
 - 2. The term "conveniently accessible" is defined as capable of being reached without the use of ladders, or without climbing or crawling under or over obstacles such as motors, fans, pumps, belt guards, transformers, high voltage lines, piping, and ductwork.

3.02 OPERATING AND PERFORMANCE TESTS

- A. Prior to the final inspection, perform required tests as specified in section 01 00 00 General Requirement and submit the test reports and records to the Owner's Representative.
- B. Should evidence of malfunction in any tested system, or piece of equipment or component part thereof, occur during or as a result of tests, make proper corrections, repairs or replacements, and repeat tests at no additional cost to the Owner.

3.03 INSTRUCTIONS TO COUNTY PERSONNEL

- A. Provide in accordance with section 01 00 00 General Requirement.

END OF SECTION

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PART 1 GENERAL**1.01 SCOPE OF WORK**

- A. Provide all supervision, engineering, design, labor, materials and equipment necessary to install a complete wet-pipe sprinkler system.
- B. Design, installation and testing shall be in accordance with NFPA 13 except for specified exceptions.
- C. The design and installation of a hydraulically calculated automatic wet system complete and ready for operation, for all portions of building.
- D. Design, installation and testing shall be in accordance with utility, city and county connection requirements, including backflow, lateral, thrust blocks, valves, sensors, alarms and ports for complete, compliant for protecting system.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE

- A. **Installer Reliability:** The installer shall possess a valid State of California C-16 fire sprinkler contractor's license. The installer shall have been actively and successfully engaged in the installation of commercial automatic sprinkler systems for the past ten years.
- B. **Materials and Equipment:** All equipment and devices shall be of a make and type listed by UL and approved by FM, or other nationally recognized testing laboratory for the specific purpose for which it is used. All materials, devices, and equipment shall be approved by the County.
- C. **Submittals:** Submit as one package in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. Prepare detailed working drawings that are signed and stamped by a Registered Professional Engineer. As Owner review is for technical adequacy only, the installer remains responsible for correcting any conflicts with other trades and building construction that arise during installation. Partial submittals will not be accepted. Material submittals shall be approved prior to the purchase or delivery to the job site. Suitably bind submittals in notebooks or binders and provide index referencing the appropriate specification section. Submittals shall include, but not be limited to, the following:
 - 1. **Qualifications:**

- a. Provide a copy of the installing contractor's fire sprinkler and state contractor's license.
2. Drawings: Submit detailed 1:100 (1/8 inch) scale (minimum) working drawings conforming to NFPA 13. Include a site plan showing the piping to the water supply test location.
3. Manufacturers Data Sheets:
 - a. Provide for materials and equipment proposed for use on the system. Include listing information and installation instructions in data sheets. Where data sheet describes items in addition to that item being submitted, clearly identify proposed item on the sheet.
4. Calculation Sheets: Submit hydraulic calculation sheets in tabular form conforming to the requirements and recommendations of NFPA 13.
5. Valve Charts: Provide a valve chart that identifies the location of each control valve. Coordinate identification of control valve with the Owner. The chart shall include no less than the following: Tag ID No., valve size, service (control valve, main drain, aux. drain, inspections test valve, etc.), and location.
6. Final Document Submittals: Provide as-built drawings, testing and maintenance instructions in accordance with the requirements in Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. Submittals shall include, but not be limited to, the following:
 - a. One complete set of reproducible as-built drawings showing the installed system with the specific interconnections between the waterflow switch or pressure switch and the fire alarm equipment.
 - b. Complete, simple, understandable, step-by-step, testing instructions giving recommended and required testing frequency of all equipment, methods for testing all equipment, and a complete trouble shooting manual. Provide maintenance instructions on replacing any components of the system including internal parts, periodic cleaning and adjustment of the equipment and components with information as to the address and telephone number of both the manufacturer and the local supplier of each item.
 - c. Material and Testing Certificate: Upon completion of the sprinkler system installation or any partial section of the system, including testing and flushing, provide a copy of a completed Material and Testing Certificate as indicated in NFPA 13.
 - d. Instruction Manual: Provide one copy of the instruction manual covering the system in a flexible protective cover and mount in an accessible location adjacent to the riser.
- D. Design Basis Information: Provide design, materials, equipment, installation, inspection, and testing of the automatic sprinkler system in accordance with the requirements of NFPA 13. Recommendations in appendices shall be treated as requirements.
 1. Perform hydraulic calculations in accordance with NFPA 13 utilizing the Area/Density method. Do not restrict design area reductions permitted for using

quick response sprinklers throughout by the required use of standard response sprinklers in the areas identified in this section.

2. Sprinkler Protection: The hazard classification examples of uses and conditions identified in the Annex. of NFPA 13 shall be mandatory. To determining spacing and sizing, apply the following coverage classifications:
 - a. Ordinary Hazard Group 1 Occupancies: Laboratories, Mechanical Equipment Rooms, Transformer Rooms, Electrical Switchgear Rooms, Electric Closets.
 - b. Request clarification from the Owner for any hazard classification not identified.
3. Hydraulic Calculations: Calculated demand including hose stream requirements shall fall no less than 10 percent below the available water supply curve.
4. Water Supply: Base water supply on a flow test made by the contractor. Report submitted to the Owner is to include:
 - a. Location: Nearest intersection & Address
 - b. Elevation Static Test Gauge: ____ ft.
 - c. Elevation Residual Test Gauge: ____ ft.
 - d. Static pressure: _ psi.
 - e. Residual pressure: _ psi.
 - f. Flow: _ gpm.
 - g. Date: ____.
 - h. Time: ____.
5. Contractor shall confirm allowable water flow and pressure by performing their own water flow test in the presence of authorities having jurisdiction prior to any design work.
6. Zoning:
 - a. For each sprinkler zone provide a control valve, flow switch and a test and drain assembly with pressure gauge.
 - b. Provide seismic protection in accordance with NFPA 13 and Section 13 05 41.

1.04 APPLICABLE PUIBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Codes and Standards: Provide a wet-pipe sprinkler system conforming to latest editions of Codes and Standards.

- C. National Fire Protection Association (NFPA), including all amendments and appendices:
 - 13 Installation of Sprinkler Systems
 - 101 Safety to Life from Fire in Buildings and Structures (Life Safety Code)
 - 101 Life Safety Code
 - 170 Fire Safety Symbols
- D. Underwriters Laboratories, Inc. (UL):
 - UL-FPED (Fire Protection Equipment Directory)
- E. Factory Mutual Engineering Corporation (FM):
 - Approval Guide
- F. California Building Code
- G. California Fire Code

PART 2 PRODUCTS

2.01 PIPING & FITTINGS

- A. Sprinkler systems in accordance with NFPA 13.

2.02 VALVES

- A. Valves in accordance with NFPA 13.
- B. Do not use quarter turn ball valves for 50 mm (2 inch) or larger drain valves.
- C. The wet system control valve shall be a listed indicating type valve. Control valve shall be UL Listed and FM Approved for fire protection installations. System control valve shall be rated for normal system pressure but in no case less than 175 PSI. (No Substitutions Allowed).

2.03 FIRE DEPARTMENT SIAMESE CONNECTION

- A. Use new brass flush wall type, exterior fire department connection with a minimum of two 65 mm (2-1/2 inch) connections threaded to match those on the local fire protection service, with polished brass caps and chains. Provide escutcheon with integral raised letters "Automatic Sprinkler" "Standpipe and Automatic Sprinkler". Install an automatic ball drip between fire department connection and check valve with drain piping routed to the exterior of the building.

2.04 SPRINKLERS

- A. All sprinklers shall be FM approved. Provide quick response recessed type fire sprinklers in all areas, except where specifically prohibited by their listing or approval.

1. In generator electrical and telecom rooms: Standard response sprinklers.
 2. Provide 'cages' to protect sprinkler heads from breakage/damage when the elevation of the head is less than 7 feet 6 inches above finished floor (mechanical rooms, janitor closets, etc).
 3. Sprinkler heads shall be installed in center of tile or center to center.
- B. Temperature Ratings: In accordance with NFPA 13:
1. Sprinklers in electrical rooms, telecom rooms, and "doghouses": High temperature rated.
- 2.05 SPRINKLER CABINET
- A. Provide sprinkler cabinet with the required number of sprinkler heads of all ratings and types installed, and a sprinkler wrench for each system. Locate adjacent to the riser.
- 2.06 FLEXIBLE SPRINKLER HOSE
- A. U.L. 2443 and FM 1637 approved type 304 stainless steel, 2'-0" to 6'-0" lengths, 1/2" or 3/4" outlets, 175 psi maximum rated pressure, fully welded non-mechanical fittings, braided, leak tested with minimum 1 inch true bore internal corrugated hose diameter. Provide elbow hose assembly as required.
- B. Ceiling. Brackets: Galvanized steel, multi-port style, self-securing integrated snap-on clip ends with tamper resistant screws, and removable hub type with set screw flexible hose attachment.
- 2.07 IDENTIFICATION SIGNS/HYDRAULIC PLACARDS
- A. Steel or aluminum signs with white lettering on a red background with holes for easy attachment. Enter pertinent data for each system on the hydraulic placard.
- 2.08 SWITCHES:
- A. Contain in a weatherproof die cast/red baked enamel, oil resistant, aluminum housing with tamper resistant screws, 13 mm (1/2 inch) conduit entrance and necessary facilities for attachment to the valves. Provide two SPDT switches rated at 2.5 amps at 24 VDC.
- B. Water flow Alarm Switches: Mechanical, non-coded, non-accumulative retard and adjustable from 0 to 60 seconds minimum. Set flow switches at an initial setting between 20 and 30 seconds.
- C. Valve Supervisory Switches for Ball and Butterfly Valves: May be integral with the valve.
- 2.09 ELECTRIC BELL:
- A. UL listed and Factory Mutual approved electric alarm bell.
- 2.10 GAUGES
- A. Provide gauges as required by NFPA 13.

2.11 PIPE HANGERS AND SUPPORTS

- A. Supports, hangers, etc., of an approved pattern placement to conform to NFPA 13. System piping shall be substantially supported to the building structure. The installation of hangers and supports shall adhere to the requirements set forth in NFPA 13, Standard for Installation of Sprinkler Systems. Materials used in the installation or construction of hangers and supports shall be listed and approved for such application. Hangers or supports not specifically listed for service shall be designed and bear the seal of a professional engineer.

2.12 WALL, FLOOR AND CEILING PLATES

- A. Provide chrome plated steel escutcheon plates for exposed piping passing through walls, floors or ceilings.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Installation shall be accomplished by the licensed contractor. Provide a qualified technician, experienced in the installation and operation of the type of system being installed, to supervise the installation and testing of the system.
- B. Installation of Piping: Accurately cut pipe to measurements established by the installer and work into place without springing or forcing. In any situation where bending of the pipe is required, use a standard pipe-bending template. Install concealed piping in spaces that have finished ceilings. Where ceiling mounted equipment exists, install sprinklers so as not to obstruct the movement or operation of the equipment. Sidewall heads may need to be utilized. Locate piping in stairways as near to the ceiling as possible to prevent tampering by unauthorized personnel, and to provide a minimum headroom clearance of 2250 mm (seven feet six inches). To prevent an obstruction to egress, provide piping clearances in accordance with NFPA 101.
- C. Welding: Conform to the requirements and recommendations of NFPA 13.
- D. Drains: Pipe drains to discharge at safe points outside of the building or to sight cones attached to drains of adequate size to readily carry the full flow from each drain under maximum pressure. Do not provide a direct drain connection to sewer system or discharge into sinks. Install drips and drains where necessary and required by NFPA 13.
- E. Supervisory Switches: Provide supervisory switches for sprinkler control valves.
- F. Waterflow Alarm Switches: Install waterflow switch and adjacent valves in easily accessible locations.
- G. Inspector's Test Connection: Install and supply in conformance with NFPA 13, locate in a secured area, and discharge to the exterior of the building.
- H. Affix cutout disks, which are created by cutting holes in the walls of pipe for flow switches and non-threaded pipe connections to the respective waterflow switch or pipe connection near to the pipe from where they were cut.

- I. Provide pressure gauge at each water flow alarm switch location and at each main drain connection.
- J. For each fire department connection, provide the symbolic sign given in NFPA 170 and locate 2400 to 3000 mm (8 to 10 feet) above each connection location. Size the sign to 450 by 450 mm (18 by 18 inches) with the symbol being at least 350 by 350 mm (14 by 14 inches).
- K. Securely attach identification signs to control valves, drain valves, and test valves. Locate hydraulic placard information signs at each sectional control valve where there is a zone water flow switch.
- L. Repairs: Repair damage to the building or equipment resulting from the installation of the sprinkler system by the installer at no additional expense to the Owner.

3.02 INSPECTION AND TEST

- A. Preliminary Testing: Flush newly installed systems prior to performing hydrostatic tests in order to remove any debris which may have been left as well as ensuring piping is unobstructed. Hydrostatically test system, including the fire department connections, as specified in NFPA 13, in the presence of the Owners or his designated representative. Test and flush underground water line prior to performing these hydrostatic tests.
- B. Final Inspection and Testing: Subject system to tests in accordance with NFPA 13, and when all necessary corrections have been accomplished, advise Owner to schedule a final inspection and test. Connection to the fire alarm system shall have been in service for at least ten days prior to the final inspection, with adjustments made to prevent false alarms. Furnish all instruments, labor and materials required for the tests and provide the services of the installation foreman or other competent representative of the installer to perform the tests. Correct deficiencies and retest system as necessary, prior to the final acceptance. Include the operation of all features of the systems under normal operations in test.

3.03 INSTRUCTIONS

- A. Furnish the services of a competent instructor for not less than two hours for instructing personnel in the operation and maintenance of the system, on the dates requested by the Owner.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. The requirements listed in this section are supplemental to the Division 01 General Requirements.
- B. It shall be the responsibility of the Plumbing and Mechanical Contractor to examine and refer to all Architectural, Civil, Structural, Electrical, and Landscape and specifications for construction conditions which may affect the scope of Plumbing and HVAC work. Inspect the building site and existing facilities for verification of present conditions. Make proper provisions for these conditions in performance of the work and cost thereof.
- C. Plumbing and Mechanical work for this project shall include all items, articles, materials and the associated labor mentioned, scheduled or shown in these specifications and in the accompanying drawings.
- D. Furnish and install all equipment, materials and any required incidental items required by good practice to complete the systems described herein.

1.2 CODES AND STANDARDS

- A. Work shall meet the requirements of the plans and specifications and shall not be less than the minimum requirements of applicable sections of the latest Codes and Standards of the following Organizations:
 - 1. American Gas Association (AGA)
 - 2. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
 - 3. American Society of Mechanical Engineers (ASME)
 - 4. Sheet Metal and Air Conditioning Contractors' National Association Inc. (SMACNA)
 - 5. American Water Works Association (AWWA)
 - 6. National Electrical Code (NEC)
 - 7. National Electrical Manufacturers Association (NEMA)
 - 8. National Fire Protection Association (NFPA)
 - 9. Uniform Plumbing Code (UPC)
 - 10. Occupational Safety & Health Act (OSHA)
 - 11. Plastic Pipe Institute (PPI)
 - 12. International Mechanical Code (IMC)
 - 13. International Fuel Gas Code (IFGC)
 - 14. International Building Code (IBC)
 - 15. International Energy Conservation Code (IECC)
 - 16. Requirements of the Serving Utility Company
 - 17. Local and State Codes and Ordinances

1.3 FEES AND PERMITS

- A. The Plumbing and Mechanical Contractors shall pay all fees and arrange all permits required for work done under their contract and under their supervision by subcontract.

- B. All usage contracts between the Owner and the serving utilities company, such as membership and usage charges or fees, etc., for the purpose of obtaining the services for the utility company shall be applied for and paid for by the Owner.

1.4 MATERIALS AND EQUIPMENT

- A. Manufacturer's trade names and catalog numbers listed are intended to indicate the quality of equipment or materials desired. Manufacturers not listed in the specification will be considered substitutions and must have prior approval.
- B. See Division 01 for Substitutions Procedures. Requests for substitution are to be submitted sufficiently ahead of the deadline, to give ample time for examination. Prior approval request for substitution must indicate the specific item or items to be furnished in lieu of those scheduled, together with complete technical and comparative data on scheduled items and items proposed for substitution.
- C. If the engineer approves any proposed substitution, the approved product will be listed in an addendum. Bidders shall not rely on approval made in any other manner.
- D. Mechanical equipment may be installed with manufacturer's standard finish and color except where specific color, finish or choice is indicated. If the manufacturer has no standard finish, equipment shall have a prime coat and two finish coats of gray enamel.
- E. High altitude operation: Capacity of all equipment is to be sized and manufactured to perform at the elevation of the project site. If not specifically indicated in the equipment schedule or in the specifications provide all required accessories and equipment for proper operation at elevation of the project site.
- F. This Contractor shall be responsible for materials and equipment installed under this contract. Contractor shall also be responsible for the protection of materials and equipment of others from damage as a result of his work.
- G. Manufactured material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by manufacturer unless herein specified to the contrary.
- H. This Contractor shall make the required arrangement with the General Contractor or Construction Manager for the introduction into the building of equipment too large to pass through finished openings.
- I. Store materials and equipment indoors at the job site. If this is not possible, store on raised platforms and protect from the weather by means of waterproof covers. Coverings shall permit circulation of air around the materials to prevent condensation of moisture. Screen or cap openings in equipment to prevent the entry of vermin.

1.5 INTENT OF DRAWINGS

- A. The drawings are diagrammatic and do not necessarily show exact location of piping and ductwork unless specifically dimensioned. Riser and other diagrams are schematic and do not necessarily show the physical arrangement of the equipment. They shall not be used for obtaining lineal runs of piping or ductwork, nor shall they be used for shop drawings for piping and ductwork fabrication or ordering. Discrepancies shown on different plans, or between plans and actual field conditions shall be brought to the attention of the Architect/Engineer for resolution.

1.6 COMMISSIONING OF SYSTEMS

- A. Mechanical systems where the total mechanical equipment capacity is greater than 480,000 Btu/hr cooling capacity and 600,000 Btu/hr heating capacity shall be commissioned in accordance with the provisions of C408 of the International Energy Conservation Code by a registered professional. The mechanical contractor shall be responsible for all cost associated with commissioning.

1.7 RESPONSIBILITY

- A. Plumbing and HVAC work shall conform to requirements of all divisions 22 and 23 specifications.
- B. The Plumbing and Mechanical Contractors shall be responsible for the installation of a satisfactory and complete system in accordance with the intent of the drawing and specifications. Provide, at no extra cost, all incidental items, materials, accessories and labor required for completion of the work even though they are not specifically mentioned or indicated on the drawings or in the specifications.
- C. The drawings do not attempt to show complete details of the building construction which affect the mechanical and plumbing installation; and reference is therefore required to the Architectural, Civil, Structural, Landscape and Electrical drawings and specifications and to shop drawings of all trades for additional details which affect the installation of the work covered under this Division of the Contract.
- D. Location of mechanical and plumbing system components shall be checked for conflicts with openings, structural members and components of other systems having fixed locations. In the event of any conflicts, the Architect/Engineer shall be consulted and their decision shall govern. Necessary changes shall be made at the Contractor's expense.
- E. Determine, and be responsible for, the proper location and character of inserts for hangers, chases, sleeves, and other openings in the construction required for the work, and obtain this information well in advance of the construction progress so work will not be delayed.
- F. Final location of inserts, hangers, etc., required for each installation, must be coordinated with facilities required for other installations to prevent interference.
- G. Take extreme caution not to install work that connects to equipment until such time as complete Shop Drawings of such equipment have been approved by the Architect/Engineer. Any work installed by the Contractor, prior to approval of Shop Drawings, will be at the Contractor's risk.
- H. All modifications and changes required due to installation of equipment other than the scheduled equipment shall be made at the contractor's expense.
- I. It shall be the responsibility of the installing contractor to coordinate changes to work by other trades that result from the installation of equipment other than the scheduled equipment.
- J. If the provided equipment is heavier or larger than the scheduled or specified equipment, it shall be the responsibility of the installing contractor to coordinate the required structural changes and pay for any and all associated cost.
- K. If the provided equipment has different motor characteristics or electrical requirements than the scheduled or specified equipment, it shall be the responsibility of the installing contractor to coordinate the required changes and pay for any and all associated cost.

- L. If larger or additional electrical conduits, wire or breakers are required due to the installation of equipment other than the scheduled or specified equipment it shall be the responsibility of the installing contractor to coordinate the required changes and pay for any and all associated cost.
- M. If the provided equipment requires different fluid flow rates than the scheduled or specified equipment, it shall be the responsibility of the installing contractor to coordinate all required changes including but not limited to pumps, piping, valves, etc and pay for any and all associated cost.
- N. At all times during the performance of this Contract, properly protect work from damage and protect the Owner's property from injury or loss. Make good any damage, injury or loss, except such as may be directly due to errors in the Bidding Documents or caused by Agents or Employees of the Owner. Adequately protect adjacent property as provided by law and the Bidding Documents. Provide and maintain passageways, guard fences, lights and other facilities for protection required by Public Authority or Local conditions.
- O. The Contractor shall be responsible for damages incurred due to the work of their contractors, to the building or its contents, people, etc.

1.8 REVIEW

- A. All work and material is subject to review at any time by the Architect/Engineer or his representative. If the Architect/Engineer or his representative finds material that does not conform to these specifications or that is not properly installed or finished, correct the deficiencies in a manner satisfactory to the Architect/Engineer at the Contractor's expense.

1.9 WORKMANSHIP

- A. Work under this contract shall be performed by workmen skilled in the particular trade, including work necessary to properly complete the installation in a workmanlike manner to present a neat and finished appearance.
- B. Obtain Architect's/Engineer's approval before performing any cutting on structural members or patching of building surfaces. Any damage to the building or equipment by the Mechanical or Plumbing Contractor shall be the responsibility of the Mechanical or Plumbing Contractor and shall be repaired by skilled craftsmen of the trades involved at the Contractor's expense.
- C. Chases, openings, sleeves, hangers, anchors, recesses, equipment pads, and framing for equipment; shall be provided by others only if so noted on the drawings. Otherwise, they will be provided by the Mechanical or Plumbing Contractor for their work.

1.10 COORDINATION

- A. This Mechanical and Plumbing Contractors shall plan their work to proceed with a minimum interference with other trades and it shall be their responsibility to inform the General Contractor of all openings required in the building structure for installation of work, and to provide sleeves as required. Dimensions of equipment installed and/or provided by others shall be checked so that correct clearances and connections may be made.
- B. In general, pipelines requiring gravity drainage shall be installed first, followed by ductwork, large piping mains and electrical conduit. The location of fire protection piping and heads shall be coordinated with other trades to ensure that installations by other trades do not block heads.

- C. Leave sufficient space for the installation of insulation on piping and ductwork as specified. It is not acceptable to compress pipe or duct insulation for any reason.

1.11 CLEANING

- A. Keep the job site clean. The Mechanical and Plumbing Contractors shall remove all waste and rubbish associated with their work.
- B. Upon completion of work, remove materials, scraps and debris related to plumbing and mechanical work and leave all spaces including tunnels, crawlspaces, pipe or duct chases and ceiling plenums clean and orderly.
- C. The Mechanical and Plumbing contractors will be responsible for cleaning the exterior and interior of all equipment prior to start-up. Once all equipment has been cleaned it shall be inspected by the Architect/Engineer prior to start-up.
- D. The Mechanical and Plumbing Contractors shall provide dust protection of existing materials and equipment as well a new materials and equipment for the duration of the project. Protect existing materials and equipment from damage for the duration of the project. Clean the exterior and interior of all existing equipment at the completion of the project.

1.12 TEMPORARY FACILITIES

- A. Offices
 - 1. The Mechanical and Plumbing Contractor must have the permission of the Owner and General Contractor or Construction Manager to install a temporary office/job trailer on the project site.
 - 2. The Contractor shall completely remove his temporary installations when no longer needed and the premises shall be completely clean, disinfected, patched, and refinished to match adjacent areas.
- B. Ladders and Scaffolds
 - 1. The Mechanical and Plumbing Contractors shall provide their own ladders, scaffolds, etc. of substantial construction for access to their work in various portions of the building as may be required. When no longer needed, they shall be removed by the Contractor.
- C. Protection Devices
 - 1. The Mechanical and Plumbing Contractors shall provide and maintain his own necessary barricades, fences, signal lights, etc., required by all governing authorities or shown on the drawings. When no longer needed, they shall be removed by the Contractor.
- D. TEMPORARY FIRE PROTECTION
 - 1. The Mechanical and Plumbing Contractors shall provide all necessary first aid hand fire extinguishers for Class A, B, C and special hazards as may exist in his own work area only in accordance with good and safe practice and as required by jurisdictional safety authority.

1.13 SUBMITTALS

- A. Submittals will be required for each piece of equipment, material or product as noted in the table below. All submittals shall be submitted, reviewed and all discrepancies addressed prior to ordering equipment or starting work. Any equipment ordered without having first completed the

submittal process is done at the risk of the contractor. Any work performed prior to completing the submittal process is done at the risk of the contractor.

Specification Section	Product Data	Performance Data	Shop Drawing	Delegated Design	Wiring Diagram	Color Chart	Sustainability Compliance	Notes
220500	X			X				Provide Delegated Design per the requirements of this section
220523	X							
220529	X			X				Provide Delegated Design per the requirements of this section
220548	X			X				Provide Delegated Design per the requirements of this section
220553	X							
221116	X							
221119	X							
221316	X						X	
221319	X							
224100	X	X	X			X	X	
230593								Provide T&B Certifications
230713	X	X					X	
233113								
233300	X	X						
233346	X							
233713	X	X						

B. Submittal Definitions

1. Product Data: Provide manufacturers' cut sheets that include general product information including but not limited to, model number, physical data, nominal capacities, and rough-in requirements.
2. Performance Data: Provide detailed performance and capacities based on project specific requirements including but not limited to: flow rates, capacities, pressure loss, temperatures, fan curves, pump curves, part load performance, sound data, and electrical characteristics.
3. Shop Drawings: Provide detailed drawings of the equipment showing overall dimensions, location of electrical and piping connection, location of anchorage points, location of electrical and control panels, and all operating, service and maintenance clearances.
4. Delegated Design: Provide detailed drawings prepared and stamped by a registered Professional Engineer, that detail pertinent design criteria, the materials and products to be installed and the required installation locations.
5. Wiring Diagram: Provide diagrams that identify and detail required field wiring.
6. Color Chart: Provide a physical color chart of material samples required for selection of equipment colors.

7. Sustainability Compliance: Provide literature that indicates a products compliance with LEED or Green Globes. See Division 01 for additional information and requirements.

C. Submittal Formats:

1. Include the following information with each submittal:
 - a. Project Name
 - b. Submittal Date
 - c. Name of Architect
 - d. Name of Engineer
 - e. Name of General Contractor or Construction Manager
 - f. Name of Sub-Contractor
 - g. Name of firm or entity that prepared the submittal
 - h. Unique Submittal Number
 - i. Type of Submittal
 - j. Specification Section
 - k. Name or Mark of equipment or material and detail or drawings reference.
2. All Submittals with the exception of color charts or material samples shall be electronically transmitted PDFs.

D. Submittal Requirements

1. Submittals shall be submitted as a complete specification section. The submittal must include all materials and equipment for that specification section. Submittals for individual materials of equipment will be rejected without review.
2. Submittals shall be complete, clearly show item used, size, dimensions, capacity, rough in, etc., as required for complete check and installation. Manufacturer's literature showing more than one item shall be clearly marked as to which item is being furnished or it will be rejected and returned without review.
3. Each submittal shall be thoroughly checked by the Contractor for compliance with the Contract Document requirements, accuracy of dimensions, relationship to the work of other trades, and conformance with sound, safe practices as to erection and installation. Each submittal shall then bear a stamp evidencing such checking and shall show corrections made, if any. Submittals requiring extensive corrections shall be revised before submission. Each submittal not stamped and signed by the Contractor evidencing such checking will be rejected and returned without review.
4. On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations. Include relevant additional information and revisions, other than those requested on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
5. Review of the shop drawings and literature by the engineer shall not relieve the contractor for responsibility for deviations from the drawings or specifications, nor shall it relieve the contractor from responsibility for errors in the shop drawings or literature. It is the responsibility of the contractor to provide materials and equipment which meet the specifications and job requirements.

1.14 OPERATION AND MAINTENANCE MANUALS

- A. Operation and Maintenance Manuals (O&M Manuals) shall contain:

1. Names and contact information for the Project Architect, Project Engineer.
 2. Names and contact information for the General Contractor or Construction Manager.
 3. Names and contact information for sub-contractors.
 4. Installation, maintenance and operating instructions for each piece of equipment.
 5. Parts lists
 6. Wiring Diagrams
 7. Equipment Start-up and inspection certificates
 8. Test and Balance Reports
 9. Commissioning Reports
 10. Copies of Equipment Warranties
 11. Copies of Submittals
 12. Record Drawings.
- B. Prior to substantial completion, submit an electronic copy of the O&M manual in PDF format to the Architect, Engineer and Owner for Review and approval. The PDF shall be one file with an index and hyperlinks to each section. Individual bound PDFs without automated navigation will be rejected. All O&M data shall be grouped by the equipment type and ordered by the specification numbering.
- C. Prior to final payment a final electronic copy of the O&M manual on an archival quality DVD as well as two printed copies, shall be furnished to the owner. Printed copies shall have commercial quality 8-1/2" x 11" 3-ring binders with tabbed dividers for each section.

1.15 AS-BUILT RECORD DRAWINGS

- A. The Contractor shall furnish to the Owner and Architect/Engineer a marked print showing the location of all concealed or underground pipe or conduit runs and other equipment installed other than as shown on the drawings. Dimension underground lines from established building lines. Indicate all installed pull boxes in conduit runs.
- B. The Contractor shall furnish to the Architect/Engineer a marked print showing the location of all mechanical equipment, plumbing fixtures, piping, ductwork, diffusers, grilles, etc. The location of any item which deviates from the bid documents shall be accurately drawn and dimensioned.
- C. All underground piping and ductwork shall be dimensioned from nearest column and/or exterior walls. The location of all maintenance related items, such as duct access doors, fire dampers, isolation valves, filters, etc., shall be highlighted on the as built drawing.

1.16 PLACING SYSTEM INTO OPERATION

- A. Prior to the starting of equipment, the Mechanical or Plumbing Contractor shall thoroughly inspect the installation and any work completed by other trades and subcontractors to verify compliance with the contract documents.
- B. Start-up of all HVAC equipment shall be completed by factory trained representatives. At the completion of start-up, the factory representative shall submit to the architect and engineer, a start-up report that indicates any problems encountered, potential problems including installation issues, adjustments made or required to be made to ensure proper operation of the equipment. Any installation deficiencies identified shall be corrected at no additional cost to the owner.

1.17 OWNER TRAINING

- A. General
 - 1. The system training is intended to familiarize the Owner's operating and maintenance staff with all systems requiring maintenance. Training is to be provided after the systems are in place and operational, after issues noted during commissioning have been resolved, and before final acceptance.
 - 2. Provide second set of training sessions for automatic control systems about 6-9 months after the first sessions.
- B. Systems Requiring Training
 - 1. All mechanical, electrical, safety, standby, and automatic control systems in the project, and other systems specified elsewhere to have training.
- C. Attendance:
 - 1. Training is to be provided by contractor's representatives that are familiar with the system's operation and maintenance requirements. Individual training sessions (modules) shall be provided for each type or group of systems, separated roughly by trade group that will be performing maintenance on the system. The trades groups and systems typically requiring training are:
 - a. HVAC & Refrigeration (refrigeration, packaged cooling systems, packaged rooftop units, fan systems, controls)
 - b. Plumbers (Domestic and Sanitary Plumbing, packaged rooftop units, miscellaneous process piping systems)
- D. Schedule:
 - 1. Duplicate training sessions are to be provided for each training module, so that the Owner's operating personnel can be split into two groups during training. Duplicate training sessions shall be scheduled on different days. Length of training sessions will be determined by scope of training indicated below, and as coordinated with Owner after draft copy of training documents have been reviewed.
- E. Training Documentation:
 - 1. Contractor to submit draft copy of agenda and training documents to Owner for review at least two weeks prior to training date.
 - 2. Provide a copy of the following items for each person that will be attending the training sessions. Coordinate required number with the Owner.
 - a. Training agenda.
 - b. Summary of new systems and existing systems affected by this project.
 - c. Summary of work performed under this project.
 - d. Control system drawings and sequences of operation.
 - e. List of important maintenance and trouble-shooting operations for all systems.
 - 3. Provide minimum of 2 copies of following items:
 - a. Contract documents including all drawings, specifications, addendums, and change orders.
- F. Training Sessions:
 - 1. Assemble at location to be determined by the Owner.
 - 2. Distribute training documentation as indicated above.
 - 3. Provide classroom style training if required for orientation and discussion of new systems and existing systems affected by this project, and other issues appropriate for a classroom format.
 - 4. Visit site and review locations; and perform detailed review of operation and maintenance requirements for current systems.

1.18 WARRANTY

- A. The Contractor shall guarantee that all materials and labor installed are new and of first quality and that any material or labor found defective shall be replaced without cost to the Owner within one (1) year after substantial completion of the Contract or one (1) full season of heating and cooling operation, whichever is the greater. The guarantee shall list the date of the beginning of the one (1) year period, which shall be the date that the Substantial Completion Certificate is issued.
- B. Any damage to the building, caused by defective work or material of the Contractor within the above-mentioned period, shall be satisfactorily repaired without cost to the Owner.
- C. The guarantee does not include maintenance of equipment. The Owner shall accept full responsibility for proper operation and maintenance of equipment immediately upon substantial completion and occupancy of the building.
- D. Final acceptance by the Owner will not occur until all operating instructions are mounted in Equipment Rooms and Operating Personnel are thoroughly indoctrinated in the operation of all mechanical equipment by the Contractor.
- E. No equipment installed as part of this project shall be used for temporary heat during construction.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Section includes the following:
 - 1. Expansion Fittings and Loops for Piping Systems
 - 2. Alignment Guides and Anchors
 - 3. Dielectric Fittings
 - 4. Pipe Sleeves
 - 5. Sleeve Seals Systems for Piping
 - 6. Silicone Sealant
 - 7. Escutcheons for Piping
 - 8. Floor Plates

1.02 SUBMITTALS

- A. See Section 220000 "General Requirements of Plumbing and HVAC" for Submittal requirements.

1.03 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Pipe and Pressure-Vessel Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

1.04 PERFORMANCE REQUIREMENTS

- A. Compatibility: Products shall be suitable for piping service fluids, materials, working pressures, and temperatures.
- B. Capability: Products to absorb 200 percent of maximum axial movement between anchors.

PART 2 PRODUCTS**2.01 EXPANSION FITTINGS AND LOOPS FOR PIPING SYSTEMS**

- A. Rubber Union Connector Expansion Joints
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Mason Industries, Inc.
 - b. MetraFlex.
 - c. Twin City Hose.
 - 2. Material: Twin reinforced-rubber spheres with external restraining cables.
 - 3. Minimum Pressure Rating: 150 psig at 170 deg F, unless otherwise indicated.
 - 4. End Connections for NPS 2 and Smaller: Threaded.

- B. Flexible-Hose Packless Expansion Joints:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Mason Industries, Inc.
 - b. Metraflex Company (The).
 - c. Twin City Hose Inc.
 2. Description: Manufactured assembly with inlet and outlet elbow fittings and two flexible-metal-hose legs joined by long-radius, 180-degree return bend or center section of flexible hose.
 3. Flexible Hose: Corrugated-metal inner hoses and braided outer sheaths.
 4. Expansion Joints for Copper Tubing NPS 2 and Smaller: Copper-alloy fittings with solder-joint end connections.
 - a. Bronze hoses and single-braid bronze sheaths with 450 psig at 70 deg F and 340 psig at 450 deg F ratings.
 5. Expansion Joints for Copper Tubing NPS 2-1/2 to NPS 4: Copper-alloy fittings with threaded end connections.
 - a. Stainless-steel hoses and single-braid, stainless-steel sheaths with 300 psig at 70 deg F and 225 psig at 450 deg F ratings.
 6. Expansion Joints for Steel Piping NPS 2 and Smaller: Carbon-steel fittings with threaded end connections.
 - a. Stainless-steel hoses and single-braid, stainless-steel sheaths with 450 psig at 70 deg F and 325 psig at 600 deg F ratings.
 7. Expansion Joints for Steel Piping NPS 2-1/2 to NPS 6: Carbon-steel fittings with flanged end connections.
 - a. Stainless-steel hoses and single-braid, stainless-steel sheaths with 200 psig at 70 deg F and 145 psig at 600 deg F ratings.

2.02 ALIGNMENT GUIDES AND ANCHORS

- A. Alignment Guides
1. Description: Steel, factory-fabricated alignment guide, with bolted two-section outer cylinder and base for attaching to structure; with two-section guiding slider for bolting to pipe.
- B. Anchor Materials:
1. Steel Shapes and Plates: ASTM A 36/A 36M.
 2. Bolts and Nuts: ASME B18.10 or ASTM A 183, steel hex head.
 3. Washers: ASTM F 844, steel, plain, flat washers.
 4. Mechanical Fasteners: Insert-wedge-type stud with expansion plug anchor for use in hardened portland cement concrete, with tension and shear capacities appropriate for application.
 - a. Stud: Threaded, zinc-coated carbon steel.
 - b. Expansion Plug: Zinc-coated steel.
 - c. Washer and Nut: Zinc-coated steel.
 5. Chemical Fasteners: Insert-type stud, bonding-system anchor for use with hardened portland cement concrete, with tension and shear capacities appropriate for application.
 - a. Bonding Material: ASTM C 881/C 881M, Type IV, Grade 3, two-component epoxy resin suitable for surface temperature of hardened concrete where fastener is to be installed.
 - b. Stud: ASTM A 307, zinc-coated carbon steel with continuous thread on stud, unless otherwise indicated.
 - c. Washer and Nut: Zinc-coated steel.
 - 6.

2.03 DIELECTRIC FITTINGS

- A. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.
- B. Dielectric Unions:
1. Dielectric Unions are not allowed.
- C. Dielectric Flanges:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Capitol Manufacturing Company; member of the Phoenix Forge Group.
 - b. Central Plastics Company.
 - c. Matco-Norca.
 - d. Watts; a division of Watts Water Technologies, Inc.
 - e. Wilkins; a Zurn company.
 2. Standard: ASSE 1079.
 3. Factory-fabricated, bolted, companion-flange assembly.
 4. Pressure Rating: 175 psig.
 5. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.
- D. Dielectric-Flange Insulating Kits:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.
 - c. Central Plastics Company.
 - d. Pipeline Seal and Insulator, Inc.
 2. Nonconducting materials for field assembly of companion flanges.
 3. Pressure Rating: 150 psig.
 4. Gasket: Neoprene or phenolic.
 5. Bolt Sleeves: Phenolic or polyethylene.
 6. Washers: Phenolic with steel backing washers.
- E. PEX Dielectric Separator:
1. Description: 6" long section of pex piping shall be installed between dis-similar piping materials.
 2. Pipe Material: PEX plastic according to ASTM F 876.
 3. Oxygen Barrier: O₂ permeability ≤ 0.32 mg/m²/day in accordance with DIN 4726.
 4. Fittings: ASTM F 1960, cold expansion fittings and reinforcing rings.
 5. Pressure/Temperature Rating: Minimum 100 psig and 180 deg F.

2.04 SLEEVES

- A. Galvanized-Steel Sheet Pipe Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

2.05 SLEEVE-SEAL SYSTEMS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Advance Products & Systems, Inc.
 2. CALPICO, Inc.
 3. GPT; an EnPro Industries company.

4. Metraflex Company (The).
- B. Description:
1. Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.
 2. Designed to form a hydrostatic seal of 20-psig.
 3. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size.
 4. Pressure Plates: Composite plastic.
 5. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

2.06 SILICONE SEALANTS

- A. Silicone, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT. Grade P Pourable (self-leveling) formulation is for opening in floors and other horizontal surfaces that are not fire rated.

2.07 ESCUTCHEONS

- A. One-Piece, Cast-Brass Type: With polished, chrome-plated finish and setscrew fastener.
- B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with chrome-plated finish and spring-clip fasteners.
- C. One-Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

2.08 FLOOR PLATES

- A. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.

PART 3 EXECUTION

3.01 EXPANSION JOINT INSTALLATION

- A. Install expansion joints of sizes matching sizes of piping in which they are installed.
- B. Install expansion joint per the manufacture's written instructions.

3.02 ALIGNMENT-GUIDE AND ANCHOR INSTALLATION

- A. Install alignment guides to guide expansion and to avoid end-loading and torsional stress.
- B. Install two guide(s) on each side of pipe expansion fittings and loops. Install guides nearest to expansion joint not more than four (4) pipe diameters from expansion joint.
- C. Attach guides to pipe, and secure guides to building structure.

- D. Install anchors at locations to prevent stresses from exceeding those permitted by ASME B31.9 and to prevent transfer of loading and stresses to connected equipment.
- E. Anchor Attachments:
1. Anchor Attachment to Steel Pipe: Attach by welding. Comply with ASME B31.9 and ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
 2. Anchor Attachment to Copper Tubing: Attach with pipe hangers. Use MSS SP-69, Type 24; U bolts bolted to anchor.
- F. Fabricate and install steel anchors by welding steel shapes, plates, and bars. Comply with ASME B31.9 and AWS D1.1/D1.1M.
1. Anchor Attachment to Steel Structural Members: Attach by welding.
 2. Anchor Attachment to Concrete Structural Members: Attach by fasteners. Follow fastener manufacturer's written instructions.
- G. Use grout to form flat bearing surfaces for guides and anchors attached to concrete.

3.03 DIELECTRIC FITTING INSTALLATION

- A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.
- B. Install Dielectric fittings per the manufacturers written instructions.
- C. Install pipe hangers immediately upstream and downstream of dielectric fittings.
- D. Install isolation valves immediately upstream and downstream of dielectric fittings.
- E. Dielectric Fittings for NPS 2 and Smaller: PEX Dielectric Separator.
- F. Dielectric Fittings for NPS 2-1/2 and Larger: Dielectric Flange.

3.04 SLEEVE INTALLATION

- A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.
- B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.
- C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
1. Cut sleeves to length for mounting flush with both surfaces.
 - a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.
 2. Using silicone sealant, seal space outside of sleeves in slabs and walls without sleeve-seal system.
- D. Fire-Resistance-Rated Penetrations, Horizontal Assembly Penetrations, and Smoke-Barrier Penetrations: Maintain indicated fire or smoke rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire- and smoke-stop materials. Comply with requirements for firestopping and fill materials specified in Section 078413 "Penetration Firestopping."

3.05 SLEEVE-SEALS SYSTEM INSTALLATION

- A. Install sleeve-seal systems in sleeves in exterior concrete walls at piping entries into building.
- B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal-system components, and install in annular space between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.06 SLEEVE-SEAL SCHEDULE

- A. Use sleeve and sleeve-seals for the following piping-penetration applications:
 - 1. Exterior Concrete Walls Above Grade: Galvanized-Steel Sheet Pipe Sleeves with Sleeve-seal system
 - 2. Exterior Concrete Walls Below Grade: Galvanized-Steel Sheet Pipe Sleeves with Sleeve-seal system
 - 3. Interior or Exterior Concrete Slabs-on-Grade: Sleeve not required.
 - 4. Interior Concrete Slabs Above Grade: Galvanized-Steel Sheet Pipe Sleeves with Silicone Sealant or Fire calk
 - 5. Interior Partitions: Sleeve not require – fire calk penetrations of rated assemblies.

3.07 ESCUTCHEON INSTALLATION

- A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.
- B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

3.08 FLOOR PLATE INSTALLATION

- A. Install floor plates for piping penetrations of equipment-room floors.
- B. Install floor plates with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

A. Section includes:

1. Ball Valves
2. Butterfly Valves
3. Bronze Gate Valves
4. Iron Gate Valve
5. Bronze Check Valves
6. Iron Swing Check Valves
7. Iron Silent Check Valves

1.2 SUBMITTALS

A. See Section 220000 "General Requirements for Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 GENERAL REQUIREMENTS FOR VALVES**

A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.

B. ASME Compliance:

1. ASME B1.20.1 for threads for threaded-end valves.
2. ASME B16.1 for flanges on iron valves.
3. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
4. ASME B16.18 for solder-joint connections.
5. ASME B31.1 for power piping valves.
6. ASME B31.9 for building services piping valves.

C. Bronze valves shall be made with dezincification-resistant materials. Bronze valves made with copper alloy (brass) containing more than 15 percent zinc are not permitted.

D. Refer to valve schedule articles for applications of valves.

E. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.

F. Valve Sizes: Same as upstream piping unless otherwise indicated.

G. Valves in Insulated Piping:

1. Include 2-inch (50-mm) stem extensions.
2. Extended operating handle of nonthermal-conductive material, and protective sleeves that allow operation of valves without breaking the vapor seals or disturbing insulation.

3. Memory stops that are fully adjustable after insulation is applied.

2.2 BRONZE BALL VALVES, TWO-PIECE WITH FULL PORT AND STAINLESS-STEEL TRIM:

A. Manufacturers: Provide products from one of the following:

1. Apollo
2. Nibco
3. Milwaukee
4. Watts

B. Description:

1. Standard: MSS SP-110.
2. SWP Rating: 150 psig.
3. CWP Rating: 600 psig.
4. Body Design: Two piece.
5. Body Material: Bronze.
6. Ends: Solder or Threaded.
7. Seats: PTFE.
8. Stem: Stainless steel.
9. Ball: Stainless steel, vented.
10. Port: Full.

2.3 BRONZE GATE VALVES, NRS, CLASS 150:

A. Manufacturers: Provide products from one of the following:

1. Apollo
2. Nibco
3. Crane
4. Milwaukee

B. Description:

1. Standard: MSS SP-80, Type 1.
2. CWP Rating: 300 psig.
3. Body Material: ASTM B 62, bronze with integral seat and union-ring bonnet.
4. Ends: Threaded.
5. Stem: Bronze.
6. Disc: Solid wedge; bronze.
7. Packing: Asbestos free.
8. Handwheel: Malleable iron, bronze, or aluminum.

2.4 BRONZE SWING CHECK VALVES WITH BRONZE DISC, CLASS 125:

A. Manufacturer: Provide products from one of the following:

1. Apollo
2. Crane
3. Nibco
4. Watts

B. Description:

1. Standard: MSS SP-80, Type 3.
2. CWP Rating: 200 psig (1380 kPa).
3. Body Design: Horizontal flow.

4. Body Material: ASTM B 62, bronze.
5. Ends: Threaded or soldered. See valve schedule articles.
6. Disc: Bronze.

PART 3 - EXECUTION

3.1 VALVE INSTALLATION

- A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- B. Locate valves for easy access and provide separate support where necessary.
- C. Install valves in horizontal piping with stem at or above center of pipe.
- D. Install valves in position to allow full stem movement.

3.2 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. If valves with specified SWP classes or CWP ratings are unavailable, the same types of valves with higher SWP classes or CWP ratings may be substituted.
- B. Select valves with the following end connections:
 1. For Copper Tubing, NPS ½" – 2" and Smaller: solder ends.
 2. For Steel Piping, NPS 2" and Smaller: Threaded ends.
 3. For Steel Piping NPS 2-1/2" and larger: Flanged or Grooved ends.

3.3 VALVE SCHEDULE

- A. Domestic Water ½" – 2" NPS: Ball Valve, Solder or Threaded Ends
- B. Domestic Water 2-1/2" NPS and Larger: Butterfly Valve, Lug Type

3.4 CHECK VALVE SCHEDULE

- A. Pump Discharge ½" – 2" NPS: Bronze Swing Check, Threaded or Solder Ends
- B. Pump Discharge 2-1/2" NPS and Larger: Iron Body Globe Style Silent Check, Flanged Ends

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Metal pipe hangers and supports.
2. Trapeze pipe hangers.
3. Thermal-hanger shield inserts.
4. Fastener systems.
5. Pipe positioning systems.
6. Equipment supports.

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design:** Design trapeze pipe hangers and equipment supports, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Structural Performance:** Hangers and supports for plumbing piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.
1. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water.
 2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
 3. Design seismic-restraint hangers and supports for piping and equipment.

1.3 SUBMITTALS

- A. See Section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.**
- B. Shop Drawings:** Signed and sealed by a qualified professional engineer. Show fabrication and installation details and include calculations for the following; include Product Data for components:
1. Trapeze pipe hangers.
 2. Equipment supports.
- C. Delegated-Design Submittal:** For trapeze hangers indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 QUALITY ASSURANCE

- A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

PART 2 - PRODUCTS

2.1 METAL PIPE HANGERS AND SUPPORTS

- A. Carbon-Steel Pipe Hangers and Supports:
 - 1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
 - 2. Galvanized Metallic Coatings: Pre-galvanized or hot dipped.
 - 3. Nonmetallic Coatings: Plastic coating, jacket, or liner.
 - 4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
 - 5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.
- B. Copper Pipe Hangers:
 - 1. Description: MSS SP-58, Types 1 through 58, copper-coated-steel, factory-fabricated components.
 - 2. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

2.2 TRAPEZE PIPE HANGERS

- A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural carbon-steel shapes with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.3 THERMAL-HANGER SHIELD INSERTS

- A. Insulation-Insert Material for Cold Piping: ASTM C 591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength and vapor barrier.
- B. Insulation-Insert Material for Hot Piping: ASTM C 591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength.
- C. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- D. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- E. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.4 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
- B. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

2.5 PIPE POSITIONING SYSTEMS

- A. Description: IAPMO PS 42, positioning system of metal brackets, clips, and straps for positioning piping in pipe spaces; for plumbing fixtures in commercial applications.

2.6 EQUIPMENT SUPPORTS

- A. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.

2.7 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.
- B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
 - 1. Properties: Nonstaining, noncorrosive, and nongaseous.
 - 2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION**3.1 HANGER AND SUPPORT INSTALLATION**

- A. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.
- B. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.
 - 1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
 - 2. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

- C. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- D. Fastener System Installation:
 - 1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
 - 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- E. Pipe Positioning-System Installation: Install support devices to make rigid supply and waste piping connections to each plumbing fixture.
- F. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- G. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- H. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- I. Install lateral bracing with pipe hangers and supports to prevent swaying.
- J. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
- K. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- L. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.
- M. Insulated Piping:
 - 1. Attach clamps and spacers to piping.
 - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
 - b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
 - c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
 - 2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
 - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
 - a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.
4. Shield Dimensions for Pipe: Not less than the following:
 - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
 - b. NPS 4: 12 inches long and 0.06 inch thick.
 - c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
 - d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
 - e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.
5. Pipes NPS 8 and Larger: Include wood or reinforced calcium-silicate-insulation inserts of length at least as long as protective shield.
6. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.2 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make bearing surface smooth.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.3 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:
 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove welding flux immediately.
 4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.4 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- B. Touchup: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Section 099113 "Exterior Painting.", Section 099123 "Interior Painting.", Section 099600 "High-Performance Coatings."
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

3.6 HANGER AND SUPPORT SCHEDULE

- A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.
- B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.
- C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.
- D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- E. Use carbon-steel pipe hangers and supports and metal trapeze pipe hangers and attachments for general service applications.
- F. Use copper-plated pipe hangers and copper attachments for copper piping and tubing.
- G. Use padded hangers for piping that is subject to scratching.
- H. Use thermal-hanger shield inserts for insulated piping and tubing.
- I. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
 - 1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of non-insulated or insulated, stationary pipes NPS 1/2 to NPS 30.
 - 2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of up to 1050 deg F, pipes NPS 4 to NPS 24, requiring up to 4 inches of insulation.
 - 3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.
 - 4. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of non-insulated, stationary pipes NPS 1/2 to NPS 8.

5. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.
 6. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.
 7. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.
 8. Single-Pipe Rolls (MSS Type 41): For suspension of pipes NPS 1 to NPS 30, from two rods if longitudinal movement caused by expansion and contraction might occur.
 9. Complete Pipe Rolls (MSS Type 44): For support of pipes NPS 2 to NPS 42 if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
- J. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.
- K. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
 2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
- L. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
 2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction, to attach to top flange of structural shape.
 3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
 4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
 5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
 6. C-Clamps (MSS Type 23): For structural shapes.
 7. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:
 - a. Light (MSS Type 31): 750 lb.
 - b. Medium (MSS Type 32): 1500 lb.
 - c. Heavy (MSS Type 33): 3000 lb.
 8. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
 9. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
- M. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.

2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
 3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- N. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
 2. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41, roll hanger with springs.
 3. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from base support.
- O. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.
- P. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.
- Q. Use pipe positioning systems in pipe spaces behind plumbing fixtures to support supply and waste piping for plumbing fixtures.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Elastomeric isolation pads.
2. Elastomeric isolation mounts.
3. Restrained elastomeric isolation mounts.
4. Open-spring isolators.
5. Housed-spring isolators.
6. Restrained-spring isolators.
7. Housed-restrained-spring isolators.
8. Pipe-riser resilient supports.
9. Resilient pipe guides.
10. Elastomeric hangers.
11. Spring hangers.
12. Snubbers.
13. Restraint channel bracings.
14. Restraint cables.
15. Seismic-restraint accessories.
16. Mechanical anchor bolts.

1.2 ACTION SUBMITTALS

- A. See Section 220000 "General Requirements for Plumbing and HVAC" for submittal requirements.
- B. Delegated-Design Submittal: For each vibration isolation and seismic-restraint device.
 1. Include design calculations and details for selecting vibration isolators and seismic restraints complying with performance requirements, design criteria, and analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 QUALITY ASSURANCE

- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproval by ICC-ES, or preapproval by another agency acceptable to authorities having jurisdiction, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are unavailable, submittals based on independent testing

are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic-Restraint Loading:

1. Design seismic restraints for components for seismic design forces defined in Chapter 13 of ASCE 7-10.
 - a. Design Spectral Response Acceleration at Short Periods, $S_{DS} = 42.70\%g$
 - b. Component Importance Factor, $I_P = 1.0$; except for components conveying, supporting, or otherwise containing natural gas or other flammable and/or explosive contents, $I_P = 1.5$.
 - c. Component Response Modification Factor, R_P : See Table 13.6-1 of ASCE 7-10
 - d. Component Amplification Factor, a_P : See Table 13.6-1 of ASCE 7-10

2.2 ELASTOMERIC ISOLATION PADS

A. Elastomeric Isolation Pads:

1. Fabrication: Single or multiple layers of sufficient durometer stiffness for uniform loading over pad area.
2. Size: Factory or field cut to match requirements of supported equipment.
3. Pad Material: Oil and water resistant with elastomeric properties.
4. Surface Pattern: Smooth, Ribbed or Waffle pattern.
5. Infused nonwoven cotton or synthetic fibers.
6. Load-bearing metal plates adhered to pads.

2.3 ELASTOMERIC ISOLATION MOUNTS

A. Double-Deflection, Elastomeric Isolation Mounts:

1. Mounting Plates:
 - a. Top Plate: Encapsulated steel load transfer top plates, factory drilled and threaded with threaded studs or bolts.
 - b. Baseplate: Encapsulated steel bottom plates with holes provided for anchoring to support structure.
2. Elastomeric Material: Molded, oil-resistant rubber, neoprene, or other elastomeric material.

2.4 RESTRAINED ELASTOMERIC ISOLATION MOUNTS

A. Restrained Elastomeric Isolation Mounts:

1. Description: All-directional isolator with seismic restraints containing two separate and opposing elastomeric elements that prevent central threaded element and attachment hardware from contacting the housing during normal operation.

- a. Housing: Cast-ductile iron or welded steel.
- b. Elastomeric Material: Molded, oil-resistant rubber, neoprene, or other elastomeric material.

2.5 OPEN-SPRING ISOLATORS

- A. Freestanding, Laterally Stable, Open-Spring Isolators:
 - 1. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 - 2. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 - 3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 - 5. Baseplates: Factory-drilled steel plate for bolting to structure with an elastomeric isolator pad attached to the underside. Baseplates shall limit floor load to 500 psig (3447 kPa).
 - 6. Top Plate and Adjustment Bolt: Threaded top plate with adjustment bolt and cap screw to fasten and level equipment.

2.6 HOUSED-SPRING ISOLATORS

- A. Freestanding, Laterally Stable, Open-Spring Isolators in Two-Part Telescoping Housing:
 - 1. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 - 2. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 - 3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 - 5. Two-Part Telescoping Housing: A steel top and bottom frame separated by an elastomeric material and enclosing the spring isolators.
 - a. Drilled base housing for bolting to structure with an elastomeric isolator pad attached to the underside. Bases shall limit floor load to 500 psig.
 - b. Top housing with attachment and leveling bolt.

2.7 RESTRAINED-SPRING ISOLATORS

- A. Freestanding, Laterally Stable, Open-Spring Isolators with Vertical-Limit Stop Restraint:
 - 1. Housing: Steel housing with vertical-limit stops to prevent spring extension due to weight being removed.
 - a. Base with holes for bolting to structure with an elastomeric isolator pad attached to the underside. Bases shall limit floor load to 500 psig.
 - b. Top plate with threaded mounting holes.
 - c. Internal leveling bolt that acts as blocking during installation.
 - 2. Restraint: Limit stop as required for equipment and authorities having jurisdiction.
 - 3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 - 4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 - 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.

6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.8 HOUSED-RESTRAINED-SPRING ISOLATORS

- A. Freestanding, Steel, Open-Spring Isolators with Vertical-Limit Stop Restraint in Two-Part Telescoping Housing:
 1. Two-Part Telescoping Housing: A steel top and bottom frame separated by an elastomeric material and enclosing the spring isolators. Housings are equipped with adjustable snubbers to limit vertical movement.
 - a. Drilled base housing for bolting to structure with an elastomeric isolator pad attached to the underside. Bases shall limit floor load to 500 psig.
 - b. Threaded top housing with adjustment bolt and cap screw to fasten and level equipment.
 2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.9 PIPE-RISER RESILIENT SUPPORT

- A. Description: All-directional, acoustical pipe anchor consisting of two steel tubes separated by a minimum 1/2-inch- thick neoprene.
 1. Vertical-Limit Stops: Steel and neoprene vertical-limit stops arranged to prevent vertical travel in both directions.
 2. Maximum Load Per Support: 500 psig on isolation material providing equal isolation in all directions.

2.10 RESILIENT PIPE GUIDES

- A. Description: Telescopic arrangement of two steel tubes or post and sleeve arrangement separated by a minimum 1/2-inch- thick neoprene.
 1. Factory-Set Height Guide with Shear Pin: Shear pin shall be removable and reinsertable to allow for selection of pipe movement. Guides shall be capable of motion to meet location requirements.

2.11 ELASTOMERIC HANGERS

- A. Elastomeric Mount in a Steel Frame with Upper and Lower Steel Hanger Rods:
 1. Frame: Steel, fabricated with a connection for an upper threaded hanger rod and an opening on the underside to allow for a maximum of 30 degrees of angular lower hanger-rod misalignment without binding or reducing isolation efficiency.

2. Dampening Element: Molded, oil-resistant rubber, neoprene, or other elastomeric material with a projecting bushing for the underside opening preventing steel to steel contact.

2.12 SPRING HANGERS

- A. Combination Coil-Spring and Elastomeric-Insert Hanger with Spring and Insert in Compression:
 1. Frame: Steel, fabricated for connection to threaded hanger rods and to allow for a maximum of 30 degrees of angular hanger-rod misalignment without binding or reducing isolation efficiency.
 2. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 6. Elastomeric Element: Molded, oil-resistant rubber or neoprene. Steel-washer-reinforced cup to support spring and bushing projecting through bottom of frame.
 7. Adjustable Vertical Stop: Steel washer with neoprene washer "up-stop" on lower threaded rod.
 8. Self-centering hanger-rod cap to ensure concentricity between hanger rod and support spring coil.

2.13 SNUBBERS

- A. Description: Factory fabricated using welded structural-steel shapes and plates, anchor bolts, and replaceable resilient isolation washers and bushings.
 1. Anchor bolts for attaching to concrete shall be seismic-rated, drill-in, and stud-wedge or female-wedge type.
 2. Resilient Isolation Washers and Bushings: Oil- and water-resistant neoprene.
 3. Maximum 1/4-inch air gap, and minimum 1/4-inch- thick resilient cushion.

2.14 RESTRAINT CHANNEL BRACINGS

- A. Description: MFMA-4, shop- or field-fabricated bracing assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; rated in tension, compression, and torsion forces.

2.15 RESTRAINT CABLES

- A. Restraint Cables: ASTM A 603 galvanized-steel cables. End connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for restraining cable service; with a minimum of two clamping bolts for cable engagement.

2.16 SEISMIC-RESTRAINT ACCESSORIES

- A. Hanger-Rod Stiffener: Reinforcing steel angle clamped to hanger rod.
- B. Bushings for Floor-Mounted Equipment Anchor Bolts: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchor bolts and studs.
- C. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices used.
- D. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.
- E. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Multiple Pipe Supports: Secure pipes to trapeze member with clamps approved for application by an evaluation service member of ICC-ES.
- B. Hanger-Rod Stiffeners: Install hanger-rod stiffeners where indicated or scheduled on Drawings to receive them and where required to prevent buckling of hanger rods due to seismic forces.
- C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength is adequate to carry present and future static and seismic loads within specified loading limits.

3.2 VIBRATION CONTROL AND SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Coordinate the location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified in Section 033000 "Cast-in-Place Concrete." or Section 033053 "Miscellaneous Cast-in-Place Concrete."
- B. Installation of vibration isolators must not cause any change of position of equipment, piping, or ductwork resulting in stresses or misalignment.
- C. Comply with requirements in Section 077200 "Roof Accessories" for installation of roof curbs, equipment supports, and roof penetrations.
- D. Equipment Restraints:
 - 1. Install seismic snubbers on plumbing equipment mounted on vibration isolators. Locate snubbers as close as possible to vibration isolators and bolt to equipment base and supporting structure.

2. Install resilient bolt isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch.
3. Install seismic-restraint devices using methods approved by an evaluation service member of ICC-ES that provides required submittals for component.

E. Piping Restraints:

1. Comply with requirements in MSS SP-127.
2. Space lateral supports a maximum of 40 feet o.c., and longitudinal supports a maximum of 80 feet o.c.
3. Brace a change of direction longer than 12 feet.

F. Install cables so they do not bend across edges of adjacent equipment or building structure.

G. Install seismic-restraint devices using methods approved by an evaluation service member of ICC-ES that provides required submittals for component.

H. Install bushing assemblies for anchor bolts for floor-mounted equipment, arranged to provide resilient media between anchor bolt and mounting hole in concrete base.

I. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.

J. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.

K. Drilled-in Anchors:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Set anchors to manufacturer's recommended torque, using a torque wrench.
5. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.3 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

- A. Install flexible connections in piping where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where the connections terminate with connection to equipment that is anchored to a different structural element from the one supporting the connections as they approach equipment. Comply with requirements in Section 221116 "Domestic Water Piping" for piping flexible connections.

3.4 ADJUSTING

- A. Adjust isolators after piping system is at operating weight.
- B. Adjust limit stops on restrained-spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Equipment labels.
 - 2. Warning signs and labels.
 - 3. Pipe labels.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS**2.1 EQUIPMENT LABELS**

- A. Plastic Labels for Equipment:
 - 1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
 - 2. Letter Color: White
 - 3. Background Color: Black
 - 4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
 - 5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
 - 6. Minimum Letter Size: 1/4 inch For name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-quarters the size of principal lettering.
 - 7. Fasteners: Stainless-steel rivets or self-tapping screws.
 - 8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), and the Specification Section number and title where equipment is specified.

2.2 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: White
- C. Background Color: Red
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: 1/4 inch (6.4 mm) for name of units if viewing distance is less than 24 inches (600 mm), 1/2 inch (13 mm) for viewing distances up to 72 inches (1830 mm), and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-quarters the size of principal lettering.
- G. Fasteners: Stainless-steel rivets or self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- I. Label Content: Include caution and warning information plus emergency notification instructions.

2.3 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.
- B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- C. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings; also include pipe size and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with piping-system service lettering to accommodate both directions or as separate unit on each pipe label to indicate flow direction.
 - 2. Lettering Size: At least 1/2 inch for viewing distances up to 72 inches and proportionately larger lettering for greater viewing distances.

PART 3 - EXECUTION

3.1 EQUIPMENT LABEL INSTALLATION

- A. Install or permanently fasten labels on each major item of mechanical equipment.
- B. Locate equipment labels where accessible and visible.

3.2 PIPE LABEL INSTALLATION

- A. Pipe Label Locations: Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
 - 1. Near each valve and control device.
 - 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
 - 3. Near penetrations and on both sides of through walls, floors, ceilings, and inaccessible enclosures.

4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

B. Pipe Label Color Schedule:

1. Compressed Air Piping:
 - a. Background: Blue
 - b. Letter Colors: White
2. Natural Gas Piping:
 - a. Background: Yellow
 - b. Letters: Black:
3. Domestic Water Piping:
 - a. Background: Green
 - b. Letter Colors: White
4. Sanitary Waste and Storm Drainage Piping:
 - a. Background Color: Black
 - b. Letter Color: White

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes insulating requirements for equipment, piping:

1.2 SUBMITTALS

- A. See section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84 by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

- A. Comply with requirements in "Equipment Insulation Schedule" "Piping Insulation Schedule," and "Duct Insulation Schedule" articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.
- F. Flexible Elastomeric Insulation: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Aeroflex USA, Inc.
- b. Armacell LLC.
- c. K-Flex USA.

- G. Mineral-Fiber, Pipe and Tank Insulation: Mineral or glass fibers bonded with a thermosetting resin. Semirigid board material with factory-applied ASJ complying with ASTM C 1393, Type II or Type IIIA Category 2, or with properties similar to ASTM C 612, Type IB. Nominal density is 2.5 lb/cu. ft. or more. Thermal conductivity (k-value) at 100 deg F is 0.29 Btu x in./h x sq. ft. x deg F or less. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. CertainTeed Corporation.
- b. Johns Manville; a Berkshire Hathaway company.
- c. Knauf Insulation.
- d. Owens Corning.

- H. Mineral-Fiber, Preformed Pipe Insulation:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Johns Manville; a Berkshire Hathaway company.
- b. Knauf Insulation.
- c. Owens Corning.

2. Type I, 850 Deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ-SSL. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

- I. Thermal Insulating Wool:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Owens Corning
- b. Prior Approved Equal

2. Type I, 1000 Deg F Materials: Inorganic glass fibers bonded with thermosetting resin. Comply with ASTM C553, TIW Type I.

2.2 INSULATING CEMENTS

- A. Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449.

2.3 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.
- B. Flexible Elastomeric and Polyolefin Adhesive: Comply with MIL-A-24179A, Type II, Class I.
- C. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.
- D. ASJ Adhesive, and FSK and PVDC Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.
- E. PVC Jacket Adhesive: Compatible with PVC jacket.

2.4 MASTICS

- A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.
- B. Vapor-Barrier Mastic: Water based; suitable for indoor use on below ambient services.
 - 1. Water-Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm at 43-mil dry film thickness.
 - 2. Service Temperature Range: Minus 20 to plus 180 deg F.
 - 3. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.
 - 4. Color: White.
- C. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.
 - 1. Water-Vapor Permeance: ASTM F 1249, 1.8 perms at 0.0625-inch dry film thickness.
 - 2. Service Temperature Range: Minus 20 to plus 180 deg F.
 - 3. Solids Content: 60 percent by volume and 66 percent by weight.
 - 4. Color: White.

2.5 SEALANTS

- A. Metal Jacket Flashing Sealants:
 - 1. Materials shall be compatible with insulation materials, jackets, and substrates.
 - 2. Fire- and water-resistant, flexible, elastomeric sealant.
 - 3. Service Temperature Range: Minus 40 to plus 250 deg F.
 - 4. Color: Aluminum.
- B. ASJ Flashing Sealants, and PVC Jacket Flashing Sealants:
 - 1. Materials shall be compatible with insulation materials, jackets, and substrates.
 - 2. Fire- and water-resistant, flexible, elastomeric sealant.
 - 3. Service Temperature Range: Minus 40 to plus 250 deg F.
 - 4. Color: White.

2.6 FACTORY-APPLIED JACKETS

- A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.

2.7 FIELD-APPLIED JACKETS

- A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.
- B. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Johns Manville; a Berkshire Hathaway company.
 - b. P.I.C. Plastics, Inc.
 - c. Proto Corporation.
 - d. Speedline Corporation.
 2. Adhesive: As recommended by jacket material manufacturer.
 3. Color: White.
 4. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.
 - a. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.
- C. Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105, or 5005, Temper H-14.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Childers Brand; H. B. Fuller Construction Products.
 - b. ITW Insulation Systems; Illinois Tool Works, Inc.
 - c. RPR Products, Inc.
 2. Sheet and roll stock ready for shop or field sizing or factory cut and rolled to size.
 3. Finish and thickness are indicated in field-applied jacket schedules.
 4. Moisture Barrier for Outdoor Applications: 3-mil-thick, heat-bonded polyethylene and kraft paper or 2.5-mil-thick polysurlyn.
 5. Factory-Fabricated Fitting Covers:
 - a. Same material, finish, and thickness as jacket.
 - b. Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
 - c. Tee covers.
 - d. Flange and union covers.
 - e. End caps.
 - f. Beveled collars.
 - g. Valve covers.
 - h. Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

- D. Underground Direct-Buried Jacket: 125-mil-thick vapor barrier and waterproofing membrane consisting of a rubberized bituminous resin reinforced with a woven-glass fiber or polyester scrim and laminated aluminum foil.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Pittsburgh Corning Corporation.
 - b. Polyguard Products, Inc.

2.8 TAPES

- A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.
 - 1. Width: 3 inches.
 - 2. Thickness: 11.5 mils.
 - 3. Adhesion: 90 ounces force/inch in width.
 - 4. Elongation: 2 percent.
 - 5. Tensile Strength: 40 lbf/inch in width.
 - 6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.
- B. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.
 - 1. Width: 2 inches.
 - 2. Thickness: 6 mils.
 - 3. Adhesion: 64 ounces force/inch in width.
 - 4. Elongation: 500 percent.
 - 5. Tensile Strength: 18 lbf/inch in width.
- C. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
 - 1. Width: 2 inches.
 - 2. Thickness: 3.7 mils.
 - 3. Adhesion: 100 ounces force/inch in width.
 - 4. Elongation: 5 percent.
 - 5. Tensile Strength: 34 lbf/inch in width.

2.9 SECUREMENTS

- A. Aluminum Bands: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 inch wide with wing seal or closed seal.
- B. Insulation Pins and Hangers:
 - 1. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place.
 - a. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
 - b. Spindle: Copper- or zinc-coated, low-carbon steel, fully annealed, 0.106-inch-diameter shank, length to suit depth of insulation indicated.
 - c. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.

2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick, galvanized-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
 - a. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.
 - C. Staples: Outward-clinching insulation staples, nominal 3/4-inch-wide, stainless steel or Monel.
 - D. Wire: 0.062-inch soft-annealed, stainless steel.
- 2.10 CORNER ANGLES
- A. PVC Corner Angles: 30 mils thick, minimum 1 by 1 inch, PVC according to ASTM D 1784, Class 16354-C. White or color-coded to match adjacent surface.
 - B. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch, aluminum according to ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14.
- 2.11 PROTECTIVE SHIELDING GUARDS
- A. Protective Shielding Pipe Covers:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Plumberex Specialty Products, Inc.
 - b. Truebro.
 - c. Zurn Industries, LLC.
 2. Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.
 - B. Protective Shielding Piping Enclosures:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Truebro.
 - b. Zurn Industries, LLC.
 2. Description: Manufactured plastic enclosure for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with ADA requirements.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

- B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.
- C. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.2 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment.
- B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item as specified in insulation schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during application and finishing.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 - 1. Install insulation continuously through hangers and around anchor attachments.
 - 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 - 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 - 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Install insulation with factory-applied jackets as follows:
 - 1. Draw jacket tight and smooth.
 - 2. Cover circumferential joints with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.

3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.
 - a. For below ambient services, apply vapor-barrier mastic over staples.
 4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
 5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints.
- M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.
- P. For above ambient services, do not install insulation to the following:
1. Vibration-control devices.
 2. Testing agency labels and stamps.
 3. Nameplates and data plates.
 4. Manholes.
 5. Handholes.
 6. Cleanouts.
- Q. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

3.3 PENETRATIONS

- A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches (50 mm) below top of roof flashing.
 4. Seal jacket to roof flashing with flashing sealant.
- B. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.
- C. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.
 2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
 4. Seal jacket to wall flashing with flashing sealant.
- D. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- E. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
1. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping and fire-resistive joint sealers.
- F. Insulation Installation at Floor Penetrations:
1. Pipe: Install insulation continuously through floor penetrations.
 2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.4 INSTALLATION OF EQUIPMENT, TANK, AND VESSEL INSULATION

- A. Mineral-Fiber, Pipe, and Tank Insulation Installation for Tanks and Vessels: Secure insulation with adhesive and anchor pins and speed washers.
1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of tank and vessel surfaces.
 2. Groove and score insulation materials to fit as closely as possible to equipment, including contours. Bevel insulation edges for cylindrical surfaces for tight joints. Stagger end joints.
 3. Protect exposed corners with secured corner angles.
 4. Install adhesively attached or self-sticking insulation hangers and speed washers on sides of tanks and vessels as follows:
 - a. Do not weld anchor pins to ASME-labeled pressure vessels.
 - b. Select insulation hangers and adhesive that are compatible with service temperature and with substrate.
 - c. On tanks and vessels, maximum anchor-pin spacing is 3 inches from insulation end joints, and 16 inches o.c. in both directions.
 - d. Do not over compress insulation during installation.
 - e. Cut and miter insulation segments to fit curved sides and domed heads of tanks and vessels.
 - f. Impale insulation over anchor pins and attach speed washers.
 - g. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
 5. Secure each layer of insulation with stainless-steel or aluminum bands. Select band material compatible with insulation materials.

6. Where insulation hangers on equipment and vessels are not permitted or practical and where insulation support rings are not provided, install a girdle network for securing insulation. Stretch pre-stressed aircraft cable around the diameter of vessel and make taut with clamps, turnbuckles, or breather springs. Place one circumferential girdle around equipment approximately 6 inches from each end. Install wire or cable between two circumferential girdles 12 inches o.c. Install a wire ring around each end and around outer periphery of center openings, and stretch pre-stressed aircraft cable radially from the wire ring to nearest circumferential girdle. Install additional circumferential girdles along the body of equipment or tank at a minimum spacing of 48 inches o.c. Use this network for securing insulation with tie wire or bands.
 7. Stagger joints between insulation layers at least 3 inches.
 8. Install insulation in removable segments on equipment access doors, manholes, handholes, and other elements that require frequent removal for service and inspection.
 9. Bevel and seal insulation ends around manholes, handholes, ASME stamps, and nameplates.
 10. For equipment with surface temperatures below ambient, apply mastic to open ends, joints, seams, breaks, and punctures in insulation.
- B. Flexible Elastomeric Thermal Insulation Installation for Tanks and Vessels: Install insulation over entire surface of tanks and vessels.
1. Apply 100 percent coverage of adhesive to surface with manufacturer's recommended adhesive.
 2. Seal longitudinal seams and end joints.
- C. Insulation Installation on Pumps:
1. Fabricate metal boxes lined with insulation. Fit boxes around pumps and coincide box joints with splits in pump casings. Fabricate joints with outward bolted flanges. Bolt flanges on 6-inch centers, starting at corners. Install 3/8-inch-diameter fasteners with wing nuts. Alternatively, secure the box sections together using a latching mechanism.
 2. Fabricate boxes from galvanized steel, at least 0.050 inch thick.
 3. For below ambient services, install a vapor barrier at seams, joints, and penetrations. Seal between flanges with replaceable gasket material to form a vapor barrier.

3.5 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
1. Install pipe insulation to outer diameter of pipe flange.
 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
1. Install mitered sections of pipe insulation.

2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.6 INSTALLATION OF MINERAL-FIBER PREFORMED PIPE INSULATION

A. Insulation Installation on Straight Pipes and Tubes:

1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
3. For insulation with factory-applied jackets on above-ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets on below-ambient surfaces, do not staple longitudinal tabs. Instead, secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:

1. Install preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Fittings, Joints and Couplings:

1. All piping fittings shall be insulated by filling the total void over all fittings between straight runs of pipe insulation with thermal insulating wool, forming a uniform insulation thickness equal to, or exceeding, the adjacent pipe insulation.
2. Finish all insulated pipe fittings by applying PVC fitting covers overlapping the adjacent pipe insulation outer covering.
3. For hot service piping (105F and above), secure the PVC fitting covers stainless steel tack fasteners.
4. For cold service piping (60F and below), seal the ends of the adjacent pipe insulation with vapor barrier mastic, ensure that the PVC fitting cover overlaps the adjacent pipe insulation jacket by 2" minimum and secure PVC fitting covers to adjacent pipe insulation with 2" wide PVC Tape.
5. Fitting covers for grooved piping systems shall be the type specifically manufactured for grooved piping systems.

3.7 INSULATION INSTALLATION ON VALVES AND PIPE SPECIALTIES

A. Install removable insulation covers on all valves and specialties 1-1/2" and larger.

1. Valves, Strainers, and Unions 1-1/2 – 2 NPS: "No Sweat" re-usable valve covers or approved equal product.
2. Valves, Strainers and Unions 2-1/2" and larger use removable insulation jackets from Thermaxx or prior approved manufacturer.

3.8 FIELD-APPLIED JACKET INSTALLATION

- A. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints. Seal with manufacturer's recommended adhesive.
 - 1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.
- B. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.
- C. Where underground direct-buried jacket are indicated, install per the manufacturers instructions.

3.9 FINISHES

- A. Insulation with ASJ or Other Paintable Jacket Material and where Required: Paint jacket with paint system identified below and as specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
 - 1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.
 - a. Finish Coat Material: Interior, flat, latex-emulsion size.
- B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.
- C. Do not field paint aluminum or PVC jacketing.

3.10 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Inspect field-insulated equipment, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.
- C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.11 EQUIPMENT INSULATION SCHEDULE

- A. Insulation materials and thicknesses for Plumbing and HVAC equipment are identified in the table below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

Equipment Type	System Temp	Insulation Type	Insulation Conductivity (Btu x in) / (hr x ft ² x F)	Insulation Thickness (in)	Vapor Barrier	Factory Installed Jacket Type
Tanks	Below 60F and above 105F	Glass Fiber or Flexible Elastomeric	0.27	2	Cold Service >60F only	ASJ

3.12 PIPING INSULATION SCHEDULE

- A. Insulation materials and thicknesses for Plumbing and HVAC piping are identified in the table below. If more than one material is listed for an application, selection from materials listed is at the Contractor's option.

Application	Nominal Pipe Size	Insulation Type	Insulation Conductivity (Btu x in) / (hr x ft ² x F)	Insulation Thickness (in)	Vapor Barrier	Factory Installed Jacket Type
Domestic Cold Water Piping	All	Glass Fiber or Flexible Elastomeric	0.27	1	Yes	ASJ
Domestic Hot Water and Recirc.	All	Glass Fiber or Flexible Elastomeric	0.27	1	No	ASJ
Plumbing Vents within 6ft of roof termination	All	Glass Fiber or Flexible Elastomeric	0.27	1	Yes	ASJ
Refrigeration Piping (Cooling Only)	All	Flexible Elastomeric	0.27	3/4	No	None
Refrigeration Piping (VRF or Heat Pump)	All	Flexible Elastomeric	0.27	1	No	None

3.13 FIELD APPLIED JACKETING SCHEDULE

- A. Field applied jackets for Plumbing and HVAC piping are identified in the table below. If more than one material is listed for an application, selection from materials listed is at the Contractor's option.

Application	Installation Location	Field Applied Jacketing
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Domestic Water Piping	Indoors	PVC when piping is exposed and within 7ft of the floor.
Domestic Water Piping	Outdoors	Aluminum Jacket

END OF SECTION 220716

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Copper tube and fittings.
 - 2. PEX tube and fittings.
 - 3. Piping joining materials.
 - 4. Transition fittings.
- B. Related Requirements:
 - 1. Section 220500 "General Provisions of Plumbing and HVAC"

1.2 ACTION SUBMITTALS

- A. See Section 220000 "General Requirement of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 PIPING MATERIALS**

- A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.
- B. Potable-water piping and components shall comply with NSF 14 and NSF 61 Annex G. and Plastic piping components shall be marked with "NSF-pw."
- C. Comply with NSF Standard 372 for low lead.

2.2 COPPER TUBE AND FITTINGS

- A. Hard Copper Tube: ASTM B 88, Type L water tube, drawn temper.
- B. Soft Copper Tube: ASTM B 88, Type K water tube, annealed temper.
- C. Cast-Copper, Solder-Joint Fittings: ASME B16.18, pressure fittings.
- D. Wrought-Copper, Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.
- E. Copper Unions:
 - 1. MSS SP-123.
 - 2. Cast-copper-alloy, hexagonal-stock body.
 - 3. Ball-and-socket, metal-to-metal seating surfaces.
 - 4. Solder-joint or threaded ends.

F. Copper Pressure-Seal-Joint Fittings:

1. Fittings for NPS 2 and Smaller: Wrought-copper fitting with EPDM-rubber, O-ring seal in each end.
2. Fittings for NPS 2-1/2 to NPS 4: Cast-bronze or wrought-copper fitting with EPDM-rubber, O-ring seal in each end.

2.3 PEX TUBE AND FITTINGS

- A. Tube Material: PEX plastic according to ASTM F 876 and ASTM F 877.
- B. Fittings: ASTM F 1960, cold expansion fittings and reinforcing rings.
- C. Manifold: Multiple-outlet, plastic or corrosion-resistant-metal assembly complying with ASTM F 876; with plastic or corrosion-resistant-metal valve for each outlet.

2.4 PIPING JOINING MATERIALS

- A. Pipe-Flange Gasket Materials:
 1. AWWA C110/A21.10, rubber, flat face, 1/8 inch thick or ASME B16.21, nonmetallic and asbestos free unless otherwise indicated.
 2. Full-face or ring type unless otherwise indicated.
- B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
- C. Solder Filler Metals: ASTM B 32, lead-free alloys.
- D. Flux: ASTM B 813, water flushable.
- E. Brazing Filler Metals: AWS A5.8M/A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

2.5 TRANSITION FITTINGS

- A. General Requirements:
 1. Same size as pipes to be joined.
 2. Pressure rating at least equal to pipes to be joined.
 3. End connections compatible with pipes to be joined.
- B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Comply with requirements in Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.
- B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."
- C. Install shutoff valve, hose-end drain valve, strainer, pressure gage, and test tee with valve inside the building at each domestic water-service entrance. Comply with requirements for pressure gages in Section 220519 "Meters and Gages for Plumbing Piping" and with requirements for drain valves and strainers in Section 221119 "Domestic Water Piping Specialties."
- D. Install water-pressure-reducing valves downstream from shutoff valves. Comply with requirements for pressure-reducing valves in Section 221119 "Domestic Water Piping Specialties."
- E. Install domestic water piping level and plumb.
- F. Rough-in domestic water piping for water-meter installation according to utility company's requirements.
- G. Install seismic restraints on piping. Comply with requirements for seismic-restraint devices in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."
- H. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.
- I. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- J. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.
- K. Install piping to permit valve servicing.
- L. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than the system pressure rating used in applications below unless otherwise indicated.
- M. Install piping free of sags and bends.
- N. Install fittings for changes in direction and branch connections.
- O. Install PEX tubing with loop at each change of direction of more than 90 degrees.
- P. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.
- Q. Install pressure gages on suction and discharge piping for each plumbing pump and packaged booster pump. Comply with requirements for pressure gages in Section 220519 "Meters and Gages for Plumbing Piping."

- R. Install thermometers on inlet and outlet piping from each water heater. Comply with requirements for thermometers in Section 220519 "Meters and Gages for Plumbing and HVAC Piping."
- S. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220500 "General Provisions of Plumbing and HVAC."
- T. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 220500 "General Provisions of Plumbing and HVAC."
- U. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220500 "General Provisions of Plumbing and HVAC."

3.3 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.
- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.
- D. Brazed Joints for Copper Tubing: Comply with CDA's "Copper Tube Handbook," "Braze Joints" chapter.
- E. Soldered Joints for Copper Tubing: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."
- F. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.
- G. Joints for PEX Tubing: Join according to ASTM F 1960 for cold expansion fittings and reinforcing rings.
- H. Joints for PEX Tubing: Join according to ASSE 1061 for push-fit fittings.
- I. Joints for Dissimilar-Material Piping: Make joints using adapters compatible with materials of both piping systems.

3.4 TRANSITION FITTING INSTALLATION

- A. Install transition couplings at joints of dissimilar piping.
- B. Transition Fittings in Underground Domestic Water Piping:

1. Fittings for NPS 1-1/2 and Smaller: Fitting-type coupling.
 2. Fittings for NPS 2 and Larger: Sleeve-type coupling.
- C. Transition Fittings in Aboveground Domestic Water Piping NPS 2 and Smaller: Plastic-to-metal transition fittings or unions.

3.5 HANGER AND SUPPORT INSTALLATION

- A. Comply with requirements for seismic-restraint devices in Section 220548 "Vibration and Seismic Controls for Plumbing and HVAC Piping and Equipment."
- B. Comply with requirements for pipe hanger, support products, and installation in Section 220529 "Hangers and Supports for Plumbing and HVAC Piping and Equipment."
1. Vertical Piping: MSS Type 8 or 42, clamps.
 2. Individual, Straight, Horizontal Piping Runs:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.
 3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- C. Support vertical piping and tubing at base and at each floor.
- D. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch.
- E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 3/4 and Smaller: 60 inches with 3/8-inch rod.
 2. NPS 1 and NPS 1-1/4: 72 inches with 3/8-inch rod.
 3. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
 4. NPS 2-1/2: 108 inches with 1/2-inch rod.
 5. NPS 3 to NPS 5: 10 feet with 1/2-inch rod.
 6. NPS 6: 10 feet with 5/8-inch rod.
 7. NPS 8: 10 feet with 3/4-inch rod.
- F. Install supports for vertical copper tubing every 10 feet.
- G. Install vinyl-coated hangers for PEX tubing with the following maximum horizontal spacing and minimum rod diameters:
1. NPS 1 and Smaller: 32 inches with 3/8-inch rod.
- H. Install hangers for vertical PEX tubing every 48 inches.
- I. Support piping and tubing not listed in this article according to MSS SP-58 and manufacturer's written instructions.

3.6 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. When installing piping adjacent to equipment and machines, allow space for service and maintenance.
- C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.
- D. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:
 - 1. Domestic Water Booster Pumps: Cold-water suction and discharge piping.
 - 2. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
 - 3. Plumbing Fixtures: Cold- and hot-water-supply piping in sizes indicated, but not smaller than that required by plumbing code.
 - 4. Equipment: Cold- and hot-water-supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 and larger.

3.7 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification materials and installation in Section 220553 "Identification for Plumbing and HVAC Piping and Equipment."
- B. Label pressure piping with system operating pressure.

3.8 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Piping Inspections:
 - a. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
 - b. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
 - 1) Roughing-in Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.
 - 2) Final Inspection: Arrange for authorities having jurisdiction to observe tests specified in "Piping Tests" Subparagraph below and to ensure compliance with requirements.
 - c. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
 - d. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
 - 2. Piping Tests:

- a. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
 - b. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
 - c. Leave new, altered, extended, or replaced domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it was tested.
 - d. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow it to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
 - e. Repair leaks and defects with new materials, and retest piping or portion thereof until satisfactory results are obtained.
 - f. Prepare reports for tests and for corrective action required.
- B. Domestic water piping will be considered defective if it does not pass tests and inspections.
- C. Prepare test and inspection reports.

3.9 ADJUSTING

- A. Perform the following adjustments before operation:
1. Close drain valves, hydrants, and hose bibbs.
 2. Open shutoff valves to fully open position.
 3. Open throttling valves to proper setting.
 4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.
 - a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide hot-water flow in each branch.
 - b. Adjust calibrated balancing valves to flows indicated.
 5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.
 6. Remove and clean strainer screens. Close drain valves and replace drain plugs.
 7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
 8. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.10 CLEANING

- A. Clean and disinfect potable domestic water piping as follows:
1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:

- 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
- c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Repeat procedures if biological examination shows contamination.
 - e. Submit water samples in sterile bottles to authorities having jurisdiction.
- B. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.
 - C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

3.11 PIPING SCHEDULE

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.
- B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.
- C. Fitting Option: Extruded-tee connections and brazed joints may be used on aboveground copper tubing.

Application	Location	Size	Material	Fittings
Domestic Water Piping	Indoor Above Grade	All	PEX or Type L Copper	PEX: cold expansion fittings and reinforcing rings Copper: Sweat or Pressure Seal

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Vacuum breakers.
2. Backflow preventers.
3. Water pressure-reducing valves.
4. Temperature-actuated, water mixing valves.
5. Bronze, Calibrated-Orifice, Balancing Valves
6. Strainers.
7. Drain valves.
8. Water-hammer arresters.
9. Trap-seal primer valves.

B. Related Requirements:

1. Section 220500 "General Provisions of Plumbing and HVAC" for Expansion Loops, Alignment Guides, Dielectric Fittings, Sleeves and Sleeve Seals, Sealants, Escutcheons and floor plates.
2. Section 220519 "Meters and Gages for Plumbing and HVAC Piping" for thermometers, pressure gages.
3. Section 221116 "Domestic Water Piping" for piping and fittings.
4. Section 224500 "Emergency Plumbing Fixtures" for water tempering equipment.
5. Section 224713 "Drinking Fountains" for water filters for water coolers.
6. Section 224716 "Pressure Water Coolers" for water filters for water coolers.
7. Section 224723 "Remote Water Coolers" for water filters for water coolers.

1.2 ACTION SUBMITTALS

A. See Section 220000 "General Requirement of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 GENERAL REQUIREMENTS FOR PIPING SPECIALTIES**

A. Potable-water piping and components shall comply with NSF 61 Annex G and NSF 14. Mark "NSF-pw" on plastic piping components.

2.2 PERFORMANCE REQUIREMENTS

A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig unless otherwise indicated.

2.3 VACUUM BREAKERS

A. Pipe-Applied, Atmospheric-Type Vacuum Breakers:

1. Standard: ASSE 1001.
2. Size: NPS 1/4 to NPS 3, as required to match connected piping.
3. Body: Bronze.
4. Inlet and Outlet Connections: Threaded.
5. Finish: Chrome plated.

B. Hose-Connection Vacuum Breakers:

1. Standard: ASSE 1011.
2. Body: Bronze, nonremovable, with manual drain.
3. Outlet Connection: Garden-hose threaded complying with ASME B1.20.7.
4. Finish: Chrome or nickel plated.

2.4 BACKFLOW PREVENTERS

A. Reduced-Pressure-Principle Backflow Preventers:

1. Manufacturers:
 - a. Watts
 - b. Zurn Wilkins
 - c. Prior approved Equal
2. Description:
 - a. Standard: ASSE 1013.
 - b. Operation: Continuous-pressure applications.
 - c. Pressure Loss: 12 psig maximum, through middle third of flow range.
 - d. Size: See Drawings – Line size of size not specifically listed.
 - e. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approved for NPS 2-1/2 and larger.
 - f. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
 - g. Accessories:
 - 1) Valves NPS 2 and Smaller: Ball type with threaded ends on inlet and outlet.
 - 2) Valves NPS 2-1/2 and Larger: Outside-screw and yoke-gate type with flanged ends on inlet and outlet.
 - 3) Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

B. Double-Check, Backflow-Prevention Assemblies:

1. Manufacturers:
 - a. Watts
 - b. Zurn Wilkins
 - c. Prior approved Equal
2. Description:
 - a. Standard: ASSE 1015.
 - b. Operation: Continuous-pressure applications unless otherwise indicated.
 - c. Pressure Loss: 5 psig maximum, through middle third of flow range.
 - d. Size: See Drawings – Line size of size not specifically listed.
 - e. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approved for NPS 2-1/2 and larger.
 - f. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.

g. Accessories:

- 1) Valves NPS 2 and Smaller: Ball type with threaded ends on inlet and outlet.
- 2) Valves NPS 2-1/2 and Larger: Outside-screw and yoke-gate type with flanged ends on inlet and outlet.

2.5 WATER PRESSURE-REDUCING VALVES

A. Water Regulators:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Apollo Valves; Conbraco Industries, Inc.
 - b. Watts; a Watts Water Technologies company.
 - c. Zurn Industries, LLC.
2. Standard: ASSE 1003.
3. Pressure Rating: Initial working pressure of 150 psig.
4. Size: See Drawings – Line size of size not specifically listed.
5. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approved for NPS 2-1/2 and NPS 3.
6. Valves for Booster Heater Water Supply: Include integral bypass.
7. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and NPS 3.

2.6 TEMPERATURE-ACTUATED, WATER MIXING VALVES

A. Water-Temperature Limiting Devices:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Leonard Valve Company.
 - b. Symmons Industries, Inc.
 - c. Watts; a Watts Water Technologies company.
 - d. Zurn Industries, LLC.
2. Standard: ASSE 1017.
3. Pressure Rating: 125 psig.
4. Type: Thermostatically controlled, water mixing valve.
5. Material: Bronze body with corrosion-resistant interior components.
6. Connections: Threaded union inlets and outlet.
7. Accessories: Check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.
8. Valve Finish: Chrome plated.

B. Primary, Thermostatic, Water Mixing Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. Armstrong International, Inc.
 - b. Leonard Valve Company.
 - c. Symmons Industries, Inc.
 - d. Zurn Industries, LLC.
2. Standard: ASSE 1017.
3. Pressure Rating: 125 psig minimum unless otherwise indicated.
4. Type: Cabinet-type, thermostatically controlled, water mixing valve.
5. Material: Bronze body with corrosion-resistant interior components.
6. Connections: Threaded union inlets and outlet.
7. Accessories: Manual temperature control, check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.
8. Valve Finish: Chrome plated.
9. Piping Finish: Chrome plated.
10. Cabinet: Factory fabricated, stainless steel, for surface mounting and with hinged, stainless-steel door.

2.7 BRONZE, CALIBRATED-ORIFICE, BALANCING VALVES

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bell & Gossett; a Xylem brand.
 - b. Flow Design, Inc.
 - c. Nexus Valve, Inc.
 - d. TACO Comfort Solutions, Inc.
2. Body: Bronze, ball or plug type with calibrated orifice or venturi.
3. Ball: Brass or stainless steel.
4. Plug: Resin.
5. Seat: PTFE.
6. End Connections: Threaded or socket.
7. Pressure Gage Connections: Integral seals for portable differential pressure meter.
8. Handle Style: Lever, with memory stop to retain set position.
9. CWP Rating: Minimum 125 psig.
10. Maximum Operating Temperature: 250 deg F.

2.8 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:

1. Pressure Rating: 125 psig minimum unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approved, epoxy coated and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations unless otherwise indicated.
5. Perforation Size:
 - a. Strainers NPS 2 and Smaller: 0.020 inch.
 - b. Strainers NPS 2-1/2 to NPS 4: 0.045 inch.
6. Drain: Factory-installed, hose-end drain valve with cap.

2.9 DRAIN VALVES

A. Ball-Valve-Type, Hose-End Drain Valves:

1. Standard: MSS SP-110 for standard-port, two-piece ball valves.
2. Pressure Rating: 400-psig minimum CWP.
3. Size: NPS 3/4.
4. Body: Copper alloy.
5. Ball: Chrome-plated brass.
6. Seats and Seals: Replaceable.
7. Handle: Vinyl-covered steel.
8. Inlet: Threaded or solder joint.
9. Outlet: Threaded, short nipple with garden-hose thread complying with ASME B1.20.7 and cap with brass chain.

2.10 WATER-HAMMER ARRESTERS

A. Water-Hammer Arresters:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Jay R. Smith Mfg. Co.
 - b. Sioux Chief Manufacturing Company, Inc.
 - c. Watts; a Watts Water Technologies company.
 - d. Zurn Industries, LLC.
2. Standard: ASSE 1010 or PDI-WH 201.
3. Type: Metal bellows or Copper tube with piston.
4. Size: ASSE 1010, Sizes AA and A through F, or PDI-WH 201, Sizes A through F.

2.11 TRAP-SEAL PRIMER DEVICE

A. Supply-Type, Trap-Seal Primer Device:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Jay R. Smith Mfg. Co.
 - b. Sioux Chief Manufacturing Company, Inc.
 - c. Watts; a Watts Water Technologies company.
 - d. Zurn Industries, LLC.
2. Standard: ASSE 1018.
3. Pressure Rating: 125 psig minimum.
4. Body: Bronze.
5. Inlet and Outlet Connections: NPS 1/2 threaded, union, or solder joint.
6. Gravity Drain Outlet Connection: NPS 1/2 threaded or solder joint.
7. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.

PART 3 - EXECUTION**3.1 INSTALLATION**

A. Install double check backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.

1. Locate backflow preventers in same room as connected equipment or system.
2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe-to-floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are unacceptable for this application.
3. Do not install bypass piping around backflow preventers.

B. Install water regulators with inlet and outlet shutoff valves. Install pressure gages on inlet and outlet.

C. Install temperature-actuated, water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.

1. Install cabinet-type units recessed in or surface mounted on wall as specified.

D. Install balancing valves at each hot water recirculation branch connection to the return main.

E. Install Y-pattern strainers for water on supply side of each water pressure-reducing valve, solenoid valve and pump.

F. Install water-hammer arresters in water piping according to PDI-WH 201.

G. Install supply-type, trap-seal primer valves with outlet piping pitched down toward drain trap a minimum of 1 percent, and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.

3.2 CONNECTIONS

A. Comply with requirements for ground equipment in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Fire-retardant-treated-wood blocking is specified in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for electrical connections.

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test each reduced-pressure-principle backflow preventer and double-check, detector-assembly backflow preventer according to authorities having jurisdiction and the device's reference standard.

B. Domestic water piping specialties will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports.

3.4 ADJUSTING

A. Set field-adjustable pressure set points of water pressure-reducing valves. Verify pressure set points with Engineer prior to setting

B. Set field-adjustable flow set points of balancing valves. Verify flow rates with Engineer prior to setting.

C. Set field-adjustable temperature set points of temperature-actuated, water mixing valves. Verify temperature setting with engineer prior to setting.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Pipe, tube, and fittings.
 - 2. Specialty pipe fittings.

1.2 ACTION SUBMITTALS

- A. See section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

- A. Components and installation shall be capable of withstanding the following minimum working pressure unless otherwise indicated:
 - 1. Soil, Waste, and Vent Piping: 10-foot head of water.
- B. Seismic Performance: Soil, waste, and vent piping and support and installation shall withstand the effects of earthquake motions determined according to ASCE/SEI 7. See section 220548 "Vibration and Seismic Controls for Plumbing and HVAC Piping and Equipment"

2.2 PIPING MATERIALS

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- B. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.3 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings: ASTM A 888 or CISPI 301.
- B. CISPI, Hubless-Piping Couplings:
 - 1. Standards: ASTM C 1277 and CISPI 310.
 - 2. Description: Stainless-steel corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

2.4 COPPER TUBE AND FITTINGS

- A. Copper Type DWV Tube: ASTM B 306, drainage tube, drawn temper.
- B. Copper Drainage Fittings: ASME B16.23, cast copper or ASME B16.29, wrought copper, solder-joint fittings.
- C. Copper Pressure Fittings:
 - 1. Copper Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Copper Unions: MSS SP-123, copper-alloy, hexagonal-stock body with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
- D. Copper Flanges: ASME B16.24, Class 150, cast copper with solder-joint end.
 - 1. Flange Gasket Materials: ASME B16.21, full-face, flat, nonmetallic, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
 - 2. Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.
- E. Solder: ASTM B 32, lead free with ASTM B 813, water-flushable flux.

2.5 PVC PIPE AND FITTINGS

- A. Comply with NSF 14, "Plastics Piping Systems Components and Related Materials," for plastic piping components. Include marking with "NSF-dwv" for plastic drain, waste, and vent piping and "NSF-sewer" for plastic sewer piping.
- B. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
- C. PVC Socket Fittings: ASTM D 2665, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
- D. Adhesive Primer: ASTM F 656.
- E. Solvent Cement: ASTM D 2564.

2.6 SPECIALTY PIPE FITTINGS

- A. Transition Couplings:
 - 1. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.
 - 2. Unshielded, Non-pressure Transition Couplings:
 - a. Standard: ASTM C 1173.
 - b. Description: Elastomeric, sleeve-type, reducing or transition pattern. Include shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - c. End Connections: Same size as and compatible with pipes to be joined.
 - d. Sleeve Materials:
 - 1) For Cast-Iron Soil Pipes: ASTM C 564, rubber.

- 2) For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
 - 3) For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.
3. Shielded, Non-pressure Transition Couplings:
- a. Standard: ASTM C 1460.
 - b. Description: Elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.
 - c. End Connections: Same size as and compatible with pipes to be joined.

PART 3 - EXECUTION

3.1 EARTH MOVING

- A. Comply with requirements for excavating, trenching, and backfilling specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems.
1. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations.
 2. Install piping as indicated unless deviations to layout are approved on coordination drawings.
- B. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
- C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- E. Install piping to permit valve servicing.
- F. Install piping at indicated slopes.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Install piping to allow application of insulation.
- J. Install seismic restraints on piping. Comply with requirements for seismic-restraint devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."

- K. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long-sweep bends.
 - 1. Sanitary tees and short-sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical.
 - 2. Use long-turn, double Y-branch and 1/8-bend fittings if two fixtures are installed back to back or side by side with common drain pipe.
 - a. Straight tees, elbows, and crosses may be used on vent lines.
 - 3. Do not change direction of flow more than 90 degrees.
 - 4. Use proper size of standard increasers and reducers if pipes of different sizes are connected.
 - a. Reducing size of waste piping in direction of flow is prohibited.
- L. Lay buried building waste piping beginning at low point of each system.
 - 1. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream.
 - 2. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
 - 3. Maintain swab in piping and pull past each joint as completed.
- M. Install soil and waste and vent piping at the following minimum slopes unless otherwise indicated:
 - 1. Horizontal Sanitary Waste: 1/4" per foot downward in direction of flow. 1/8" per foot is allowable if necessitated by site conditions.
 - 2. Vent Piping: 1/8" per foot down toward vertical fixture vent or toward vent stack.
- N. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."
- O. Install aboveground copper tubing according to CDA's "Copper Tube Handbook."
- P. Install aboveground PVC piping according to ASTM D 2665.
- Q. Install underground PVC piping according to ASTM D 2321.
- R. Plumbing Specialties:
 - 1. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers in sanitary waste gravity-flow piping.
 - a. Comply with requirements for cleanouts specified in Section 221319 "Sanitary Waste Piping Specialties."
- S. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.
- T. Install sleeves for piping penetrations of walls, ceilings, and floors.
 - 1. Comply with requirements for sleeves specified in Section 220500 "General Provisions of Plumbing and HVAC."

- U. Install sleeve seals for piping penetrations of concrete walls and slabs.
 - 1. Comply with requirements for sleeve seals specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."
- V. Install escutcheons for piping penetrations of walls, ceilings, and floors.
 - 1. Comply with requirements for escutcheons specified in Section 220518 "Escutcheons for Plumbing Piping."

3.3 JOINT CONSTRUCTION

- A. Join hub-and-spigot, cast-iron soil piping with gasket joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
- B. Join copper tube and fittings with soldered joints according to ASTM B 828. Use ASTM B 813, water-flushable, lead-free flux and ASTM B 32, lead-free-alloy solder.
- C. Grooved Joints: Cut groove ends of pipe according to AWWA C606. Lubricate and install gasket over ends of pipes or pipe and fitting. Install coupling housing sections, over gasket, with keys seated in piping grooves. Install and tighten housing bolts.
- D. Plastic, Non-pressure-Piping, Solvent-Cement Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. ABS Piping: Join according to ASTM D 2235 and ASTM D 2661 appendixes.
 - 3. PVC Piping: Join according to ASTM D 2855 and ASTM D 2665 appendixes.

3.4 SPECIALTY PIPE FITTING INSTALLATION

- A. Transition Couplings:
 - 1. Install transition couplings at joints of piping with small differences in ODs.
 - 2. In Waste Drainage Piping: Shielded, nonpressure transition couplings.

3.5 VALVE INSTALLATION

- A. Comply with requirements in Section 220523.12 "Ball Valves for Plumbing Piping," Section 220523.13 "Butterfly Valves for Plumbing Piping," Section 220523.14 "Check Valves for Plumbing Piping," and Section 220523.15 "Gate Valves for Plumbing Piping" for general-duty valve installation requirements.
- B. Shutoff Valves:
 - 1. Install shutoff valve on each sewage pump discharge.
 - 2. Install gate or full-port ball valve for piping NPS 2 and smaller.
 - 3. Install gate valve for piping NPS 2-1/2 and larger.
- C. Check Valves: Install swing check valve, between pump and shutoff valve, on each sewage pump discharge.

3.6 HANGER AND SUPPORT INSTALLATION

- A. Comply with requirements for seismic-restraint devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing and HVAC Piping and Equipment."
- B. Comply with requirements for pipe hanger and support devices and installation specified in Section 220529 "Hangers and Supports for Plumbing and HVAC Piping and Equipment."
 - 1. Vertical Piping: MSS Type 8 or Type 42, clamps.
 - 2. Install individual, straight, horizontal piping runs:
 - a. 100 Feet and Less: MSS Type 1, adjustable, steel clevis hangers.
 - b. Longer Than 100 Feet: MSS Type 43, adjustable roller hangers.
 - c. Longer Than 100 Feet if Indicated: MSS Type 49, spring cushion rolls.
 - 3. Multiple, Straight, Horizontal Piping Runs 100 Feet or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
 - 4. Base of Vertical Piping: MSS Type 52, spring hangers.
- C. Support horizontal piping and tubing within 12 inches of each fitting, valve, and coupling.
- D. Support vertical piping and tubing at base and at each floor.
- E. Rod diameter may be reduced one size for double-rod hangers, with 3/8-inch minimum rods.
- F. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/2 and NPS 2: 60 inches with 3/8-inch rod.
 - 2. NPS 3: 60 inches with 1/2-inch rod.
 - 3. NPS 4 and NPS 5: 60 inches with 5/8-inch rod.
 - 4. NPS 6 and NPS 8: 60 inches with 3/4-inch rod.
 - 5. NPS 10 and NPS 12: 60 inches with 7/8-inch rod.
 - 6. Spacing for 10-foot lengths may be increased to 10 feet. Spacing for fittings is limited to 60 inches.
- G. Install supports for vertical cast-iron soil piping every 15 feet.
- H. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/4: 72 inches with 3/8-inch rod.
 - 2. NPS 1-1/2 and NPS 2: 96 inches with 3/8-inch rod.
 - 3. NPS 2-1/2: 108 inches with 1/2-inch rod.
 - 4. NPS 3 and NPS 5: 10 feet with 1/2-inch rod.
 - 5. NPS 6: 10 feet with 5/8-inch rod.
 - 6. NPS 8: 10 feet with 3/4-inch rod.
- I. Install supports for vertical copper tubing every 10 feet.
- J. Install hangers for PVC piping with the following maximum horizontal spacing and minimum rod diameters:
 - 1. NPS 1-1/2 and NPS 2: 48 inches with 3/8-inch rod.
 - 2. NPS 3: 48 inches with 1/2-inch rod.
 - 3. NPS 4 and NPS 5: 48 inches with 5/8-inch rod.

4. NPS 6 and NPS 8: 48 inches with 3/4-inch rod.
5. NPS 10 and NPS 12: 48 inches with 7/8-inch rod.

- K. Install supports for vertical PVC piping every 48 inches.
- L. Support piping and tubing not listed above according to MSS SP-58 and manufacturer's written instructions.

3.7 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.
- C. Connect waste and vent piping to the following:
 1. Plumbing Fixtures: Connect waste piping in sizes indicated, but not smaller than required by plumbing code.
 2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.
 3. Plumbing Specialties: Connect waste and vent piping in sizes indicated, but not smaller than required by plumbing code.
 4. Install test tees (wall cleanouts) in conductors near floor and floor cleanouts with cover flush with floor.
 5. Equipment: Connect waste piping as indicated.
 - a. Provide shutoff valve if indicated and union for each connection.
 - b. Use flanges instead of unions for connections NPS 2-1/2 and larger.
- D. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.
- E. Make connections according to the following unless otherwise indicated:
 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3.8 IDENTIFICATION

- A. Identify exposed sanitary waste and vent piping.
- B. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing and HVAC Piping and Equipment."

3.9 FIELD QUALITY CONTROL

- A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
 2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
- B. Re-inspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for re-inspection.
- C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.
- D. Test sanitary waste and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:
1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired.
 - a. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
 2. Leave uncovered and unconcealed new, altered, extended, or replaced waste and vent piping until it has been tested and approved.
 - a. Expose work that was covered or concealed before it was tested.
 3. Roughing-in Plumbing Test Procedure: Test waste and vent piping except outside leaders on completion of roughing-in.
 - a. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water.
 - b. From 15 minutes before inspection starts to completion of inspection, water level must not drop.
 - c. Inspect joints for leaks.
 4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight.
 - a. Plug vent-stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1-inch wg.
 - b. Use U-tube or manometer inserted in trap of water closet to measure this pressure.
 - c. Air pressure must remain constant without introducing additional air throughout period of inspection.
 - d. Inspect plumbing fixture connections for gas and water leaks.
 5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
 6. Prepare reports for tests and required corrective action.

3.10 CLEANING AND PROTECTION

- A. Clean interior of piping. Remove dirt and debris as work progresses.
- B. Protect sanitary waste and vent piping during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

- C. Place plugs in ends of uncompleted piping at end of day and when work stops.
- D. Exposed PVC Piping: Protect plumbing vents exposed to sunlight with two coats of water-based latex paint.
- E. Repair damage to adjacent materials caused by waste and vent piping installation.

3.11 PIPING SCHEDULE

- A. Piping system materials are identified in the table below. If more than one material is listed, selection from the materials listed is at the Contractor's option.

Application	Location	Size	Material	Fittings
Sanitary Waste and Vent	Below Grade	All	PVC	Solvent Joint
Sanitary Waste and Vent	Above Grade	All	Cast Iron	No-Hub
Condensate Drain	Above Grade	All	PVC	Solvent Joint

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Cleanouts.
2. Miscellaneous sanitary drainage piping specialties.

B. Related Requirements:

1. Section 221316 "Sanitary Waste and Vent Piping"

1.2 SUBMITTALS

A. See Section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 ASSEMBLY DESCRIPTIONS**

A. Sanitary waste piping specialties shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 14 for plastic sanitary waste piping specialty components.

2.2 CLEANOUTS**A. Above Grade Wall Cleanout**

1. Provide JR Smith 4422 or approved equal
2. Description: Cast iron caulked spigot ferrule with cast bronze taper thread plug and stainless steel round cover and screw.

B. Finished Floor Cleanout

1. Provide JR Smith 4100 or approved equal
2. Description: Cast iron cleanout with extra heavy duty round, adjustable, scoriated, secured nickel bronze top, and no-hub outlet, gasket seal bronze plug and flashing clamp for.

C. Outdoor Cleanout

1. Provide JR Smith 4241S or approved equal
2. Description: Cast iron floor level cleanout assembly with heavy duty, round, adjustable, scoriated cast iron top, non-tilt tractor cover, gasket seal bronze plug.

2.3 MISCELLANEOUS SANITARY DRAINAGE PIPING SPECIALTIES

A. Open Drains or Hub Drains:

1. Description: Shop or field fabricate from ASTM A 74, Service class, hub-less, cast-iron soil-pipe fittings. Include P-trap, riser section; and where required, increaser fitting joined with ASTM C 564 rubber gaskets.
2. Size: See drawings. If not shown drain shall 2" minim or one size larger than piping discharging to the drain.

B. Floor-Drain, Trap-Seal Primer Fittings:

1. Description: Cast iron, with threaded inlet and threaded or spigot outlet, and trap-seal primer valve connection.
2. Size: Same as floor drain outlet with NPS 1/2 side inlet.

C. Floor-Drain, Trap Seal:

1. Barrier type floor drain or sink trap seal device.
2. IAPMO 7479 and ASSE std. 1072 listed.

D. Air-Gap Fittings:

1. Standard: ASME A112.1.2, for fitting designed to ensure fixed, positive air gap between installed inlet and outlet piping.
2. Body: Bronze or cast iron.
3. Inlet: Opening in top of body.
4. Outlet: Larger than inlet.
5. Size: Same as connected waste piping and with inlet large enough for associated indirect waste piping.

E. Expansion Joints:

1. Standard: ASME A112.6.4.
2. Body: Cast iron with bronze sleeve, packing, and gland.
3. End Connections: Matching connected piping.
4. Size: Same as connected soil, waste, or vent piping.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.
2. Locate at each change in direction of piping greater than 45 degrees.
3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.
4. Locate at base of each vertical soil and waste stack.

B. For floor cleanouts for piping below floors, install cleanout with top flush with finished floor. It shall be the responsibility of the plumbing contractor to coordinate the installation of cleanouts with the general contractor and floor contractor to ensure that floor cleanouts are properly adjusted so that the top is flush and level with finished flooring material. Cleanout covers that are not flush and level with the finished floor will be rejected and the plumbing contractor will be

required to sawcut or core drill the floor, provide and install and new cleanout, coordination installation of new concrete and new finished flooring material.

C. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.

D. Coordinate installation of roof flashing assemblies on sanitary stack vents and vent stacks that extend through roof with the general contractor or construction manager.

E. Assemble open drain fittings and install with top of hub 2 inches above floor.

F. Install deep-seal traps on floor drains and other waste outlets, if indicated.

G. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.

1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
2. Size: Same as floor drain inlet.

H. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.

I. Install expansion joints on vertical stacks and conductors. Position expansion joints for easy access and maintenance.

J. Install wood-blocking reinforcement for wall-mounting-type specialties.

K. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

3.2 CONNECTIONS

A. Comply with requirements in Section 221316 "Sanitary Waste and Vent Piping" for piping installation requirements. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

C. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

D. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Commercial, electric, storage, domestic-water heaters.
2. Commercial, light-duty, storage, electric, domestic-water heaters.
3. Thermostat-control, electric, tankless, domestic-water heaters.
4. Domestic-water heater accessories.

1.2 SUBMITTALS

- A. See Section 220000 "General Requirements of Mechanical and Plumbing" for submittal requirements.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ASME Compliance: Where ASME-code construction is indicated, fabricate and label commercial, domestic-water heater storage tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.

C. NSF Compliance: Fabricate and label equipment components that will be in contact with potable water to comply with NSF 61 Annex, "Drinking Water System Components - Health Effects."

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of electric, domestic-water heaters that fail in materials or workmanship within specified warranty period.

1. Warranty Periods: From date of Substantial Completion.

a. Commercial, Electric, Storage, Domestic-Water Heaters:

- 1) Storage Tank: Three years.
- 2) Controls and Other Components: One years.

b. Commercial, Light-Duty, Storage, Electric, Domestic-Water Heaters:

- 1) Storage Tank: Three years.
- 2) Controls and Other Components: One years.

PART 2 - PRODUCTS**2.1 COMMERCIAL, ELECTRIC, DOMESTIC-WATER HEATERS****A. Commercial, Electric, Storage, Domestic-Water Heaters:**

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradford White Corporation.
 - b. Lochinvar, LLC.
 - c. Rheem Manufacturing Company.
 - d. Smith, A. O. Corporation.
2. Standard: UL 1453.
3. Storage-Tank Construction: ASME-code, steel vertical arrangement.
 - a. Tappings: Factory fabricated of materials compatible with tank and piping connections. Attach tappings to tank before testing.
 - 1) NPS 2 and Smaller: Threaded ends according to ASME B1.20.1.
 - 2) NPS 2-1/2 and Larger: Flanged ends according to ASME B16.5 for steel and stainless-steel flanges, and according to ASME B16.24 for copper and copper-alloy flanges.
 - b. Pressure Rating: 150 psig.
 - c. Interior Finish: Comply with NSF 61 Annex barrier materials for potable-water tank linings, including extending lining material into tappings.
4. Factory-Installed Storage-Tank Appurtenances:
 - a. Anode Rod: Replaceable magnesium.
 - b. Drain Valve: Corrosion-resistant metal complying with ASSE 1005.
 - c. Insulation: Comply with ASHRAE/IESNA 90.1.
 - d. Jacket: Steel with enameled finish.
 - e. Heating Elements: Electric, screw-in or bolt-on immersion type arranged in multiples of three.
 - f. Temperature Control: Adjustable thermostat.
 - g. Safety Controls: High-temperature-limit and low-water cutoff devices or systems.
 - h. Relief Valves: ASME rated and stamped for combination temperature-and-pressure relief valves. Include one or more relief valves with total relieving capacity at least as great as heat input, and include pressure setting less than domestic-water heater working-pressure rating. Select one relief valve with sensing element that extends into storage tank.
5. Special Requirements: NSF 5 construction.

B. Commercial, Light-Duty, Storage, Electric, Domestic-Water Heaters:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bradford White Corporation.

- b. Lochinvar, LLC.
 - c. Rheem Manufacturing Company.
 - d. Smith, A. O. Corporation.
 - 2. Standard: UL 174.
 - 3. Storage-Tank Construction: Steel, vertical arrangement.
 - a. Tappings: ASME B1.20.1 pipe thread.
 - b. Pressure Rating: 150 psig.
 - c. Interior Finish: Comply with NSF 61 Annex barrier materials for potable-water tank linings, including extending lining material into tappings.
 - 4. Factory-Installed Storage-Tank Appurtenances:
 - a. Anode Rod: Replaceable magnesium.
 - b. Dip Tube: Required unless cold-water inlet is near bottom of tank.
 - c. Drain Valve: ASSE 1005.
 - d. Insulation: Comply with ASHRAE/IESNA 90.1.
 - e. Jacket: Steel with enameled finish.
 - f. Heat-Trap Fittings: Inlet type in cold-water inlet and outlet type in hot-water outlet.
 - g. Heating Elements: Two; electric, screw-in immersion type; wired for simultaneous operation unless otherwise indicated. Limited to 12 kW total.
 - h. Temperature Control: Adjustable thermostat.
 - i. Safety Control: High-temperature-limit cutoff device or system.
 - j. Relief Valve: ASME rated and stamped for combination temperature-and-pressure relief valves. Include relieving capacity at least as great as heat input, and include pressure setting less than domestic-water heater working-pressure rating. Select relief valve with sensing element that extends into storage tank.
 - 5. Special Requirements: NSF 5 construction with legs for off-floor installation.
- C. Capacity and Characteristics:
- 1. See Drawings.

2.2 DOMESTIC-WATER HEATER ACCESSORIES

A. Domestic-Water Compression Tanks:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AMTROL, Inc.
 - b. Taco
 - c. Armstrong
 - d. John Wood
- 2. Description: AMSE rated, steel pressure-rated tank constructed with welded joints and factory-installed butyl-rubber diaphragm. Include air precharge to minimum system-operating pressure at tank.
- 3. Construction:
 - a. Tappings: Factory-fabricated steel, welded to tank before testing and labeling. Include ASME B1.20.1 pipe thread.

- b. Interior Finish: Comply with NSF 61 Annex barrier materials for potable-water tank linings, including extending finish into and through tank fittings and outlets.
 - c. Air-Charging Valve: Factory installed.
- 4. Capacity and Characteristics:
 - a. See Drawings.
- B. Drain Pans: Corrosion-resistant metal with raised edge. Comply with ANSI/CSA LC 3. Include dimensions not less than base of domestic-water heater, and include drain outlet not less than NPS 3/4 with ASME B1.20.1 pipe threads or with ASME B1.20.7 garden-hose threads.
- C. Piping-Type Heat Traps: Field-fabricated piping arrangement according to ASHRAE/IESNA 90.1.
- D. Heat-Trap Fittings: ASHRAE 90.2.
- E. Pressure-Reducing Valves: ASSE 1003 for water. Set at 25-psig-maximum outlet pressure unless otherwise indicated.
- F. Combination Temperature-and-Pressure Relief Valves: ASME rated and stamped. Include relieving capacity at least as great as heat input, and include pressure setting less than domestic-water heater working-pressure rating. Select relief valves with sensing element that extends into storage tank.
- G. Pressure Relief Valves: ASME rated and stamped. Include pressure setting less than domestic-water heater working-pressure rating.
- H. Vacuum Relief Valves: ANSI Z21.22/CSA 4.4.
- I. Shock Absorbers: ASSE 1010 or PDI-WH 201, Size A water hammer arrester.
- J. Domestic-Water Heater Stands: Manufacturer's factory-fabricated steel stand for floor mounting, capable of supporting domestic-water heater and water. Include dimension that will support bottom of domestic-water heater a minimum of 18 inches above the floor.
- K. Domestic-Water Heater Mounting Brackets: Manufacturer's factory-fabricated steel bracket for wall mounting, capable of supporting domestic-water heater and water.

2.3 SOURCE QUALITY CONTROL

- A. Factory Tests: Test and inspect domestic-water heaters specified to be ASME-code construction, according to ASME Boiler and Pressure Vessel Code.
- B. Hydrostatically test commercial domestic-water heaters to minimum of one and one-half times pressure rating before shipment.
- C. Electric, domestic-water heaters will be considered defective if they do not pass tests and inspections. Comply with requirements in Section 014000 "Quality Requirements" for retesting and reinspecting requirements and Section 017300 "Execution" for requirements for correcting the Work.
- D. Prepare test and inspection reports.

PART 3 - EXECUTION**3.1 DOMESTIC-WATER HEATER INSTALLATION**

A. Commercial, Electric, Domestic-Water Heater Mounting: Install commercial, electric, domestic-water heaters on concrete base. Comply with requirements for concrete bases specified in Section 033000 "Cast-in-Place Concrete."

1. Exception: Omit concrete bases for commercial, electric, domestic-water heaters if installation on stand, bracket, suspended platform is indicated.
2. Maintain manufacturer's recommended clearances.
3. Arrange units so controls and devices that require servicing are accessible.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
6. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Install anchor bolts to elevations required for proper attachment to supported equipment.
8. Anchor domestic-water heaters to substrate.

B. Install electric, domestic-water heaters level and plumb, according to layout drawings, original design, and referenced standards. Maintain manufacturer's recommended clearances. Arrange units so controls and devices needing service are accessible.

1. Install shutoff valves on domestic-water-supply piping to domestic-water heaters and on domestic-hot-water outlet piping. Comply with requirements for shutoff valves specified in Section 220523 "General Duty Valves for Plumbing and HVAC".

C. Install commercial, electric, domestic-water heaters with seismic-restraint devices. Comply with requirements for seismic-restraint devices specified in Section 220548 "Vibration and Seismic Controls for Plumbing Piping and Equipment."

D. Install combination temperature-and-pressure relief valves in top portion of storage tanks. Use relief valves with sensing elements that extend into tanks. Extend commercial-water-heater relief-valve outlet, with drain piping same as domestic-water piping in continuous downward pitch, and discharge by positive air gap onto closest floor drain.

E. Install combination temperature-and-pressure relief valves in water piping for electric, domestic-water heaters without storage. Extend commercial-water-heater relief-valve outlet, with drain piping same as domestic-water piping in continuous downward pitch, and discharge by positive air gap onto closest floor drain.

F. Install water-heater drain piping as indirect waste to spill by positive air gap into open drains or over floor drains. Install hose-end drain valves at low points in water piping for electric, domestic-water heaters that do not have tank drains. Comply with requirements for hose-end drain valves specified in Section 221119 "Domestic Water Piping Specialties."

G. Install thermometers on outlet piping of electric, domestic-water heaters. Comply with requirements for thermometers specified in Section 220519 "Meters and Gages for Plumbing Piping."

H. Install piping-type heat traps on inlet and outlet piping of electric, domestic-water heater storage tanks without integral or fitting-type heat traps.

- I. Fill electric, domestic-water heaters with water.
- J. Charge domestic-water compression tanks with air.

3.2 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221116 "Domestic Water Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Where installing piping adjacent to electric, domestic-water heaters, allow space for service and maintenance of water heaters. Arrange piping for easy removal of domestic-water heaters.

3.3 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Electric, domestic-water heaters will be considered defective if they do not pass tests and inspections. Comply with requirements in Section 014000 "Quality Requirements" for retesting and reinspecting requirements and Section 017300 "Execution" for requirements for correcting the Work.
- C. Prepare test and inspection reports.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plumbing fixtures shown and scheduled on the drawings.

1.2 SUBMITTALS

- A. See section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS

- 2.1 PLUMBING FIXTURE MANUFACTURERS – The following manufacturers are approved. Fixtures and equipment other than those listed in the plumbing fixture schedule must be submitted for approval prior to bidding. Only products from the manufacturers listed below will be considered. Request for prior approval from manufacturers not listed below will not be considered.

- A. FLOOR DRAINS & SINKS

- 1. FIXTURES
 - a. JR SMITH
 - b. ZURN
 - c. JOSAM
 - 2. TRAP SEAL
 - a. TRAP GUARD
 - b. JR SMITH
 - 3. TRAP PRIMERS
 - a. JR SMITH
 - b. WATTS
 - c. ZURN

- B. LAVATORIES

- 1. FIXTURES
 - a. ACORN
 - b. JUST
 - 2. CARRIERS AND SUPPORTS
 - a. JR SMITH
 - b. ZURN
 - c. ACORN
 - 3. FAUCETS
 - a. MOEN COMMERCIAL
 - b. SLOAN
 - c. AMERICAN STANDARD

- 4. PIPING COVERS
 - a. TRUBRO
 - b. PLUMMEREX
- C. STAINLESS STEEL SINKS
 - 1. FIXTURES
 - a. ELKAY
 - b. JUST
 - c. KOHLER
 - d. ACORN
 - e. ADVANCE TABCO
 - 2. FAUCETS
 - a. MOEN COMMERCIAL
 - b. T&S BRASS
 - c. CHICAGO FAUCET
- D. STOP VALVES
 - 1. BRASSCRAFT
 - 2. WATTS
 - 3. KINGSTON BRASS
- E. URINALS
 - 1. FIXTURES
 - a. ACORN
 - b. ADVANCE TABCO
 - 2. FLUSH VALVES
 - a. MOEN
 - b. ZURN
 - c. SLOAN
 - 3. CARRIERS AND SUPPORTS
 - a. ACORN
 - b. JR SMITH
 - c. ZURN
- F. WATER CLOSETS
 - 1. FIXTURES
 - a. ACORN
 - 2. FLUSH VALVES
 - a. MOEN
 - b. ZURN
 - c. SLOAN
 - 3. SEATS
 - a. ACORN
 - 4. CARRIERS AND SUPPORTS
 - a. ACORN

- b. JR SMITH
- c. ZURN

2.2 GROUT

- A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- B. Characteristics: Nonshrink; recommended for interior and exterior applications.
- C. Design Mix: 5000-psi, 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install plumbing fixtures level and plumb according to roughing-in drawings.
- B. Install floor-mounted water closets on closet flange attachments to drainage piping.
- C. Install counter-mounting fixtures in and attached to casework.
- D. Install pedestal lavatories on pedestals and secured to wood blocking in wall.
- E. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
 - 1. Exception: Use ball, gate, or globe valves if supply stops are not specified with fixture. Comply with valve requirements specified in Section 220523 "General-Duty Valves for Plumbing Piping."
- F. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.
- G. Install toilet seats on water closets.
- H. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- I. Install shower flow-control fittings with specified maximum flow rates in shower arms.
- J. Install traps on fixture outlets.
 - 1. Exception: Omit trap on fixtures with integral traps.
 - 2. Exception: Omit trap on indirect wastes unless otherwise indicated.
- K. Install disposer in outlet of each sink indicated to have disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.

- L. Install dishwasher air-gap fitting at each sink indicated to have air-gap fitting. Install in sink deck. Connect inlet hose to dishwasher and outlet hose to disposer.
- M. Set bathtubs and shower receptors in leveling bed of cement grout.
- N. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories and sinks.
- O. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings.
- P. Seal joints between plumbing fixtures, counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color.
- Q. The Plumbing contractor shall furnish a 24V control transformer to all hard wired optical/handsfree fixtures. The Plumbing contractor shall coordinate with the electrical contractor to install all line and low voltage wiring in compliance with section 260519 "Low-voltage Electrical Power Conductors and Cables", and section 260523 "Control-Voltage Electrical Power Cables".

3.2 CONNECTIONS

- A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories and sinks.
- E. All electrical connections shall be coordinated by the plumbing contractor with the electrical contractor.

3.3 ADJUSTING

- A. Operate and adjust plumbing fixtures and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.

3.4 CLEANING AND PROTECTION

- A. After completing installation of plumbing fixtures, inspect and repair damaged finishes.
- B. Clean plumbing fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Provide protective covering for installed plumbing fixtures and fittings.

- D. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Balancing Air Systems:
 - a. Constant-volume air systems.

1.2 DEFINITIONS

- A. AABC: Associated Air Balance Council.
- B. NEBB: National Environmental Balancing Bureau.
- C. TAB: Testing, adjusting, and balancing.
- D. TABB: Testing, Adjusting, and Balancing Bureau.
- E. TAB Specialist: An independent entity meeting qualifications to perform TAB work.
- F. TDH: Total dynamic head.

1.3 ACTION SUBMITTALS

- A. See Section 220000 "General Requirement of Plumbing and HVAC" for submittal requirements

1.4 QUALITY ASSURANCE

- A. TAB Specialists Qualifications: Certified by AABC, NEBB, TABB, or as approved by the Engineer prior to bidding.
- B. Certify TAB field data reports and perform the following:
 - 1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
 - 2. Certify that the TAB team complied with the approved TAB plan and the procedures specified and referenced in this Specification.
- C. TAB Report Forms: Use standard TAB contractor's forms.
- D. Instrumentation Type, Quantity, Accuracy, and Calibration: Comply with requirements in ASHRAE 111, Section 4, "Instrumentation."
- E. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.7.2.3 - "System Balancing."

PART 2 - EXECUTION**2.1 EXAMINATION**

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems designs that may preclude proper TAB of systems and equipment.
- B. Examine installed systems for balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are applicable for intended purpose and are accessible.
- C. Examine the approved submittals for HVAC systems and equipment.
- D. Examine HVAC equipment and verify that bearings are greased, belts are aligned and tight, filters are clean, and equipment with functioning controls is ready for operation.
- E. Examine terminal units, such as variable-air-volume boxes, and verify that they are accessible and their controls are connected and functioning.
- F. Examine control valves for proper installation for their intended function of throttling, diverting, or mixing fluid flows.
- G. Examine heat-transfer coils for correct piping connections and for clean and straight fins.
- H. Examine system pumps to ensure absence of entrained air in the suction piping.
- I. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

2.2 PREPARATION

- A. Perform system-readiness checks of HVAC systems and equipment to verify system readiness for TAB work. Include, at a minimum, the following:
 - 1. Airside:
 - a. Duct systems are complete with terminals installed.
 - b. Volume, smoke, and fire dampers are open and functional.
 - c. Clean filters are installed.
 - d. Fans are operating, free of vibration, and rotating in correct direction.
 - e. Variable-frequency controllers' startup is complete and safeties are verified.
 - f. Automatic temperature-control systems are operational.
 - g. Ceilings are installed.
 - h. Windows and doors are installed.
 - i. Suitable access to balancing devices and equipment is provided.

2.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Total System Balance", NEBB's "Procedural

Standards for Testing, Adjusting, and Balancing of Environmental Systems" or SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing" and in this Section.

- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
 - 1. After testing and balancing, patch probe holes in ducts with plastic plugs.
 - 2. Coordinate with the mechanical insulation contractor to Restore insulation, coverings, vapor barrier, and finish according to Section 230713 "Duct Insulation"
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

2.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Cross-check the summation of required outlet volumes with required fan volumes.
- B. Prepare schematic diagrams of systems' "as-built" duct layouts.
- C. For variable-air-volume systems, develop a plan to simulate diversity.
- D. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.
- E. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.
- F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- G. Verify that motor starters are equipped with properly sized thermal protection.
- H. Check dampers for proper position to achieve desired airflow path.
- I. Check for airflow blockages.
- J. Check condensate drains for proper connections and functioning.
- K. Check for proper sealing of air-handling-unit components.
- L. Verify that air duct system is sealed as specified in Section 233113 "Metal Ducts."

2.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
 - 1. Measure total airflow.
 - a. Set outside-air, return-air, and relief-air dampers for proper position that simulates minimum outdoor-air conditions.

- b. Where duct conditions allow, measure airflow by Pitot-tube traverse. If necessary, perform multiple Pitot-tube traverses to obtain total airflow.
 - c. Where duct conditions are not suitable for Pitot-tube traverse measurements, a coil traverse may be acceptable.
 - d. If a reliable Pitot-tube traverse or coil traverse is not possible, measure airflow at terminals and calculate the total airflow.
 2. Measure fan static pressures as follows:
 - a. Measure static pressure directly at the fan outlet or through the flexible connection.
 - b. Measure static pressure directly at the fan inlet or through the flexible connection.
 - c. Measure static pressure across each component that makes up the air-handling system.
 - d. Report artificial loading of filters at the time static pressures are measured.
 3. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
 4. Obtain approval from Engineer for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air-handling-unit performance.
 5. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload occurs. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
 - B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows.
 1. Measure airflow of submain and branch ducts.
 2. Adjust submain and branch duct volume dampers for specified airflow.
 3. Re-measure each submain and branch duct after all have been adjusted.
 - C. Adjust air inlets and outlets for each space to indicated airflows.
 1. Set airflow patterns of adjustable outlets for proper distribution without drafts.
 2. Measure inlets and outlets airflow.
 3. Adjust each inlet and outlet for specified airflow.
 4. Re-measure each inlet and outlet after they have been adjusted.
- 2.6 TOLERANCES
- A. Set HVAC system's airflow rates and water flow rates within the following tolerances:
 1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent.
 2. Air Outlets and Inlets: Plus or minus 10 percent.
 - B. Maintaining pressure relationships as designed shall have priority over the tolerances specified above.

2.7 FINAL REPORT

- A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.
1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer.
 2. Include a list of instruments used for procedures, along with proof of calibration.
 3. Certify validity and accuracy of field data.
- B. Final Report Contents: In addition to certified field-report data, include the following:
1. Manufacturers' test data.
 2. Field test reports prepared by system and equipment installers.
 3. Other information relative to equipment performance; do not include Shop Drawings and Product Data.
- C. General Report Data: In addition to form titles and entries, include the following data:
1. Title page.
 2. Name and address of the TAB specialist.
 3. Project name.
 4. Project location.
 5. Architect's name and address.
 6. Engineer's name and address.
 7. Contractor's name and address.
 8. Report date.
 9. Signature of TAB supervisor who certifies the report.
 10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
 11. Summary of contents including the following:
 - a. Indicated versus final performance.
 - b. Notable characteristics of systems.
 - c. Description of system operation sequence if it varies from the Contract Documents.
 12. Nomenclature sheets for each item of equipment.
 13. Data for terminal units, including manufacturer's name, type, size, and fittings.
 14. Notes to explain why certain final data in the body of reports vary from indicated values.
 15. Test conditions for fans and pump performance forms including the following:
 - a. Settings for outdoor-, return-, and exhaust-air dampers.
 - b. Conditions of filters.
 - c. Face and bypass damper settings at coils.
 - d. Settings for supply-air, static-pressure controller.
 - e. Other system operating conditions that affect performance.
- D. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:
1. Unit Data:
 - a. Unit identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and unit size.

- e. Manufacturer's serial number.
 - f. Unit arrangement and class.
 - g. Discharge arrangement.
 - h. Sheave make, size in inches, and bore.
 - i. Center-to-center dimensions of sheave and amount of adjustments in inches.
 - j. Number, make, and size of belts.
 - k. Number, type, and size of filters.
 - 2. Motor Data:
 - a. Motor make, and frame type and size.
 - b. Horsepower and rpm.
 - c. Volts, phase, and hertz.
 - d. Full-load amperage and service factor.
 - e. Sheave make, size in inches, and bore.
 - f. Center-to-center dimensions of sheave and amount of adjustments in inches.
 - 3. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.
 - b. Total system static pressure in inches wg.
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg.
 - e. Filter static-pressure differential in inches wg.
 - f. Preheat-coil static-pressure differential in inches wg.
 - g. Cooling-coil static-pressure differential in inches wg.
 - h. Heating-coil static-pressure differential in inches wg.
 - i. Outdoor airflow in cfm.
 - j. Return airflow in cfm.
 - k. Outdoor-air damper position.
 - l. Return-air damper position.
- E. Fan Test Reports: For supply, return, and exhaust fans, include the following:
- 1. Fan Data:
 - a. System identification.
 - b. Location.
 - c. Make and type.
 - d. Model number and size.
 - e. Manufacturer's serial number.
 - f. Arrangement and class.
 - g. Sheave make, size in inches, and bore.
 - 2. Test Data (Indicated and Actual Values):
 - a. Total airflow rate in cfm.
 - b. Total system static pressure in inches wg.
 - c. Fan rpm.
 - d. Discharge static pressure in inches wg.
 - e. Suction static pressure in inches wg.
- F. Air-Terminal-Device Reports:
- 1. Unit Data:

- a. System and air-handling unit identification.
 - b. Location and zone.
 - c. Apparatus used for test.
 - d. Area served.
 - e. Make.
 - f. Number from system diagram.
 - g. Type and model number.
 - h. Size.
2. Test Data (Indicated and Actual Values):
 - a. Airflow rate in cfm.
 - b. Air velocity in fpm.
 - c. Preliminary airflow rate as needed in cfm.
 - d. Preliminary velocity as needed in fpm.
 - e. Final airflow rate in cfm.
 - f. Final velocity in fpm.

2.8 DUCT TESTING

- A. Duct Testing is required for supply, return or exhaust ductwork that will operate at 3 inWC static pressure or greater.
- B. Leakage test procedures shall follow the outlines and classifications in the SMANCA HVAC Air Duct Leakage Test Manual.
- C. The Owner and mechanical engineer shall select sections of ductwork from each air handling system for duct leakage testing. The sample shall include at least five transverse joints, typical seams, and access door connections. The sample will include all medium pressure supply ductwork between the air handling unit to within 2' of the connection to variable air volume terminal units.
- D. The Air handling systems shall be tested at 3 inches w.g. and shall meet leakage Class 3.
- E. If a section fails to meet allotted leakage level, the contractor shall modify the ductwork to bring it into compliance and shall retest the section until acceptable leakage is demonstrated. One retest shall will be provided by the TAB contractor. The mechanical contractor shall pay the TAB contractor for any additional retesting required.
- F. All testing and necessary repairs shall be completed prior to concealment of the ductwork.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. Section includes insulating the following duct services:
 - 1. Indoor, Duct Insulation.
- B. Related Sections:
 - 1. Section 220716 "Plumbing and HVAC Equipment and Piping Insulation."
 - 2. Section 233113 "Metal Ducts" for duct liners.

1.2 ACTION SUBMITTALS

- A. See Section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

1.4 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS**2.1 INSULATION MATERIALS**

- A. Comply with requirements in "Duct Insulation Schedule, General," "Indoor Duct and Plenum Insulation Schedule," and "Aboveground, Outdoor Duct and Plenum Insulation Schedule" articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.
- F. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type III with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Knauf Insulation.
 - d. Owens Corning.
- G. Jacketed Mineral-Fiber Board Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For duct and plenum applications, provide insulation with factory-applied ASJ. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Knauf Insulation.
 - d. Owens Corning.
- H. Mineral-Fiber Board Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For duct and plenum applications, provide insulation without factory-applied jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Knauf Insulation.
 - d. Owens Corning.

2.2 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.
- B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.
- C. ASJ Adhesive, and FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

2.3 MASTICS

- A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.
- B. Vapor-Barrier Mastic: Water based; suitable for indoor use on below ambient services.
 - 1. Water-Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm at 43-mil dry film thickness.
 - 2. Service Temperature Range: Minus 20 to plus 180 deg F.
 - 3. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.
 - 4. Color: White.
- C. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.
 - 1. Water-Vapor Permeance: ASTM F 1249, 1.8 perms at 0.0625-inch dry film thickness.
 - 2. Service Temperature Range: Minus 20 to plus 180 deg F.
 - 3. Solids Content: 60 percent by volume and 66 percent by weight.
 - 4. Color: White.

2.4 SEALANTS

- A. FSK and Metal Jacket Flashing Sealants:
 - 1. Materials shall be compatible with insulation materials, jackets, and substrates.
 - 2. Fire- and water-resistant, flexible, elastomeric sealant.
 - 3. Service Temperature Range: Minus 40 to plus 250 deg F.
 - 4. Color: Aluminum.
- B. ASJ Flashing Sealants, and Vinyl and PVC Jacket Flashing Sealants:
 - 1. Materials shall be compatible with insulation materials, jackets, and substrates.
 - 2. Fire- and water-resistant, flexible, elastomeric sealant.
 - 3. Service Temperature Range: Minus 40 to plus 250 deg F.
 - 4. Color: White.

2.5 FACTORY-APPLIED JACKETS

- A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:
 - 1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
 - 2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
 - 3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.

2.6 FIELD-APPLIED JACKETS

- A. Self-Adhesive Outdoor Jacket: 60-mil-thick, laminated vapor barrier and waterproofing membrane for installation over insulation located aboveground outdoors; consisting of a rubberized bitumen compound; heat applied to a multi-ply embossed UV-resistant aluminum foil/polymer laminate, and polyester/foil multiple layer laminate with acrylic adhesive.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Polyguard Products, Inc.
 - b. Prior Approved Equal

2.7 TAPES

- A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.
 1. Width: 3 inches.
 2. Thickness: 11.5 mils.
 3. Adhesion: 90 ounces force/inch in width.
 4. Elongation: 2 percent.
 5. Tensile Strength: 40 lbf/inch in width.
 6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.
- B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.
 1. Width: 3 inches.
 2. Thickness: 6.5 mils.
 3. Adhesion: 90 ounces force/inch in width.
 4. Elongation: 2 percent.
 5. Tensile Strength: 40 lbf/inch in width.
 6. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.
- C. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
 1. Width: 2 inches.
 2. Thickness: 3.7 mils.
 3. Adhesion: 100 ounces force/inch in width.
 4. Elongation: 5 percent.
 5. Tensile Strength: 34 lbf/inch in width.

2.8 SECUREMENTS

- A. Cupped Head Weld Pins:
 1. Material: Low carbon steel.
 2. Finish: Copper coated pins with galvanized washer
 3. Pin gauge: 12 Ga.
- B. Staples: Outward-clinching insulation staples, nominal 3/4-inch-wide, stainless steel or Monel.
- C. Wire: 0.080-inch nickel-copper alloy.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.2 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of ducts and fittings.
- B. Install insulation materials, vapor barriers or retarders, jackets, and thicknesses required for each item of duct system as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Keep insulation materials dry during application and finishing.
- G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- H. Install insulation with least number of joints practical.
- I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 - 1. Install insulation continuously through hangers and around anchor attachments.
 - 2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 - 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
- J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- K. Install insulation with factory-applied jackets as follows:
 - 1. Draw jacket tight and smooth.
 - 2. Cover circumferential joints with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
 - 3. Overlap jacket longitudinal seams at least 1-1/2 inches. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
 - a. For below ambient services, apply vapor-barrier mastic over staples.
 - 4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
 - 5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct flanges and fittings.
- L. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

- M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.3 PENETRATIONS

- A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
 - 1. Seal penetrations with flashing sealant.
 - 2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 - 3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
 - 4. Seal jacket to roof flashing with flashing sealant.
- B. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
 - 1. Seal penetrations with flashing sealant.
 - 2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
 - 3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
 - 4. Seal jacket to wall flashing with flashing sealant.
- C. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- D. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.
 - 1. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping and fire-resistive joint sealers.
- E. Insulation Installation at Floor Penetrations:
 - 1. Duct: For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.
 - 2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.4 INSTALLATION OF MINERAL-FIBER INSULATION

A. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:
 - a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
 - b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
 - c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
 - d. Do not overcompress insulation during installation.
 - e. Impale insulation over pins and attach speed washers.
 - f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.
 - a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
 - b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.
5. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.
6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch-wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

B. Board Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.

3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:
 - a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
 - b. On duct sides with dimensions larger than 18 inches, space pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
 - c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
 - d. Do not overcompress insulation during installation.
 - e. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.
4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.
 - a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
 - b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.
5. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Groove and score insulation to fit as closely as possible to outside and inside radius of elbows. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
6. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch-wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

3.5 FINISHES

- A. Insulation with ASJ or Other Paintable Jacket Material: Paint jacket with paint system identified below and as specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- B. Color: Final color as selected by Architect. Vary first and second coats to allow visual inspection of the completed Work.
- C. Do not field paint outdoor ductwork.

3.6 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Inspect ductwork, randomly selected by engineer, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.
- C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.7 DUCT INSULATION SCHEDULE, GENERAL

- A. Duct insulation shall not be installed on any indoor, supply or return ductwork that is exposed to view unless otherwise indicated on the drawings.
- B. Insulation materials and thicknesses for ductwork are identified in the table below. If more than one material is listed for an application, selection from materials listed is at the Contractor's option. Ductwork that is not listed below or is exposed to view shall not be insulated.

Application	Insulation Type	Installed R-Value	Vapor Barrier	Factory Installed Jacket Type
Indoor Supply	Mineral-Fiber Blanket	6	YES	FSK
Indoor Exhaust *	Mineral-Fiber Blanket	8	YES	FSK
Indoor Fresh Air	Mineral-Fiber Board	8	YES	FSK

*Indoor Exhaust Ductwork shall be insulated from the penetration of the building envelope to 10ft upstream of a backdraft of shutoff damper.

3.8 FIELD APPLIED JACKETING SCHEDULE

- A. Field applied jackets for Plumbing and HVAC piping are identified in the table below. If more than one material is listed for an application, selection from materials listed is at the Contractor's option.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Refrigerant pipes and fittings.
 - 2. Refrigerant piping valves and specialties.
 - 3. Refrigerants.

1.2 SUBMITTALS

- A. See Section 220000 "General Requirements of Plumbing and HVAC"
- B. Shop Drawings:
 - 1. Show piping size and piping layout, including oil traps, double risers, specialties, and pipe and tube sizes to accommodate, as a minimum, equipment provided, elevation difference between compressor and evaporator, and length of piping to ensure proper operation and compliance with warranties of connected equipment.
 - 2. Show interface and spatial relationships between piping and equipment.
 - 3. Shop Drawing Scale: 1/4 inch equals 1 foot or 1/8 in equal 1 foot.

1.3 QUALITY ASSURANCE

- A. Comply with ASHRAE 15, "Safety Code for Refrigeration Systems."
- B. Comply with ASME B31.5, "Refrigeration Piping and Heat Transfer Components."

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

- A. Line Test Pressure for Refrigerant R-410A:
 - 1. Suction Lines for Air-Conditioning Applications: 300 psig.
 - 2. Suction Lines for Heat-Pump Applications: 535 psig.
 - 3. Hot-Gas and Liquid Lines: 535 psig.

2.2 COPPER TUBE AND FITTINGS

- A. Copper Tube: ASTM B 280, Type ACR.
- B. Wrought-Copper Fittings: ASME B16.22.
- C. Wrought-Copper Unions: ASME B16.22.

- D. Solder Filler Metals: ASTM B 32. Use 95-5 tin antimony or alloy HB solder to join copper socket fittings on copper pipe.
- E. Brazing Filler Metals: AWS A5.8/A5.8M.
- F. Flexible Connectors:
 - 1. Body: Tin-bronze bellows with woven, flexible, tinned-bronze-wire-reinforced protective jacket.
 - 2. End Connections: Socket ends.
 - 3. Offset Performance: Capable of minimum 3/4-inch misalignment in minimum 7-inch-long assembly.
 - 4. Working Pressure Rating: Factory test at minimum 500 psig.
 - 5. Maximum Operating Temperature: 250 deg F.

2.3 VALVES AND SPECIALTIES

- A. Diaphragm Packless Valves:
 - 1. Body and Bonnet: Forged brass or cast bronze; globe design with straight-through or angle pattern.
 - 2. Diaphragm: Phosphor bronze and stainless steel with stainless-steel spring.
 - 3. Operator: Rising stem and hand wheel.
 - 4. Seat: Nylon.
 - 5. End Connections: Socket, union, or flanged.
 - 6. Working Pressure Rating: 500 psig.
 - 7. Maximum Operating Temperature: 275 deg F.
- B. Packed-Angle Valves:
 - 1. Body and Bonnet: Forged brass or cast bronze.
 - 2. Packing: Molded stem, back seating, and replaceable under pressure.
 - 3. Operator: Rising stem.
 - 4. Seat: Nonrotating, self-aligning polytetrafluoroethylene.
 - 5. Seal Cap: Forged-brass or valox hex cap.
 - 6. End Connections: Socket, union, threaded, or flanged.
 - 7. Working Pressure Rating: 500 psig.
 - 8. Maximum Operating Temperature: 275 deg F.
- C. Check Valves:
 - 1. Body: Ductile iron, forged brass, or cast bronze; globe pattern.
 - 2. Bonnet: Bolted ductile iron, forged brass, or cast bronze; or brass hex plug.
 - 3. Piston: Removable polytetrafluoroethylene seat.
 - 4. Closing Spring: Stainless steel.
 - 5. Manual Opening Stem: Seal cap, plated-steel stem, and graphite seal.
 - 6. End Connections: Socket, union, threaded, or flanged.
 - 7. Maximum Opening Pressure: 0.50 psig.
 - 8. Working Pressure Rating: 500 psig.
 - 9. Maximum Operating Temperature: 275 deg F.
- D. Service Valves:
 - 1. Body: Forged brass with brass cap including key end to remove core.
 - 2. Core: Removable ball-type check valve with stainless-steel spring.
 - 3. Seat: Polytetrafluoroethylene.
 - 4. End Connections: Copper spring.
 - 5. Working Pressure Rating: 500 psig.

- E. Solenoid Valves: Comply with AHRI 760 and UL 429; listed and labeled by a National Recognized Testing Laboratory (NRTL).
 - 1. Body and Bonnet: Plated steel.
 - 2. Solenoid Tube, Plunger, Closing Spring, and Seat Orifice: Stainless steel.
 - 3. Seat: Polytetrafluoroethylene.
 - 4. End Connections: Threaded.
 - 5. Electrical: Molded, watertight coil in NEMA 250 enclosure of type required by location with 1/2-inch conduit adapter, and 24, 115, or 208-V ac coil as required by the installation.
 - 6. Working Pressure Rating: 400 psig.
 - 7. Maximum Operating Temperature: 240 deg F.
- F. Safety Relief Valves: Comply with 2010 ASME Boiler and Pressure Vessel Code; listed and labeled by an NRTL.
 - 1. Body and Bonnet: Ductile iron and steel, with neoprene O-ring seal.
 - 2. Piston, Closing Spring, and Seat Insert: Stainless steel.
 - 3. Seat: Polytetrafluoroethylene.
 - 4. End Connections: Threaded.
 - 5. Working Pressure Rating: 400 psig.
 - 6. Maximum Operating Temperature: 240 deg F.
- G. Thermostatic Expansion Valves: Comply with AHRI 750.
 - 1. Body, Bonnet, and Seal Cap: Forged brass or steel.
 - 2. Diaphragm, Piston, Closing Spring, and Seat Insert: Stainless steel.
 - 3. Packing and Gaskets: Non-asbestos.
 - 4. Capillary and Bulb: Copper tubing filled with refrigerant charge.
 - 5. Suction Temperature: 40 deg F.
 - 6. Superheat: Adjustable.
 - 7. Reverse-flow option (for heat-pump applications).
 - 8. End Connections: Socket, flare, or threaded union.
 - 9. Working Pressure Rating: 700 psig.
- H. Hot-Gas Bypass Valves: Comply with UL 429; listed and labeled by an NRTL.
 - 1. Body, Bonnet, and Seal Cap: Ductile iron or steel.
 - 2. Diaphragm, Piston, Closing Spring, and Seat Insert: Stainless steel.
 - 3. Packing and Gaskets: Non-asbestos.
 - 4. Solenoid Tube, Plunger, Closing Spring, and Seat Orifice: Stainless steel.
 - 5. Seat: Polytetrafluoroethylene.
 - 6. Equalizer: Internal or External.
 - 7. Electrical: Molded, watertight coil in NEMA 250 enclosure of type required by location with 1/2-inch conduit adapter and 24, 115, or 208-V ac coil as required for the application.
 - 8. End Connections: Socket.
 - 9. Set Pressure: Field Verify.
 - 10. Throttling Range: Maximum 5 psig.
 - 11. Working Pressure Rating: 500 psig.
 - 12. Maximum Operating Temperature: 240 deg F.
- I. Straight-Type Strainers:
 - 1. Body: Welded steel with corrosion-resistant coating.
 - 2. Screen: 100-mesh stainless steel.
 - 3. End Connections: Socket or flare.
 - 4. Working Pressure Rating: 500 psig.
 - 5. Maximum Operating Temperature: 275 deg F.
- J. Angle-Type Strainers:
 - 1. Body: Forged brass or cast bronze.

2. Drain Plug: Brass hex plug.
3. Screen: 100-mesh monel.
4. End Connections: Socket or flare.
5. Working Pressure Rating: 500 psig.
6. Maximum Operating Temperature: 275 deg F.

K. Moisture/Liquid Indicators:

1. Body: Forged brass.
2. Window: Replaceable, clear, fused glass window with indicating element protected by filter screen.
3. Indicator: Color coded to show moisture content in parts per million (ppm).
4. Minimum Moisture Indicator Sensitivity: Indicate moisture above 60 ppm.
5. End Connections: Socket or flare.
6. Working Pressure Rating: 500 psig.
7. Maximum Operating Temperature: 240 deg F.

L. Replaceable-Core Filter Dryers: Comply with AHRI 730.

1. Body and Cover: Painted-steel shell with ductile-iron cover, stainless-steel screws, and neoprene gaskets.
2. Filter Media: 10 micron, pleated with integral end rings; stainless-steel support.
3. Desiccant Media: High moisture capacity.
4. Designed for reverse flow (for heat-pump applications).
5. End Connections: Socket.
6. Access Ports: NPS 1/4 connections at entering and leaving sides for pressure differential measurement.
7. Working Pressure Rating: 500 psig.
8. Maximum Operating Temperature: 240 deg F.

M. Permanent Filter Dryers: Comply with AHRI 730.

1. Body and Cover: Painted-steel shell.
2. Filter Media: 10 micron, pleated with integral end rings; stainless-steel support.
3. Desiccant Media: High Moisture capacity.
4. Designed for reverse flow (for heat-pump applications).
5. End Connections: Socket.
6. Access Ports: NPS 1/4 connections at entering and leaving sides for pressure differential measurement.
7. Working Pressure Rating: 500 psig.
8. Maximum Operating Temperature: 240 deg F.

2.4 REFRIGERANTS

- A. ASHRAE 34, R-410A: Pentafluoroethane/Difluoromethane.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS FOR REFRIGERANT R-410A

- A. Suction Lines: Copper, Type ACR, annealed-temper tubing and wrought-copper fittings with brazed joints.
- B. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type ACR, annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.

- C. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type K, annealed- or drawn-temper tubing and wrought-copper fittings with brazed joints.
- D. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type ACR, drawn-temper tubing and wrought-copper fittings with 95-5 tin-antimony soldered joints.
- E. Hot-Gas and Liquid Lines, and Suction Lines for Heat-Pump Applications: Copper, Type ACR, drawn-temper tubing and wrought-copper fittings with Alloy HB soldered joints.
- F. Safety-Relief-Valve Discharge Piping: Copper, Type ACR, annealed- or drawn-temper tubing and wrought-copper fittings with brazed or soldered joints.
- G. Safety-Relief-Valve Discharge Piping: Copper, Type K, annealed- or drawn-temper tubing and wrought-copper fittings with brazed or soldered joints.
- H. Safety-Relief-Valve Discharge Piping: Copper, Type ACR, drawn-temper tubing and wrought-copper fittings with 95-5 tin-antimony soldered joints.
- I. Safety-Relief-Valve Discharge Piping: Copper, Type ACR, drawn-temper tubing and wrought-copper fittings with Alloy HB soldered joints.

3.2 VALVE AND SPECIALTY APPLICATIONS

- A. Install diaphragm packless valves in suction and discharge lines of compressor.
- B. Install service valves for gage taps at inlet and outlet of hot-gas bypass valves and strainers if they are not an integral part of valves and strainers.
- C. Install a check valve at the compressor discharge and a liquid accumulator at the compressor suction connection.
- D. Except as otherwise indicated, install diaphragm packless valves on inlet and outlet side of filter dryers.
- E. Install a full-size, three-valve bypass around filter dryers.
- F. Install solenoid valves upstream from each expansion valve and hot-gas bypass valve. Install solenoid valves in horizontal lines with coil at top.
- G. Install thermostatic expansion valves as close as possible to distributors on evaporators.
 - 1. Install valve so diaphragm case is warmer than bulb.
 - 2. Secure bulb to clean, straight, horizontal section of suction line using two bulb straps. Do not mount bulb in a trap or at bottom of the line.
 - 3. If external equalizer lines are required, make connection where it will reflect suction-line pressure at bulb location.
- H. Install safety relief valves where required by 2010 ASME Boiler and Pressure Vessel Code. Pipe safety-relief-valve discharge line to outside according to ASHRAE 15.
- I. Install moisture/liquid indicators in liquid line at the inlet of the thermostatic expansion valve or at the inlet of the evaporator coil capillary tube.

- J. Install strainers upstream from and adjacent to the following unless they are furnished as an integral assembly for the device being protected:
 - 1. Solenoid valves.
 - 2. Thermostatic expansion valves.
 - 3. Hot-gas bypass valves.
 - 4. Compressor.
- K. Install filter dryers in liquid line between compressor and thermostatic expansion valve, and in the suction line at the compressor.
- L. Install receivers sized to accommodate pump-down charge.
- M. Install flexible connectors at compressors.

3.3 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems; indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Shop Drawings.
- B. Install refrigerant piping according to ASHRAE 15.
- C. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
- F. Install piping adjacent to machines to allow service and maintenance.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Select system components with pressure rating equal to or greater than system operating pressure.
- J. Refer to Section 230923 "Direct Digital Control (DDC) System for HVAC" and Section 230993.11 "Sequence of Operations for HVAC DDC" for solenoid valve controllers, control wiring, and sequence of operation.
- K. Install piping as short and direct as possible, with a minimum number of joints, elbows, and fittings.
- L. Arrange piping to allow inspection and service of refrigeration equipment. Install valves and specialties in accessible locations to allow for service and inspection. Install access doors or panels as specified in Section 083113 "Access Doors and Frames" if valves or equipment requiring maintenance is concealed behind finished surfaces.

- M. Install refrigerant piping in protective conduit where installed belowground.
- N. Install refrigerant piping in rigid or flexible conduit in locations where exposed to mechanical injury.
- O. Slope refrigerant piping as follows:
 - 1. Install horizontal hot-gas discharge piping with a uniform slope downward away from compressor.
 - 2. Install horizontal suction lines with a uniform slope downward to compressor.
 - 3. Install traps and double risers to entrain oil in vertical runs.
 - 4. Liquid lines may be installed level.
- P. When brazing or soldering, remove solenoid-valve coils and sight glasses; also remove valve stems, seats, and packing, and accessible internal parts of refrigerant specialties. Do not apply heat near expansion-valve bulb.
- Q. Install piping with adequate clearance between pipe and adjacent walls and hangers or between pipes for insulation installation.
- R. Identify refrigerant piping and valves according to Section 220553 "Identification for Plumbing and HVAC Piping and Equipment."
- S. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 220500 "General Provisions of Plumbing and HVAC."
- T. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 220500 "General Provisions of Plumbing and HVAC."
- U. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 220500 "General Provisions of Plumbing and HVAC."

3.4 PIPE JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Soldered Joints: Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook."
- D. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," Chapter "Pipe and Tube."
 - 1. Use Type BCuP (copper-phosphorus) alloy for joining copper socket fittings with copper pipe.
 - 2. Use Type BAg (cadmium-free silver) alloy for joining copper with bronze or steel.

3.5 HANGERS AND SUPPORTS

- A. Comply with requirements for pipe hangers and supports specified in Section 230529 "Hangers and Supports for HVAC Piping and Equipment."
- B. Install the following pipe attachments:
 - 1. Adjustable steel clevis hangers for individual horizontal runs less than 20 feet long.
 - 2. Roller hangers and spring hangers for individual horizontal runs 20 feet or longer.
 - 3. Pipe Roller: MSS SP-58, Type 44 for multiple horizontal piping 20 feet or longer, supported on a trapeze.
 - 4. Spring hangers to support vertical runs.
 - 5. Copper-clad hangers and supports for hangers and supports in direct contact with copper pipe.
- C. Install hangers for copper tubing with the following maximum spacing and minimum rod diameters:
 - 1. NPS 1/2: Maximum span, 60 inches; minimum rod, 1/4 inch.
 - 2. NPS 5/8: Maximum span, 60 inches; minimum rod, 1/4 inch.
 - 3. NPS 1: Maximum span, 72 inches; minimum rod, 1/4 inch.
 - 4. NPS 1-1/4: Maximum span, 96 inches; minimum rod, 3/8 inch.
 - 5. NPS 1-1/2: Maximum span, 96 inches; minimum rod, 3/8 inch.
 - 6. NPS 2: Maximum span, 96 inches; minimum rod, 3/8 inch.
 - 7. NPS 2-1/2: Maximum span, 108 inches; minimum rod, 3/8 inch.
 - 8. NPS 3: Maximum span, 10 feet; minimum rod, 3/8 inch.
 - 9. NPS 4: Maximum span, 12 feet; minimum rod, 1/2 inch.
- D. Support multifloor vertical runs at least at each floor.

3.6 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Comply with ASME B31.5, Chapter VI.
 - 2. Test refrigerant piping, specialties, and receivers. Isolate compressor, condenser, evaporator, and safety devices from test pressure if they are not rated above the test pressure.
 - 3. Test high- and low-pressure side piping of each system separately at not less than the pressures indicated in "Performance Requirements" Article.
 - a. Fill system with nitrogen to the required test pressure.
 - b. System shall maintain test pressure at the manifold gage throughout duration of test.
 - c. Test joints and fittings with electronic leak detector or by brushing a small amount of soap and glycerin solution over joints.
 - d. Remake leaking joints using new materials, and retest until satisfactory results are achieved.
- B. Prepare test and inspection reports.

3.7 SYSTEM CHARGING

- A. Charge system using the following procedures:
 - 1. Install core in filter dryers after leak test but before evacuation.
 - 2. Evacuate entire refrigerant system with a vacuum pump to 500 micrometers. If vacuum holds for 12 hours, system is ready for charging.
 - 3. Break vacuum with refrigerant gas, allowing pressure to build up to 2 psig.
 - 4. Charge system with a new filter-dryer core in charging line.

3.8 ADJUSTING

- A. Adjust thermostatic expansion valve to obtain proper evaporator superheat.
- B. Adjust high- and low-pressure switch settings to avoid short cycling in response to fluctuating suction pressure.
- C. Adjust set-point temperature of air-conditioning or chilled-water controllers to the system design temperature.
- D. Perform the following adjustments before operating the refrigeration system, according to manufacturer's written instructions:
 - 1. Open shutoff valves in condenser water circuit.
 - 2. Verify that compressor oil level is correct.
 - 3. Open compressor suction and discharge valves.
 - 4. Open refrigerant valves except bypass valves that are used for other purposes.
 - 5. Check open compressor-motor alignment and verify lubrication for motors and bearings.
- E. Replace core or replaceable filter dryer after system has been adjusted and after design flow rates and pressures are established.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Rectangular ducts and fittings.
 - 2. Round ducts and fittings.
 - 3. Sheet metal materials.
 - 4. Sealants and gaskets.
 - 5. Hangers and supports.
 - 6. Seismic-restraint devices.
- B. Related Sections:
 - 1. Section 220529 "Hangers and Supports for Plumbing and HVAC Piping and Equipment."
 - 2. Section 220548 "Vibration and Seismic Controls for Plumbing and HVAC Piping and Equipment"
 - 3. Section 230593 "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.
 - 4. Section 233300 "Air Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.
- C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ANSI/ASHRAE 62.1.

1.2 SUBMITTALS

- A. See Section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

1.3 QUALITY ASSURANCE

- A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-up."
- B. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS**2.1 RECTANGULAR DUCTS AND FITTINGS**

- A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.
- B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints,"

for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

- C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 ROUND DUCTS AND FITTINGS

- A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.
- B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Round Duct Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 1. Transverse Joints in Ducts Larger Than 24 in Diameter: Flanged.
- C. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS

- A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
 - 1. Galvanized Coating Designation: G90.
 - 2. Finishes for Surfaces Exposed to View: Mill phosphatized.
- C. Carbon-Steel Sheets: Comply with ASTM A 1008/A 1008M, with oiled, matte finish for exposed ducts.

- D. Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304 or 316, as indicated in the "Duct Schedule" Article; cold rolled, annealed, sheet. Exposed surface finish shall be No. 2B, No. 2D, No. 3, or No. 4 as indicated in the "Duct Schedule" Article.
- E. Aluminum Sheets: Comply with ASTM B 209 Alloy 3003, H14 temper; with mill finish for concealed ducts, and standard, one-side bright finish for duct surfaces exposed to view.
- F. Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
 - 1. Where black- and galvanized-steel shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket materials.
- G. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.4 SEALANT AND GASKETS

- A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
- B. Water-Based Joint and Seam Sealant:
 - 1. Application Method: Brush on.
 - 2. Solids Content: Minimum 65 percent.
 - 3. Shore A Hardness: Minimum 20.
 - 4. Water resistant.
 - 5. Mold and mildew resistant.
 - 6. VOC: Maximum 75 g/L (less water).
 - 7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
 - 8. Service: Indoor or outdoor.
 - 9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.
- C. Flanged Joint Sealant: Comply with ASTM C 920.
 - 1. General: Single-component, acid-curing, silicone, elastomeric.
 - 2. Type: S.
 - 3. Grade: NS.
 - 4. Class: 25.
 - 5. Use: O.
 - 6. For indoor applications, sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 7. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.
- E. Round Duct Joint O-Ring Seals:
 - 1. Seal shall provide maximum leakage class of 3 cfm/100 sq. ft. at 1-inch wg and shall be rated for 10-inch wg static-pressure class, positive or negative.

2. EPDM O-ring to seal in concave bead in coupling or fitting spigot.
3. Double-lipped, EPDM O-ring seal, mechanically fastened to factory-fabricated couplings and fitting spigots.

2.5 HANGERS AND SUPPORTS

- A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.
- B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
- C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."
- D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.
- E. Steel Cables for Stainless-Steel Ducts: Stainless steel complying with ASTM A 492.
- F. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.
- G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- H. Trapeze and Riser Supports:
 1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
 2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
 3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.
- B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.
- C. Install ducts in maximum practical lengths.
- D. Install ducts with fewest possible joints.
- E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

- F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.
- G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.
- I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.
- J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.
- K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Section 233300 "Air Duct Accessories" for fire and smoke dampers.
- L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."

3.2 INSTALLATION OF EXPOSED DUCTWORK

- A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.
- B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.
- C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.
- D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.
- E. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.3 ADDITIONAL INSTALLATION REQUIREMENTS FOR COMMERCIAL KITCHEN HOOD EXHAUST DUCT

- A. Install commercial kitchen hood exhaust ducts without dips and traps that may hold grease, and sloped a minimum of 2 percent to drain grease back to the hood.
- B. Install fire-rated access panel assemblies at each change in direction and at maximum intervals of 20 feet in horizontal ducts, and at every floor for vertical ducts, or as indicated on Drawings. Locate access panel on top or sides of duct a minimum of 1-1/2 inches from bottom of duct.
- C. Do not penetrate fire-rated assemblies except as allowed by applicable building codes and authorities having jurisdiction.

3.4 DUCT SEALING

- A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- B. Seal ducts at a minimum to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":
 - 1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
 - 2. Outdoor, Supply-Air Ducts: Seal Class A.
 - 3. Outdoor, Exhaust Ducts: Seal Class C.
 - 4. Outdoor, Return-Air Ducts: Seal Class C.
 - 5. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
 - 6. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class A.
 - 7. Unconditioned Space, Exhaust Ducts: Seal Class C.
 - 8. Unconditioned Space, Return-Air Ducts: Seal Class B.
 - 9. Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class C.
 - 10. Conditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class B.
 - 11. Conditioned Space, Exhaust Ducts: Seal Class B.
 - 12. Conditioned Space, Return-Air Ducts: Seal Class C.
- C. Leakage Tests: (Engineer shall include or remove as required)
 - 1. Test 100 percent of installed ductwork for leakage in accordance with "System Pressure Testing for Leaks," published by United Sheet Metal Division of United McGill Corporation. Use prescribed test kit containing test blower, two U-tube manometers and calibrated curve attached to the orifice tube assembly.
 - 2. Pressurize installed duct system in 2 inch water gauge over design operating pressure. Total allowable leakage shall not exceed one percent of air handling capacity of system. If system is tested in sections, add leakage rates for individual sections to determine leakage for the whole system.
 - 3. Correct leaks found in excess of allowable limits. Retest.
 - 4. Have test results available for review on a progressive and final basis. Include test results in project closing file.
 - 5. For Bidding purposes, assume all leakage tests will be witnessed by Engineer. Notify Engineer of testing schedule a minimum of (7) days in advance.
 - 6. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
 - 7. Test for leaks before applying external insulation.

3.5 HANGER AND SUPPORT INSTALLATION

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."
- B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
 - 1. Where practical, install concrete inserts before placing concrete.

2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
 3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
 4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
 5. Do not use powder-actuated concrete fasteners for seismic restraints.
- C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.
- D. Hangers Exposed to View: Threaded rod and angle or channel supports.
- E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.
- F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.6 SEISMIC-RESTRAINT-DEVICE INSTALLATION

- A. Install ducts with hangers and braces designed to support the duct and to restrain against seismic forces required by applicable building codes. Comply with SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems." And ASCE/SEI 7.

3.7 CONNECTIONS

- A. Make connections to equipment with flexible connectors complying with Section 233300 "Air Duct Accessories."
- B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.8 START UP

- A. Air Balance: Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC."

3.9 DUCT SCHEDULE

- A. Fabricate ducts with galvanized sheet steel except as otherwise indicated and as follows:
- B. Supply Ducts:
1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:
 - a. Pressure Class: Positive 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.

- c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.
 - 2. Ducts Connected to Constant-Volume Air-Handling Units:
 - a. Pressure Class: Positive 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.
 - 3. Ducts Connected to Variable-Air-Volume Air-Handling Units:
 - a. Pressure Class: Positive 3-inch wg.
 - b. Minimum SMACNA Seal Class: B.
 - c. SMACNA Leakage Class for Rectangular: 8.
 - d. SMACNA Leakage Class for Round and Flat Oval: 4.
 - 4. Ducts Connected to Equipment Not Listed Above:
 - a. Pressure Class: Positive 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.
- C. Return Ducts:
 - 1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:
 - a. Pressure Class: Positive or negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.
 - 2. Ducts Connected to Air-Handling Units:
 - a. Pressure Class: Positive or negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.
 - 3. Ducts Connected to Equipment Not Listed Above:
 - a. Pressure Class: Positive or negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: [3] [6] [12] <Insert value>.
- D. Exhaust Ducts:
 - 1. Ducts Connected to Fans Exhausting (ASHRAE 62.1, Class 1 and 2) Air:
 - a. Pressure Class: Negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: C if negative pressure, and A if positive pressure.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.

2. Ducts Connected to Air-Handling Units:
 - a. Pressure Class: Positive or negative 3-inch wg.
 - b. Minimum SMACNA Seal Class: B if negative pressure, and A if positive pressure.
 - c. SMACNA Leakage Class for Rectangular: 8.
 - d. SMACNA Leakage Class for Round and Flat Oval: 4.
- E. Outdoor-Air (Not Filtered, Heated, or Cooled) Ducts:
 1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:
 - a. Pressure Class: Positive or negative 2-inch wg.
 - b. Minimum SMACNA Seal Class: C.
 - c. SMACNA Leakage Class for Rectangular: 16.
 - d. SMACNA Leakage Class for Round and Flat Oval: 8.
 2. Ducts Connected to Air-Handling Units:
 - a. Pressure Class: Positive or negative 3-inch wg.
 - b. Minimum SMACNA Seal Class: B.
 - c. SMACNA Leakage Class for Rectangular: 8.
 - d. SMACNA Leakage Class for Round and Flat Oval: 4.
 3. Ducts Connected to Equipment Not Listed Above:
 - a. Pressure Class: Positive or negative 3-inch wg.
 - b. Minimum SMACNA Seal Class: B.
 - c. SMACNA Leakage Class for Rectangular: 8.
 - d. SMACNA Leakage Class for Round and Flat Oval: 4.
- F. Intermediate Reinforcement:
 1. Galvanized-Steel Ducts: Galvanized steel.
 2. PVC-Coated Ducts:
 - a. Exposed to Airstream: Match duct material.
 - b. Not Exposed to Airstream: Galvanized.
 3. Stainless-Steel Ducts:
 - a. Exposed to Airstream: Match duct material.
 - b. Not Exposed to Airstream: Match duct material.
 4. Aluminum Ducts: Aluminum.
- G. Elbow Configuration:
 1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."
 - a. Velocity 1000 fpm or Lower:
 - 1) Radius Type RE 1 with minimum 0.5 radius-to-diameter ratio.
 - 2) Mitered Type RE 4 without vanes.

- b. Velocity 1000 to 1500 fpm:
 - 1) Radius Type RE 1 with minimum 1.0 radius-to-diameter ratio.
 - 2) Radius Type RE 3 with minimum 0.5 radius-to-diameter ratio and two vanes.
 - 3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."
- c. Velocity 1500 fpm or Higher:
 - 1) Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
 - 2) Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
 - 3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."
- 2. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."
 - a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
 - b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
 - c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."
- 3. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows."
 - a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.
 - 1) Velocity 1000 fpm or Lower: 0.5 radius-to-diameter ratio and three segments for 90-degree elbow.
 - 2) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90-degree elbow.
 - 3) Velocity 1500 fpm or Higher: 1.5 radius-to-diameter ratio and five segments for 90-degree elbow.
 - 4) Radius-to Diameter Ratio: 1.5.
 - b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped or pleated.
 - c. Round Elbows, 14 Inches and Larger in Diameter: Standing seam.
- H. Branch Configuration:
 - 1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."
 - a. Rectangular Main to Rectangular Branch: 45-degree entry.
 - b. Rectangular Main to Round Branch: Spin in.
 - 2. Round: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.

- a. Velocity 1000 fpm or Lower: 90-degree tap.
- b. Velocity 1000 to 1500 fpm: Conical tap.
- c. Velocity 1500 fpm or Higher: 45-degree lateral.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Backdraft and pressure relief dampers.
2. Manual volume dampers.
3. Control dampers.
4. Flange connectors.
5. Turning vanes.
6. Duct-mounted access doors.
7. Flexible connectors.
8. Duct accessory hardware.

1.2 SUBMITTALS

- A. See section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 ASSEMBLY DESCRIPTION**

- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."
- B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

2.2 MATERIALS

- A. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.
1. Galvanized Coating Designation: G90.
 2. Exposed-Surface Finish: Mill phosphatized.
- B. Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304, and having a 2D finish for concealed ducts and 2BA finish for exposed ducts.
- C. Aluminum Sheets: Comply with ASTM B 209, Alloy 3003, Temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.
- D. Extruded Aluminum: Comply with ASTM B 221, Alloy 6063, Temper T6.

- E. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.
- F. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.3 BACKDRAFT AND PRESSURE RELIEF DAMPERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cesco Products; a division of MESTEK, Inc.
 - 2. Nailor Industries Inc.
 - 3. Ruskin Company.
- B. Description: Gravity balanced.
- C. Maximum Air Velocity: 1000 fpm.
- D. Maximum System Pressure: 4.5 inch wg.
- E. Frame: Hat-shaped, 0.063-inch-thick extruded aluminum, with welded corners or mechanically attached and mounting flange.
- F. Blades: Multiple single-piece blades, end pivoted, maximum 6-inch width, 0.025-inch-thick, roll-formed aluminum with sealed edges.
- G. Blade Action: Parallel.
- H. Blade Seals: Extruded vinyl, mechanically locked.
- I. Blade Axles:
 - 1. Material: Nonmetallic.
 - 2. Diameter: 0.20 inch.
- J. Bearings: synthetic pivot bushings.
- K. Accessories:
 - 1. Adjustment device to permit setting for varying differential static pressure.
 - 2. Counterweights and spring-assist kits for vertical airflow installations.
 - 3. Electric actuators.
 - 4. Chain pulls.
 - 5. Screen Mounting: Front mounted in sleeve.
 - a. Sleeve Thickness: 20 gage minimum.
 - b. Sleeve Length: 6 inches minimum.
 - 6. Screen Mounting: Rear mounted.
 - 7. Screen Material: Aluminum.
 - 8. Screen Type: Bird.
 - 9. 90-degree stops.

2.4 MANUAL VOLUME DAMPERS

A. Standard, Steel, Manual Volume Dampers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cesco Products; a division of MESTEK, Inc.
 - b. Nailor Industries Inc.
 - c. Ruskin Company.
2. Standard leakage rating.
3. Suitable for horizontal or vertical applications.
4. Frames:
 - a. Frame: 16 Gauge galvanized steel, 5 in deep
 - b. Mitered and welded corners.
 - c. Flanges for attaching to walls and flangeless frames for installing in ducts.
5. Blades:
 - a. Multiple or single blade.
 - b. Parallel- or opposed-blade design.
 - c. Stiffen damper blades for stability.
 - d. 16 gauge galvanized steel with V groove for stiffness.
6. Blade Axles: Galvanized steel.
7. Bearings:
 - a. Molded synthetic.
 - b. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.
8. Tie Bars and Brackets: Galvanized steel.

2.5 CONTROL DAMPERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cesco Products; a division of MESTEK, Inc.
2. Nailor Industries Inc.
3. Ruskin Company.

B. Frames:

1. U shaped.
2. 16 gage galvanized steel.
3. Interlocking, gusseted corners.

C. Blades:

1. Multiple blade with maximum blade width of 6 inches.
2. Parallel- and opposed-blade design.

3. 14 gage Galvanized-steel.
 4. Blade Edging: Closed-cell neoprene.
 5. Blade Edging: Inflatable seal blade edging, or replaceable rubber seals.
- D. Blade Axles: 1/2-inch-diameter; galvanized steel; blade-linkage hardware of zinc-plated steel and brass; ends sealed against blade bearings.
1. Operating Temperature Range: From minus 40 to plus 200 deg F.
- E. Bearings:
1. Oil-impregnated stainless-steel sleeve.
 2. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.
 3. Thrust bearings at each end of every blade.

2.6 FLANGE CONNECTORS

- A. Description: Roll-formed, factory-fabricated, slide-on transverse flange connectors, gaskets, and components.
- B. Material: Galvanized steel.
- C. Gage and Shape: Match connecting ductwork.

2.7 TURNING VANES

- A. Manufactured Turning Vanes for Metal Ducts: Curved blades of galvanized sheet steel; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.
1. Acoustic Turning Vanes: Fabricate airfoil-shaped aluminum extrusions with perforated faces and fibrous-glass fill.
- B. Manufactured Turning Vanes for Nonmetal Ducts: Fabricate curved blades of resin-bonded fiberglass with acrylic polymer coating; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.
- C. General Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 4-3, "Vanes and Vane Runners," and 4-4, "Vane Support in Elbows."
- D. Vane Construction: Double wall.

2.8 DUCT-MOUNTED ACCESS DOORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Cesco Products; a division of MESTEK, Inc.
 2. Ductmate Industries, Inc.
 3. Flexmaster U.S.A., Inc.
 4. Nailor Industries Inc.

- B. Duct-Mounted Access Doors: Fabricate access panels according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 7-2, "Duct Access Doors and Panels," and 7-3, "Access Doors - Round Duct."
1. Door:
 - a. Double wall, rectangular.
 - b. Galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class.
 - c. Vision panel.
 - d. Hinges and Latches: 1-by-1-inch butt or piano hinge and cam latches.
 - e. Fabricate doors airtight and suitable for duct pressure class.
 2. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
 3. Number of Hinges and Locks:
 - a. Access Doors Less Than 12 Inches Square: No hinges and two sash locks.
 - b. Access Doors up to 18 Inches Square: Continuous and two sash locks.
 - c. Access Doors up to 24 by 48 Inches: Continuous and two compression latches with outside and inside handles.
 - d. Access Doors Larger Than 24 by 48 Inches: Continuous and two compression latches with outside and inside handles.
- C. Pressure Relief Access Door:
1. Door and Frame Material: Galvanized sheet steel.
 2. Door: Double wall with insulation fill with metal thickness applicable for duct pressure class.
 3. Operation: Open outward for positive-pressure ducts and inward for negative-pressure ducts.
 4. Factory set at 3.0- to 8.0-inch wg.
 5. Doors close when pressures are within set-point range.
 6. Hinge: Continuous piano.
 7. Latches: Cam.
 8. Seal: Neoprene or foam rubber.
 9. Insulation Fill: 1-inch-thick, fibrous-glass or polystyrene-foam board.

2.9 FLEXIBLE CONNECTORS

- A. Materials: Flame-retardant or noncombustible fabrics.
- B. Coatings and Adhesives: Comply with UL 181, Class 1.
- C. Metal-Edged Connectors: Factory fabricated with a fabric strip 3-1/2 inches wide attached to two strips of 2-3/4-inch-wide, 0.028-inch-thick, galvanized sheet steel or 0.032-inch-thick aluminum sheets. Provide metal compatible with connected ducts.
- D. Indoor System, Flexible Connector Fabric: Glass fabric double coated with neoprene.
1. Minimum Weight: 26 oz./sq. yd..
 2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
 3. Service Temperature: Minus 40 to plus 200 deg F.

- E. Outdoor System, Flexible Connector Fabric: Glass fabric double coated with weatherproof, synthetic rubber resistant to UV rays and ozone.
 - 1. Minimum Weight: 24 oz./sq. yd..
 - 2. Tensile Strength: 530 lbf/inch in the warp and 440 lbf/inch in the filling.
 - 3. Service Temperature: Minus 50 to plus 250 deg F.

2.10 DUCT ACCESSORY HARDWARE

- A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct-insulation thickness.
- B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.
- B. Install duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.
- C. Install control dampers at inlet of exhaust fans or exhaust ducts as close as possible to exhaust fan unless otherwise indicated.
- D. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts. Where dampers are installed in ducts having duct liner, install dampers with hat channels of same depth as liner, and terminate liner with nosing at hat channel.
- E. Set dampers to fully open position before testing, adjusting, and balancing.
- F. Install test holes at fan inlets and outlets and elsewhere as indicated.
- G. Install fire and smoke dampers according to UL listing.
- H. Install duct access doors on sides of ducts to allow for inspecting, adjusting, and maintaining accessories and equipment at the following locations:
 - 1. On both sides of duct coils.
 - 2. Upstream and downstream from duct filters.
 - 3. At outdoor-air intakes and mixed-air plenums.
 - 4. At drain pans and seals.
 - 5. Downstream from control dampers, backdraft dampers, and equipment.
 - 6. Adjacent to and close enough to fire or smoke dampers, to reset or reinstall fusible links. Access doors for access to fire or smoke dampers having fusible links shall be pressure

- relief access doors and shall be outward operation for access doors installed upstream from dampers and inward operation for access doors installed downstream from dampers.
7. At each change in direction and at maximum 50-foot spacing.
 8. Control devices requiring inspection.
 9. Elsewhere as indicated.
- I. Install access doors with swing against duct static pressure.
- J. Access Door Sizes:
1. One-Hand or Inspection Access: 8 by 5 inches.
 2. Two-Hand Access: 12 by 6 inches.
 3. Head and Hand Access: 18 by 10 inches.
 4. Head and Shoulders Access: 21 by 14 inches.
 5. Body Access: 25 by 14 inches.
 6. Body plus Ladder Access: 25 by 17 inches.
- K. Label access doors according to Section 230553 "Identification for HVAC Piping and Equipment" to indicate the purpose of access door.
- L. Install flexible connectors to connect ducts to equipment.
- M. Connect terminal units to supply ducts directly or with maximum 12-inch lengths of flexible duct. Do not use flexible ducts to change directions.
- N. Connect diffusers or light troffer boots to ducts directly or with maximum 60-inch lengths of flexible duct clamped or strapped in place.
- O. Connect flexible ducts to metal ducts with draw bands.
- P. Install duct test holes where required for testing and balancing purposes.
- 3.2 FIELD QUALITY CONTROL
- A. Tests and Inspections:
1. Operate dampers to verify full range of movement.
 2. Inspect locations of access doors and verify that purpose of access door can be performed.
 3. Operate fire and smoke dampers to verify full range of movement and verify that proper heat-response device is installed.
 4. Inspect turning vanes for proper and secure installation.

END OF SECTION

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PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes: Insulated flexible ducts.

1.2 SUBMITTALS

- A. See section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 ASSEMBLY DESCRIPTION**

- A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."
- B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- C. Comply with the Air Diffusion Council's "ADC Flexible Air Duct Test Code FD 72-R1."
- D. Comply with ASTM E 96/E 96M, "Test Methods for Water Vapor Transmission of Materials."

2.2 INSULATED FLEXIBLE DUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Flexmaster U.S.A., Inc.
 - 2. McGill AirFlow LLC.
 - 3. Thermaflex; a Flex-Tek Group company.
- B. Insulated, Flexible Duct: UL 181, Class 1, two-ply vinyl film supported by helically wound, spring-steel wire; fibrous-glass insulation; aluminized vapor-barrier film.
 - 1. Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
 - 2. Maximum Air Velocity: 4000 fpm.
 - 3. Temperature Range: Minus 10 to plus 160 deg F.
 - 4. Insulation R-Value: R6.

2.3 FLEXIBLE DUCT CONNECTORS

- A. Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action in sizes 3 through 18 inches, to suit duct size.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install flexible ducts according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.
- B. Install in indoor applications only. Flexible ductwork should not be exposed to UV lighting.
- C. Connect terminal units to supply ducts with maximum 12-inch lengths of flexible duct. Do not use flexible ducts to change directions.
- D. Connect diffusers or light troffer boots to ducts with maximum 60-inch lengths of flexible duct clamped or strapped in place.
- E. Install duct test holes where required for testing and balancing purposes.
- F. Installation:
 - 1. Install ducts fully extended.
 - 2. Do not bend ducts across sharp corners.
 - 3. Bends of flexible ducting shall not exceed a minimum of one duct diameter.
 - 4. Avoid contact with metal fixtures, water lines, pipes, or conduits.
 - 5. Install flexible ducts in a direct line, without sags, twists, or turns.
- G. Supporting Flexible Ducts:
 - 1. Suspend flexible ducts with bands 1-1/2 inches wide or wider and spaced a maximum of 48 inches apart. Maximum centerline sag between supports shall not exceed 1/2 inch per 12 inches.
 - 2. Install extra supports at bends placed approximately one duct diameter from center line of the bend.
 - 3. Ducts may rest on ceiling joists or truss supports. Spacing between supports shall not exceed the maximum spacing per manufacturer's written installation instructions.
 - 4. Vertically installed ducts shall be stabilized by support straps at a maximum of 72 inches o.c.

END OF SECTION

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section Includes:
 - 1. Grilles, Registers and Diffusers.
- B. Related Requirements:
 - 1. Section 233300 "Air Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to diffusers.

1.2 SUBMITTALS

- A. See Section 220000 "General Requirements of Plumbing and HVAC" for submittal requirements.

PART 2 - PRODUCTS**2.1 GRILLES, REGISTERS AND DIFFUSERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Krueger.
 - 2. Nailor Industries Inc.
 - 3. Price
- B. See the "Grilles Registers and Diffusers Schedule" on the drawings for grille, register or diffuser type, mounting, capacities, characteristics, finish, etc.
- C. Coordinate the color and finish of all grilles registers and diffusers with the architect if not specifically listed in the "Grilles Registers and Diffusers Schedule".
- D. Substituted grilles, registers and diffusers must meet or exceed the performance of the schedules diffuser.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Install grilles, registers and diffusers level and plumb.
- B. Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel.

Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

- C. Install grilles, registers and diffusers with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.
- D. Provide all duct transitions and duct fittings required for a complete installation.

3.2 ADJUSTING

- A. After installation, adjust grilles, registers and diffusers to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes split-system air-conditioning and heat-pump units consisting of separate evaporator-fan and compressor-condenser components.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1.3 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. ASHRAE Compliance:
 - 1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."
 - 2. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - "Procedures," and Section 7 - "Construction and System Start-up."
- C. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Daikin AC
- B. LG

2.2 INDOOR UNITS

A. General:

- 1. The indoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls. Both liquid and suction lines must be individually insulated between the outdoor and indoor units.

B. Unit Cabinet:

- 1. The indoor unit shall have a white, "flat screen" finish.
- 2. The drain and refrigerant piping shall be concealed from view and enter the unit through the back panel.
- 3. The cabinet shall be supplied with a mounting plate to be installed onto a wall for securely mounting the cabinet.

C. Fan:

- 1. The evaporator fan shall be an assembly consisting of a direct-driven fan by a single motor.
- 2. The fan shall be statically and dynamically balanced and operate on a motor with permanent lubricated bearings.
- 3. An auto-swing louver for adjustable air flow (both vertically and horizontally).
- 4. The indoor fan shall offer a choice of five speeds, plus quiet and auto settings.

D. Filter:

- 1. The return air filter provided will be a mildew proof, removable and washable filter.

E. Coil:

- 1. The evaporator coil shall be a nonferrous, aluminum fin on copper tube heat exchanger.
- 2. All tube joints shall be brazed with silver alloy or phoscopper.
- 3. All coils will be factory pressure tested.
- 4. A condensate pan shall be provided under the coil with a drain connection.
- 5. Provide condensate pump where required and coordinate with electrical contractor for power requirements.

F. Electrical

- 1. Electrical connections shall be made. See drawings for voltage, phase requirements.

G. Control:

- 1. The unit shall have a wall mounted, wired controller. The controller shall have the following capabilities:
 - a. System On/Off
 - b. Fan: On/Auto
 - c. Mode: Cool/Dry/Heat/Auto
 - d. Schedule: 7 day programmable
 - e. Temperature adjustment
 - f. Auxiliary contacts to turn on/off supplemental heating equipment if applicable.

2.3 OUTDOOR UNITS

A. General:

- 1. The outdoor unit shall be complete factory assembled and pre-wired with all necessary electronic and refrigerant controls. The system shall have all provisions required to allow cooling operation to 5 outside air temperature.

B. Unit Cabinet:

- 1. The outdoor unit shall be completely weatherproof and corrosion resistant. The unit shall be constructed from rust-proofed mild steel panels coated with a baked enamel finish.

C. Condenser Fan:

- 1. The fan shall be a direct drive, propeller type fan.
- 2. The motor shall be inverter driven, permanently lubricated type bearings, inherent.

3. A fan guard is provided on the outdoor unit to prevent contact with fan operation.
4. Airflow shall be horizontal discharge.
- D. Condenser Coil:
 1. The outdoor unit shall be completely weatherproof and corrosion resistant. The unit shall be constructed from rust-proofed mild steel panels coated with a baked enamel finish.
- E. Compressor:
 1. The compressor shall be a inverter driven compressor.
 2. The outdoor unit shall have an accumulator and four-way reversing valve.
 3. The compressor shall have an internal thermal overload.
 4. The outdoor unit can operate with a maximum vertical height difference of 66 feet and overall maximum length of 100 feet without any oil traps or additional components.
- F. Electrical
 1. The electrical power requirement is 208-230 volt, 1-phase, and 60 Hz power.
 2. The outdoor shall be controlled by a microprocessor located in the outdoor and indoor units via commands from the wired controller.
 3. Dedicated EEV's shall be provided for capacity control during part load of the indoor unit.
- G. Sound:
 1. The outdoor unit shall have a sound level of 54 dB(A) when in maximum cooling operation and measured 3ft from the outdoor unit.

2.4 ACCESSORIES

- A. Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.
- B. Drain Hose: For condensate.
- C. Additional Monitoring:
 1. Monitor constant and variable motor loads.
 2. Monitor variable-frequency-drive operation.
 3. Monitor economizer cycle.
 4. Monitor cooling load.
 5. Monitor air distribution static pressure and ventilation air volumes.

2.5 CAPACITIES AND CHARACTERISTICS

- A. See Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install units level and plumb.
- B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.
- C. Install roof-mounted, compressor-condenser components on equipment supports specified in Section 07 72 00 "Roof Accessories." Anchor units to supports with removable, cadmium-plated fasteners.
- D. Equipment Mounting:
 1. Comply with requirements for vibration isolation and seismic control devices specified in Section 23 05 48 "Vibration and Seismic Controls for HVAC."
 2. Comply with requirements for vibration isolation devices specified in Section 23 05 48.13 "Vibration Controls for HVAC."
- E. Install and connect precharged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Where piping is installed adjacent to unit, allow space for service and maintenance of unit.

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections:
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Remove and replace malfunctioning units and retest as specified above.
- D. Prepare test and inspection reports.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 238126

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sleeves for raceways and cables.
 - 2. Sleeve seals.
 - 3. Grout.
 - 4. Common electrical installation requirements.

1.2 SUBMITTALS

- A. Product Data: For sleeve seals.

PART 2 - PRODUCTS

2.1 SLEEVES FOR RACEWAYS AND CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Sleeves for Rectangular Openings: Galvanized sheet steel.
 - 1. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
 - b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE SEALS

- A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Advance Products & Systems, Inc.
 - b. Calpico, Inc.

- c. Metraflex Co.
 - d. Pipeline Seal and Insulator, Inc.
- 3. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 4. Pressure Plates: Stainless steel. Include two for each sealing element.
 - 5. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

- A. Comply with NECA 1.
- B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.
- D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- E. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
- D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- E. Cut sleeves to length for mounting flush with both surfaces of walls.

- F. Extend sleeves installed in floors 2 inches above finished floor level.
- G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.
- H. Seal space outside of sleeves with grout for penetrations of concrete and masonry
 - 1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.
- I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."
- J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
- K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
- L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.3 SLEEVE-SEAL INSTALLATION

- A. Install to seal exterior wall penetrations.
- B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4 FIRESTOPPING

- A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 260500

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PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.
 - 3. Sleeves and sleeve seals for cables.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. **Copper** Conductors: Comply with NEMA WC 70.
- B. Conductor Insulation: Comply with NEMA WC 70 for Types **THW** and **THHN-THWN**.

2.2 CONNECTORS AND SPLICES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Hubbell Power Systems, Inc.
 - 3. O-Z/Gedney; EGS Electrical Group LLC.
 - 4. 3M; Electrical Products Division.
 - 5. Tyco Electronics Corp.

- C. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SLEEVES FOR CABLES

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
- C. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.4 SLEEVE SEALS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide **the product indicated on Drawings** or a comparable product by one of the following:
 - 1. Advance Products & Systems, Inc.
 - 2. Calpico, Inc.
 - 3. Metraflex Co.
 - 4. Pipeline Seal and Insulator, Inc.
- D. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.
 - 1. Sealing Elements: **EPDM** or **NBR** interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
 - 2. Pressure Plates: **Stainless steel**. Include two for each sealing element.
 - 3. Connecting Bolts and Nuts: **Stainless steel** of length required to secure pressure plates to sealing elements. Include one for each sealing element.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: **Copper** Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN-THWN, single conductors in raceway.
- B. Exposed Feeders: Type THHN-THWN, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN-THWN, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN-THWN, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway, OR Romex product NEC compliant for application and approved by AHJ. Contractor shall verify NEC and AHJ compliance prior to any rough-in.
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway.
- H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.
- I. Class 1 Control Circuits: Type THHN-THWN, in raceway.
- J. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- E. Support cables according to Division 26 Sections "Hangers and Supports for Electrical Systems."
- F. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."
- G. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

- H. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.
- I. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."
- B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- C. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- D. Cut sleeves to length for mounting flush with both wall surfaces.
- E. Extend sleeves installed in floors 2 inches above finished floor level.
- F. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and cable unless sleeve seal is to be installed.
- G. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.
- H. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to Division 07 Section "Joint Sealants."
- I. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials according to Division 07 Section "Penetration Firestopping."
- J. Roof-Penetration Sleeves: Seal penetration of individual cables with flexible boot-type flashing units applied in coordination with roofing work.
- K. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- L. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.5 SLEEVE-SEAL INSTALLATION

- A. Install to seal underground exterior-wall penetrations.

- B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.6 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 07 Section "Penetration Firestopping."

3.7 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
- B. Tests and Inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors, and conductors feeding the following critical equipment and service for compliance with requirements.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.
 - a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
 - b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
- C. Test Reports: Prepare a written report to record the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION 260519

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PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes methods and materials for grounding systems and equipment.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Tinned Conductors: ASTM B 33.
 - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
 - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad, 3/4 inch by 10 feet in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches below grade.
- C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.
- D. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
 - 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 - 1. Feeders and branch circuits.
 - 2. Lighting circuits.
 - 3. Receptacle circuits.
 - 4. Single-phase motor and appliance branch circuits.
 - 5. Three-phase motor and appliance branch circuits.
 - 6. Flexible raceway runs.
 - 7. Armored and metal-clad cable runs.
 - 8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.

9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.
 10. X-Ray Equipment Circuits: Install insulated equipment grounding conductor in circuits supplying x-ray equipment.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch grounding bus.
 2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
- E. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.
1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
 2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.
1. Test Wells: Install at least one test well for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.
1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
 3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding and Bonding for Piping:
1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells.
 - a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
- B. Report measured ground resistances that exceed the following values:
1. Power and Lighting Equipment or System with Capacity 500 kVA and Less: 10 ohms.
 2. Power and Lighting Equipment or System with Capacity 500 to 1000 kVA: 5 ohms.
 3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
 4. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
- C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.
- E. Comply with all Seismic Requirements.

1.3 SUBMITTALS

- A. Product Data: For steel slotted support systems.
- B. Shop Drawings: Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze hangers. Include Product Data for components.
 - 2. Steel slotted channel systems. Include Product Data for components.
 - 3. Equipment supports.
- C. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 3. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 4. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
 - 5. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 6. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) Hilti Inc.
 - 2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit
2. Mechanical-Expansion Anchors: Insert-wedge-type, stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
- a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted [or other] support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 1. To Wood: Fasten with lag screws or through bolts.
 2. To New Concrete: Bolt to concrete inserts.
 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
 6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
 7. To Light Steel: Sheet metal screws.
 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi , 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section Miscellaneous Cast-in-Place Concrete.
- C. Anchor equipment to concrete base.
 - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

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PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.
- B. See Division 26 Section "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks and manholes, and underground handholes, boxes, and utility construction.

1.2 SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, details, and attachments to other work.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. IMC: ANSI C80.6.
- C. EMT: ANSI C80.3.
- D. FMC: Zinc-coated steel.
- E. LFMC: Flexible steel conduit with PVC jacket.
- F. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.
 - 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
 - 2. Fittings for EMT: Steel or die-cast, compression type.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. ENT: NEMA TC 13.
- B. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.
- C. LFNC: UL 1660.
- D. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.
- E. Fittings for LFNC: UL 514B.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Sheet Metal Outlet and Device Boxes: NEMA OS 1.
- B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, aluminum, Type FD, with gasketed cover.
- C. Nonmetallic Outlet and Device Boxes: NEMA OS 2.
- D. Metal Floor Boxes: Cast metal, fully adjustable, rectangular.
- E. Nonmetallic Floor Boxes: Nonadjustable, round.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.
- H. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Plastic.
- I. Cabinets:
 - 1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 - 2. Hinged door in front cover with flush latch and concealed hinge.
 - 3. Key latch to match panelboards.
 - 4. Metal barriers to separate wiring of different systems and voltage.
 - 5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 - 1. Exposed Conduit: Rigid steel conduit or IMC.
 - 2. Concealed Conduit, Aboveground: rigid steel conduit, IMC or EMT.

3. Underground Conduit: RNC, Type EPC-40PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFNC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit or IMC. Includes raceways in the following locations:
 - a. Loading dock.
 - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
 - c. Mechanical rooms.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: Rigid steel conduit or IMC.
7. Raceways for Optical Fiber or Communications Cable: EMT.
8. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, stainless steel in damp or wet locations.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems." Comply with all Seismic requirements.
- E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
- G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

H. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Change from ENT to RNC, Type EPC-40-PVC, rigid steel conduit, or IMC before rising above the floor.

I. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

J. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

K. Raceways for Communications Cable: Install as follows:

1. 3/4-Inch Trade Size and Smaller: Install raceways in maximum lengths of 50 feet.
2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.
3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

L. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

M. Expansion-Joint Fittings for RNC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet.

1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces: Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
 - d. Attics: 135 deg F temperature change.
2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change.
3. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.

- N. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 1. Use LFMC in damp or wet locations subject to severe physical damage.
 - 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- O. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.
- P. Set metal floor boxes level and flush with finished floor surface.
- Q. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
 - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
 - 2. Install backfill as specified in Division 31 Section "Earth Moving."
 - 3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."
 - 4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
 - 5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 - b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
 - 6. Warning Planks: Bury warning planks approximately 12 inches above direct-buried conduits, placing them 24 inches o.c. Align planks along the width and along the centerline of conduit.

3.4 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 260533

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. Miscellaneous identification products.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with ANSI A13.1.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.
- B. Colors for Raceways Carrying Circuits at 600 V or Less:
1. Black letters on an orange field.
 2. Legend: Indicate voltage and system or service type.
- C. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

- D. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- E. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.
- F. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2 ARMORED AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Colors for Raceways Carrying Circuits at 600 V and Less:
 - 1. Black letters on an orange field.
 - 2. Legend: Indicate voltage and system or service type.
- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- D. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

2.3 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.
- D. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

- E. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.4 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.
- C. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- D. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
 - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - 2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.5 FLOOR MARKING TAPE

- A. 2-inch wide, 5-mil pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.

2.6 UNDERGROUND-LINE WARNING TAPE

- A. Tape:
 - 1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - 2. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - 3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
- B. Color and Printing:
 - 1. Comply with ANSI Z535.1 through ANSI Z535.5.
 - 2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
 - 3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

2.7 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.

- B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.
- C. Baked-Enamel Warning Signs:
 - 1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
 - 2. 1/4-inch grommets in corners for mounting.
 - 3. Nominal size, 7 by 10 inches.
- D. Metal-Backed, Butyrate Warning Signs:
 - 1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application.
 - 2. 1/4-inch grommets in corners for mounting.
 - 3. Nominal size, 10 by 14 inches.
- E. Warning label and sign shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.8 INSTRUCTION SIGNS

- A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.
 - 1. Engraved legend with black letters on white face.
 - 2. Punched or drilled for mechanical fasteners.
 - 3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.
- B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.
- C. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.9 EQUIPMENT IDENTIFICATION LABELS

- A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.
- B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.
- C. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

2.10 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in Division 09 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches overall.
- G. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

- A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30A, and 120v to ground: Install labels at 30-foot maximum intervals.
- B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. Emergency Power.
 - 2. Power.
 - 3. UPS.

- C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded feeder and branch-circuit conductors.
 - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
 - b. Colors for 208/120-V Circuits:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - c. Colors for 480/277-V Circuits:
 - 1) Phase A: Brown.
 - 2) Phase B: Orange.
 - 3) Phase C: Yellow.
 - d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- D. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.
- E. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.
- F. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
 2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
 3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
- G. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.
1. Limit use of underground-line warning tape to direct-buried cables.
 2. Install underground-line warning tape for both direct-buried cables and cables in raceway.
- H. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- I. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning sign.

1. Comply with 29 CFR 1910.145.
 2. Identify system voltage with black letters on an orange background.
 3. Apply to exterior of door, cover, or other access.
 4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
 - a. Power transfer switches.
 - b. Controls with external control power connections.
- J. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
- K. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for.
- L. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
1. Labeling Instructions:
 - a. Indoor Equipment: Adhesive film label. Unless otherwise indicated, provide a single line of text with 1/2-inch high letters on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label Stenciled legend 4 inches high.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 - d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

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PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following lighting control devices:
 - 1. Indoor occupancy sensors.
 - 2. Daylight sensors
 - 3. Lighting control systems and components
- B. See drawing details and notes for "Network Lighting Controls" for low-voltage, manual and programmable lighting control systems.
- C. See Division 26 Section "Wiring Devices" for wall-box dimmers, wall-switch occupancy sensors, and manual light switches.
- D. All systems, controls, devices, components etc. shall meet California Title 24 requirements.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control test reports.
- C. Operation and maintenance data.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 LIGHTING CONTROL SYSTEMS AND COMPONENTS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product deemed equivalent by engineer::

2.2 INDOOR OCCUPANCY SENSORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product deemed equivalent by engineer:
 - 1. Lithonia Lighting; Acuity Lighting Group, Inc.
 - 2. Sensor Switch, Inc.
 - 3. Watt Stopper (The).

- B. General Description: Wall- or ceiling-mounting, solid-state units with a separate relay unit.
1. Operation: As indicated on drawings and notes
 2. Sensor Output: Contacts rated to operate the connected relay, complying with UL 773A. Sensor shall be powered from the relay unit.
 3. Relay Unit: Dry contacts rated for 20-A ballast load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Power supply to sensor shall be 24-V dc, 150-mA, Class 2 power source as defined by NFPA 70.
 4. Mounting:
 - a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Relay: Externally mounted through a 1/2-inch knockout in a standard electrical enclosure.
 - c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
 5. Indicator: LED, to show when motion is being detected during testing and normal operation of the sensor.
 6. Bypass Switch: Override the on function in case of sensor failure.
 7. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc; Provide 0-10vdc dimming control with adjustable daylighting discount factor.
- C. PIR/SOUND Dual detection Type: Ceiling mounting; detect occupancy by sensing a combination of heat, movement and sound in area of coverage.
1. Detector Sensitivity: Detect occurrences of 6-inch minimum movement of any portion of a human body that presents a target of not less than 36 sq. in.
 2. Detection Coverage (Room): Detect occupancy anywhere in a circular area of 1000 sq. ft when mounted on a 96-inch high ceiling.
 3. Detection Coverage (Corridor): Detect occupancy within 90 feet when mounted on a 10-foot high ceiling.

2.3 OUTDOOR PHOTOELECTRIC SWITCHES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
1. Intermatic, Inc.
 2. Lithonia Lighting; Acuity Lighting Group, Inc.
 3. Paragon Electric Co.; Invensys Climate Controls.
 4. Square D; Schneider Electric.
 5. TORK.
 6. Watt Stopper (The).
- B. Description: Solid state, with SPST dry contacts rated for 1800-VA tungsten or 1000-VA inductive, to operate connected relay, contactor coils, or microprocessor input; complying with UL 773A.
1. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range, and a directional lens in front of photocell to prevent fixed light sources from causing turn-off.
 2. Time Delay: 15-second minimum, to prevent false operation.
 3. Surge Protection: Metal-oxide varistor, complying with IEEE C62.41.1, IEEE C62.41.2, and IEEE 62.45 for Category A1 locations.

4. Mounting: Twist lock complying with IEEE C136.10, with base-and-stem mounting or stem-and-swivel mounting accessories as required to direct sensor to the north sky exposure.
- C. Description: Solid state, with SPST dry contacts rated for 1800 VA to operate connected load, relay, or contactor coils; complying with UL 773.
1. Light-Level Monitoring Range: 1.5 to 10 fc, with an adjustment for turn-on and turn-off levels within that range.
 2. Time Delay: 30-second minimum, to prevent false operation.
 3. Lightning Arrester: Air-gap type.
 4. Mounting: Twist lock complying with IEEE C136.10, with base.
- D. Description: Electrically operated and electrically held, combination type with fusible switch, complying with NEMA ICS 2 and UL 508.
1. Current Rating for Switching: Listing or rating consistent with type of load served, including tungsten filament, inductive, and high-inrush ballast (ballast with 15 percent or less total harmonic distortion of normal load current).
 2. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
 3. Enclosure: Comply with NEMA 250.
 4. Provide with control and pilot devices as indicated on Drawings matching the NEMA type specified for the enclosure.

2.4 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
- B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 18AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."
- C. Class 1 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No.14AWG. Comply with requirements in Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.1 SENSOR INSTALLATION

- A. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.
- B. When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting sensors to suit actual occupied conditions. Provide up to two visits to Project during other than normal occupancy hours for this purpose.

3.2 WIRING INSTALLATION

- A. Wiring Method: Comply with Division 26 Section "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size shall be 1/2 inch.
- B. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.
- C. Size conductors according to lighting control device manufacturer's written instructions, unless otherwise indicated.
- D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

3.3 IDENTIFICATION

- A. Identify components and power and control wiring according to Division 26 Section "Identification for Electrical Systems."
 - 1. Identify controlled circuits in lighting contactors.
 - 2. Identify circuits or luminaries controlled by photoelectric and occupancy sensors at each sensor.
- B. Label components with a unique designation.

3.4 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections and prepare test reports:
 - 1. After installing time switches and sensors, and after electrical circuitry has been energized, adjust and test for compliance with requirements.
 - 2. Operational Test: Verify operation of each lighting control device, and adjust time delays.
- B. Lighting control devices that fail tests and inspections are defective work.

END OF SECTION 260923

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
 - 2. Detail enclosure types and details for types other than NEMA 250, Type 1.
 - 3. Detail bus configuration, current, and voltage ratings.
 - 4. Short-circuit current rating of panelboards and overcurrent protective devices.
 - 5. Include evidence of NRTL listing for series rating of installed devices.
 - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
 - 7. Include wiring diagrams for power, signal, and control wiring.
 - 8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.
- C. Seismic Qualification Certificates: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- D. Field quality-control reports.
- E. Panelboard schedules for installation in panelboards.
- F. Operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

- B. Comply with NEMA PB 1.
- C. Comply with NFPA 70.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

- A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- B. Enclosures: Flush- and surface mounted cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
 - 2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
 - 3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
 - 4. Directory Card: Inside panelboard door, mounted in transparent card holder.
- C. Incoming Mains Location: Top and bottom.
- D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.
- E. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Main and Neutral Lugs: Compression type.
 - 3. Ground Lugs and Bus Configured Terminators: Compression type.
 - 4. Feed-Through Lugs: Compression type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
 - 5. Subfeed (Double) Lugs: Compression type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
- F. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.
- G. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

- H. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.
- I. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Panelboards: NEMA PB 1, power and feeder distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
- D. Mains: Circuit breaker.
- E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
- G. Branch Overcurrent Protective Devices: Fused switches.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Eaton Electrical Inc.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D;
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- C. Mains: Circuit breaker or lug.
- D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

- F. Column-Type Panelboards: Narrow gutter extension, with cover, to overhead junction box equipped with ground and neutral terminal buses.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- C. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - 2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 - 3. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:
 - a. Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long- and short-time time adjustments.
 - d. Ground-fault pickup level, time delay, and I^2t response.
 - 4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
 - 5. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
 - 6. Ground-Fault Equipment Protection (GFEPP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
 - 7. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
 - 8. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Lugs: Compression style, suitable for number, size, trip ratings, and conductor materials.
 - c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
 - d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
 - e. Communication Capability: Circuit-breaker-mounted communication module with functions and features compatible with power monitoring and control system specified in Division 26 Section "Electrical Power Monitoring and Control."

- f. Shunt Trip: 120V trip coil energized from separate circuit, set to trip at [55] [75] percent of rated voltage.
 - g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
 - h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.
- D. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.
 - 1. Fuses, and Spare-Fuse Cabinet: Comply with requirements specified in Division 26 Section "Fuses."

2.5 ACCESSORY COMPONENTS AND FEATURES

- A. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Receive, inspect, handle, store and install panelboards and accessories according to NECA 407.
- B. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- C. Mount top of trim 90 inches above finished floor unless otherwise indicated.
- D. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- E. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Set field-adjustable, circuit-breaker trip ranges.
- F. Install filler plates in unused spaces.
- G. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.
- H. Arrange conductors in gutters into groups and bundle and wrap with wire ties.
- I. Comply with NECA 1.

3.2 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "Identification for Electrical Systems."

- B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Panelboards will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Receptacles, receptacles with integral GFCI, and associated device plates.
 - 2. Wall-box motion sensors.
 - 3. Snap switches and wall-box dimmers.
 - 4. Solid-state fan speed controls.
 - 5. Wall-switch and exterior occupancy sensors.
 - 6. Communications outlets.
- B. See Division 27 Section "Communications Horizontal Cabling" for workstation outlets.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.
- C. Samples: One for each type of device and wall plate specified, in each color specified.
- D. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
 - 1. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
 - 2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
 - 3. Leviton Mfg. Company Inc. (Leviton).
 - 4. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).

2.2 STRAIGHT BLADE RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Cooper; 5351 (single), 5352 (duplex).
 - b. Hubbell; HBL5351 (single), CR5352 (duplex).
 - c. Leviton; 5891 (single), 5352 (duplex).
 - d. Pass & Seymour; 5381 (single), 5352 (duplex).

2.3 GFCI RECEPTACLES

- A. General Description: Straight blade, feed through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.
- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Cooper; GF20.
 - b. Pass & Seymour; 2084.

2.4 SNAP SWITCHES

- A. Comply with NEMA WD 1 and UL 20.
- B. Switches, 120/277 V, 20 A:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide switches as indicated on drawings and application.

2.5 WALL-BOX DIMMERS

- A. Switches as indicated on drawings.

2.6 WALL PLATES

- A. Single and combination types to match corresponding wiring devices.
 - 1. Plate-Securing Screws: Metal with head color to match plate finish.
 - 2. Material for Finished Spaces: Smooth, high-impact thermoplastic 0.035-inch.
 - 3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.

4. Material for Damp Locations: Thermoplastic with spring-loaded lift cover, and listed and labeled for use in "wet locations."
- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant thermoplastic with lockable cover.

2.7 FINISHES

- A. Color: Wiring device catalog numbers in Section Text do not designate device color.
 1. Wiring Devices Connected to Normal Power System: As selected by Architect, unless otherwise indicated or required by NFPA 70 or device listing.
 2. Wiring Devices Connected to Emergency Power System: Red.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.
- B. Coordination with Other Trades:
 1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
 2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 4. Install wiring devices after all wall preparation, including painting, is complete.
- C. Conductors:
 1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 4. Existing Conductors:
 - a. Cut back and pigtail, or replace all damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.
 - c. Pigtail existing conductors is permitted provided the outlet box is large enough.
- D. Device Installation:
 1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.

2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the left.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 IDENTIFICATION

A. Comply with Division 26 Section "Identification for Electrical Systems."

1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with white-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.

2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new, and retest as specified above.

END OF SECTION 262726

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Receptacle switches.
4. Shunt trip switches.
5. Molded-case circuit breakers (MCCBs).
6. Enclosures.

1.2 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

1.3 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.
 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.4 SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.
- B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.
 1. Wiring Diagrams: For power, signal, and control wiring.
- C. Seismic Qualification Certificates: For enclosed switches and circuit breakers, accessories, and components, from manufacturer.
- D. Field quality-control reports.
- E. Operation and maintenance data.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

- A. Basis-of-Design Product: Subject to compliance with requirements, provide **product indicated on Drawings** or comparable product by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Type GD, General Duty, Single Throw, 240-V ac, 800 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with cartridge fuse interiors to accommodate **indicated** fuses, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.
- C. Accessories:
 - 1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
 - 2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
 - 3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
 - 4. Lugs: Suitable for number, size, and conductor material.
 - 5. Service-Rated Switches: Labeled for use as service equipment.

2.2 MOLDED-CASE CIRCUIT BREAKERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide **product indicated on Drawings** or comparable product by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.
- C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

- D. Electronic Trip Circuit Breakers: Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:
 - 1. Instantaneous trip.
 - 2. Long- and short-time pickup levels.
 - 3. Long- and short-time time adjustments.
 - 4. Ground-fault pickup level, time delay, and I^2t response.
- E. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller, and let-through ratings less than NEMA FU 1, RK-5.
- F. Features and Accessories:
 - 1. Standard frame sizes, trip ratings, and number of poles.
 - 2. Lugs: Suitable for number, size, trip ratings, and conductor material.
 - 3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.
 - 4. Ground-Fault Protection: Comply with UL 1053; **integrally mounted, self-powered** type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
 - 5. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.
 - 6. Auxiliary Contacts: **One SPDT switch** with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts, "b" contacts operate in reverse of circuit-breaker contacts.
 - 7. Alarm Switch: One **NO** contact that operates only when circuit breaker has tripped.

2.3 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
 - 1. Indoor, Dry and Clean Locations: NEMA 250, **Type 1**.
 - 2. Outdoor Locations: NEMA 250, **Type 3R**.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- B. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."
- C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- D. Install fuses in fusible devices.
- E. Comply with NECA 1.

3.2 IDENTIFICATION

- A. Comply with requirements in Division 26 Section "Identification for Electrical Systems."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

PART 1 - GENERAL**1.1 SUMMARY****A. Section Includes:**

1. Diesel engine.
2. Diesel fuel-oil system.
3. Control and monitoring.
4. Generator overcurrent and fault protection.
5. Generator, exciter, and voltage regulator.
6. Load bank.
7. Outdoor engine generator enclosure.
8. Vibration isolation devices.

B. Related Requirements:

1. Section 263600 "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine generators.

1.2 DEFINITIONS**A. EPS: Emergency power supply.****B. EPSS: Emergency power supply system.****C. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.****1.3 ACTION SUBMITTALS****A. Product Data: For each type of product.**

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Include thermal damage curve for generator.
3. Include time-current characteristic curves for generator protective device.
4. Include fuel consumption in gallons per hour at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
5. Include generator efficiency at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
6. Include airflow requirements for cooling and combustion air in cubic feet per minute at 0.8 power factor, with air-supply temperature of 95, 80, 70, and 50 deg F. Provide Drawings indicating requirements and limitations for location of air intake and exhausts.
7. Include generator characteristics, including, but not limited to, kilowatt rating, efficiency, reactances, and short-circuit current capability.

B. Shop Drawings:

1. Include plans and elevations for engine generator and other components specified. Indicate access requirements affected by height of subbase fuel tank.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Identify fluid drain ports and clearance requirements for proper fluid drain.
4. Design calculations for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
5. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include base weights.
6. Include diagrams for power, signal, and control wiring. Complete schematic, wiring, and interconnection diagrams indicating terminal markings for engine generators and functional relationship between all electrical components.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data:

B. Seismic Qualification Data: Certificates, for engine generator, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: With engine and generator mounted on rails, identify center of gravity and total weight, including full fuel tank, supplied enclosure, external silencer, subbase-mounted fuel tank, and each piece of equipment not integral to the engine generator, and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Source Quality-Control Reports: Including, but not limited to, the following:

1. Certified summary of prototype-unit test report.
2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
3. Report of factory test on units to be shipped for this Project, indicating evidence of compliance with specified requirements.
4. Report of sound generation.
5. Report of exhaust emissions indicating compliance with applicable regulations.
6. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

D. Field quality-control reports.

E. Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:
 - a. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
 - b. Operating instructions laminated and mounted adjacent to generator location.
 - c. Training plan.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Fuses: One for every 10 of each type and rating, but no fewer than one of each.
 2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
 3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.
 4. Tools: Each tool listed by part number in operations and maintenance manual.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Current certificate holder for compliance with ISO 9001.
- B. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- C. Testing Agency Qualifications: Accredited by NETA.
 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Generac Power Systems, Inc.; SD series or comparable product by one of the following:
- B. Source Limitations: Obtain packaged engine generators and auxiliary components from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Engine generator housing, subbase fuel tank, day tank, engine generator, batteries, battery racks, silencers, sound attenuating equipment, accessories, and components to withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7 .
1. The term "withstand" means "the unit will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
 2. Shake-table testing shall comply with ICC-ES AC156. Testing shall be performed with all fluids at worst-case normal levels.
 3. For life-safety components required to function after an earthquake (such as fire-sprinkler systems, components that contain hazardous content, and storage racks in structures open to the public), the Component Importance Factor is 1.5. For other components, the Component Importance Factor is 1.0 unless the structure is in Seismic Use Group III and component is necessary for continued operation of facility or failure of component could impair continued operation of facility, in which case the Component Importance Factor is 1.5.
 4. Component Importance Factor: 1.5
- B. NFPA Compliance:
1. Comply with NFPA 37.
 2. Comply with NFPA 70.
 3. Comply with NFPA 99.
- C. UL Compliance: Comply with UL 2200.
- D. Engine Exhaust Emissions: Comply with EPA Tier 2 requirements and applicable state and local government requirements.
- E. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by engine generator including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.
- F. Environmental Conditions: Engine generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
1. Ambient Temperature: **41 to 122 deg F**
 2. Relative Humidity: Zero to 95 percent.

2.3 ENGINE GENERATOR ASSEMBLY DESCRIPTION

- A. Factory-assembled and -tested, water-cooled engine, with brushless generator and accessories.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- C. Power Rating: Standby.
- D. EPSS Class: Engine generator shall be classified as a Class 2 in accordance with NFPA 110.

- E. Service Load: 250 kVA.
- F. Power Factor: .8 lagging.
- G. Frequency: 60 Hz.
- H. Voltage: 208V ac.
- I. Phase: Three-phase, 4 wire,
- J. Induction Method: Turbocharged.
- K. Governor: Adjustable isochronous, with speed sensing.
- L. Mounting Frame: Structural steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.
 - 1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and engine generator center of gravity.
- M. Capacities and Characteristics:
 - 1. Power Output Ratings: Nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries[, with capacity as required to operate as a unit as evidenced by records of prototype testing].
 - 2. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.
- N. Engine Generator Performance:
 - 1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
 - 2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
 - 3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
 - 4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
 - 5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
 - 6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined in accordance with NEMA MG 1, shall not exceed 50 percent.
 - 7. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
 - 8. Start Time:
 - a. Comply with NFPA 110, Type 10 system requirements.

- b. 10 seconds.

2.4 DIESEL ENGINE

- A. Fuel: ASTM D975, diesel fuel oil, Grade 2-D S15.
- B. Rated Engine Speed: 1800 rpm.
- C. Lubrication System: Engine or skid-mounted.
 - 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 - 2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
 - 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- D. Jacket Coolant Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with UL 499 and with NFPA 110 requirements for Level 1 equipment for heater capacity.
- E. Integral Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine generator set mounting frame and integral engine-driven coolant pump.
 - 1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
 - 2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
 - 3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gauge glass and petcock.
 - 4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 - 5. Maximum Ambient Operating Temperature: 122 deg F.
 - 6. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, UV-, and abrasion-resistant fabric.
 - a. Rating: 50-psig maximum working pressure with coolant at 180 deg F, and non-collapsible under vacuum.
 - b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- F. Muffler/Silencer:
 - 1. Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.
 - a. Sound level measured at a distance of 23 ft. from exhaust discharge after installation is complete shall be 76 dBA or less.
- G. Air-Intake Filter: Heavy-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.
- H. Starting System: 24V electric, with negative ground.

1. Components: Sized so they are not damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Performance Requirements" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Battery: Lead acid, with capacity within ambient temperature range specified in "Performance Requirements" Article to provide specified cranking cycle at least three times without recharging.
5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
6. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
7. Battery Charger: Current-limiting, automatic-equalizing, and float-charging type designed for lead-acid batteries. Unit shall comply with UL 1236 and include the following features:
 - a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 to 140 deg to prevent overcharging at high temperatures and undercharging at low temperatures.
 - c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
 - d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
 - e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
 - f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.5 DIESEL FUEL-OIL SYSTEM

- A. Comply with NFPA 37.
- B. Piping: Fuel-oil piping shall be Schedule 40 black steel, complying with requirements in Section 231113 "Facility Fuel-Oil Piping." Cast iron, aluminum, copper, and galvanized steel shall not be used in the fuel-oil system.
- C. Main Fuel Pump: Mounted on engine to provide primary fuel flow under starting and load conditions.
- D. Fuel Filtering: Remove water and contaminants larger than 1 micron.
- E. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.
- F. Fuel-Oil Storage Tank: Comply with requirements in Consult tank manufacturers about capacities available for size of set in Project. See discussion of fuel tanks in the Evaluations.
- G. Subbase-Mounted, Double-Wall, Fuel-Oil Tank: Factory installed and piped, complying with UL 142 fuel-oil tank. Features include the following:

1. Tank level indicator.
2. Fuel-Tank Capacity: 24hrs at 100% load
3. Leak detection in interstitial space.
4. Vandal-resistant fill cap.
5. Containment Provisions: Comply with requirements of authorities having jurisdiction.

2.6 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of engine generator. When mode-selector switch is switched to the on position, engine generator starts. The off position of same switch initiates engine generator shutdown. When engine generator is running, specified system or equipment failures or derangements automatically shut down engine generator and initiate alarms.
- B. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts engine generator. The off position of same switch initiates engine generator shutdown. When engine generator is running, specified system or equipment failures or derangements automatically shut down engine generator and initiate alarms.
- C. Provide minimum run time control set for 15 minutes with override only by operation of a remote emergency-stop switch.
- D. Control panel must comply with UL 6200.
- E. Connectivity: Native Ethernet, WiFi, and Bluetooth connectivity.
- F. Web Browser Interface: All user interaction accomplished via standard web browser interface. Solutions requiring dedicated software for connectivity are not acceptable.
- G. Remote Connectivity: User interface available both internally and externally to the user's network, based on network security preferences. All remote connectivity may be disabled at any time by the user.
- H. Automated Notification: Controller capable of sending multiple automated email alerts without intermediate service provider.
- I. Notification Customization: User configurable allowing any operational or fault condition to initiate notification to any personnel including (but not limited to) generator service provider.
- J. Environmentally Hardened Design: Open circuit boards, edge cards, and PC ribbon cable connections are unacceptable.
- K. Circuit boards with surface-mounted components to provide vibration durability. Circuit boards utilizing large capacitors or heat sinks must utilize encapsulation methods to securely support these components.
- L. Configuration:
 1. Operating and safety indications, protective devices, basic system controls, and engine gauges shall be grouped in a common control and monitoring panel mounted on the engine generator. Mounting method shall isolate the control panel from engine generator vibration. Panel powered from the engine generator battery.

M. Control and Monitoring Panel:

1. Digital engine generator controller with integrated touch screen, controls, and microprocessor, capable of local and remote control, monitoring, and programming, with battery backup.
2. Instruments: Located on the control and monitoring panel and viewable during operation.
 - a. Engine lubricating-oil pressure gauge.
 - b. Engine-coolant temperature gauge.
 - c. DC voltmeter (alternator battery charging).
 - d. Running-time meter.
 - e. AC voltmeter, for each phase.
 - f. AC ammeter, for each phase.
 - g. AC frequency meter.
 - h. Generator-voltage adjusting feature.
3. Controls and Protective Devices: Controls, shutdown devices, and common alarm indication, including the following:
 - a. Cranking control equipment.
 - b. Run-Off-Auto switch.
 - c. Control switch not in automatic position alarm.
 - d. Overcrank alarm.
 - e. Overcrank shutdown device.
 - f. Low-water temperature alarm.
 - g. High engine temperature pre-alarm.
 - h. High engine temperature.
 - i. High engine temperature shutdown device.
 - j. Overspeed alarm.
 - k. Overspeed shutdown device.
 - l. Low fuel main tank.
 - 1) Low-fuel-level alarm shall be initiated when the level falls below that required for operation for duration required
 - m. Coolant low-level alarm.
 - n. Coolant low-level shutdown device.
 - o. Coolant high-temperature prealarm.
 - p. Coolant high-temperature alarm.
 - q. Coolant low-temperature alarm.
 - r. Coolant high-temperature shutdown device.
 - s. EPS load indicator.
 - t. Battery high-voltage alarm.
 - u. Low cranking voltage alarm.
 - v. Battery-charger malfunction alarm.
 - w. Battery low-voltage alarm.
 - x. Lamp test.
 - y. Contacts for local and remote common alarm.
 - z. Remote manual stop shutdown device.
 - aa. Generator overcurrent-protective-device not-closed alarm.
 - bb. Hours of operation.
 - cc. Engine generator metering, including voltage, current, hertz, kilowatt, kilovolt ampere, and power factor.

N. Connection to Datalink:

1. A separate terminal block, factory wired to Form C dry contacts, for each alarm and status indication.
 2. Provide connections for datalink transmission of indications to remote data terminals via Modbus Data system connections to terminals are covered in Section 260913 "Electrical Power Monitoring and Control."
- O. Common Remote Panel with Common Audible Alarm: Include necessary contacts and terminals in control and monitoring panel. Remote panel shall be powered from the engine generator battery.
- P. Remote Alarm Annunciator: An LED indicator light labeled with proper alarm conditions shall identify each alarm event, and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.
1. Overcrank alarm.
 2. Low water-temperature alarm.
 3. High engine temperature pre-alarm.
 4. High engine temperature alarm.
 5. Low lube oil pressure alarm.
 6. Overspeed alarm.
 7. Low fuel main tank alarm.
 8. Low coolant level alarm.
 9. Low cranking voltage alarm.
 10. Contacts for local and remote common alarm.
 11. Audible-alarm silencing switch.
 12. Air shutdown damper when used.
 13. Run-Off-Auto switch.
 14. Control switch not in automatic position alarm.
 15. Fuel tank derangement alarm.
 16. Fuel tank high-level shutdown of fuel supply alarm.
 17. Lamp test.
 18. Low-cranking voltage alarm.
 19. Generator overcurrent-protective-device not-closed alarm.
- Q. Remote Emergency-Stop Switch: Flush; wall mounted unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

2.7 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Overcurrent protective devices shall be coordinated to optimize selective tripping when a short circuit occurs.
1. Overcurrent protective devices for the entire EPSS shall be coordinated to optimize selective tripping when a short circuit occurs. Coordination of protective devices shall consider both utility and EPSS as the voltage source.
 2. Overcurrent protective devices for the EPSS shall be accessible only to authorized personnel.
- B. Generator Overcurrent Protective Device:

1. Insulated-case circuit breaker, electronic-trip type; 100 percent rated; complying with UL 489:
 - a. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
 - b. Trip Settings: Selected to coordinate with generator thermal damage curve.
 - c. Shunt Trip: Connected to trip breaker when engine generator is shut down by other protective devices.
 - d. Mounting: Adjacent to, or integrated with, control and monitoring panel.
 - C. Generator Protector: Microprocessor-based unit shall continuously monitor current level in each phase of generator output, integrate generator heating effect over time, and predict when thermal damage of alternator will occur. When signaled by generator protector or other engine generator protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from load circuits. Protector performs the following functions:
 1. Initiates a generator overload alarm when generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other engine generator malfunction alarms. Contacts shall be available for load shed functions.
 2. Under single- or three-phase fault conditions, regulates generator to 300 percent of rated full-load current for up to 10 seconds.
 3. As overcurrent heating effect on the generator approaches the thermal damage point of the unit, protector switches the excitation system off, opens the generator disconnect device, and shuts down the engine generator.
 4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.
 - D. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground fault.
 1. Indicate ground fault with other engine generator alarm indications.
 2. Trip generator protective device on ground fault.
 - E. Arc Energy Reduction: Comply with NFPA 70 for arc energy reduction for circuit breakers 1200A and greater.
 1. Energy-reducing maintenance switch with local status indicator.
 2. Instantaneous override that is less than the available arcing current.
- 2.8 GENERATOR, EXCITER, AND VOLTAGE REGULATOR
- A. Comply with NEMA MG 1.
 - B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
 - C. Electrical Insulation: Class H.
 - D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required. Provide 12 lead alternator.
 - E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

- F. Enclosure: Dripproof.
- G. Instrument Transformers: Mounted within generator enclosure.
- H. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified and as required by NFPA 110.
 - 1. Voltage Adjustment on Control and Monitoring Panel: Provide plus or minus 5 percent adjustment of output-voltage operating band.
 - 2. Maintain voltage within 30 percent on one step, full load.
 - 3. Provide anti-hunt provision to stabilize voltage.
 - 4. Maintain frequency within 5 percent and stabilize at rated frequency within 5 seconds.
- I. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.
- J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- K. Subtransient Reactance: 15 percent maximum, based on the rating of the engine generator set.

2.9 OUTDOOR ENGINE GENERATOR ENCLOSURE

- A. Generator packaged within sound attenuated enclosure.
- B. Sound Insulation: Enclosure and air discharge hood completely lined with 3 inches of fiberglass and perforated aluminum.
- C. Enclosure Construction: Minimum 14 gauge steel with hinged, removable doors to allow access to the engine, alternator, and control panel. Adjustable hinges for door alignment. Hinges and all exposed fasteners must be stainless steel. Pop-rivets weaken the paint system and are not allowed on external painted surfaces. Each door equipped with lockable hardware and identical keys.
- D. Upward discharging enclosure ventilation exhaust hood.
- E. Enclosure Finish: Electrostatic applied powder paint, baked and finished to manufacturer's specifications.
- F. Enclosure Color: Manufacturer's standard color.
- G. Silencer mounted on top of enclosure.
- H. Engine-Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for two hours with ambient temperature at top of range specified in system service conditions.
 - 1. Louvers: Fixed-engine, cooling-air inlet and discharge. Stormproof and drainable louvers prevent entry of rain and snow.
 - 2. Ventilation: Provide temperature-controlled exhaust fan interlocked to prevent operation when engine is running.

- I. Interior Lights with Switch: Factory-wired, vapor-proof luminaires within housing; arranged to illuminate controls and accessible interior. Arrange for external electrical connection.
 - 1. AC lighting system and connection point for operation when remote source is available.
 - 2. DC lighting system for operation when remote source and generator are both unavailable.
- J. Convenience Outlets: Factory-wired, GFCI. Arrange for external electrical connection.

2.10 VIBRATION ISOLATION DEVICES

- A. Elastomeric Isolator Pads: Oil- and water-resistant elastomer or natural rubber, arranged in single or multiple layers, molded with a nonslip pattern and galvanized-steel baseplates of sufficient stiffness for uniform loading over pad area, and factory cut to sizes that match requirements of supported equipment.
 - 1. Material: Standard neoprene separated by steel shims.
 - 2. Shore A Scale Durometer Rating: 70
 - 3. Number of Layers: 1
- B. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic restraint.
 - 1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to wind loads or if weight is removed; factory-drilled baseplate bonded to 1/4-inch thick, elastomeric isolator pad attached to baseplate underside; and adjustable equipment-mounting and -leveling bolt that acts as blocking during installation.
 - 2. Outside Spring Diameter: Not less than 80 percent of compressed height of the spring at rated load.
 - 3. Minimum Additional Travel: 50 percent of required deflection at rated load.
 - 4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 - 6. Minimum Deflection: 1 Inch
- C. Vibration isolation devices shall not be used to accommodate misalignments or to make bends.

2.11 FINISHES

- A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.
- B. Powder coated paint surfaces:
 - 1. Minimum Paint Thickness: 2.5 mil in accordance with ASTM D 1186-87.
 - 2. Material Hardness: ASTM D3363-92a.
 - 3. Resistance to Cracking: ASTM D522-B.
 - 4. Paint Adhesion: ASTM D3359-B.
 - 5. Resistance to Salt Water Corrosion: ASTM B117, ASTM D1654.
 - 6. Resistance to Humidity: ASTM D1735, ASTM D1654.
 - 7. Impact Resistance: ASTM 2784.
 - 8. UV Protection: SAE J1690.

2.12 SOURCE QUALITY CONTROL

- A. Prototype Testing: Factory test engine generator using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
 - 1. Tests: Comply with IEEE 115 and with NFPA 110.
- B. Project-Specific Equipment Tests: Before shipment, factory test engine generator and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
 - 1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
 - 2. Test generator, exciter, and voltage regulator as a unit.
 - 3. Full load run.
 - 4. Maximum power.
 - 5. Voltage regulation.
 - 6. Transient and steady-state governing.
 - 7. Single-step load pickup.
 - 8. Safety shutdown.
 - 9. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.
 - 10. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.
- B. Examine roughing-in for piping systems and electrical connections. Verify actual locations of connections before packaged engine generator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service in accordance with requirements indicated:
 - 1. Notify Construction Manager no fewer than 2 working days in advance of proposed interruption of electrical service.

3.3 INSTALLATION

- A. Comply with NECA 1 and NECA 404.

- B. Comply with packaged engine generator manufacturers' written installation and alignment instructions and with NFPA 110
- C. Equipment Mounting:
 - 1. Install packaged engine generators on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
 - 2. Coordinate size and location of concrete bases for packaged engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.
- D. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.

3.4 IDENTIFICATION

- A. Install a sign indicating the generator neutral is bonded to the main service neutral at the main service location.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency:
 - 1. Owner will engage a qualified testing agency to perform tests and inspections.
 - 2. Engage a qualified testing agency to perform tests and inspections.
 - 3. Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
 - 4. Perform tests and inspections with the assistance of a factory-authorized service representative.
- B. Tests and Inspections:
 - 1. Perform tests recommended by manufacturer and each visual and mechanical inspection and electrical and mechanical test listed in first two subparagraphs below, as specified in NETA ATS. Certify compliance with test parameters.
 - a. Visual and Mechanical Inspection:
 - 1) Compare equipment nameplate data with Drawings and the Specifications.
 - 2) Inspect physical and mechanical condition.
 - 3) Inspect anchorage, alignment, and grounding.
 - 4) Verify that the unit is clean.
 - b. Electrical and Mechanical Tests:
 - 1) Test protective relay devices.
 - 2) Verify phase rotation, phasing, and synchronized operation as required by the application.
 - 3) Functionally test engine shutdown for low oil pressure, overtemperature, overspeed, and other protection features as applicable.
 - 4) Perform vibration test for each main bearing cap.

- 5) Verify correct functioning of the governor and regulator.
2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here, including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells in accordance with manufacturer's written instructions. Record individual cell voltages.
 - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
 - c. Verify acceptance of charge for each element of the battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test (non-enclosed units): Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.
8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
9. Harmonic-Content Tests: Measure harmonic content of output voltage at 25 and 100 percent of rated linear load. Verify that harmonic content is within specified limits.
- C. Coordinate tests with tests for transfer switches and run them concurrently.
- D. Test instruments shall have been calibrated within the past 12 months, traceable to NIST Calibration Services, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- E. Leak Test: After installation, charge exhaust, coolant, and fuel systems and test for leaks. Repair leaks and retest until no leaks exist.
- F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation for generator and associated equipment.
- G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- H. Remove and replace malfunctioning units and retest as specified above.
- I. Retest: Correct deficiencies identified by tests and observations, and retest until specified requirements are met.
- J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

3.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's authorized service representative. Include quarterly preventive maintenance and exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Parts shall be manufacturer's authorized replacement parts and supplies.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

END OF SECTION

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PART 1 GENERAL**1.01 Scope**

Furnish and install automatic transfer switch(es) with number of poles, amperage, voltage, and withstand current ratings as shown on the plans. Basis of design is a Generac TX Transfer Switch Non Service Entrance Rated Delayed/Programmed Transition, 600A, 3 Pole 4 Wire 208V, Transfer Switch in a Nema 1 Enclosure. Each automatic transfer shall consist of a mechanically held power transfer switch unit and a microprocessor controller, interconnected to provide complete automatic operation. All transfer switches and control panels shall be the product of the same manufacturer.

1.02 Acceptable Manufacturers

Automatic transfer switches shall be Generac TX Series. Any alternate shall be submitted to the consulting engineer in writing at least 10 days prior to bid. Each alternate bid must list any deviations from this specification.

1.03 Codes and Standards

The automatic transfer switches and accessories shall conform to the requirements of:

- A. UL 1008 - Standard for Automatic Transfer Switches
- B. NFPA 70 - National Electrical Code (2017 version and later for start circuit monitoring)
- C. NEC Articles 700, 701, 702, 708
- D. NFPA 99 – Health Care Facilities
- E. NFPA 110 – Emergency and Standby Power Systems
- F. IEEE Standard 446 – IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
- G. NEMA Standards ICS10, MG1, MG250, ICS6, AB1
- H. ANSI C62.41
- I. International Standards Organization: ISO 8528, 9001.
- J. Where seismic rating and/or certification is required: IBC 2018, OSHPD

PART 2 PRODUCTS**2.01 Mechanically Held Transfer Switch**

- A. The basis of design is the Generac TX Series Transfer switch that utilizes a knife blade mechanically latching design with maintenance free contacts. The transfer switch unit shall be an electrically operated and mechanically held. The open transition switch shall be mechanically interlocked to ensure only one of two possible positions, normal or emergency. The delayed transition switch shall be mechanically interlocked to ensure one of three possible position, normal and emergency.
- B. The switch shall be positively locked and unaffected by momentary outages so that contact pressure is maintained at a constant value and temperature rise at the contacts is minimized for maximum reliability and operating life.
- C. All main contacts shall be silver composition. Switches shall have segmented blow-on construction for high withstand current capability and be protected by separate arcing contacts.
- D. A manual operating handle shall be provided for maintenance purposes.
- E. Designs utilizing components of or parts thereof which are not intended for continuous duty, repetitive switching or transfer between two active power sources are not acceptable.

- F. Where neutral conductors must be switched, the ATS shall be provided with fully rated neutral transfer contacts.
- G. Where neutral conductors are to be solidly connected, a neutral terminal plate with fully rated AL-CU pressure connectors shall be provided.
- H. The switch shall be capable of the following methods of transfer: Open with In-Phase transition only, Time Delay in Neutral transition, or In-Phase transition with a default to Time Delay in Neutral.

2.02 ATS Control with Integrated User Interface Panel

- A. The basis of design is the Generac TXC-100 Controller with Integrated User Interface Panel which is voltage agnostic for service purposes removing the need for technicians to carry and support control panels for every available voltage. Any manufacturers that provide a controller or control panel that does not meet this requirement should notify the consulting engineer before bidding.
- B. The controller shall be connected to the transfer switch by an interconnecting wiring harness. The harness shall include a keyed disconnect plug to enable the controller to be disconnected from the transfer switch for routine maintenance.
- C. The controller shall direct the operation of the transfer switch. The controller's sensing and logic shall be controlled by a built-in microprocessor for maximum reliability, minimum maintenance, and include standard on-board serial communications capability.
- D. A user accessible USB port shall be provided to facilitate firmware updates, uploading of switch operational parameters, downloading of event history and switch operational statistics. This USB port shall be front accessible without opening the ATS door.
- E. The controller shall provide single and three phase capability for maximum application flexibility and minimal spare part requirements. Voltage sensing shall be true RMS type and shall be accurate to $\pm 1\%$ of nominal voltage. Frequency sensing shall be accurate to $\pm 0.1\text{Hz}$. Time delay settings shall be accurate to $\pm 0.5\%$ of the full-scale value of the time delay. The panel shall be capable of operating over a temperature range of -20 to $+70$ degrees C.
- F. The controller power supply shall be field-configurable to operate on 120V through 480V systems without the need for transformers.
- G. Control logic shall be backed up with a rechargeable, user-replaceable lithium-ion battery that shall also maintain control power for up to 60 minutes in the event no source power is available.
- H. The controller shall be enclosed with a protective cover and be mounted separate from the transfer switch unit for safety and ease of maintenance.
- I. The controller shall meet or exceed the requirements for Electromagnetic Compatibility (EMC) as follows:
 - 1. IEC 61000 – 4 – 3 Radiated RF Field Immunity
 - 2. IEC 61000 – 4 – 4 Electrical Fast Transient/Burst Immunity
 - 3. IEC 61000 – 4 – 5 Surge Immunity
 - 4. IEC 61000 – 4 – 6 Conducted RF Immunity
 - 5. IEC 61000 – 4 -11 Voltage Dips and Interruptions
 - 6. EN 61000 – 6 - 2 Industrial Immunity Requirements EN 61000-6-4 - Radiated Emissions
 - 7. EN 61000 – 6 - 4 Conducted Emissions
 - 8. CISPR 11 – Conducted RF Emissions and Radiated RF Emissions

2.03 Enclosure

The basis of design is a Generac TX Series Transfer Switch in a Nema 1 Enclosure, with dimensions no larger than Not SE Rated Inches in Height , 63.19 Inches in Width, and 28.22 Inches In Depth. Larger enclosures than the basis of design will need to be approved by the Consulting Engineer to ensure there is enough wall space and appropriate clearance.

- A. Provide a temperature and humidity controlled anti-condensation heater for all NEMA 3R and 4X enclosed units. Heater shall be an available option on NEMA 1 enclosures, when called for on plans. Heater cover to indicate a hot surface.
- B. The switch mechanism and controller shall be easily removable from the enclosure in the field. This requirement will facilitate easy single-person installation on wall mounted switches, conduit fitting, and cable pulling while minimizing risk of damage and/or contamination of ATS components during the install process.
- C. Controller human interface and USB port shall be visible and operational through the enclosure door, without the need for personal protective equipment, avoiding arc-flash hazard for routine checks of the controller status.

PART 3 OPERATIONS

3.01 Controller Display and Keypad

- A. A backlit four-line graphical LCD display and human interface shall be an integral part of the controller for viewing all available data and setting desired operational parameters. Operational parameters shall also be available for viewing and limited control through the RS-485 communications port.
- B. All instructions and controller settings shall be easily accessible, readable and accomplished without the use of codes, calculations, or instruction manuals.
- C. The user interface shall be provided with test/reset modes. The test mode will simulate a normal source failure. The reset mode shall bypass the time delays on either transfer to emergency or retransfer to normal.
- D. The following parameters shall only be adjustable only by authorized service personnel:
 - 1. Nominal line voltage and frequency
 - 2. Single or three phase sensing on normal
 - 3. Transfer operating mode configuration, (open transition, or delayed transition)

3.02 Voltage and Frequency Sensing

- A. Voltage and frequency on both the normal and emergency sources (as noted below) shall be continuously monitored, with the following pickup, dropout, and trip settings capabilities; values shown as percentage of nominal unless otherwise specified.

Voltage and Frequency Settings	Range	Default Value
Source 1 (Normal) is Genset	Yes or No	No
Source 1 Undervoltage Dropout	50-97%	85%
Source 1 Undervoltage Pickup	52-99%	90%
Source 1 Overvoltage Dropout	105-120%	110%

Source 1 Overvoltage Pickup	103-118%	105%
Source 1 Underfrequency Dropout	90-97%	90%
Source 1 Underfrequency Pickup	91-99%	95%
Source 1 Overfrequency Dropout	103-110%	105%
Source 1 Overfrequency Pickup	101-109%	102%
Source 1 Voltage Imbalance Drop	5-20%	5%
Source 1 Voltage Imbalance Pickup	3-18%	3%
Source 1 Warmup Time	0-1800s	3s
Source 1 Cooldown Time	0-1800s	1800s
Source 1 Minimum Run Time	300-1800s	1200s
Source 2 is Generator	Yes or No	Yes
Source 2 Undervoltage Dropout	50-97%	85%
Source 2 Undervoltage Pickup	52-99%	90%
Source 2 Overvoltage Dropout	105-120%	110%
Source 2 Overvoltage Pickup	103-118%	105%
Source 2 Underfrequency Dropout	90-97%	90%
Source 2 Underfrequency Pickup	91-99%	99%
Source 2 Overfrequency Dropout	103-110%	105%
Source 2 Overfrequency Pickup	101-109%	102%
Source 2 Voltage Imbalance Drop	5-20%	5%
Source 2 Voltage Imbalance Pickup	3-18%	3%
Source 2 Minimum Run Time	300-1800s	1200s
Source 2 Warmup Time	0-1800s	3s
Source 2 Cooldown Time	0-1800s	1800s
Phase Rotation Check	ABC, CBA, OFF	ABC
Supply Overvoltage	350 VAC	Fixed
Manual Return to Normal	Yes or No	
Time Delay Settings		

Transfer to Emergency	120s max	30s
Re-transfer to Normal	1,800s max	1,800s
Time Delay Neutral	120s max	30s
Engine Cool Down	300-1,800s	1,800s
Delayed Transition Time	120s max	120s
Elevator Signal	120s max	30s
In Phase Transfer	Yes or No	
In Phase Synchronization	Time 60-3600s	300s
Preferred Source	S1, S2	S1
Voltage Imbalance Enable	Yes or No	
Voltage Imbalance Timeout	10-30s max	20s

- B. Repetitive accuracy of all settings shall be within 1% at +25C
- C. Voltage and frequency settings shall be field adjustable in 1% increments either locally with the display and keypad or remotely via RS-485 communications port access.
- D. Source status screens shall be provided for both normal & emergency to provide digital readout of voltage and frequency.
- E. The backlit graphical display shall have multiple language capability. Languages can be selected from the user interface.

3.03 Time Delays

- A. A Line Interrupt delay shall be provided to override momentary normal source outages, delay all transfer and engine starting signals; adjustable 0 to 120 seconds. It shall be possible to bypass the time delay from the controller user interface.
- B. An Engine Warm Up delay shall be provided for extended engine RPM stabilization where fast transfer to the emergency source is not required; adjustable 0 to 1,800 seconds. It shall be possible to bypass the time delay from the controller user interface.
- C. A Transfer to Emergency delay shall be provided for controlled sequencing of loads to the emergency source; adjustable from 0 to 120 seconds. It shall be possible to bypass the time delay from the controller user interface.
- D. A Retransfer to Normal delay shall be provided to ensure stability of the normal source, adjustable from 0 to 1,800 seconds. Time delay shall be automatically bypassed if the emergency source fails and normal source is acceptable.
- E. An Engine Minimum Runtime delay shall be provided to reduce nuisance starts when the normal source power is unstable but does not trigger a transfer to the emergency source, adjustable from 5 to 30 minutes. Operates in conjunction with Engine Cool Down delay.
- F. An Engine Cool Down delay shall be provided; adjustable 300 – 1,800 seconds.

- G. An Elevator Signal Before Transfer output signal shall be provided to drive an external relay for selective load disconnect control. The controller shall have the ability to activate an adjustable 0 to 120 second delay in any of the following modes:
1. Prior to transfer only.
 2. Prior to and after transfer.
 3. Normal to emergency only.
 4. Emergency to normal only.
 5. Normal to emergency and emergency to normal.
 6. All transfer conditions or only when both sources are available.
- H. For special applications (i.e. three-sources), the option to select the Preferred Source.
- I. All adjustable time delays shall be field adjustable without the use of special tools or software.

Time Delay Summary Table:

Time Delay Description	Range	Default Value
Line Interrupt Delay	0 – 120 sec.	3 sec.
Engine Warm Up Delay	0 – 1,800 sec.	3 sec.
Transfer to Emergency	0 – 120 sec.	3 sec.
Retransfer to Normal	0 – 1,800 sec.	1,800 sec.
Engine Minimum Run Time	5 – 30 min.	5 min.
Engine Cool Down	300 – 1,800 sec.	1,800 sec.
Delayed Transition (Center Off Position)	0 – 120 sec.	120 sec.
Elevator Signal Before Transfer	0 – 120 sec.	0 sec.
Preferred Source	Normal (S1), Emerg. (S2)	Normal (S1)

3.04 External Control Interfaces and Indicators

- A. Communications connectors, user interface and display shall be accessible and usable without presenting an arc-flash hazard.
- B. Customer inputs shall be optically isolated for wider compatibility with external systems. This will protect the controller from external surges and transient voltages.
- C. Surge Protection for the ATS controls shall be provided.
- D. Replaceable fuses to protect the power supply to the ATS control panel.
- E. A set of contacts rated 5 amps, 30 VDC shall be provided for a low-voltage engine start signal. The start signal shall prevent dry cranking of the engine by requiring the generator set to reach proper output and run for the duration of the Engine Minimum Runtime setting, regardless of whether the normal source restores before the load is transferred.
- F. Engine starting contacts shall facilitate start-circuit monitoring to comply with the 2017 and later versions of NFPA 70 Article 700.10 (D)(3).
- G. Two sets of Form-C auxiliary contacts, rated 10 amps, 250 VAC shall be provided to indicate the switch actuator position, including center-off for Time Delay Neutral switches or a Permissive (Emergency Inhibit) condition.
- H. A single General Alarm (summary alarm) indication shall light up the alert indicator and de-energize the configured common alarm output relay for external monitoring.
- I. LED indicating lights shall be provided; one to indicate when the ATS is connected to the normal source and one to indicate when the ATS is connected to the emergency source.
- J. LED indicating lights shall be provided and energized by controller outputs. The lights shall provide true source availability of the normal and emergency source, as determined by the voltage sensing trip and reset settings for each source.
- K. LED indicating light shall be provided to indicate switch not in automatic mode (manual).
- L. LED indicating light shall be provided to indicate any alarm condition.
- M. The controller shall have two programmable inputs and one programmable output as standard; with an optional expansion board to add up to four programmable input/outputs. Programmable I/O conditions shall include:

Programmable Output	Programmable Input
Source 1 – Two Wire Start	Permissive (Emergency Inhibit)
Source 2 – Two Wire Start	Remote Engine Fast Test
Engine Exercising	Remote Engine Normal Test
Engine Warmup	ATS Timer
Signal Before Transfer	Initiate Demand Response
General Alarm	
Source 1 Good	
Source 2 Good	

N. System Status - The controller LCD display shall include a System Status screen which shall be accessible from any point in the menu system by depressing the "ESC" key until you arrive at the System Status screen. This screen shall display a clear description of the active operating sequences and switch position. Operational status information displayed shall include:

1. Source 1 status (good or bad)
2. Source 2 status (good or bad)
3. Any active timer
4. Permissive (Emergency Inhibit when active)

3.05 Transfer and Exercise Controls

The following standard features shall be built into the controller, capable of being activated through keypad programming as required by the user:

- A. Provide the ability to select "commit/no commit to transfer" to determine whether the load should be transferred to the emergency generator if the normal source restores before the generator is ready to accept the load.
- B. An engine generator exercising timer shall be provided to configure daily, day of week, weekly, bi-weekly, or monthly testing of an engine generator set at a specified time of day with or without load for a programmable period of time (Engine Minimum Runtime).
- C. Terminals shall be provided for a remote contact to signal the ATS to transfer to emergency for remote test. Test signal can be enabled through the keypad or digital input. Transfer to emergency for demand response can be enabled by a digital input.
- D. For In-Phase Transfer Switch Designs: An in-phase monitor shall be provided in the controller such that the transfer occurs with less than ten degrees phase angle difference between sources. The monitor shall control transfer so that motor load inrush currents do not exceed normal starting currents and shall not require external control of power sources. In-phase switch transfer time shall not exceed 25ms.

PART 4 ADDITIONAL FEATURES AND ACCESSORIES

4.01 Additional Optional Features

- A. Expanded Input/Output Module. Expandable Input/Output Board Module Includes: 4 Relay Outputs and 4 Optically Isolated Inputs

PART 5 ADDITIONAL REQUIREMENTS

5.01 Withstand and Closing Ratings

- A. The ATS shall be rated to close on and withstand the available RMS symmetrical short circuit current at the ATS terminals with the type of overcurrent protection shown on the plans. The basis of design for this project is a Generac

TX Series Automatic Transfer Switch with a 50ka 3 Cycle Rating, 50ka (.05 seconds) Time Based Rating, and a 85ka Specific Breaker Rating Transfer switches from other manufacturers with ratings less than provided in this section will need to be

- B. Provide a temperature and humidity controlled anti-condensation heater for all NEMA 3R and 4X enclosed units. Heater shall be an available option on NEMA 1 enclosures, when called for on plans. Heater cover to indicate a hot surface.
- C. The switch mechanism and controller shall be easily removable from the enclosure in the field. This requirement will facilitate easy single-person installation on wall mounted switches, conduit fitting, and cable pulling while minimizing risk of damage and/or contamination of ATS components during the install process.
- D. Controller human interface and USB port shall be visible and operational through the enclosure door, without the need for personal protective equipment, avoiding arc-flash hazard for routine checks of the controller status.

5.02 Tests and Certification

- A. The complete ATS shall be factory tested to ensure proper operation of the individual components and correct overall sequence of operation and to ensure that the operating transfer time, voltage, frequency and time delay settings are in compliance with the specification requirements.
- B. The ATS manufacturer shall be certified to ISO 9001: 2015 International Quality Standard and the manufacturer shall have third party certification verifying quality assurance in design/development, production, installation and servicing in accordance with ISO 9001: 2015.

5.03 Service Representation

- A. The ATS manufacturer shall support a service organization of company-employed personnel located throughout the contiguous United States. The service center's personnel must be factory trained and must be on call 24 hours a day, 365 days a year.
- B. The manufacturer shall maintain records of switch shipments, by serial number, for a minimum of 10 years.

5.04 Warranty

- A. The basis of design is a Generac TX Series Automatic Transfer Switch with a Comprehensive 5 Year Warranty.
- B. A Basic Warranty is defined as the manufacturer covering replacement parts for the listed amount of the warranty period.
- C. The Comprehensive Warranty is defined as the manufacturer covering replacement parts, labor, and limited technician travel costs for covered warranty repairs during the listed warranty period.
- D. The switch mechanism and controller shall be easily removable from the enclosure in the field. This requirement will facilitate easy single-person installation on wall mounted switches, conduit fitting, and cable pulling while minimizing risk of damage and/or contamination of ATS components during the install process.
- E. Controller human interface and USB port shall be visible and operational through the enclosure door, without the need for personal protective equipment, avoiding arc-flash hazard for routine checks of the controller status.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior lighting fixtures, lamps.
2. Emergency lighting units.
3. Exit signs.
4. Lighting fixture supports.

B. Related Sections:

1. Division 26 Section "Lighting Control Devices" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.2 SUBMITTALS

- A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, and finishes.
- B. Shop Drawings: Show details of nonstandard or custom lighting fixtures. Indicate dimensions, weights, methods of field assembly, components, features, and accessories. Product Certificates: For each type of ballast for bi-level and dimmer-controlled fixtures, from manufacturer.
- C. Field quality-control reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, product(s) indicated on Drawings. Substitutions shall be submitted to Engineer minimum (10) days prior to bid date for evaluation.

2.2 LIGHTING FIXTURE SUPPORT COMPONENTS

- A. Comply with Division 26 Section "Hangers and Supports for Electrical Systems" for channel- and angle-iron supports and nonmetallic channel and angle supports.
- B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as fixture.
- C. Twin-Stem Hangers: Two, 1/2-inch steel tubes with single canopy designed to mount a single fixture. Finish same as fixture.
- D. Wires: ASTM A 641/A 641M, Class 3, soft temper, zinc-coated steel, 12 gage.
- E. Wires for Humid Spaces: ASTM A 580/A 580M, Composition 302 or 304, annealed stainless steel, 12 gage.
- F. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.
- G. Hook Hangers: Integrated assembly matched to fixture and line voltage and equipped with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture. Comply with all Seismic requirements.
- B. Comply with NFPA 70 for minimum fixture supports.
- C. Suspended Lighting Fixture Support:
 - 1. Pendants and Rods: Where longer than 48 inches brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Fixtures: Suspend with twin-stem hangers.
 - 3. Continuous Rows: Use tubing or stem for wiring at one point and tubing or rod for suspension for each unit length of fixture chassis, including one at each end.
- D. Adjust aimable lighting fixtures to provide required light intensities.
- E. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.2 FIELD QUALITY CONTROL

- A. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery and retransfer to normal.
- B. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

END OF SECTION 265100

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PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior luminaires with lamps.

1.2 SUBMITTALS

- A. Product Data: For each luminaire, pole, and support component, arranged in order of lighting unit designation. Include data on features, accessories, and finishes.
- B. Shop Drawings: Anchor-bolt templates keyed to specific poles and certified by manufacturer.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with IEEE C2, "National Electrical Safety Code."
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, product(s) indicated on Drawings. Substitutions shall be submitted to Engineer minimum (10) days prior to bid date for evaluation.

PART 3 - EXECUTION

3.1 LUMINAIRE INSTALLATION

- A. Install lamps in each luminaire.
- B. Fasten luminaire to indicated structural supports. Comply with all Seismic Requirements.
 1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- C. Adjust luminaires that require field adjustment or aiming.

3.2 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.
- B. Steel Conduits: Comply with Division 26 Section "Raceway and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch-thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.3 GROUNDING

- A. Ground metal poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole unless otherwise indicated.
 - 2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.
- B. Ground nonmetallic poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
 - 1. Install grounding electrode for each pole.
 - 2. Install grounding conductor and conductor protector.
 - 3. Ground metallic components of pole accessories and foundations.

END OF SECTION 265600

PART 1 GENERAL**1.01 DESCRIPTION**

- A. This section specifies the finishing, installation, connection, testing of Physical Access Control System, hereinafter referred to as the PACS.

1.02 RELATED WORK

- A. All Sections listed in the Table of Contents are a Condition of this Section.

1.03 QUALITY ASSURANCE

- A. The Contractor shall be responsible for providing, installing, and the operation of the PACS as shown. The Contractor shall also provide certification as required.
- B. The security system will be installed and tested to ensure all components are fully compatible as a system and can be integrated with all associated security subsystems, whether the security system is stand-alone or a part of a complete Information Technology (IT) computer network.
- C. Contractor Qualifications:
 - 1. The Contractor or security sub-contractor shall be a licensed security Contractor with a minimum of five (5) years experience installing and servicing systems of similar scope and complexity.

1.04 SUBMITTALS

- A. Shop drawing and as-built packages shall include:
 - 1. Specification and scope of work pages for all individual security systems applicable to the design package that will:
 - a. Outline all general and job specific work required within the design package.
 - b. Provide a detailed device identification table outlining device Identification (ID) and use for all security systems equipment utilized in the design package.
 - 2. Drawing sheets that will be plotted on the individual floor plans or site plans shall:
 - a. Include a title block as defined above.
 - b. Clearly define the drawings scale in both standard and metric measurements.
 - c. Provide device identification and location.
 - d. Address all signal and power conduit runs and sizes that are associated with the design of the electronic security system and other security elements (e.g., barriers, etc.).
 - e. Identify all pull box and conduit locations, sizes, and fill capacities.

- B. Complete a full review process conducted by the Contractor along with the Owner's representative to ensure all work has been clearly defined and completed. All reviews shall be conducted in accordance with the project schedule.
- C. Provide manufacturer security system product cut-sheets. Submit for approval at least 30 days prior to commencement of formal testing, a Security System Operational Test Plan. Include procedures for operational testing of each component and security subsystem, to include performance of an integrated system test.
- D. Submit manufacture's certification of Underwriters Laboratories, Inc. (UL) listing as specified. Provide all maintenance and operating manuals per Section 01 00 00, GENERAL REQUIREMENTS.
- E. General: Submittals shall be in full compliance of the Contract Documents. All submittals shall be provided in accordance with this section. Submittals lacking the breadth or depth these requirements will be considered incomplete and rejected. Submissions are considered multidisciplinary and shall require coordination with applicable divisions to provide a complete and comprehensive submission package. Additional general provisions are as follows:
 - 1. The Contractor shall schedule submittals in order to maintain the project schedule. For coordination drawings refer to Specification Section 01 33 10 - DESIGN SUBMITTAL PROCEDURES, which outline basic submittal requirements and coordination. Section 01 33 10 shall be used in conjunction with this section.
 - 2. The Contractor shall identify variations from requirements of Contract Documents and state product and system limitations, which may be detrimental to successful performance of the completed work or system.
 - 3. Each package shall be submitted at one (1) time for each review and include components from applicable disciplines (e.g., electrical work, architectural finishes, door hardware, etc.) which are required to produce an accurate and detailed depiction of the project.
 - 4. Manufacturer's information used for submittal shall have pages with items for approval tagged, items on pages shall be identified, and capacities and performance parameters for review shall be clearly marked through use of an arrow or highlighting. Provide space for Resident Engineer and Contractor review stamps.
 - 5. Technical Data Drawings shall be in the latest version of AutoCAD®, drawn accurately, and in accordance with CAD Standards. FREEHAND SKETCHES OR COPIED VERSIONS OF THE CONSTRUCTION DOCUMENTS WILL NOT BE ACCEPTED. The Contractor shall not reproduce Contract Documents or copy standard information as the basis of the Technical Data Drawings. If departures from the technical data drawings are subsequently deemed necessary by the Contractor, details of such departures and the reasons thereof shall be submitted in writing to the Resident Engineer for approval before the initiation of work.
 - 6. Packaging: The Contractor shall organize the submissions according to the following packaging requirements:

- a. Manual Content: In each manual include information specified in the individual Specification section, and the following information for each major component of building equipment and controls:
 - 1) General system or equipment description.
 - 2) Design factors and assumptions.
 - 3) Copies of applicable Shop Drawings and Product Data.
 - 4) System or equipment identification including: manufacturer, model and serial numbers of each component, operating instructions, emergency instructions, wiring diagrams, inspection and test procedures, maintenance procedures and schedules, precautions against improper use and maintenance, repair instructions, sources of required maintenance materials and related services, and a manual index.
 - b. Manufacturer's Data: Where manufacturer's standard printed data is included in the manuals, include only those sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where more than one (1) item in tabular format is included, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation and delete references to information which is not applicable.
 - c. Where manufacturer's standard printed data is not available and the information is necessary for proper operation and maintenance of equipment or systems, or it is necessary to provide additional information to supplement the data included in the manual, prepare written text to provide the necessary information. Organize the text in a consistent format under a separate heading for different procedures. Where necessary, provide a logical sequence of instruction for each operating or maintenance procedure. Where similar or more than one product is listed on the submittal the Contractor shall differentiate by highlighting the specific product to be utilized.
- F. Operations and Maintenance Manuals: Final copies of the manuals shall be delivered to the Resident Engineer as part of the acceptance test. The draft copy used during site testing shall be updated with any changes required prior to final delivery of the manuals. Each manual's contents shall be identified on the cover. The manual shall include names, addresses, and telephone numbers of each sub-contractor installing equipment or systems, as well as the nearest service representatives for each item of equipment for each system. The manuals shall include a table of contents and tab sheets. Tab sheets shall be placed at the beginning of each chapter or section and at the beginning of each appendix. The final copies delivered after completion of the endurance test shall include all modifications made during installation, checkout, and acceptance. Six (6) hard-copies and one (1) soft copy on CD of each item listed below shall be delivered as a part of final systems acceptance.

1.05 APPLICABLE PUBLICATIONS

- A. The publications listed below (including amendments, addenda, revisions, supplement, and errata) form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

- B. American National Standards Institute (ANSI)/ Security Industry Association (SIA):
 - AC-03Access Control: Access Control Guideline Dye Sublimation
Printing Practices for PVC Access Control Cards
- C. National Fire Protection Association (NFPA):
 - 70-14 National Electrical Code

1.06 COORDINATION

- A. Coordinate arrangement, mounting, and support of electronic safety and security equipment.

PART 2 PRODUCTS

2.01 GENERAL

- A. All equipment and materials for the system will be compatible to ensure correct operation as outlined in FIPS 201, March 2006 and HSPD-12.
- B. The security system characteristics listed in this section will serve as a guide in selection of equipment and materials for the PACS. If updated or more suitable versions are available then the Contracting Officer will approve the acceptance of prior to an installation.
- C. PACS equipment shall meet or exceed all requirements listed below.

2.02 SURGE AND TAMPER PROTECTION

- A. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor-entry connection to components.
 - 1. Minimum Protection for Power Connections 120 V and More: Auxiliary panel suppressors complying with requirements in Division 26 Section "Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits."
 - 2. Minimum Protection for Communication, Signal, Control, and Low-Voltage Power Connections: Comply with requirements in Division 26 Section "Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits" as recommended by manufacturer for type of line being protected.
- B. Tamper Protection: Tamper switches on enclosures, control units, pull boxes, junction boxes, cabinets, and other system components shall initiate a tamper-alarm signal when unit is opened or partially disassembled. Control-station control-unit alarm display shall identify tamper alarms and indicate locations.

2.03 CARD READERS

- A. Power: Card reader shall be powered from its associated Controller, including its standby power source.

- B. Response Time: Card reader shall respond to passage requests by generating a signal that is sent to the Controller. Response time shall be 800ms or less, from the time the card reader finishes reading the credential card until a response signal is generated.
- C. Enclosure: Suitable for surface, semi-flush, or pedestal mounting. Mounting types shall additionally be suitable for installation in the following locations:
 - 1. Indoors, controlled environment.
 - 2. Indoors, uncontrolled environment.
 - 3. Outdoors, with built-in heaters or other cold-weather equipment to extend the operating temperature range as needed for operation at the site.
- D. Display: LED or other type of visual indicator display shall provide visual and audible status indications and user prompts. Indicate power on/off, whether user passage requests have been accepted or rejected, and whether the door is locked or unlocked.
- E. Shall be utilized for controlling the locking hardware on a door and allows for reporting back to the main control panel with the time/date the door was accessed, the name of the person accessing the point of entry, and its location.
- F. Will be fully programmable and addressable, locally and remotely, and hardwired to the system.
- G. Shall be individually home run to the main panel.
- H. Shall be installed in a manner that they comply with:
 - 1. The Uniform Federal Accessibility Standards (UFAS)
 - 2. The Americans with Disabilities Act (ADA)
 - 3. The ADA Standards for Accessible Design
- I. Shall support a variety of card readers that must encompass a wide functional range. The PACS may combine any of the card readers described below for installations requiring multiple types of card reader capability (i.e., card only, card and/or PIN, card and/or biometrics, card and/or pin and/or biometrics, supervised inputs, etc.). These card readers shall be available in the approved technology to meet FIPS 201, and is ISO 14443 A or B, ISO/IEC 7816 compliant. The reader output can be Wiegand, RS-22, 485 or TCP/IP.
- J. Shall be housed in an aluminum bezel with a wide lead-in for easy card entry.
- K. Shall contain read head electronics, and a sender to encode digital door control signals.
- L. LED's shall be utilized to indicate card reader status and access status.
- M. Shall be able to support a user defined downloadable off-line mode of operation (e.g. locked, unlocked), which will go in effect during loss of communication with the main control panel.
- N. Shall provide audible feedback to indicate access granted/denied decisions. Upon a card swipe, two audible tones or beeps shall indicate access granted and three tones or beeps shall indicate access denied. All keypad buttons shall provide tactile audible feedback.

- O. Shall have a minimum of two programmable inputs and two programmable outputs.
- P. All card readers that utilize keypad controls along with a reader and shall meet the following specifications:
 - 1. Entry control keypads shall use a unique combination of alphanumeric and other symbols as an identifier. Keypads shall contain an integral alphanumeric/special symbols keyboard with symbols arranged in ascending ASCII code ordinal sequence. Communications protocol shall be compatible with the local processor.
- Q. Shall include a Light Emitting Diode (LED) or other type of visual indicator display and provide visual or visual and audible status indications and user prompts. The display shall indicate power on/off, and whether user passage requests have been accepted or rejected. The design of the keypad display or keypad enclosure shall limit the maximum horizontal and vertical viewing angles of the keypad. The maximum horizontal viewing angle shall be plus and minus five (5) degrees or less off a vertical plane perpendicular to the plane of the face of the keypad display. The maximum vertical viewing angle shall be plus and minus 15 degrees or less off a horizontal plane perpendicular to the plane of the face of the keypad display.
 - 1. Shall respond to passage requests by generating a signal to the local processor. The response time shall be 800 milliseconds or less from the time the last alphanumeric symbol is entered until a response signal is generated.
 - 2. Shall be powered from the source as designed and shall not dissipate more than 150 Watts.
 - 3. Shall be suitable for surface, semi-flush, pedestal, or weatherproof mounting as required.
 - 4. Shall provide a means for users to indicate a duress situation by entering a special code.
- R. Contactless Smart Cards and Readers
 - 1. Smart card readers shall read credential cards whose characteristics of size and technology meet those defined by ISO/IEC 7816, 14443, 15693.
 - 2. The readers shall have "flash" download capability to accommodate card format changes.
 - 3. The card reader shall have the capability of reading the card data and transmitting the data to the main monitoring panel.

2.04 PUSH BUTTON SWITCHES

- A. Push-Button Switches: Momentary-contact back-lighted push buttons, with stainless-steel switch enclosures.
 - 1. Electrical Ratings:
 - a. Minimum continuous current rating of 10A at 240-VAC.

- b. Contacts that will make 720 VA at 60A and that will break at 720 VA at 10A.
- 2. Enclosures: Flush or surface mounting. Push buttons shall be suitable for flush mounting in the switch enclosures.
- 3. Enclosures shall additionally be suitable for installation in the following locations:
 - a. Indoors, controlled environment.
 - b. Indoors, uncontrolled environment.
 - c. Outdoors.
- 4. Power: Push-button switches shall be powered from their associated Controller, using dc control.

2.05 INTERFACES

A. Power Supplies:

- 1. Shall be UL rated and able to adequately power new and existing entry control devices on a continuous basis without failure.
- 2. Shall meet the following minimum technical characteristics:

INPUT POWER	110 VAC 60 HZ
OUTPUT VOLTAGE	12 VDC Nominal (13.8 VDC) 24 VDC Nominal (27.6 VDC) Filtered and Regulated
BATTERY	Dependent on Output Voltage shall provide up to 24 hours of unpowered operation
CHARGING CIRCUIT	Built-in standard

2.06 WIRES AND CABLES

- A. Provide device input cables as required by manufacturer.

PART 3 EXECUTION

3.01 GENERAL

- A. The Contractor shall install all system components and appurtenances in accordance with the manufacturers' instructions, ANSI C2, and shall furnish all necessary interconnections, services, and adjustments required for a complete and operable system as specified. Control signals, communications, and data transmission lines grounding shall be installed as necessary to preclude ground loops, noise, and surges from affecting system operation. Equipment, materials, installation, workmanship, inspection, and testing shall be in accordance with manufacturers' recommendations and as modified herein.
- B. Consult the manufacturers' installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation. Refer to the Riser/Connection diagram for all schematic system installation/termination/wiring data.
- C. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., sensors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

3.02 EXAMINATION

- A. Examine pathway elements intended for cables. Check raceways, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation.
- B. Examine roughing-in for control cable conduit systems, Controllers, card readers, and other cable-connected devices to verify actual locations of conduit and back boxes before device installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.03 CABLING

- A. Comply with NECA 1, "Good Workmanship in Electrical Contracting."
- B. Install cables without damaging conductors, shield, or jacket.
- C. Boxes and enclosures containing security system components or cabling, and which are easily accessible to employees or to the public, shall be provided with a lock. Boxes above ceiling level in occupied areas of the building shall not be considered to be accessible. Junction boxes and small device enclosures below ceiling level and easily accessible to employees or the public shall be covered with a suitable cover plate and secured with tamperproof screws.

3.04 CABLE APPLICATION

- A. Comply with EIA/TIA-569, "Commercial Building Standard for Telecommunications Pathways and Spaces."
- B. Cable application requirements are minimum requirements and shall be exceeded if recommended or required by manufacturer of system hardware.
- C. RS-232 Cabling: Install at a maximum distance of 50 feet.
- D. RS-485 Cabling: Install at a maximum distance of 4000 feet.
- E. Card Readers and Keypads:

1. Install number of conductor pairs recommended by manufacturer for the functions specified.
 2. Unless manufacturer recommends larger conductors, install No. 22 AWG wire if maximum distance from Controller to the reader is 250 feet, and install No. 20 AWG wire if maximum distance is 500 feet.
 3. For greater distances, install "extender" or "repeater" modules recommended by manufacturer of the Controller.
 4. Install minimum No. 18 AWG shielded cable to readers and keypads that draw 50 mA or more.
- F. Install minimum No. 16 AWG cable from Controller to electrically powered locks. Do not exceed 500 feet of cable.
- G. Install minimum No. 18 AWG ac power wire from transformer to Controller, with a maximum distance of 25 feet of cable.

3.05 INSTALLATION

- A. System installation shall be in accordance with UL 294, manufacturer and related documents and references, for each type of security device installed.
- B. Control Panels:
1. Connect power and signal lines to the controller.
 2. Program the panel as outlined by the design and per the manufacturer's programming guidelines.
- C. Card Readers:
1. Connect all signal inputs and outputs as shown and specified.
 2. Terminate input signals as required.
 3. Program and address the reader as per the design package.
 4. Readers shall be surface or flushed mounted and all appropriate hardware shall be provided to ensure the unit is installed in an enclosed conduit system.

3.06 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Perform the following field tests and inspections and prepare test reports:
1. Test each circuit and component of each system. Tests shall include, but are not limited to, measurements of power supply output under maximum load, signal loop resistance, and leakage to ground where applicable.
 2. Operational Test: After installation of cables and connectors, demonstrate product capability and compliance with requirements. Test each signal path for

end-to-end performance from each end of all pairs installed. Remove temporary connections when tests have been satisfactorily completed.

END OF SECTION

PART 1 GENERAL**1.01 SUMMARY**

- A. Excavating for footings, slabs-on-grade, trenches, pits, curbs, and paving; backfill and compaction of sub-grade, base and trenches.
- B. Excavated materials shall be removed from site and costs for transportation and removal included in Bid.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Submit list and source of materials to be used in the Work.

1.04 QUALITY ASSURANCE

- A. Verify that survey benchmark and intended elevations for the Work are as indicated.
- B. Comply with State of California Construction Safety Orders (CAL/OSHA)

1.05 UTILITY DISCONNECTS

- A. Coordinate directly with County for any utility disconnects.
- B. Notify Owner 72 hours prior to any excavation.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. General: Fill material will be subject to approval of the Geotechnical Engineer.
- B. Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2 inches in any dimension, debris, waste, vegetation, and other unsuitable materials. Local and import fill should have less than 15% fines and a plasticity index (PI) of less than 20.

- C. Aggregate Base: Class 2 conforming to Caltrans Specification Section 26, maximum size 3/4 inches; compact to minimum of 95 percent.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Locate, identify, and protect utilities that remain from damage.
- C. Notify utility company to remove and relocate utilities if required.
- D. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.02 EXCAVATION AND COMPACTING

- A. Saw cut all cuts into asphalt and/or concrete surfaces.
- B. Excavate subsoil to accommodate building foundations, paving and site structures, construction operations, and as indicated on Drawings and/or in attached Project Geotechnical Report.
- C. Cover soils stockpiles. Stockpiles shall be covered daily and covers maintained as well as perimeter erosion control.
- D. Compact disturbed load-bearing soil in direct contact with foundations to original bearing capacity; perform compaction as directed by Geotechnical Engineer.
- E. Support trench excavations in compliance with local codes and safety regulations.
- F. Sheet Pile or shore all excavations as required.
- G. Do not interfere with 45 degree bearing splay under foundations except at pile foundations or where shoring is designed to resist earth and foundation pressures without permitting any settlements of foundations, slabs, or similar structures.
- H. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- I. Hand trim excavation. Remove loose matter.
- J. Remove lumped subsoil, boulders, and rock larger than 2 inches in diameter.
- K. Correct areas over-excavated as directed by Geotechnical Engineer.
- L. Do not backfill trenches until tests and inspections have been made.
- M. Compact to minimum of 95 percent dry density (ASTM 1557) in planted areas and a minimum of 95 percent dry density (ASTM 1557) in paved areas.

- N. Footing bottoms should be free of loose debris and should be firm and unyielding as approved by the project Geotechnical Engineer prior to placement of steel and concrete.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This Section describes the requirements for providing and installing temporary erosion control structures.

1.02 RELATED SECTIONS

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 QUALITY ASSURANCE

- A. Reference Standards
 - 1. California Stormwater Quality Association (CASQA) "Stormwater Best Management Practice Handbook for Construction".
 - 2. State Water Resources Control Board (SWRCB) standards
 - 3. California Stormwater Quality Association "Stormwater Best Management Practice Handbook" for Construction and Industrial and Commercial Development, latest edition.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Data, Reports and Certifications:
 - 1. Materials used.
 - 2. Erosion Control Point of Contract

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Furnish and install the following as specified herein and required to eliminate potential erosion and sedimentation during construction works.
 - 1. Outlet structure, basins, ditches

2. Filter fabric, and/or mesh
3. Concrete washout
4. Fiber rolls
5. Inlet protection
6. Stabilized construction entrance
7. Straw waddles

PART 3 EXECUTION**3.01 PROCEDURES.**

- A. Erosion and sedimentation control measures are to be installed in areas as indicated and as directed by governing regulations.
- B. Erosion and sedimentation control measures shall be adjusted, relocated or new controls established for each phase of construction and for specific construction activities that may disturb soils and contribute to erosion.

END OF SECTION

PART 1 GENERAL**1.01 DESCRIPTION**

- A. This section shall cover site work concrete constructed upon the prepared subgrade and in conformance with the lines, grades, thickness, and cross sections shown. Construction shall include the following:
1. Curb, gutter, and combination curb and gutter.
 2. Pedestrian Pavement: Walks and curb ramps.
 3. Transformer and Emergency Generator slabs, walls, and footings.
 4. Exterior retaining walls.
 5. Exterior stairs and landings.
 6. Light, sign and bollard foundations.
 7. Site furnishings foundations.
 8. Fencing and gate foundations.
 9. Vehicle charging equipment foundations.
 10. Accessible Parking Stalls
 11. Miscellaneous exterior formed and unformed concrete.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 DESIGN REQUIREMENTS

- A. Design all elements with the latest published version of applicable codes.

1.04 WEATHER LIMITATIONS

- A. Placement of concrete shall be in conformance with ACI as specified under Section 03 30 00, CAST-IN-PLACE CONCRETE.

1.05 SELECT SUBBASE MATERIAL JOB-MIX

- A. The Contractor shall retain and reimburse a testing laboratory to design a select subbase material mixture and submit a job-mix formula to the Owner's Representative, in writing, for approval. The formula shall include the source of materials, gradation, plasticity index, liquid limit, and laboratory compaction curves indicating maximum density at optimum moisture.

1.06 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Manufacturers' Certificates and Data certifying that the following materials conform to the requirements specified.
 - 1. Expansion joint filler
 - 2. Hot poured sealing compound
 - 3. Reinforcement
 - 4. Curing materials
- C. Data and Test Reports: Select subbase material.
 - 1. Job-mix formula.
 - 2. Source, gradation, liquid limit, plasticity index, percentage of wear, and other tests as specified and in referenced publications.

1.07 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Refer to the latest edition of all referenced Standards and codes.
- B. American Association of State Highway and Transportation Officials (AASHTO):
 - M031MM031-07-UL Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement (ASTM A615/A615M-09)
 - M055MM055-09-UL Steel Welded Wire Reinforcement, Plain, for Concrete (ASTM A185)
 - M147-65-UL Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses (R 2004)
 - M148-05-UL Liquid Membrane-Forming Compounds for Curing Concrete (ASTM C309)
 - M171-05-UL Sheet Materials for Curing Concrete (ASTM C171)
 - M182-05-UL Burlap Cloth Made from Jute or Kenaf and Cotton Mats

M213-01-UL Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Type) (ASTM D1751)

M233-86-UL Boiled Linseed Oil Mixer for Treatment of Portland Cement Concrete

T099-09-UL Moisture-Density Relations of Soils Using a 2.5 kg. (5.5 lb) Rammer and a 305 mm (12 in.) Drop

T180-09-UL Moisture-Density Relations of Soils Using a 4.54 kg (10 lb.) Rammer and a 457 mm (18 in.) Drop

C. American Society for Testing and Materials (ASTM):

C94/C94M-09 Ready-Mixed Concrete

C143/C143M-09 Slump of Hydraulic Cement Concrete

PART 2 PRODUCTS

2.01 GENERAL

- A. Concrete shall be Type C, air-entrained as specified in Section 03 30 00, CAST-IN-PLACE CONCRETE, with the following exceptions:

TYPE	MAXIMUM SLUMP*
Curb & Gutter	75 mm (3")
Pedestrian Pavement	75 mm (3")
* For concrete to be vibrated: Slump as determined by ASTM C143. Tolerances as established by ASTM C94.	

2.02 REINFORCEMENT

- A. The type, amount, and locations of steel reinforcement shall be as shown on the drawings and in the specifications.
- B. Welded wire-fabric shall conform to AASHTO M55.
- C. Dowels shall be plain steel bars conforming to AASHTO M31. Tie bars shall be deformed steel bars conforming to AASHTO M31.

2.03 SELECT SUBBASE (WHERE REQUIRED)

- A. Subbase material shall conform to Section 31 23 00 "Excavating Backfilling and Compacting" and as shown on the Drawings.
- B. Subbase material shall produce a compacted, dense-graded course, meeting the density requirement specified in these specifications and drawings.

2.04 FORMS

- A. Use metal or wood forms that are straight and suitable in cross-section, depth, and strength to resist springing during depositing and consolidating the concrete, for the work involved.
- B. Do not use forms if they vary from a straight line more than 3 mm (1/8 inch) in any 3000 mm (ten foot) long section, in either a horizontal or vertical direction.
- C. Wood forms should be at least 50 mm (2 inches) thick (nominal). Wood forms shall also be free from warp, twist, loose knots, splits, or other defects. Use approved flexible or curved forms for forming radii.

2.05 CONCRETE CURING MATERIALS

- A. Concrete curing materials shall conform to one of the following:
 - 1. Burlap conforming to AASHTO M182 having a weight of 233 grams (seven ounces) or more per square meter (yard) when dry.
 - 2. Impervious Sheeting conforming to AASHTO M171.
 - 3. Liquid Membrane Curing Compound conforming to AASHTO M148 (ASTM C309), and shall be free of paraffin or petroleum.

2.06 EXPANSION JOINT FILLERS

- A. Material shall conform to AASHTO M213.

PART 3 EXECUTION

3.01 SUBGRADE PENETRATION

- A. Prepare, construct, and finish the subgrade as specified in Section 31 23 00, Excavating Backfilling and Compacting.
- B. Maintain the subgrade in a smooth, compacted condition, in conformance with the required section and established grade until the succeeding operation has been accomplished.

3.02 SELECT SUBBASE (WHERE REQUIRED)

- A. Mixing: Proportion the select subbase by weight or by volume in quantities so that the final approved job-mixed formula gradation, liquid limit, and plasticity index requirements will be met after subbase course has been placed and compacted. Add water in approved quantities, measured by weight or volume, in such a manner to produce a uniform blend.
- B. Placing:
 - 1. Place the mixed material on the prepared subgrade in a uniform layer to the required contour and grades, and to a loose depth not to exceed 200 mm (8

inches), and that when compacted, will produce a layer of the designated thickness.

2. When the designated compacted thickness exceeds 150 mm (6 inches), place the material in layers of equal thickness. Remove unsatisfactory areas and replace with satisfactory mixture, or mix the material in the area.
3. In no case will the addition of thin layers of material be added to the top layer in order to meet grade.
4. If the elevation of the top layer is 13 mm (1/2 inch) or more below the grade, excavate the top layer and replace with new material to a depth of at least 75 mm (3 inches) in compacted thickness.

C. Compaction:

1. Perform compaction with approved equipment (hand or mechanical) well suited to the material being compacted.
2. Moisten or aerate the material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used.
3. Compact each layer to at least 95 percent or 100 percent of maximum density as determined by AASHTO T180 or AASHTO T99 respectively.

D. Smoothness Test and Thickness Control:

Test the completed subbase for grade and cross section with a straight edge.

1. The surface of each layer shall not show any deviations in excess of 10 mm (3/8 inch).
2. The completed thickness shall be within 13 mm (1/2 inch) of the thickness as shown.

E. Protection:

1. Maintain the finished subbase in a smooth and compacted condition until the concrete has been placed.
2. When Contractor's subsequent operations or adverse weather disturbs the approved compacted subbase, excavate, and reconstruct it with new material meeting the requirements herein specified, at no additional cost to the Owner.

3.03 SETTING FORMS

A. Base Support:

1. Compact the base material under the forms true to grade so that, when set, they will be uniformly supported for their entire length at the grade as shown.
2. Correct imperfections or variations in the base material grade by cutting or filling and compacting.

B. Form Setting:

1. Set forms sufficiently in advance of the placing of the concrete to permit the performance and approval of all operations required with and adjacent to the form lines.
 2. Set forms to true line and grade and use stakes, clamps, spreaders, and braces to hold them rigidly in place so that the forms and joints are free from play or movement in any direction.
 3. Forms shall conform to line and grade with an allowable tolerance of 3 mm (1/8 inch) when checked with a straightedge and shall not deviate from true line by more than 6 mm (1/4 inch) at any point.
 4. Do not remove forms until removal will not result in damaged concrete or at such time to facilitate finishing.
 5. Clean and oil forms each time they are used.
- C. The Contractor's Registered Professional Land Surveyor shall establish and control the alignment and the grade elevations of the forms or concrete slipforming machine operations.
1. Make necessary corrections to forms immediately before placing concrete.
 2. When any form has been disturbed or any subgrade or subbase has become unstable, reset and recheck the form before placing concrete.

3.04 EQUIPMENT

- A. The Owner's Representative shall approve equipment and tools necessary for handling materials and performing all parts of the work prior to commencement of work.
- B. Maintain equipment and tools in satisfactory working condition at all times.

3.05 PLACING REINFORCEMENT

- A. Reinforcement shall be free from dirt, oil, rust, scale or other substances that prevent the bonding of the concrete to the reinforcement.
- B. Before the concrete is placed, the Owner's Representative shall approve the reinforcement, which shall be accurately and securely fastened in place with suitable supports and ties. The type, amount, and position of the reinforcement shall be as shown.

3.06 PLACING CONCRETE - GENERAL

- A. Obtain approval of the Owner's Representative before placing concrete.
- B. Remove debris and other foreign material from between the forms before placing concrete. Obtain approval of the Owner's Representative before placing concrete.
- C. Before the concrete is placed, uniformly moisten the subgrade, base, or subbase appropriately, avoiding puddles of water.
- D. Convey concrete from mixer to final place of deposit by a method which will prevent segregation or loss of ingredients. Deposit concrete so that it requires as little handling as possible.

- E. While being placed, spade or vibrate and compact the concrete with suitable tools to prevent the formation of voids or honeycomb pockets. Vibrate concrete well against forms and along joints. Over-vibration or manipulation causing segregation will not be permitted. Place concrete continuously between joints without bulkheads.
- F. Install a construction joint whenever the placing of concrete is suspended for more than 30 minutes and at the end of each day's work.
- G. Workmen or construction equipment coated with foreign material shall not be permitted to walk or operate in the concrete during placement and finishing operations.

3.07 PLACING CONCRETE FOR CURB AND GUTTER, PEDESTRIAN PAVEMENT, AND EQUIPMENT PADS

- A. Place concrete in the forms in one layer of such thickness that, when compacted and finished, it will conform to the cross section as shown.
- B. Deposit concrete as near to joints as possible without disturbing them but do not dump onto a joint assembly.
- C. After the concrete has been placed in the forms, use a strike-off guided by the side forms to bring the surface to the proper section to be compacted.
- D. Consolidate the concrete thoroughly by tamping and spading, or with approved mechanical finishing equipment.
- E. Finish the surface to grade with a wood or metal float.
- F. All Concrete pads and pavements shall be constructed with sufficient slope to drain properly.

3.08 PLACING CONCRETE FOR VEHICULAR PAVEMENT

- A. Deposit concrete into the forms as close as possible to its final position.
- B. Place concrete rapidly and continuously between construction joints.
- C. Strike off concrete and thoroughly consolidate by a finishing machine, vibrating screed, or by hand-finishing.
- D. Finish the surface to the elevation and crown as shown.
- E. Deposit concrete as near the joints as possible without disturbing them but do not dump onto a joint assembly. Do not place adjacent lanes without approval by the Owner's Representative.

3.09 CONCRETE FINISHING - GENERAL

- A. The sequence of operations, unless otherwise indicated, shall be as follows:
 - 1. Consolidating, floating, straight-edging, troweling, texturing, and edging of joints.
 - 2. Maintain finishing equipment and tools in a clean and approved condition.

3.10 CONCRETE FINISHING CURB AND GUTTER

- A. Round the edges of the gutter and top of the curb with an edging tool to a radius of 1/4 inch or as otherwise detailed.
- B. Float the surfaces and finish with a smooth wood or metal float until true to grade and section and uniform in textures.
- C. Finish the surfaces, while still wet, with a bristle type brush with longitudinal strokes.
- D. Immediately after removing the front curb form, rub the face of the curb with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. Brush the surface, while still wet, in the same manner as the gutter and curb top.
- E. Except at grade changes or curves, finished surfaces shall not vary more than 1/8 inch for gutter and 1/4 inch for top and face of curb, when tested with a 10 foot straightedge.
- F. Remove and reconstruct irregularities exceeding the above for the full length between regularly scheduled joints.
- G. Correct any depressions which will not drain.
- H. Visible surfaces and edges of finished curb, gutter, and combination curb and gutter shall be free of blemishes, form marks, and tool marks, and shall be uniform in color, shape, and appearance.

3.11 CONCRETE FINISHING PEDESTRIAN PAVEMENT

- A. Walks, Wheelchair Curb Ramps:
 - 1. Finish the surfaces to grade and cross section with a metal float, trowled smooth and finished with a broom moistened with clear water.
 - 2. Medium brooming shall be transverse to the line of traffic.
 - 3. Finish all slab edges, including those at formed joints, carefully with an edger having a radius as shown on the Drawings.
 - 4. Unless otherwise indicated, edge the transverse joints before brooming. The brooming shall eliminate the flat surface left by the surface face of the edger. Execute the brooming so that the corrugation, thus produced, will be uniform in appearance and not more than 1/16 inch in depth.
 - 5. The completed surface shall be uniform in color and free of surface blemishes, form marks, and tool marks. The finished surface of the pavement shall not vary more than 3/16 inch when tested with a 10 foot straightedge.
 - 6. The thickness of the pavement shall not vary more than 1/4 inch.
 - 7. Remove and reconstruct irregularities exceeding the above for the full length between regularly scheduled joints.

3.12 JOINTS - GENERAL

- A. Place joints, where shown, conforming to the details as shown, and perpendicular to the finished grade of the concrete surface.
- B. Joints shall be straight and continuous from edge to edge of the pavement.

3.13 EXPANSION JOINTS

- A. Use a preformed expansion joint filler material of the thickness as shown to form expansion joints.
- B. Material shall extend the full depth of concrete, cut and shaped to the cross section as shown, except that top edges of joint filler shall be below the finished concrete surface where shown to allow for sealing.
- C. Anchor with approved devices to prevent displacing during placing and finishing operations.
- D. Round the edges of joints with an edging tool.
- E. Form expansion joints as follows:
 - 1. Without dowels, about structures and features that project through, into, or against any site work concrete construction.
 - 2. Using joint filler of the type, thickness, and width as shown.
 - 3. Installed in such a manner as to form a complete, uniform separation between the structure and the site work concrete item.

3.14 CONSTRUCTION JOINTS

- A. Locate longitudinal and transverse construction joints between slabs as shown.
- B. Place transverse construction joints of the type shown, where indicated and whenever the placing of concrete is suspended for more than 30 minutes.
- C. Use a butt-type joint with dowels in curb and gutter if the joint occurs at the location of a planned joint.
- D. Use keyed joints with tiebars if the joint occurs in the middle third of the normal curb and gutter joint interval.

3.15 FORM REMOVAL

- A. Forms shall remain in place at least 12 hours after the concrete has been placed. Remove forms without injuring the concrete.
- B. Do not use bars or heavy tools against the concrete in removing the forms. Promptly repair any concrete found defective after form removal.

3.16 CURING OF CONCRETE

- A. Cure concrete by one of the following methods appropriate to the weather conditions and local construction practices, against loss of moisture, and rapid temperature changes for at least seven days from the beginning of the curing operation. Protect unhardened concrete from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready to install before actual concrete placement begins. Provide protection as necessary to prevent cracking of the pavement due to temperature changes during the curing period. If any selected method of curing does not afford the proper curing and protection against concrete cracking, remove and replace the damaged pavement and employ another method of curing as directed by the Owner's Representative.
- B. Burlap Mat: Provide a minimum of two layers kept saturated with water for the curing period. Mats shall overlap each other at least 150 mm (6 inches).
- C. Impervious Sheeting: Use waterproof paper, polyethylene-coated burlap, or polyethylene sheeting. Polyethylene shall be at least 0.1 mm (4 mils) in thickness. Wet the entire exposed concrete surface with a fine spray of water and then cover with the sheeting material. Sheets shall overlap each other at least 300 mm (12 inches). Securely anchor sheeting.
- D. Liquid Membrane Curing:
 - 1. Apply pigmented membrane-forming curing compound in two coats at right angles to each other at a rate of 5 m²/L (200 square feet per gallon) for both coats.
 - 2. Do not allow the concrete to dry before the application of the membrane.
 - 3. Cure joints designated to be sealed by inserting moistened paper or fiber rope or covering with waterproof paper prior to application of the curing compound, in a manner to prevent the curing compound entering the joint.
 - 4. Immediately re-spray any area covered with curing compound and damaged during the curing period.

3.17 CLEANING

- A. After completion of the curing period:
 - 1. Remove the curing material (other than liquid membrane).
 - 2. Sweep the concrete clean.
 - 3. After removal of all foreign matter from the joints, seal joints as herein specified.
 - 4. Clean the entire concrete of all debris and construction equipment as soon as curing and sealing of joints has been completed.

3.18 PROTECTION

- A. The contractor shall protect the concrete against all damage prior to final acceptance by the Owner. Remove concrete containing excessive cracking, fractures, spalling, or other defects and reconstruct the entire section between regularly scheduled joints, when

directed by the Owner's Representative, and at no additional cost to the Owner. Exclude traffic from vehicular pavement until the concrete is at least seven days old, or for a longer period of time if so directed by the Owner's Representative.

3.19 FINAL CLEAN-UP

- A. Remove all debris, rubbish and excess material from the site.

END OF SECTION

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PART 1 GENERAL**1.01 DESCRIPTION**

- A. This work shall cover the composition, mixing, construction upon the prepared subgrade, and the protection of hot asphalt concrete pavement. The hot asphalt concrete pavement shall consist of an aggregate or asphalt base course and asphalt surface course constructed in conformity with the lines, grades, thickness, and cross sections as shown. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.
- B. This Section includes specifications for constructing new asphalt concrete wearing surface Type A, 1/2-inch maximum with medium grading.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 ALIGNMENT AND GRADE CONTROL

- A. The Contractor's Registered Professional Land Surveyor shall establish and control the pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on the Drawings.

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Data and Test Reports:
 - 1. Aggregate Base Course: Sources, gradation, liquid limit, plasticity index, percentage of wear, and other tests required by Section 39 of Caltrans Standard Specifications (CTSS).
 - 2. Asphalt Base/Surface Course: Aggregate source, gradation, soundness loss, percentage of wear, and other tests required by Section 39 of CTSS.
 - 3. Job-mix formula.
- C. Certifications:
 - 1. Asphalt prime and tack coat material certificate of conformance to Section 39 of CTSS requirements.

2. Asphalt cement certificate of conformance to CTSS requirements.
3. Job-mix certification - Submit plant mix certification that mix equals or exceeds Section 39 of CTSS.
4. Prior to starting construction, the Contractor shall submit the asphalt concrete mix design including the amount of asphalt binder to be mixed with the dry aggregate to the Engineer for approval. No resurfacing work will be allowed prior to the approval of the mix design. Asphalt concrete mix design shall conform to Section 39 of CTSS.
5. The Contractor shall submit electronic copies of manufacturer's literature, specifications, applications and installations for filler and/or sealer material to the Owner's Representative for approval at least five (5) calendar days in advance of performing the filling and/or sealing work.

1.05 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Refer to the latest edition of all referenced Standards and codes.
- B. State of California Department of Transportation (CalTrans):
 1. Standard Specifications (CTSS)

PART 2 PRODUCTS

2.01 GENERAL

- A. Aggregate base, Asphaltic base and asphalt concrete materials shall conform to the requirements of the following and other appropriate sections of the latest version of Section 39 of CTSS, including amendments, addenda and errata. Where the term "Engineer" is referenced in Section 39 of CTSS, it shall mean the Owner's Representative.

2.02 MATERIALS

- A. Asphalt: In accordance with the requirements of Section 39-2.01 of CTSS, except that asphalt shall be either PG 64-10 or AR-4000.
- B. Aggregate: In accordance with the requirements of Section 39-2.02 of CTSS, except that aggregate grading shall be as follows:

Sieve Sizes	Limits of Proposed Gradation	Operating Range	Contract Compliance
3/4"	-----	100	100
1/2"	-----	95-100	89-100
3/8"	-----	80-95	75-100
No. 4	59-66	X±5	X±8

No. 8	43-49	X±5	X±8
No. 30	22-27	X±5	X±8
No. 200	-----	3-8	0-11

C. Minimum Durability Index: When tested in accordance with Caltrans Test Method 229 shall be 50.

D. Tack coat in accordance with Section 39 of CTSS.

2.03 EQUIPMENT

A. Spreading Equipment: In accordance with the requirements of Section 39 of CTSS.

B. Compacting Equipment: In accordance with the requirements of Section 9 of CTSS.

PART 3 EXECUTION

3.01 GENERAL

A. The Asphalt Concrete Paving equipment, weather limitations, job-mix formula, mixing, construction methods, compaction, finishing, tolerance, and protection shall conform to the requirements of the appropriate sections of Section 39 of CTSS for the type of material specified.

3.02 MIXING ASPHALTIC CONCRETE MATERIALS

A. Provide hot plant-mixed asphaltic concrete paving materials.

1. Temperature leaving the plant: 143 degrees C (290 degrees F) minimum, 160 degrees C (320 degrees F) maximum.
2. Temperature at time of placing: 138 degrees C (280 degrees F) minimum.

3.03 SUBGRADE

- A. Shape to line and grade and compact with self-propelled rollers.
- B. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.
- C. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.
- D. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.
- E. Proof-roll the subgrade with maximum 50 ton gross weight dump truck as directed by Owner's Representative. If pumping, pushing, or other movement is observed, rework the area to provide a stable and compacted subgrade.

3.04 BASE COURSES

A. Base:

1. Spread and compact to the thickness shown on the drawings.
2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
3. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the top course.

C. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0mm (0.0") to plus 12.7mm (0.5").

D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 5mm in 3m (3/16 inch in ten feet).

E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

3.05 PLACEMENT OF ASPHALTIC CONCRETE PAVING

A. Remove all loose materials from the compacted base.

B. Apply the specified prime coat, and tack coat where required, and allow to dry in accordance with the manufacturer's recommendations as approved by the Owner.

C. Receipt of asphaltic concrete materials:

1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 130 degrees C (280 degrees F).
2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 10 degrees C (50 degrees F), not during fog, rain, or other unsuitable conditions.

D. Spreading:

1. Spread material in a manner that requires the least handling.
2. Where thickness of finished paving will be 76mm (3") or less, spread in one layer.

E. Rolling:

1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the drawings.
2. Roll in at least two directions until no roller marks are visible.
3. Finished paving smoothness tolerance:
 - a. No depressions which will retain standing water.

- b. No deviation greater than 3mm in 1.8m (1/8" in six feet).

3.06 APPLICATION OF SEAL COAT

- A. Prepare the surfaces, mix the seal coat material, and apply in accordance with the manufacturer's recommendations as approved by the Owner.
- B. Apply one coat of the specified sealer.
- C. Achieve a finished surface seal which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities.

3.07 PROTECTION

- A. Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

3.08 FINAL CLEAN-UP

- A. Remove all debris, rubbish, and excess material from the work area.

END OF SECTION

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PART 1 GENERAL**1.01 DESCRIPTION**

- A. Section includes specifications for precast concrete wheel stops for vehicular parking stalls in parking structures and parking lots as indicated.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCE STANDARDS

- A. State of California, Department of Transportation Caltrans, Standard Specifications (CTSS)

1.04 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples.
- B. Product Data: Submit manufacturers' product data of precast stops and epoxy adhesive for approval.

1.05 QUALITY ASSURANCE:

- A. Precast wheel stops shall be manufactured for the intended purpose by a company or firm specializing in the manufacture of precast concrete parking appurtenances.

PART 2 PRODUCTS**2.01 MATERIALS**

- A. Wheel Stops: Precast, 3.5% minimum air-entrained concrete; 4000 psi minimum compressive strength. Each stop shall be reinforced with two No. 4 deformed steel reinforcing bars, minimum. Provide chamfered corners and drainage slots on underside, and provide holes for dowel-anchoring to substrate. Unless indicated otherwise, provide stops of half octagonal configuration and 30-inch length.
- B. Adhesive for Anchoring Stops to Concrete Slabs, At-Grade Concrete Pavements, and At-Grade Asphalt Pavements: Epoxy adhesive manufactured for the purpose, similar and equal to the adhesives specified in Caltrans Standard Specifications, Section 95-2.04 or 95-2.05.

- C. Adhesive for Bonding Dowel to Wheel Stop: As proposed by Contractor and approved by the Engineer, suitable for application.
- D. Steel Bars for Installation: Galvanized 5/8" diameter steel dowels or galvanized

PART 3 EXECUTION

3.1 INSTALLATION

- A. Securely attach wheel stops into at-grade concrete and at-grade asphalt pavement with not less than two galvanized steel dowels embedded in holes cast into wheel stops. Firmly bond each dowel to wheel stop and to pavement.
- B. At concrete pavement, drill holes in pavement for dowels.

END OF SECTION

PART 1 GENERAL**1.01 DESCRIPTION**

- A. This work shall consist of furnishing and applying paint areas restricted to accessible stalls, crosswalks, energy stalls, and other detail pavement markings, in accordance with the details as shown or as prescribed by the Owner's Representative. Conform to the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the U.S. Department of Transportation, Federal Highway Administration, CBC 2016, 11B and ADAAG 2010 for details not shown.

1.02 RELATED WORK

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 SUBMITTALS

- A. Submit in accordance with Division 01, Submittals, Shop Drawings Product Data and Samples
- B. Furnish Manufacturer's Certificates and Data certifying that the following materials conform to the requirements specified:
1. Paint.

1.04 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Federal Specifications (Fed. Spec.):
- TT-B-1325CBeads (Glass Spheres); Retro-Reflective
- TT-P-1952DPaint, Traffic Black, and Airfield Marking, Waterborne
- C. Master Painters Institute (MPI):
- Approved Product List – 2019

PART 2 PRODUCTS**2.01 PAINT**

- A. Paint for marking pavement (parking lot and zone marking) shall conform to MPI No. 97, color as shown. Paint for obliterating existing markings shall conform to Fed. Spec. TT-P-1952D. Paint shall be in containers of at least 5 gallons. A certificate shall accompany each batch of paint stating compliance with the applicable publication.

2.02 PAINT APPLICATOR

- A. Apply all marking by approved mechanical equipment. The equipment shall provide constant agitation of paint and travel at controlled speeds. Synchronize one or more paint "guns" to automatically begin and cut off paint flow in the case of skip lines. The equipment shall have manual control to apply continuous lines of varying length and marking widths as shown. Provide pneumatic spray guns for hand application of paint in areas where a mobile paint applicator cannot be used. If the equipment does not have a glass bead dispenser, use a separate piece of equipment. An experienced technician that is thoroughly familiar with equipment, materials, and marking layouts shall control all painting equipment and operations.

PART 3 EXECUTION**3.01 SURFACE PREPARATION**

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Thoroughly clean all surfaces to be marked before application of paint. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement with scrapers, wire brushings, sandblasting, mechanical abrasion, or approved chemicals as directed by the Owner's Representative. The application of paint conforming to Fed. Spec. TT-P-1952D is an option to removal of existing paint markings on asphalt pavement. Apply the black paint in as many coats as necessary to completely obliterate the existing markings. Where oil or grease are present on old pavements to be marked, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application. After cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint. Pavement marking shall follow as closely as practicable after the surface has been cleaned and dried, but do not begin any marking until the Owner's Representative has inspected the surface and gives permission to proceed. The Contractor shall establish control points for marking and provide templates to control paint application by type and color at necessary intervals. The Contractor is responsible to preserve and apply marking in conformance with the established control points.

3.02 APPLICATION

- A. Apply uniformly painted and reflective pavement marking of required color(s), length, and width with true, sharp edges and ends on properly cured, prepared, and dried surfaces in conformance with the details as shown and established control points. The length and width of lines shall conform within a tolerance of plus or minus 3 inches and plus or minus

1/8 inch, respectively, in the case of skip markings. The length of intervals shall not exceed the line length tolerance. Temperature of the surface to be painted and the atmosphere shall be above 50 degrees F and less than 95 degrees F. Apply the paint at a wet film thickness of 0.015 inch. Disperse reflective glass beads evenly on the wet paint at a rate of 6 pounds per gallon of paint. Apply paint in one coat. At the direction of the Owner's Representative, markings showing light spots may receive additional coats. The maximum drying time requirements of the paint specifications will be strictly enforced, to prevent undue softening of asphalt, and pick-up, displacement, or discoloration by tires of traffic. If there is a deficiency in drying of the marking, discontinue paint operations until cause of the slow drying is determined and corrected. Remove and replace marking that is applied at less than minimum material rates; deviates from true alignment; exceeds stipulated length and width tolerances; or shows light spots, faulty distribution of beads, smears, or other deficiencies or irregularities. Use carefully controlled sand blasting, approved grinding equipment, or other approved method to remove marking so that the surface to which the marking was applied will not be damaged.

3.03 PROTECTION

- A. Conduct operations in such a manner that necessary traffic can move without hindrance. Protect the newly painted markings so that, insofar as possible, the tires of passing vehicles will not pick up paint. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic. Efface and replace damaged portions of markings at no additional cost to the Owner.

3.04 DETAIL PAVEMENT MARKING

- A. Use Detail Pavement Markings, exclusive of actual traffic lane marking, at exit and entrance islands and turnouts, on curbs, at crosswalks, at parking bays, and at such other locations as shown. Show the International Accessibility Symbol at indicated parking spaces. Color shall be as shown. Apply paint for the symbol using a suitable template that will provide a pavement marking with true, sharp edges and ends. Place detail pavement markings of the color(s), width(s) and length(s), and design pattern at the locations shown.

3.05 FINAL CLEAN-UP

- A. Remove all debris, rubbish and excess material from the site.

END OF SECTION

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PART 1 GENERAL**1.01 SUMMARY**

- A. This Section specifies furnishing and installing Cast In Place Detectable/Tactile Warning Surface Tiles where indicated. Not recommended for asphalt applications.

1.02 RELATED SECTIONS: Section(s) related to this section include:

- A. Drawings All Sections listed in the Table of Contents are a Condition of this Section.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's literature describing products, installation procedures and routine maintenance.
- B. Samples for Verification Purposes: Submit two (2) tile samples minimum 12"x12" of the kind proposed for use.
- C. Shop drawings are required for products specified showing fabrication details, composite structural system, tile surface profile, sound on cane contact amplification feature, plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.
- D. Material Test Reports: Submit complete test reports from qualified accredited independent testing laboratories to qualify that materials proposed for use are in compliance with requirements and meet or exceed the properties indicated on the specifications. All tests shall be conducted on a Cast In Place Detectable/Tactile Warning Surface Tile system as certified by a qualified independent testing laboratory.
- E. Maintenance Instructions: Submit copies of manufacturer's specified installation and maintenance practices for each type of Detectable Warning Surface Tile and accessory as required.

1.04 QUALITY ASSURANCE

- A. Provide Cast In Place Detectable/Tactile Warning Surface Tiles and accessories as produced by a single manufacturer with a minimum of five (5) years' experience in the manufacturing of Cast In Place Detectable/Tactile Warning Surface Tiles.
- B. Installer's Qualifications: Engage an experienced Installer certified in writing by Cast In Place Detectable/Tactile Warning Surface Tile manufacturer as qualified for installation, who has successfully completed installations similar in material, design, and extent to that indicated for Project.
- C. Americans with Disabilities Act (ADA): Provide Surface Applied Detectable/Tactile Warning Surface Tiles which comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES).
- D. California Code of Regulations (CCR): Provide only approved DSAAC detectable warning products as provided in the California Code of Regulations (CCR) Title 24, Chapter 2,

Section 202 definition of "Detectable Warning". Section 11B-247 and 11B-705 "Detectable Warnings And Detectable Directional Texture"

- E. Vitrified Polymer Composite (VPC) Cast in Place Warning tiles shall include continuous strand woven fiberglass sheet matrix embedded within an epoxy polymer composition with a ultra-violet coating employing aluminum oxide particles in the truncated domes. The tile shall incorporate an in-line pattern of truncated domes measuring nominal 0.2" height, 0.9" base diameter, and 0.45" top diameter, spaced center-to-center 2.35" to 2.40 as measured "In Line". For wheelchair safety the field area shall consist of a non-slip surface with a minimum of 40 - 90° raised points 0.045" high, per square inch.
1. Dimensions: Cast In Place Detectable/Tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:

Length and Width: 36" x 60"

Nominal Depth: 1.375 (1-3/8") (+/-) 5% max.

Face Thickness: 0.1875 (1 3/8") (+/-) 5% max.

Warpage of Edge: 0.5% max.

Embedment Flange Spacing: shall be no greater than 3.1"
 2. Water Absorption of Tile when tested by ASTM D 570-98 not to exceed 0.05%.
 3. Slip Resistance of Tile when tested by ASTM C 1028-96 the combined Wet and Dry Static Co-Efficients of Friction not to be less than 0.80 on top of domes and field area.
 4. Compressive Strength of Tile when tested by ASTM D 695-02a not to be less than 28,000 psi.
 5. Tensile Strength of Tile when tested by ASTM D 638-03 not to be less than 19,000 psi.
 6. Flexural Strength of Tile when tested by ASTM D 790-03 not to be less than 25,000 psi.
 7. Chemical Stain Resistance of Tile when tested by ASTM D 543-95 (re approved 2001) to withstand without discoloration or staining - 10% hydrochloric acid, urine, saturated calcium chloride, black stamp pad ink, chewing gum, red aerosol paint, 10% ammonium hydroxide, 1% soap solution, turpentine, Urea 5%, diesel fuel and motor oil.
 8. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM D 2486-00 with reciprocating linear motion of 37± cycles per minute over a 10" travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block is to be

3.2 lb. Average wear depth shall not exceed 0.060 after 1000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample.
 9. Resistance to Wear of Unglazed Ceramic Tile by Taber Abrasion per ASTM C501-84 (re approved 2002) shall not be less than 500.
 10. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of

not less than 550 in. lbf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen.

11. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3000 hours shall exhibit the following result – $\Delta E < 4.5$, as well as no deterioration, fading or chalking of surface of tile color No 33538
12. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.
13. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 200 hours of exposure.
14. AASHTO HB-17 single wheel HS20-44 loading “Standard Specifications for Highways and Bridges”. The Cast In Place Tile shall be mounted on a concrete platform with a ½” airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.
15. Embedment flange spacing shall be no greater than 3.1” center to center spacing as illustrated on the product Cast In Place drawing.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Cast In Place Detectable/Tactile Warning Surface Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy plastic wrappings to protect tile from concrete residue during installation and tile type shall be identified by part number.
- B. Cast In Place Detectable/Tactile Warning Surface Tiles shall be delivered to location at building site for storage prior to installation.

1.06 SITE CONDITIONS

- A. Environmental Conditions and Protection: Maintain minimum temperature of 40°F in spaces to receive Cast In Place Detectable/Tactile Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.
- B. The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public.

1.07 GUARANTEE

- A. Cast In Place Detectable/Tactile Warning Surface Tiles shall be guaranteed in writing for a period of five (5) years from date of final completion. The guarantee includes defective work, breakage, deformation, fading and loosening of tiles.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-Of-Design Manufacturer: "Armor-Tile" as manufactured by Engineered Plastics Inc., Tel: 800-682-2525, or approved equal.
- B. Product: The Vitrified Polymer Composite (VPC) Cast In Place Detectable/Tactile Warning Surface Tile.
- C. Color: Yellow conforming to Federal Color No. 33538. Color shall be homogeneous throughout the tile.

PART 3 EXECUTION

3.01 INSTALLATION

- A. During Cast In Place Detectable/Tactile Warning Surface Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- B. Prior to placement of the Cast In Place Detectable/Tactile Warning Surface Tile system, review manufacturer and contract drawings with the Contractor prior to the construction and refer any and all discrepancies to the Engineer.
- C. The specifications of the structural embedment flange system and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers. Not recommended for asphalt applications.
- D. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 - 7 to permit solid placement of the Cast In Place Detectable/Tactile Warning Surface Tile system. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (25 lb) shall be placed on each tile.
- E. The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 25 lb. weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism such as that manufactured by Vibco can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.
- F. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- G. When preparing to set the tile, it is important that no concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.
- H. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed true and square to the curb edge in accordance with the contract drawings. The Cast In Place

Detectable/Tactile Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting which can result in air voids under the tile surface. The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

- I. In cold weather climates it is recommended that the Cast In Place Detectable/Tactile Warning Surface Tiles be set deeper such that the top of domes are level to the adjacent concrete on the top and sides of ramp and that the base of domes to allow water drainage. This installation will reduce the possibility of damage due to snow clearing operations.
- J. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates. Ensure that the field surface of the tile is flush with the surrounding concrete and back of curb so that no ponding is possible on the tile at the back side of curb.
- K. While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.
- L. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external forces placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- M. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 25 lb each may be required to be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
- N. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.
- O. If desired, individual tiles can be bolted together using 1/4 inch or equivalent hardware. This can help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that concrete does not rise up between the tiles during installation. Any protective plastic wrap which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.
- P. Tiles can be cut to custom sizes, or to make a radius, using a continuous rim diamond blade in a circular saw or mini-grinder. Use of a straightedge to guide the cut is advisable where appropriate.
- Q. Any sound-amplifying plates on the underside of the tile, which are dislodged during handling or cutting, should be replaced and secured with construction adhesive. The air gap created between these plates and the bottom of the tile is important in preserving the sound on cane audible properties of the Armor-Tile system as required in various jurisdictions.

3.02 CLEANING, PROTECTING AND MAINTENANCE

- A. Protect tiles against damage during construction period to comply with Tactile Tile

manufacturer's specification.

- B. Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.
- C. Clean Tactile Tiles not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean Tactile Tile by method specified by Tactile Tile manufacturer.
- D. Comply with manufacturers maintenance manual for cleaning and maintaining tile surface and it is recommended to perform annual inspections for safety and tile integrity.

END OF SECTION

*****ATTENTION: This section contains multiple sections*****

SECTION 33 05 31.11 - POLYVINYL CHLORIDE (PVC) GRAVITY PIPE

PART 1 – GENERAL

1.01 THE REQUIREMENT:

The Contractor shall furnish and install PVC pipe and all appurtenances as specified, complete and in place, as shown on the Plans, as specified in this Section and *Section 33 31 00 - Sanitary Sewerage Piping* and *Section 33 31 16 - Sanitary Sewer Gravity Service Laterals*.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
 - 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 - 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

A. Commercial Standards:

AWWA C900-07: Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm through 300 mm), for Water Transmission and Distribution

AWWA C905-08: Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm), for Water Transmission and Distribution

ASTM D 1784: Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.

ASTM D 2241: Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR-Series)

ASTM D 2321: Practice for Underground Installation of Thermoplastic Sewer Pipe for Sewers and Other Gravity-Flow Applications

ASTM D 3034: Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings

ASTM F 477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

ASTM F 1674: Test Method for Joint Restraint Products

1.04 QUALITY ASSURANCE:

- A. Except as modified in this Section, all materials used in the manufacture or installation of the pipe shall be tested in accordance with the requirements of the referenced standards.
- B. Submittals and testing shall be done in compliance with *Section 33 01 30.11 - Inspection of Sewers*.

PART 2 – PRODUCTS

2.01 GENERAL:

All PVC pipe shall be continuously and permanently marked with the manufacturer's name, pipe size and pressure rating in psi.

2.02 PIPE:

- A. All PVC pipe shall be joined by compression, solvent-welded, thermo-fusion welded or mechanical restrained joints as shown on the Plans.
- B. Polyvinyl chloride pipe (PVC) shall conform to the requirements of ASTM D 3034, SDR-26, or AWWA C900 or C905, Class 100, 150, 165, 200, 253, or 305. Material for PVC pipe shall conform to the requirements of ASTM D 1784 for Class 12454-B or 12454-C as defined therein.
- C. Flexible rubber rings for compression type joints for PVC pipe and fittings shall conform to the requirements of ASTM F 477.
- D. All sun-faded pipe or pipe with noticeable surface defects will be rejected and shall be replaced by the Contractor.

2.03 COUPLINGS AND FITTINGS:

- A. Couplings shall be as listed in the Approved Materials List.
- B. All fittings for PVC pipe shall conform to the requirements of ASTM D 2241. The ring groove and gasket ring shall be compatible with PVC pipe ends.
- C. The strength class of fittings shall be no less than the strength class of any adjoining pipe.
- D. PVC fittings shall, at a minimum, conform to the requirements of ASTM D 3034 as they apply to type SDR-26 PVC Sewer Pipe using an Elastomeric Gasket Joint in a bell and spigot assembly system. Rubber sealing gaskets shall meet the requirements of ASTM F 477.
- E. All PVC pipe entering or leaving a concrete structure shall have a rubber sealing gasket, as supplied by the pipe manufacturer, firmly seated perpendicular to the pipe axis, around the pipe banded and cast into the structure base or near the structure wall center as a water stop. Said water stop may also consist of a manhole coupling with rubber sealing rings cast into the structure base (see DWG 20-05).

2.04 RESTRAINED JOINTS FOR C900 PVC PIPE:

All restrained joints used in sanitary sewer applications shall meet or exceed the requirements of ASTM F 1674. All restrained joints shall be per the Approved Materials List.

PART 3 – EXECUTION

3.01 GENERAL:

- A. Sewer pipelines shall be constructed in compliance with the requirements of this Section and *Section 33 31 00 - Sanitary Sewerage Piping* and *Section 33 31 16 - Sanitary Sewer Gravity Service Laterals*.
- B. Work shall meet the specified requirements of these Specifications unless the requirements of the local agency having jurisdiction are greater, in which case the greater requirements shall govern.

3.02 INSTALLATION:

PVC pipe shall be installed in accordance with the requirements of ASTM D 2321; as specified herein and shown on the Plans

3.03 HORIZONTAL CURVES:

Horizontal curves shall be installed using straight pipe segments, each a minimum of five feet in length and joint deflections or fittings in accordance with the requirements of DWG 21-01, or with forced bends where the radius of the curve exceeds the minimums specified in the table below:

SDR-26 PVC Pipe (Forced Bends)				
Pipe Diameter	4"	6"	8"	10"
Minimum Radius	135'	200'	260'	322'

3.04 FIELD JOINTING:

- A. Each pipe compression-type joint shall be joined with a lock-in rubber ring and a ring groove that is designed to resist displacement during pipe insertion.
- B. The ring and the ring seat inside the bell shall be wiped clean before the gasket is inserted. A thin film of lubricant shall be applied to the exposed surface of the ring and to the outside of the clean pipe end. Lubricant other than that furnished with the pipe shall not be used.
- C. Joints shall not be deflected either vertically or horizontally in excess of the printed recommendations of the pipe manufacturer.

END OF SECTION

SECTION 33 05 19 - DUCTILE IRON PIPE (DIP)**PART 1 – GENERAL****1.01 THE REQUIREMENT:**

The Contractor shall furnish and install ductile iron pipe (DIP) and all appurtenances as specified, complete and in place, as shown on the Plans, as specified in this Section and in *Section 33 31 00 - Sanitary Sewerage Piping* and *Section 33 31 16 - Sanitary Sewer Gravity Service Laterals*.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

A. Commercial Standards:

ANSI/AWWA C110/A21.10: Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in. for Water and Other Liquids

ANSI/AWWA C111/A21.11: Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings

ANSI/AWWA C115/A21.15: Flanged Ductile-Iron and Gray-Iron Pipe with Threaded Flanges

ANSI/AWWA C150/A21.50: Thickness Design of Ductile-Iron Pipe

ANSI/AWWA C151/A21.51: Ductile-Iron Pipe, Centrifugally Cast

ANSI/AWWA C153/A21.53: Ductile-Iron Compact Fittings, 3 in. through 12 in. for Water and Other Liquids

AWWA C600: Installation of Ductile-Iron Water Mains and Their Appurtenances

1.05 QUALITY ASSURANCE:

- A. Except as modified in this Section, all materials used in the manufacture or installation of the pipe shall be tested in accordance with the requirements of the referenced standards.
- B. Submittals and testing shall be done in compliance with Section 33 01 30.11 - Inspection of Sewers.

PART 2 – PRODUCTS**2.01 GENERAL:**

- A. Ductile-iron pipe (DIP) shall conform to the latest revision of ANSI/AWWA C150/A21.50 subject to the following supplemental requirements. The pipe shall be furnished complete with rubber gaskets, and all special fittings shall be provided as shown on the Plans.
- B. Bell and spigot joints and mechanical joints are acceptable for underground applications. As an alternative to bell and spigot joints the use of mechanical and flanged joints will be permitted for above ground applications only.

2.02 PIPE:

Ductile iron pipe shall be of the diameter indicated at a minimum Class 52 and shall be manufactured with standard bell and spigot joints in accordance with the latest revision of ANSI/AWWA C151/A21.51.

2.03 LINING AND COATING:

Pipe shall have standard asphaltic coating on the exterior and be epoxy lined on the interior with Protecto 401™ ceramic epoxy lining as manufactured by U.S. Pipe, or approved equal.

2.04 FITTINGS:

- A. Fittings shall be ductile iron at a minimum of Class 52. Fittings shall conform to the latest revision of either ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53. Fittings and accessories shall be furnished with either Push-on or Mechanical Type Joints in accordance with ANSI/AWWA C111/A21.11.
- B. Ductile-iron pipe and fittings shall be furnished with mechanical joints, push-on joints, flanged joints, and/or restrained joints, as required. Bolted joints shall not be used for underground installations.
 - 1. Mechanical and push-on bell and spigot joints shall conform to ANSI/AWWA C111/A21.11 and be furnished complete with all necessary accessories.
 - 2. Flanged joints shall conform to ANSI/AWWA C115/A21.15.
 - 3. Restrained joints shall be per the Approved Materials List.

PART 3 – EXECUTION**3.01 GENERAL:**

- A. Sewer pipelines shall be constructed in compliance with the requirements of this Section and *Section 33 31 00 - Sanitary Sewerage Piping* and *Section 33 31 16 - Sanitary Sewer Gravity Service Laterals*.
- B. Work shall meet or exceed the requirements of these Specifications unless applicable requirements of an agency having jurisdiction (including the terms and conditions of an encroachment permit issued by a city or county) are greater, in which case the greater requirements shall govern.

3.02 INSTALLATION OF PIPE:

- A. All pipe shall be installed in accordance with ANSI/AWWA C600.

3.03 RUBBER-GASKETED JOINTS:

- A. Immediately before jointing pipe, the bell end of the pipe shall be thoroughly cleaned, and a clean rubber gasket, lubricated with an approved vegetable-based lubricant, shall be placed in the bell groove. The spigot end of the pipe shall be carefully cleaned and lubricated with a vegetable-based lubricant. The spigot end of the pipe section shall then be inserted into the bell of the previously laid joint and pushed into its proper position. Tilting of the pipe to insert the spigot into the bell will not be permitted.

END OF SECTION

SECTION 31 23 16 - EXCAVATION, BEDDING AND BACKFILL**PART 1 – GENERAL**

1.01 THE REQUIREMENT:

The Contractor shall provide all labor, materials, and equipment necessary to perform all excavation, bedding, backfill and grading operations required for construction of the work.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

- A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
 2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

A. Commercial Standards:

ASTM D 1556: Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method

ASTM D 1557: Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kNm/m³))

ASTM D 2419: Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregates

ASTM D 2487: Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

ASTM D 6938: Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

ASTM D 4253: Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table

ASTM D 4254 Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

1.04 CONTRACTOR SUBMITTALS:

- A. Compaction testing of bedding and backfill materials shall be required for all main sewer extensions and laterals in public streets.
- B. Compaction testing of bedding and backfill for side sewer work on private property may be required at the discretion of the Inspector.
- C. The required compaction testing shall be conducted under the direction of a Civil or Geotechnical Engineer licensed by the State of California. As a condition of Central San's Final Inspection, a Certification Report indicating that compaction results meet or exceed the requirements of these Specifications shall be submitted by the engineer in responsible charge of the compaction testing with a cover letter bearing the engineer's professional stamp.
- D. Compaction testing shall be completed prior to the acceptance televising of the sewer and installation of final paving.

1.05 QUALITY ASSURANCE:

- A. Where soil material is required to be compacted to a percentage of maximum density, the maximum density at optimum moisture content will be determined in accordance with ASTM D 1557. Where cohesionless, free draining soil material is required to be compacted to a percentage of relative density, the calculation of relative density will be determined in accordance with ASTM D 4253 and D 4254. Field density in-place tests will be performed in accordance with ASTM D 1556, ASTM D 6938, or by such other means acceptable to Central San. At a minimum, compaction tests shall be conducted for each 50 feet of trench and for each 2 feet of trench depth, unless otherwise specified by the agency with jurisdiction for the roadway.
- B. If a first test and a subsequent re-test of the bedding or backfill show noncompliance with the density required under this Section, the Contractor shall remove and re-compact the material represented by the test/retest as necessary to ensure compliance.
- C. The Contractor shall provide access in the excavation for the soil compaction testing technician or Inspector. This shall include providing site-specific safety equipment and temporary shoring to enable compaction testing at each required level within the excavation. Should the Contractor have backfilled to an elevation above that required to be tested, he shall excavate the backfill down to the necessary level for testing and provide shoring at his cost. Subsequent backfilling shall also be at the Contractor's cost.

PART 2 – PRODUCTS**2.01 SUITABLE BEDDING AND BACKFILL MATERIAL:**

- A. Bedding and backfill material shall be selected or processed clean, free from grass, roots, brush, other vegetation, debris, refuse or other deleterious material of any kind.
- B. The following types of bedding and backfill materials are designated and defined as follows:
 - 1. Type I Bedding and Backfill Material (Class 2 Aggregate Base): Shall be newly quarried or recycled material (not mined alluvial material), and shall be certified by the quarry or recycler as complying with the provisions of Caltrans Specifications Section 26 (Class 2 Aggregate Base) for 3/4" maximum grading.
 - 2. Type III Bedding and Backfill Material (native material from trench excavation): Shall be free from vegetable matter, debris and refuse, shall contain no concrete, stones or clods larger than 3" in any dimension and shall contain sufficient fines so that all voids will be filled when compacted, and shall be so constituted that compaction requirements can be met.
 - 3. Select Type III Bedding and Backfill Material (native material from trench excavation): Shall meet all requirements of the above described Type III Bedding and Backfill Material with the additional requirement that the maximum particle size shall be 3/4" in diameter.
 - 4. Coarse Bedding Material (Drain Rock/Foundation Rock): Shall be crushed stone or gravel (not mined alluvial material), with a minimum of 95% crushed particles per CTM 205, durable and free from slaking or decomposition under action of alternate wetting and drying with minimum Durability Index of 40 per CTM 229. The material shall meet the following gradation requirements:

Sieve Size	Percentage Passing
2-inch	100
1-1/2-inch	90-100
3/4-inch	5-30
3/8-inch	0-5
No. 200	0-2

- C. Controlled Low Strength Material shall conform to the requirements of *Section 03 34 13 - Controlled Low-Strength Material (CLSM)*.

2.02 UNSUITABLE MATERIAL:

- A. Unsuitable materials for bedding and backfill shall include soils, which when classified under ASTM D 2487 fall in the classifications of PT, OH, CH, MH, or OL. In addition, any soil that cannot be sufficiently compacted to achieve the percentage of maximum density specified for the intended use shall be considered unsuitable.
- B. Chemical testing for corrosivity shall be performed for all materials proposed for use as bedding and backfill for metallic or reinforced concrete pipe. The testing shall be in accordance with the requirements of CTM 417, CTM 422 and CTM 643. Bedding and backfill materials shall be considered unsuitable when the chloride concentration exceeds 500 ppm, sulfate concentration exceeds 1,500 ppm, resistivity is less than 2,000 ohm-cm

or pH is less than 6.5. Testing shall be performed by a qualified laboratory approved by Central San, and the data shall be submitted to the Inspector for acceptance prior to use of the material in the work.

- C. Type III materials which are too wet to be compacted to specified compaction shall not be rejected solely because they are too wet for proper compaction. The Contractor may at its option, dry these materials in accordance with Paragraph 3.8.G of this section prior to compaction. Alternatively, the Contractor may remove the Type III materials and provide imported backfill material.
- D. Backfill placed within 6" of any structure or pipe shall be free of rocks or unbroken clods of earth larger than 3" in any dimension.
- E. All material that is determined to be unsuitable for use as bedding and backfill or that is in excess of the amount required shall be removed immediately and disposed of properly by the Contractor.

2.03 USE OF SUITABLE BEDDING AND BACKFILL MATERIAL:

Backfill types shall be used in accordance with the following provisions:

- A. Pipe zone backfill (bedding, haunching and shading), as defined under paragraph 3.6 Bedding and Backfill herein, shall be Type I Bedding and Backfill Material (Class 2 Aggregate Base) unless otherwise specified on the Plans.
- B. Trench zone backfill, as defined under paragraph 3.6 Bedding and Backfill herein, for pipelines in public and private streets and other paved areas shall be Type I Bedding and Backfill Material (Class 2 Aggregate Base).
- C. Trench zone backfill in future roadway or street rights-of-way or in off road locations (e.g., easements) may be Type III Bedding and Backfill Material (native trench soil) so long as specified compaction is achieved.
- D. Final Backfill as defined under "Pipe and Utility Trench Backfill herein, for pipelines in public and private streets and other paved areas shall be Type I Bedding and Backfill Material (Class 2 Aggregate Base).
- E. Backfill around structures, vaults, and valve boxes shall be Type I Bedding and Backfill Material (Class 2 Aggregate Base).
- F. Backfill used to replace structure and pipeline trench over-excavation of wet or soft trench bottom conditions shall be Coarse Bedding and Backfill Material (Drain Rock/Foundation Rock) with a geotextile envelope (minimum one-foot overlap) around the rock to prevent migration of fines.
- G. Controlled Low Strength Material may be used for pipe zone backfill and trench zone backfill whenever pre-approved in writing by Central San or shown on the Plans.
- H. Trenches in landscaped or cultivated areas shall have the top 12" inches backfilled with topsoil.

2.04 FILTER FABRIC:

Filter fabric shall be as specified in *Section 31 05 19 - Geosynthetics for Earthwork*.

2.05 TRENCH DAMS, AND PIPE ANCHORS:

Trench Dams and Pipe Anchors shall be provided at the locations shown on the Plans and shall be constructed as shown in the Standard Drawings as follows:

- *DWG 20-05 Trench Dams*
- *DWG 21-03 Pipe Anchor Detail*

Trench dams shall be of the length and width dimensions shown in the detail, shall extend below finished grade as shown in the detail, and shall be constructed of controlled low strength material (CLSM) as specified in *Section 03 34 13 - Controlled Low-Strength Material (CLSM)*.

PART 3 – EXECUTION**3.01 GENERAL:**

- A. Work shall meet or exceed the requirements of these Specifications unless applicable requirements of an agency having jurisdiction (including the terms and conditions of an encroachment permit issued by a city or county) are greater, in which case the greater requirements shall govern.
- B. Prior to any excavation and backfill work, the Contractor shall obtain and provide Central San with copies or other evidence of acquisition thereof, all required permits for the work, including but not limited to: County and/or City encroachment permits, Central San permits, Cal OSHA Excavation Permit, and Competent Person certification.
- C. Material to be used for backfill shall be laid alongside of the trench and kept trimmed so as to cause as little inconvenience as possible to public travel and the normal use of adjacent properties. However, stockpiled material shall be kept a minimum of two feet from the edge of the trench and the face of the stockpile shall be sloped as needed. Free access shall be provided to all fire hydrants, water gates, meters, and private drives. Gutters or other drainage ways shall be kept clear unless other temporary provisions are made for maintaining drainage.
- D. In advance of placing sewer pipe or structures, material within the area where such pipe or structures are to be placed, which in the opinion of the Inspector is unsuitable including, but not limited to vegetable matter, garbage, and junk piles, either on the surface or buried, shall be removed and disposed of.
- E. Water to control dust resulting from grading operations, excavation, backfill, and the passage of traffic through the work area shall be applied by means that will ensure a uniform application of water with no runoff.
- F. The Contractor shall remove and dispose of all excess excavated material at a suitable preferred site(s). The Contractor shall obtain all necessary fill and grading permits and a written release from property owners upon completion of use of said sites.

3.02 STRUCTURE EXCAVATION:

- A. Except when specifically provided to the contrary, excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the work. The removal of

these materials shall conform to the lines and grades shown on the Plans or as directed by the Inspector. Unless otherwise provided, the entire construction site shall be stripped of all vegetation and debris, and such material shall be removed from the site prior to performing any excavation or placing any fill. The Contractor shall furnish, place, and maintain all supports and shoring that may be required for the sides of the excavations, and all pumping, ditching, or other measures required for the removal or exclusion of water, including storm water, groundwater, and wastewater reaching the site of the work from any source so as to provide dry working conditions and to prevent damage to the work or adjoining property. Excavations shall be benched, sloped, shored or otherwise supported in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926).

- F. Excavation under structures, manholes, vaults and others: Except where otherwise specified for a particular structure or directed by the Inspector, excavation shall be carried to the grade of the bottom of the bedding. Where shown on the Plans or directed by the Inspector, areas beneath structures shall be over-excavated. The exposed surface shall be scarified to a depth of 6", brought to optimum moisture content, and compacted to 95% relative compaction. Where over-excavation is directed by the Inspector to provide for the placement of foundation rock over wet or soft soils, scarification and recompaction shall not be performed.

3.03 TRENCH EXCAVATION:

- A. Excavation for sewers shall be made only after pipe and other necessary materials are delivered on the site of the work. After such delivery, trench excavation shall proceed as rapidly as possible, and the pipe installed and the trench backfilled without undue delay. In public street areas, excavation and pipe installation shall be coordinated to the end that a minimum of interference with traffic will result.
- B. Refer to table below for required trench widths according to nominal pipe size.

Pipe Size (in)	Trench Width (in)
2-4	18
6-8	24
10-12	30
14-18	36
24	42

- C. The pipe bedding shall be given a final trim, using a laser for establishing grade, such that each pipe section when first laid will be continually in contact with the bedding along the bottom of the pipe. The Contractor shall excavate bell holes at pipe joints.
- D. For trenching in existing streets, excavation and pipe installation shall be coordinated so that no more than 100 linear feet of trench shall be open at any time. Backfilling operations shall closely follow pipe installation. In new subdivisions more than 100 feet of trench may be opened if allowed by the Inspector and if the excavation is properly shored, sloped or benched. All trenches shall be fully backfilled at the end of each day or, properly shored and covered by heavy steel plates adequately braced and capable of supporting H-20 vehicle loads in those locations subject to traffic and with 1- 1/8" plywood in off road locations where it is impractical to backfill at the end of each day. Use of steel traffic plates is subject to the prior approval of the agency issuing the encroachment permit. Traffic plates shall be staked in place, with adjacent plates tack-welded together, and shall be provided with non-skid coating. Compacted cold mix asphalt shall be placed around the plate perimeter to provide a smooth transition from adjacent pavement.

- E. Where the bottom of the trench becomes soft or is unstable due to groundwater and/or movement of construction equipment, the Contractor shall over-excavate unsuitable material to a minimum depth of 9" below the base elevation to establish a stable foundation for the bedding or to a depth as otherwise directed by the Inspector. Geotextile shall be placed on the overexcavated trench bottom and staked to the trench walls, coarse bedding material in conformance with these specifications shall be placed on the fabric, and the fabric shall then be un-staked from the trench wall and wrapped over the coarse bedding material forming a closed envelope with a minimum 1-foot overlap at the top edges of the fabric.
- F. Any over-excavation carried below the grade ordered, specified, or shown, shall be backfilled and compacted to the required grade with the specified material.

3.04 EMBANKMENT EXCAVATION:

- A. The relative compaction of the natural ground area upon which embankments are to be constructed, for a depth of not less than 2 feet below finished grade, shall be not less than 90% relative compaction.
- B. If finished grade is less than 3 feet, above natural ground, the natural ground shall be excavated to a depth of not less than 3 feet below finished grade and re-compacted to a relative compaction of not less than 90%.
- C. When embankments are to be made and compacted on hillsides, or where new fill is to be compacted against existing embankments, the slopes of the original hillside, old or new fill, shall be cut into a minimum of 6 feet horizontally as the work is brought up in layers. Material thus cut out shall be re-compacted along with the new fill. Fill shall be compacted to a relative compaction of not less than 90%.

3.05 BEDDING AND BACKFILL:

- A. Except for required foundation material (in an envelope of geotextile) coarse bedding material being placed in over-excavated areas, where water or soft ground is present, backfill shall not be placed until after all water is removed from the excavation.
- B. Pipe zone bedding and backfill operations shall be performed in accordance with the following requirements:
 - 1. Type I Bedding and Backfill Material (Class 2 Aggregate Base) shall be placed and properly compacted in the pipe zone. The pipe zone is defined as that portion of the vertical trench cross-section lying between a plane 4 to 6" below the bottom surface of the pipe, i.e., the trench sub-grade, and a plane at a point 12" above the top outside surface of the pipe. The subzones of the pipe zone are defined as follows:
 - a) "Bedding is that portion of the Pipe Zone between the bottom of the trench or the top of required foundation material and the lowest point on the outside surface of the pipe barrel excepting bells;
 - b) "Haunching" is that portion of the Pipe Zone between the top of the Bedding and the horizontal centerline of the pipe;
 - c) "Shading" is that portion of the Pipe Zone between the top of the Haunching and a horizontal plane 12" above the highest point on the outside surface of the pipe barrel excepting bells.

2. Controlled Low Strength Material (CLSM) shall be provided in lieu of Type I Bedding and Backfill Material where indicated on the Plans Contractor shall provide a method to prevent pipe from floating during backfill. (The remaining portions of the trench shall be backfilled as specified elsewhere in this Section.)
 3. After compacting the bedding, the Contractor shall perform a final trim using a laser for establishing grade, such that each pipe section when laid will be continually in contact with the bedding along the bottom of the pipe. The Contractor shall provide bell holes at each pipe joint.
 4. Backfill in trenches shall be placed uniformly on each side of the pipe to prevent displacement. The Contractor shall exercise care to prevent damage to the pipeline coating, cathodic bonds, or the pipe itself during the installation and backfill operations. The Contractor shall hand shovel slice the bedding along the sides of the pipe in order to ensure filling any voids under the pipe haunches.
- C. Warning Tape: A colored detectable metallic foil core plastic tape, at least 3" in width, shall be placed on top of the pipe zone backfill wherever sewers are installed. The tape shall have printed on it the words "Caution: Sewer Buried Below." The warning tape shall be utilized for all pipes (mains and laterals).
- D. After the pipe zone backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling of the trench zone may proceed. The trench zone is defined as that portion of the trench excavation between the top of the shading and the ground surface in unpaved areas, and the horizontal plane at lowest point of the pavement structural section in paved areas.
- E. "Final Backfill" is that portion of the Trench Zone in paved areas between the top of the trench backfill and the lowest point of the pavement structural section.
- F. Joint utility trench excavations shall conform to the requirements shown on *DWG 20-06*.

3.06 PLACING AND SPREADING OF BACKFILL AND EMBANKMENT MATERIALS:

- A. Backfill materials shall be placed and spread evenly in layers. The backfill layers shall be evenly spread so that each layer shall not exceed 8" in uncompacted thickness. Backfill layers greater than 8" but no more than 24" may be used after the Contractor demonstrates by compaction testing as specified in 3.8 below, that required compaction levels will be achieved.
- B. During spreading, each layer shall be thoroughly mixed as necessary to promote uniformity of material in each layer. Pipe zone backfill materials shall be manually spread around the pipe so that when compacted, the pipe zone backfill will provide uniform bearing and side support.
- C. Where the backfill material moisture content is below the optimum moisture content, water shall be added before or during spreading until the proper moisture content is within the range where the specified compaction can be achieved.
- D. Where the backfill material moisture content is too high to permit the specified degree of compaction, the material shall be bladed, aerated or dried and/or mixed with dryer material until the moisture content is satisfactory.

- E. Whenever selection is possible, embankment material having a sand equivalent value of less than 10 shall be deposited in the lower portions of embankments and no such material shall be placed within 3 feet of planned finished grade.
- F. When the embankment material consists of large rocky material, or hard lumps such as hardpan or cemented gravel which cannot be broken readily, such material shall be well distributed throughout the embankment, and sufficient earth or other fine material shall be placed around the large material as it is deposited so as to fill the interstices and produce a dense compact embankment, but in no case shall any material exceed 24" in any dimension.

3.07 COMPACTION OF BACKFILL AND EMBANKMENT MATERIALS:

- A. The Contractor shall provide a minimum of one compaction test per day, and an additional compaction test for each 500 sf completed and at each structure (e.g. manholes), and as required on the Plans or at the direction of the Central San Inspector.
- B. Each layer of backfill material as defined herein, shall be mechanically compacted to the specified percentage of maximum density. Equipment that is consistently capable of achieving the required degree of compaction shall be used and each layer shall be compacted over its entire area while the material is at the required moisture content. Compaction at the top of the pipe zone shall be done using a plate compactor.
- C. Flooding, ponding, or jetting shall not be used.
- D. Equipment weighing more than 10,000 pounds shall not be used within a horizontal distance equal to the depth of the trench. Hand operated power compaction equipment shall be used where use of heavier equipment is impractical or restricted due to weight limitations.
- E. The following compaction requirements shall be in accordance with ASTM D 1557 except for free draining materials (i.e., Coarse Bedding Material/Drain Rock/Foundation Material), which shall be in accordance with ASTM D 4253 and D 4254 for cohesionless free draining type materials. Where other public agency, utility company or encroachment permit requirements govern, the highest compaction standards shall apply.

Percent (%) Location or Use of Fill	Relative Compaction
Pipe zone backfill including bedding and over excavated foundation zone	90
Final backfill beneath paved areas or structures.	95
Trench backfill in unpaved easement or future street areas.	90
Trench Zone backfill.	90
Backfill under structures.	95
Backfill around structures under paved areas.	95
Backfill around structures in landscaped areas.	90
Embankment material	90

- F. The Contractor shall maintain the indicated trench cross section at a minimum of 12" above the top of the pipe (the top of the "pipe zone").
- G. Embankments shall be constructed as recommended by the geotechnical engineer in compacted layers of uniform thickness.
- H. At the time of compaction, the moisture content of embankment material shall be such that the relative compactions specified will be obtained and the embankment will be in a

firm and stable condition. Embankment material which contains less than the required moisture content shall be watered and material which contains excessive moisture shall not be compacted until the material is dry enough to obtain the required compaction.

3.08 TEMPORARY PAVING:

A minimum of 2" of cold or hot mix temporary asphalt shall be placed in finished trenches and rolled to a smooth surface at the end of each day unless final paving can be completed, or steel plates are used to cover trenches in paved streets. Traffic plates shall be subject to the requirements of 3.3 above. The temporary asphalt shall be placed within 1/4" of finished pavement grade.

END OF SECTION

SECTION 33 01 30.11 - INSPECTION OF SEWERS

PART 1 – GENERAL

1.01 THE REQUIREMENT:

- A. The Contractor shall furnish all labor, materials, tools, and equipment necessary to clean, perform testing, and provide for televising of completed sewer pipelines.
- B. The Contractor shall call the Central San Inspection Office at least one business day in advance to arrange for an Inspector to be present for the preinstallation CCTV inspection.
- C. The Contractor shall notify the Inspector at least one business day prior to any cleaning, testing, or televising work. All final testing and cleaning of sewer lines shall be done in the presence of the Inspector.
- D. The Contractor shall complete cleaning and testing of sewer lines as required in this Section prior to requesting CCTV inspection.
- E. No testing will be allowed until all utilities have been installed.
- F. If deficiencies are identified during testing, the Contractor shall re-test after the deficiencies have been corrected.

1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

A. Commercial Standards:

ASTM C 969: Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines

ASTM C 1091-03a: Test Method for Hydrostatic Infiltration Testing of Vitrified Clay Pipe Lines

AWWA C600-54T: Installation of Ductile-Iron Water Mains and Their Appurtenances

ASTM D 3034: Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings

ASTM F 679: Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings

PART 2 – PRODUCTS

2.01 MATERIAL REQUIREMENTS:

- A. Mandrels, temporary plugs, low-pressure testing equipment and all other necessary materials shall be provided by the Contractor, subject to the Inspector's approval.
- B. No materials shall be used which would be injurious to the public, personnel, adjacent improvements or the pipeline.
- C. Air test gauges shall be laboratory-calibrated test gauges and shall be recalibrated by a certified laboratory prior to the leakage test. Gauge shall be easy to read in no more than 1 psi per increment and have a maximum full-scale range of 5 psi.

PART 3 – EXECUTION

3.01 GENERAL:

- A. The Contractor shall clean pipelines by balling and flushing or hydroflushing prior to deflection and pressure testing.
- B. The Contractor shall perform deflection and pressure tests after submittal of compaction reports demonstrating compliance with the backfill compaction requirements and before CCTV inspections.
- C. Work shall meet or exceed the requirements of these Specifications unless applicable requirements of an agency having jurisdiction (including the terms and conditions of an encroachment permit issued by a city or county) are greater, in which case the greater requirements shall govern.

3.02 CLEANING:

- A. After the pipeline installation has been completed to the satisfaction of Central San, the Contractor shall clean the pipe in the presence of the Inspector.
- B. The Contractor shall clean all sewer installations, deemed necessary by the Inspector, with a cleaning ball or device in accordance with the device manufacturer's instructions or recommendations and flushed. Hydroflush-pressure shall be maintained below 2,000 psi. Traps with screens in accordance with DWG 21-08 shall be used to trap debris. The Contractor shall remove all debris from the manhole prior to removing the trap.
- C. Release of water during and/or after cleaning and testing has been completed, shall be performed in a manner approved by the Inspector. The Contractor shall be responsible for the proper disposal of water released.

- D. The Contractor shall perform an additional cleaning of the pipeline after the installation of final paving, top block, frames and covers, and after all other required inspections, if required by the Inspector due to a reasonable determination that additional debris may have accumulated in the pipeline after initial cleaning.

3.03 PIPELINE DEFLECTION TESTING:

PVC and HDPE pipe 8" in diameter or larger shall be tested for deflection, joint displacement, or other obstruction by passing a rigid mandrel through the pipe. Deflection shall be tested after submittal of daily compaction reports demonstrating compliance with, but prior to, permanent resurfacing. The mandrel shall be a full circle, rigid, non-adjustable, an odd-numbered leg (9 leg minimum), acceptable to the Inspector as to design and manufacturer. Mandrel size shall meet the minimum requirements set forth in ASTM D 3034 and ASTM F 679. The circular cross section of the mandrel shall have a diameter of at least 95% of the specified average inside diameter of the pipe and the minimum length of the circular portion of the mandrel shall be equal to the nominal diameter of the pipe. Where obstructions and excessive deflection encountered by the mandrel, the Contractor shall remove, replace and retest the deficient section. Re-rounding will not be allowed.

3.04 PIPELINE LEAKAGE TESTING:

- A. Repaired pipelines shall be re-tested as follows:

Sewer Type/Size	Acceptable Tests
Gravity $\leq$ 16"	low-pressure air test or a water pressure test
Gravity $>$ 16"	water pressure test only
Pressurized (force mains)	air-over-water pressure test at 120% of maximum design operating pressure, measured at the lowest point of the pipeline section being tested.

- B. Air Testing

- Each section of main sewer and its appurtenant connected laterals shall be tested between successive manholes by plugging and bracing all openings in the sewer lines. If any leaks are found, the air pressure shall be released, the leaks eliminated, and the test procedure started over again.
- Air tests shall be conducted in accordance with the following procedure and the table below:

Pipe Diameter (in)	Length of Line (ft)	Length of test (minutes)
4 to 8	All	4
10	0 to 215	4
	> 215	5
12	0 to 155	4
	155 to 190	5
	> 190	6
15 & 16	0 to 120	5
	120 to 165	7
	> 165	8
>16	Hydrostatically test in accordance with Paragraph C	
<u>Note:</u> All tests shall be performed at 4 psi using a 5 lb gage.		

All necessary test equipment shall be in proper working order and tests shall be made in the presence of the Inspector. Test plugs shall be carefully placed at each end of the section of line to be tested. When all necessary test equipment is in place, a compressed air supply shall be attached to the air fitting on the test equipment and the air pressure within the line increased to 4 psi. After the air supply is securely turned off or disconnected, there shall be a 2-minute waiting period to allow stabilization of air within the sewer line before the actual test period begins. In no case shall the air pressure within the line be less than 3-1/2 psi at the beginning of the test period. The allowable air pressure loss shall not exceed 1 psi. When testing side sewers, or portions thereof, the test period shall be 4 minutes and the allowable loss shall not exceed 1 psi. After completion of a test, the air pressure shall be released slowly through the valve, which is incorporated in the test equipment. Air test plugs shall not be removed until the air pressure is no longer measurable.

- C. New sewers larger than 16" diameter shall be hydrostatically tested in accordance with the following procedure:

1. After installation, all new trunk sewer pipelines shall be thoroughly cleaned prior to pressure testing. A section of trunk sewer shall be prepared for testing between two structures by plugging the inlet side of the discharge manhole and all openings in the upstream manhole except the discharge opening. All plugs shall be properly braced against the manhole wall to withstand the forces of the test in order to prevent loss in the event of a failure.
2. A section of the trunk sewer prepared as above shall be tested by filling it with water to an elevation 5 feet above the top of pipe at the upstream end of the test section, or 5 feet above the existing groundwater elevation, whichever is greater. The water shall be introduced into the test section at least one hour in advance of the test period and refilled as necessary prior to commencement of the test period to allow the pipe and joint material to become saturated. The loss in water may be determined by measuring the rate of fall of the water level, but the level shall not be allowed to fall more than one foot below the specified head during the test period.
3. For RCP, the pressure shall be maintained for not less than 4 hours and the leakage rate shall not exceed 200 gallons per inch of diameter per mile of pipe for 24 hours (ASTM C 969-02). For VCP, the pressure shall be maintained for not less than one hour and the leakage rate shall not exceed 200 gallons per inch diameter per mile for 24 hours (ASTM C 1091-03a). For DIP, the pressure shall be maintained for not less than one hour and the leakage rate shall not exceed 70 gallons per inch diameter per mile of pipe of 24 hours (AWWA C600-54T).

- D. When leakage exceeds the amount allowed by the specifications, the Contractor shall locate the leaks, submit a repair procedure for the Inspector's review, and make the necessary repairs.

3.05 MANHOLE TESTING:

- A. Hydrostatic Testing: Central San may require hydrostatic testing for leakage after installation and prior to backfilling. Prior to hydrostatic testing, all manholes shall be visually inspected. All defects shall be repaired by the Contractor, with non-shrink grout, to the satisfaction of the Inspector. All pipes entering the manhole shall be sealed at a point outside the manhole walls to include testing of the pipe/manhole joints. Safety lines shall be secured to all plugs utilized. The manhole shall be filled with water to a level 2" below the top of the frame. After a period of at least one hour to allow the water level to stabilize, the manhole shall be refilled and the water level shall be checked. The water level shall again be checked after a period of 4 hours. If the water level drops by more

than 1", the leakage shall be considered excessive, and the Contractor shall make necessary repairs and retest the manhole.

- B. Vacuum Testing: As an alternative to manhole hydrostatic testing, the Inspector may allow the use of vacuum testing. A vacuum of 10" of mercury shall be drawn on the manhole, the valve on the vacuum line of the test hood closed and the vacuum pump shut off. The manhole shall be deemed to have passed the test if the vacuum drop is less than 1" of mercury during a one-minute test period.

3.06 CCTV INSPECTION:

- A. Central San will perform a CCTV inspection of the sanitary sewer upon substantial completion of the work.
 - 1. The Contractor shall coordinate with the Inspector to arrange for an acceptable time to conduct the inspection.
 - 2. Defects discovered by the CCTV inspection shall be corrected and the line re-inspected at the Contractor's cost.
 - 3. If a portion of an entire job is to be CCTV inspected, a separate fee will be due as established by Central San. Inspection fees are payable prior to the date of the partial CCTV inspection.
 - 4. The Contractor shall request CCTV inspection once the following have been completed:
 - a) Sewer pipelines are installed, backfilled, and compacted.
 - b) Structures are in place, channeling is complete, and pipelines are accessible from structures.
 - c) All other underground facilities, utility piping, and conduits in the vicinity are installed.
 - d) For street locations, placement of aggregate base has been completed.
 - e) Pipelines to be inspected have been cleaned and flushed.
 - f) Final pressure test has been completed.
 - g) Mandrel testing is complete.
- B. The procedure outlined below will be repeated until all deficiencies observed by CCTV inspection have been corrected to the satisfaction of Central San.
 - 1. The Contractor shall request Central San to schedule the CCTV inspection.
 - a) If Central San's CCTV crew arrives at the jobsite and the work is not ready or accessible, the Contractor will be billed the cancellation fee payable to Central San prior to the date of rescheduled CCTV inspection. The Contractor shall reschedule CCTV inspection as outlined above.
 - 2. Central San will televise the job.

- a) If no deficiencies are observed, the work will be considered satisfactory.
 - b) If deficiencies are observed, a recording will be made and defects serious enough to require correction will be identified by the Inspector who will provide written notification. If corrective work is indicated and viewing of the recording is desired, the Contractor shall contact the Inspector to set a time for the viewing. All corrective work will be subject to approval by Central San. Central San reserves the right to require cleaning and additional leak testing of the repaired pipeline. Those portions of the pipeline where deficiencies have been corrected shall be re-televised. Payment of re-television inspection fees shall be paid to Central San prior to the scheduled date of the inspection.
- C. The following observations from CCTV inspections will require correction:
- 1. Low spot 0.0625 x diameter of pipe or greater (e.g., 0.5" for an 8" pipe).
 - 2. Joint separations (3/4" or greater opening between pipe sections).
 - 3. Cocked joints present in straight runs or on the inside of pipe curves.
 - 4. Chips in pipe ends.
 - 5. Cracked or damaged pipe.
 - 6. Offset joints.
 - 7. Infiltration.
 - 8. Debris or other foreign objects.
 - 9. Other obvious deficiencies.
- D. CCTV inspection of the work and the correction of observed defects shall not relieve the Contractor of its responsibility for the warranty period.

END OF SECTION

SECTION 33 05 13 - MANHOLES AND STRUCTURES

PART 1 – GENERAL

1.01 THE REQUIREMENT:

The Contractor shall furnish and install manholes and structures, complete with precast manhole bases or cast-in-place (if approved during Plan Review), pipe connections, barrel and cone components, preformed joint sealant, grade rings, frames, covers and other appurtenances shown on the Plans or specified in this Section.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

A. All Related Documents and Sections: Contractor to examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Those Documents and Sections include, but is not limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 General Requirements, apply to this Section.
2. All Specification Sections listed in the Table of Contents.

1.03 REFERENCE SPECIFICATIONS, CODES AND STANDARDS:

A. Commercial Standards:

ASTM C 150: Specification for Portland Cement

ASTM C 478: Specification for Precast Reinforced Manhole Sections

1.04 CONTRACTOR SUBMITTALS:

Upon request by Central San, the Contractor shall submit complete shop drawings for all precast manhole bases to Central San and shall receive favorable review prior to ordering the bases.

1.05 QUALITY ASSURANCE:

After installation, the Contractor shall demonstrate that all manholes have been properly installed, level, with tight joints, at the correct elevations and orientations and that the backfilling has been carried out in accordance with the Plans and these Specifications. Vacuum testing of manholes may be required at Central San's sole discretion.

PART 2 – PRODUCTS

2.01 MATERIALS:

- A. Manhole bases may be either cast-in-place or precast. Channels and shelves shall conform to the requirements DWG 19-01 through 19-07. Manhole channels shall be shaped to form a smooth transition of uniform cross-section from inlet pipes to the outlet pipe, both horizontally and vertically.
- B. Precast Concrete Components: Only components listed in the Approved Materials List shall be used in the construction of manholes.
 1. Precast manhole bases, and barrel and cone sections shall be manufactured by a process that will produce dense homogeneous reinforced concrete of high quality in conformance with ASTM C 478. Cement shall be Type V Portland Cement as specified in ASTM C 150.
 2. Precast manhole components shall be designed to support vertical AASHTO H-20 truck loading, plus the weight of soil above the cone section.

3. Pipe connections at precast bases shall be pipe bells of the size, material and class of inlet and outlet pipes, integrally cast into the base by the manufacturer.
 4. The minimum wall thickness for barrel and cone sections (in inches) shall be calculated by dividing the nominal diameter of the barrel (in inches) by twelve (i.e., $D/12$).
 5. Manhole throats shall be constructed of reinforced concrete grade rings.
- C. Preformed plastic sealing gasket for sealing joints between the manhole base, barrel and cone sections shall be as listed in the Approved Materials List.
 - D. Non-shrink grout shall conform to the requirements *Section 03 60 00 – Grout*.
 - E. Castings for manhole frames and covers shall conform to the requirements of *Section 05 50 00 - Miscellaneous Metal Work*.
 - F. Primer and sealant tape for sealing exterior joints between precast components shall be as listed in the Approved Materials List.
 - G. Concrete for cast-in-place manhole and rodding inlet components (bases and top blocks) shall conform to *Section 03 30 00 - Cast-In-Place Concrete*.

2.02 TEMPORARY COVERS:

Temporary covers for new construction or reconstruction of manholes shall be fabricated as detailed in *DWG 19-12*.

2.03 TEMPORARY PLUGS:

Temporary plugs shall be of the mechanical expanding type. Pneumatic are not acceptable.

PART 3 – EXECUTION

3.01 GENERAL:

- A. Work shall meet or exceed the requirements of these Specifications unless applicable requirements of an agency having jurisdiction (including the terms and conditions of an encroachment permit issued by a city or county) are greater, in which case the greater requirements shall govern.
- B. An All-Weather Access Road as specified in this Section is required for access to all structures in off-road locations (e.g., easements).

3.02 INSTALLATION:

A. Temporary Plugs

1. Mechanical expanding-type temporary plugs shall be installed and removed, as specified below, in the presence of an Inspector. Plugs shall be secured by tethering with a $\frac{1}{4}$ " nylon rope attached to the top of a wood 2'x4' of sufficient length to extend from the shelf to a point in the throat within 6" of the underside of the cover.

- a) When a manhole exists or a new manhole is constructed at the beginning of a new main extension, a temporary plug shall be installed at the inlet of the new pipe at the existing manhole or new manhole.
- b) When a new main extension begins at an existing rodding inlet or stub, a temporary plug shall be installed on the outlet of the first manhole upstream from the beginning of the new main extension.

B. Cast-in-Place Manhole Bases

1. Cast-in-place manhole bases over existing sewers shall be poured against undisturbed native soil, which has been excavated to the dimensions shown on the Plans. For new sewer installations, the cast-in-place manhole base shall be poured over 6" Type 1 Backfill. See *DWG 19-01* through *19-08*. If the excavation extends beyond the dimensions shown on the Standard Drawings, the Contractor shall construct forms and pour the base to the specified dimensions.
2. If water or soft ground is encountered at the bottom of the excavation, a minimum lift of 9" of coarse-bedding material in a geotextile wrap shall be used as shown on *DWG 19-01*.
3. A joint forming ring shall be used to form a level joint groove in the manhole base while the concrete is fresh to receive the first precast barrel section. The metal forming ring may be removed as soon as the concrete has set sufficiently to eliminate any slump in the joint groove.
4. Manhole channels shall be shaped to form a smooth transition from inlet pipes to the outlet pipe, both horizontally and vertically.

C. Precast Manhole Bases (on all new main sewer extensions)

1. Precast manhole bases shall be placed to the lines and grades shown on the Plans as an integral part of the pipe laying operation on a minimum thickness of 6" of Type I Bedding and Backfill Material compacted to 95% relative compaction. Where soft ground or water is present, a minimum thickness of 9" of Coarse Bedding Material in a wrap of geotextile, per the requirements of *Section 31 05 19 - Geosynthetics for Earthwork*, shall be placed below the course of Type I Bedding and Backfill Material.
2. Inlet and outlet pipe connections at precast bases shall be pipe bells cast into the base by the manufacturer.
3. All precast concrete manholes shall be installed in strict conformance with the manufacturer's written instructions on a well-compacted foundation.

D. Setting Precast Barrel and Cone Sections

1. All joint surfaces of precast manhole bases, barrel and cone sections shall be thoroughly cleaned and dried prior to setting, and shall be sealed with a preformed plastic sealing gasket listed in the Approved Materials List at each joint as follows:
 - a) Remove the paper wrapper from one side of the gasket, retaining the outside paper in place to protect the gasket and assure against stretching.
 - b) Place the plastic gasket strip in the joint, forming a continuous gasket around the entire circumference of the manhole joint.

- c) Remove the paper wrapper from the exposed side of the gasket and place the next manhole component.
 - d) Care shall be taken in the handling of barrel and cone sections after the plastic gasket has been affixed to avoid displacing the gasket or contaminating the joint or gasket with dirt or other foreign material. Any displaced or soiled gaskets shall be removed and replaced.
 - e) Care shall be taken to properly align the manhole section with the previously set section before it is lowered into position.
 - f) During cold or wet weather, the joint surfaces shall be heated with hot air until ice, frost, and moisture are removed and surface to be primed is dry and warm. Hot air shall also be passed over plastic gasket strips immediately prior to attaching them to joint surfaces and immediately prior to setting the section.
- E. Manhole frames and covers shall not be set to final grade until the pavement has been completed, unless otherwise approved by Central San. Precast concrete grade rings shall be installed as shown in the Standard Drawings. Paving around the manhole shall be in accordance with local jurisdiction requirements. Openings in manholes shall be protected from construction loads, debris and unauthorized entry.
- F. When new piping is installed in existing structures, the Contractor shall accurately position core-drilled openings in the concrete as shown on the job Plans and Standard Drawings or otherwise directed by the Inspector. Openings shall be of sufficient size to permit a final alignment of pipelines and fittings without deflection of any part and to allow adequate space for satisfactory placement of mechanical seals or packing with non-shrink grout where the pipe passes through the wall to ensure the resulting structure is watertight. Before placing the non-shrink grout, concrete surfaces shall be sandblasted, thoroughly cleaned of sand and any other foreign matter, and coated with epoxy bonding compound. After connection of the new inlet pipe, the Contractor shall re-channel the inside of the existing manhole base to provide a smooth flow channel to the new exit pipe.
- G. The throat shall be constructed using appropriately sized reinforced concrete grade rings to bring the manhole cover to finished grade surface. No plastic sealing gaskets shall be used for jointing grade or extension rings.
- H. Manhole top blocks shall be poured against forms constructed to the specified dimensions shown on *DWG 19-01*.
- I. All manholes located on slopes steeper than 3:1 (horizontal to vertical) in easement areas shall be constructed with a reinforced concrete, reinforced concrete masonry unit or interlocking masonry unit retaining wall as shown on *DWG 19-11*.
- J. All manholes shall be tested in accordance with *Section 33 01 30.11 - Inspection of Sewers*.
- K. Temporary covers shall be used during construction until permanent frames and covers are installed.

3.03 RECONSTRUCTION OF EXISTING STRUCTURES:

A. General

1. Reconstruction work on any particular structure shall be diligently prosecuted so as to be completed within 3 calendar days after work is begun on that particular structure. The Contractor shall provide continuous access for Central San maintenance forces to the structure at all times.
2. When removing existing structures, the Contractor shall take precautions to ensure that no foreign material enters the structure or the downstream system. Before any work is started, the base shall be covered with a plywood ("false bottom") as shown on *DWG 19-13*, and then the false bottom shall be covered with a drop cloth of heavy canvas. The drop cloth and false bottom shall be kept in place during the work to catch debris, and upon completion, shall be removed with the collected debris. No debris shall enter the downstream system or be allowed to remain in the manhole.

B. Structure Adjustments and Repairs

1. All workmanship and materials for structure adjustments shall conform to the requirements of these Specifications. In the case of existing brick or cast-in-place concrete structures, repair or adjustments shall be accomplished with materials in-kind or with precast elements as detailed on the Plans.
2. Existing structure precast elements, adjustment rings, frames, and covers removed for adjustments and/or repairs may be reinstalled only when such undamaged items are permitted by the Inspector for reuse.
3. Manhole adjustments shall be accomplished by one of the methods specified below or as shown on the Plans:
 - a) Upward adjustments of manholes to finish grade surface may be accomplished with reinforced concrete grade rings, formed concrete and/or a single cast iron extension ring when the adjusted manhole throat will not exceed 12" in height. In no case shall multiple cast iron extension rings be used in adjustments. When adjustments are made that position the bottom of the cast iron manhole frame above the existing concrete top block, the top block shall be reconstructed in accordance with the requirements of *DWG 19-01* through *19-08*.
 - b) Whenever upward adjustment of manholes would result in a completed manhole throat section exceeding 12" in height, the upper manhole section, including the top block and cone section, shall be removed and the adjustment shall be made by reconstructing the structure using manhole barrel and cone sections, grade rings and frames and covers in accordance with the requirements of these Specifications and *DWG 19-01* through *19-08*.
 - c) Downward adjustments of manholes shall be accomplished by removal of existing grade or extension rings and cone and barrel sections as required, and reconstructing the structure using manhole barrel and cone sections, grade rings and frames and covers in accordance with the requirements of these Specifications and *DWG 19-01* through *19-08*.
4. Rodding inlet adjustments shall be accomplished by one of the methods specified below or as detailed on the Plans:
 - a) Upward adjustments of rodding inlets shall be accomplished with formed concrete or cast-iron extension rings where the extension will not exceed 8", including any previous adjustments. When adjustments are made that position the bottom of the cast iron frame above the existing concrete top block, the top

block shall be reconstructed in accordance with the requirements of these Specifications and *DWG 19-14*.

- b) Upward adjustments of rodding inlets exceeding 8" shall be accomplished by removing the structure's frame, cover, and top block, and reconstructing the structure in accordance with the requirements of these Specifications and *DWG 19-14*. Pipe used for such adjustments shall be as required for pipeline repair and shall be installed to extend the line and grade of the existing pipe.
- c) Downward adjustments of rodding inlets shall be accomplished by removal and reconstructions of the entire upper section of the structure including the top block.

END OF SECTION



300 Seminary Av., Ukiah CA 95482

Hydrant Flow Test Report

Name: Corner of Clay/Main	
Address:	
Tested by: Robby Hulbert	Date: 8/8/2023
Requested By: Daniel Flores	Time: 7:00 AM
Location of test: Clay/Main	
Hydrant ID Number: 287	
Residual hydrant location: 506 Main St	
Flow hydrant(s) Location: SW Corner of Clay/Main	
Static pressure (residual hydrant): 100 psi Hydrant 288	
Residual pressure (residual hydrant): 96 psi	
Nozzle size (flow hydrant): 2 1/2	
Hydrant pressure (flow hydrant): 75 psi	
Projected hydrant flow:	1455 GPM

Remarks and comments:

Project: Ukiah B of A Remodel		Client: City of Ukiah			
		City: Ukiah, CA			
Project No.:		Date: December 13, 2024			
Building Size:		9,201 SF			
CSI	DESCRIPTION	UNIT	PRICE	QTY	COST

	Division 2 - Site Construction				
	Temporary Controls, Fencing & Signage	ls	\$5,000.00	1	\$5,000
	Site demolition - Asphalt Pavement	sf	\$7.00	2400	\$16,800
	Site demolition - Ramp	sf	\$13.00	340	\$4,420
	Site demolition - Concrete Sidewalk	sf	\$12.00	390	\$4,680
	Site demolition - Utility trench	lf	\$40.00	300	\$12,000
	Site demolition - Landscape	ls	\$2,500.00	1	\$2,500
	Site demolition - Electrical Handhole	ls	\$1,000.00	1	\$1,000
	Site demolition - Subgrade water valve	ls	\$1,000.00	1	\$1,000
	Site demolition - ramp landing & stair	ls	\$3,500.00	1	\$3,500
	Site demolition - generator pad	sf	\$8.00	250	\$2,000
	Site demolition - Misc	ls	\$2,000.00	1	\$2,000
	SUBTOTAL				\$54,900

	Division 3 - Concrete				
	Concrete Reinforcement - Elevator Pit	ls	\$1,000.00	1	\$1,000
	Concrete Reinforcement - Slab-on-Gade	ls	\$12,500.00	1	\$12,500
	Concrete - Elevator Pit	sf	\$50.00	100	\$5,000
	SUBTOTAL				\$18,500

	Division 5 - Metals				
	Metal Fabrications - Misc.	ls	\$3,000.00	1	\$3,000
	Metal Fabrications - Stair Handrails	lf	\$110.00	76	\$8,360
	SUBTOTAL				\$11,360

	Division 6 - Wood & Plastics				
	Structural Framing - Posts 6x6	ea	\$500.00	9	\$4,500
	Structural Framing - PSL Headers	ls	\$15,000.00	1	\$15,000
	Structural Framing - Standard Headers	ls	\$3,000.00	1	\$3,000
	Structural Framing - Wall attachments	ea	\$1,850.00	12	\$22,200
	Rough & Finish Carpentry - Partitions/Framing	ls	\$13,500.00	1	\$13,500
	Rough & Finish Carpentry - Misc	ls	\$13,500.00	1	\$13,500
	Interior Architectural Woodwork - Counter	lf	\$725.00	94	\$68,150
	Interior Architectural Woodwork - Lactation Rm	ls	\$3,500.00	1	\$3,500
	Interior Architectural Woodwork - Break Rm	ls	\$7,500.00	1	\$7,500
	SUBTOTAL				\$150,850

	Division 7 - Thermal & Moisture Protection				
	Roof Patch - penthouse	ls	\$7,500.00	1	\$7,500
	Interior Acoustical Insulation	sf	\$3.75	9201	\$34,504
	Roof and Deck Insulation	ls	\$1,250.00	1	\$1,250
	Sealants	ls	\$5,000.00	1	\$5,000
	SUBTOTAL				\$48,254

Project: Ukiah B of A Remodel		Client: City of Ukiah			
Project No.:		City: Ukiah, CA			
Building Size:		Date: December 13, 2024			
9,201		SF			
CSI	DESCRIPTION	UNIT	PRICE	QTY	COST
	Division 8 - Doors & Windows				
	Wood Door & HM Frame & Hardware	ea	\$3,800.00	18	\$68,400
	Wood Door & Aluminum Frame & Hardware	ea	\$4,250.00	13	\$55,250
	HM Door & HM Frame & Hardware	ea	\$3,300.00	3	\$9,900
	Wood Door & Other Frame & Hardware	ea	\$4,000.00	4	\$16,000
	Storefront Misc - Interior	ls	\$5,000.00	1	\$5,000
	Storefront Misc - Exterior	ls	\$2,500.00	1	\$2,500
	Access Doors and Frames	ea	\$3,800.00	3	\$11,400
	Aluminum Door & Frame & Hardware	ea	\$5,000.00	3	\$15,000
	Windows	ea	\$8,000.00	7	\$56,000
	Sliding Automatic Entrances	ea	\$17,500.00	1	\$17,500
	Fiberglass Sandwich Panel Skylights	sf	\$140.00	400	\$56,000
	SUBTOTAL				\$312,950

	Division 9 - Finishes				
	Non-Structural Metal Framing - Misc.	ls	\$10,000.00	1	\$10,000
	New partitions - Gyp board	lf	\$330.00	275	\$90,750
	New partitions - Insulation	lf	\$24.00	275	\$6,600
	Gypsum Board - interior outside walls	lf	\$40.00	160	\$6,400
	Gypsum Board - Ceilings	sf	\$14.00	1440	\$20,160
	Porcelain Tile - Unisex Tlts & Vestibule	sf	\$36.00	3360	\$120,960
	Acoustical Ceilings	sf	\$17.00	6981	\$118,677
	Resilient Flooring	sf	\$13.00	4100	\$53,300
	Resilient Base	lf	\$3.50	1800	\$6,300
	Static Dissipative Resilient Flooring - IT Room	sf	\$28.00	207	\$5,796
	Carpet Tile	sf	\$15.00	2680	\$40,200
	Painting, Interior Walls	sf	\$6.50	8000	\$52,000
	Painting, Doors and Frames	ea	\$225.00	38	\$8,550
	Painting, Misc	ls	\$2,500.00	1	\$2,500
	SUBTOTAL				\$542,193

	Division 10 - Specialties				
	Signage Interior	ls	\$17,500.00	1	\$17,500
	Signage Exterior	ls	\$4,000.00	1	\$4,000
	Folding Glass Partitions	ls	\$60,000.00	1	\$60,000
	Wall Protection - Corner Guards	ls	\$2,500.00	1	\$2,500
	Fire Extinguisher Cabinet w/Extinguisher	ea	\$1,500.00	6	\$9,000
	Grab Bars	ea	\$400.00	12	\$4,800
	Mirrors	ea	\$750.00	6	\$4,500
	Soap Dispenser	ea	\$300.00	6	\$1,800
	Sanitary Napkin Disposal	ea	\$300.00	6	\$1,800
	Toilet Seat Cover Dispenser	ea	\$300.00	6	\$1,800
	Toilet Tissue Dispenser	ea	\$300.00	6	\$1,800
	Towel dispenser waste receptacle	ea	\$350.00	6	\$2,100
	Robe Hook	ea	\$100.00	6	\$600
	Diaper Changing Station	ea	\$3,500.00	2	\$7,000
	SUBTOTAL				\$119,200

Project: Ukiah B of A Remodel		Client: City of Ukiah			
		City: Ukiah, CA			
Project No.:		Date: December 13, 2024			
Building Size:		9,201 SF			
CSI	DESCRIPTION	UNIT	PRICE	QTY	COST
	Division 13 - Special Construction				
	Seismic Restraint for Piping and Equipment	sf	\$3.00	9201	\$27,603
	SUBTOTAL				\$27,603

	Division 14 - Conveying Systems				
	Hydraulic Elevator	ls	\$410,000.00	1	\$410,000
	Elevator penthouse	ls	\$12,500.00	1	\$12,500
	SUBTOTAL				\$410,000

	Division 21 - Fire Suppression				
	Fire Riser	ls	\$13,500.00	1	\$13,500
	Wet-Pipe Sprinkler Systems	sf	\$10.00	9201	\$92,010
	Total				\$105,510

	Division 22 - Plumbing				
	General Requirements of Plumbing and HVAC	ls	\$10,000.00	1	\$10,000
	Siesmic Controls	ls	\$5,000.00	1	\$5,000
	Demo - Existing plumbing fixtures	ls	\$8,500.00	1	\$8,500
	Sanitary Sewer - Floor trench	ls	\$9,000.00	1	\$9,000
	3" Sanitary Line	lf	\$130.00	50	\$6,500
	2" Sanitary line	lf	\$110.00	128	\$14,080
	4" Sanitary line	lf	\$150.00	110	\$16,500
	Plumbing Valves	ls	\$9,000.00	1	\$9,000
	Domestic Water Piping	lf	\$75.00	780	\$58,500
	Vent piping	ls	\$17,500.00	1	\$17,500
	Water Closets	ea	\$2,800.00	6	\$16,800
	Lavatories	ea	\$1,695.00	6	\$10,170
	Lactation Rm Sinks (Single)	ea	\$1,375.00	1	\$1,375
	Break Room Sinks (Double)	ea	\$1,375.00	1	\$1,375
	Drinking Fountain (Dual Height Bottle Fill)	ea	\$2,000.00	2	\$4,000
	Floor Drains at Toilets	ea	\$800.00	6	\$4,800
	Mop Sink	ea	\$1,770.00	1	\$1,770
	Urinals	ea	\$2,800.00	2	\$5,600
	SUBTOTAL				\$200,470

	Division 23 - Mechanical				
	Testing & Balancing	ls	\$10,000.00	1	\$10,000
	Ductwork - large	lf	\$95.00	445	\$42,275
	Ductwork - small	lf	\$68.00	830	\$56,440
	Refrigerant Piping	ls	\$6,500.00	1	\$6,500
	New ductless condenser unit	ls	\$7,000.00	1	\$7,000
	Minisplit unit at IT	ls	\$8,500.00	1	\$8,500
	Air Duct Accessories	ls	\$7,500.00	1	\$7,500
	Grilles, Registers and Diffusers	ls	\$15,000.00	1	\$15,000
	SUBTOTAL				\$153,215

Project: Ukiah B of A Remodel		Client: City of Ukiah			
Project No.:		City: Ukiah, CA			
Building Size:		Date: December 13, 2024			
		9,201 SF			
CSI	DESCRIPTION	UNIT	PRICE	QTY	COST
	Division 26 - Electrical				
	Common Work Results for Electrical	ls	\$15,000.00	1	\$15,000
	Low Voltage	ls	\$5,000.00	1	\$5,000
	Grounding & Bonding	ls	\$8,000.00	1	\$8,000
	Hangers & Supports	ls	\$12,500.00	1	\$12,500
	Raceways & Boxes	sf	\$3.50	9201	\$32,204
	HVAC and Control Wiring	ls	\$25,000.00	1	\$25,000
	Wiring - general	ls	\$60,000.00	1	\$60,000
	Lighting Controls	ls	\$15,000.00	1	\$15,000
	Panelboards - New	ea	\$4,000.00	3	\$12,000
	Automatic Transfer Switch	ls	\$40,000.00	1	\$40,000
	Interior Lighting	sf	\$17.00	9201	\$156,417
	Exterior Lighting	ls	\$5,000.00	1	\$5,000
	SUBTOTAL				\$386,121

	Division 28 - Electronic Safety and Security				
	Physical Access Control System	ls	\$35,000.00	1	\$35,000
	Access Control - Card Readers	ea	\$2,000.00	10	\$20,000
	Access Control - System wiring	ls	\$55,000.00	1	\$55,000
	SUBTOTAL				\$110,000

	Division 31 - Earthwork				
	Site Grading	ls	\$8,500.00	1	\$8,500
	SUBTOTAL				\$8,500

	Division 32 - Exterior Improvements				
	Site Improvements - Concrete Curbs	lf	\$90.00	200	\$18,000
	Handrails/Guardrails	lf	\$115.00	81	\$9,315
	Sign Posts	ea	\$3,000.00	3	\$9,000
	Signage	ls	\$1,500.00	1	\$1,500
	Truncated Domes	ls	\$1,000.00	1	\$1,000
	Site Improvements - Generator Pad	sf	\$15.00	250	\$3,750
	Site Improvements - Concrete ADA Stalls	sf	\$50.00	470	\$23,500
	Site Improvements - Concrete - Sidewalk	sf	\$50.00	981	\$49,050
	Site Improvements - Asphalt Paving	sf	\$15.00	760	\$11,400
	Site Improvements - Asphalt Utility Trench	sf	\$15.00	800	\$12,000
	Site Improvements - Wheel Stops	ea	\$1,500.00	6	\$9,000
	Site Improvements - Pavement Markings	ls	\$2,000.00	1	\$2,000
	Site Improvements - Landscape	ls	\$2,000.00	1	\$2,000
	SUBTOTAL				\$151,515

Project: Ukiah B of A Remodel		Client: City of Ukiah			
		City: Ukiah, CA			
Project No.:		Date: December 13, 2024			
Building Size:		9,201 SF			
CSI	DESCRIPTION	UNIT	PRICE	QTY	COST
	Division 33 - Utility				
	Utility Trench - New Handhole	ea	\$5,000.00	1	\$5,000
	Demo - Light and Pole	ea	\$2,500.00	1	\$2,500
	Exterior Site Lighting - replace	ea	\$3,000.00	2	\$6,000
	Exterior Site Lighting - new with pole	ea	\$18,500.00	1	\$18,500
	Exterior Site Lighting - new with pole at ADA	ea	\$11,500.00	1	\$11,500
	Utility Trench	lf	\$125.00	300	\$37,500
	Utility Trench - Sanitary Sewer pipe	lf	\$105.00	200	\$21,000
	Primary service connection	ls	\$40,000.00	1	\$40,000
	Generator	ls	\$125,000.00	1	\$125,000
	Generator feeder	lf	\$120.00	100	\$12,000
	Utilities - Sewer - Coupling & Fittings	ls	\$5,000.00	1	\$5,000
	SUBTOTAL				\$284,000
	Construction Cost Subtotal				\$3,095,140
	Division 1 - General Requirements & Fees				
	General Conditions	%		10.00%	\$309,514
	Bond, Insurance & Permit	%		2.00%	\$61,903
	Contingency	%		10.00%	\$309,514
	SUBTOTAL				\$680,931
	Construction Cost Total				\$3,776,071

Summary	Subtotal	
Division 1 - General Requirements & Fees	\$680,931	74.01
Division 2 - Site Construction	\$54,900	5.97
Division 3 - Concrete	\$18,500	2.01
Division 5 - Metals	\$11,360	1.23
Division 6 - Wood & Plastics	\$150,850	16.39
Division 7 - Thermal & Moisture Protection	\$48,254	5.24
Division 8 - Doors & Windows	\$312,950	34.01
Division 9 - Finishes	\$542,193	58.93
Division 10 - Specialties	\$119,200	12.96
Division 13 - Special Construction	\$27,603	3.00
Division 14 - Conveying Systems	\$410,000	44.56
Division 21 - Fire Suppression	\$105,510	11.47
Division 22 - Plumbing	\$200,470	21.79
Division 23 - Mechanical	\$153,215	16.65
Division 26 - Electrical	\$386,121	41.97
Division 28 - Electronic Safety and Security	\$110,000	11.96
Division 31 - Earthwork	\$8,500	0.92
Division 32 - Exterior Improvements	\$151,515	16.47
Division 33 - Utility	\$284,000	30.87
TOTAL	\$3,776,071	\$ 410.40 per SF



AGENDA SUMMARY REPORT

SUBJECT: Review and Consider the Fiscal Year 2025-26 Budget Development Schedule.

DEPARTMENT:	Finance	PREPARED BY:	Dan Buffalo, Finance Director, Olga Keough, Controller, Mary Horger, Financial Services Manager, Diana Ramos, Assistant Accountant, Jessie Brunell, Financial Controller
		PRESENTER:	Dan Buffalo, Finance Director

ATTACHMENTS:

1. Budget Development Schedule 2025-26
2. Budget Schedule Diagram 2025-26 - Council Ready

Summary: The Council will receive and consider the City's operating and capital budget development and adoption schedule for the 2025-26 fiscal year (abbreviated as 2026).

Background: California's law requires that an annually-approved appropriation plan be considered for all local governmental entities. Most produce a budget to satisfy that requirement. The City of Ukiah will develop a budget document for the 2026 fiscal year built on best practices, focused on clarity, and presented at the highest level of quality per the guidelines of the Government Finance Officers Association.

Discussion: A sound, well-managed budget for a governmental entity is a living document. It is subject to regular review and amendment, is clear and understandable, is scrutinized frequently, and its development thoughtfully planned and executed. The City of Ukiah's 2026 budget will exhibit these characteristics, starting with planning. Attachment 1, Budget Development Schedule 2025-26, outlines the development process, key dates, and milestones. It is principally a management document. A summarized version highlighting the major events by month is attached as Attachment 2.

Note: This schedule is flexible and currently in draft. It may be revised as necessary. Council members should review and hold dates/times on their calendar. Council members should also report any potential conflicts to Dan Buffalo, Director of Finance.

Recommended Action: Receive and consider the City's operating and capital budget development and adoption schedule for the 2025-26 fiscal year.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: City Manager

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager

Task Name	Budget Year	Start date	Due date	Tag	Description
Personnel Requests Due to HR	Budget Development 2026	11/04/2024	12/06/2024		This is revision to past years' budget development schedule. Submit your requested personnel changes to Sheri by the due date indicated on this task. This includes any requested additions, deletions, class changes, etc.
Budget Kick-off with Executive and Departmental Budget Teams	Budget Development 2026		01/16/2025		Planning and preparations for the 2025-26 budget development.
Preliminary Budget Calendar Released to Council	Budget Development 2026		01/15/2025		
Narrative Updates	Budget Development 2026	02/03/2025	02/28/2025		Departments begin this process. Update period to budget narratives, notably departmental. Period also includes updates to objectives and accomplishments.
5-Year CIP Update	Budget Development 2026	01/13/2025	02/28/2025		
General Fund Pre-Approved Budget Sums Released	Budget Development 2026		02/28/2025		- Departments that operate in the general fund will receive a pre-approved budget amount for non-personnel, non-capital accounts. - Departments must not exceed that amount with their initial budget requests. - Capital accounts do not apply to this new process. - Personnel accounts do not apply to this new process as they are governed by personnel requests approved by HR and the City Manager. - Requests for additional appropriation may be submitted after March 31 when Finance has completed its initial budget review. More details on this process will be forthcoming after April 1.
Departmental Mid-Year Report to City Council (Round 1)	Budget Development 2026		03/19/2025	SAVE THE DATE!	4:00 PM Start -City Manager's Office -Community Development -Electric Utility -Airport
Budget Central Open in Munis	Budget Development 2026	03/01/2025	03/31/2025		Munis Central Budget is open to all departments to enter their budget requests for the coming year.
City Council Strategic Plan Review	Budget Development 2026	04/02/2025	04/02/2025	SAVE THE DATE!	
Departmental Mid-Year Report to City Council (Round 2)	Budget Development 2026		04/02/2025	SAVE THE DATE!	4:00 PM Start -Human Resources -Public Works -Water Resources
City Manager and Finance review of budget requests	Budget Development 2026	04/01/2025	04/13/2025		- Review appropriation requests - Meet with Finance for discussion/analysis - Finance to conduct preliminary revenue forecasts for all major funds
Departmental Mid-Year Report to City Council (Round 3)	Budget Development 2026		04/16/2025	SAVE THE DATE!	4:00 PM Start -Fire -Police -Community Services -Finance
Departmental Budget Meetings with Finance	Budget Development 2026		04/25/2025		
Draft Budgets to Third-Party Agencies	Budget Development 2026		05/01/2025		-UVSD -UVFA -UVWA -MSWMA

Budget Hearings with Third-Party Agencies	Budget Development 2026	05/05/2025	05/16/2025		-Present budget -Receive input and feedback -Finalize recommendations to City Council and other governing bodies
Finalize Draft Budget Document	Budget Development 2026	05/21/2025	05/21/2025		- Finalize revenue estimates - Complete special revenue funds and trust/agency funds - Circulate for review/edits
Budget Draft Review and Comment Period	Budget Development 2026	05/19/2025	05/26/2025		Budget presentation draft released to departments for review and comment
Budget Workshop with Council	Budget Development 2026		06/02/2025	SAVE THE DATE!	3:00 PM start -Overview presentation of budget proposal -Discussion of changes from prior year -Department presentation -CIP review -Discussion and Q&A -Take requests and revisions
Budget Hearings (cont): Departmental Presentations	Budget Development 2026		06/03/2025	SAVE THE DATE!	3:00 PM Start
Budget Hearings (cont): Departmental Presentations	Budget Development 2026		06/04/2025	SAVE THE DATE!	3:00 PM Start
Budget Hearing (cont): Adoption	Budget Development 2026		06/18/2025	SAVE THE DATE!	

January

- Personnel and Prep
- Personnel requests and analysis
- Budget planning and prep

February

- Narrative and CIP
- Departmental narratives
- Utilities and Public Works preliminary 5-Year CIP requests to Mary
- All departments 5-Year CIP requests to Mary
- Personnel budgets entered into Munis by HR

March

- Munis budget entry by departments
- Departments enter operational (materials, supplies, and services) budgets
- Departments enter approved 5-year CIP capital

April

- Meetings
- Analysis
- Revisions

May

- Document and presentation preparation

June

- Hearings
- City-wide presentation by Finance
- Departmental presentations
- Adoption



AGENDA SUMMARY REPORT

SUBJECT: Possible Introduction of Ordinance by Title Only Amending the City Code Provisions Regarding Enforcement of Business License Regulations.

DEPARTMENT: Community Development

PREPARED BY: Darcy Vaughn, Assistant City Attorney

PRESENTER: Craig Schlatter, Community Development Director; Darcy Vaughn, Assistant City Attorney

ATTACHMENTS:

1. Business License Enforcement Authority Ordinance Redline
2. Business License Enforcement Authority Ordinance Clean

Summary: Council will consider introducing by title only an Ordinance amending Article 6 in Division 2, Chapter 1 of the Ukiah City Code to allow the Director of Finance to delegate enforcement authority for the City's business license regulations to the Chief Code Enforcement Official, in addition to the Chief of Police.

Background: Division 2, Chapter 1 of the City Code sets forth requirements and regulations for businesses operating in the City of Ukiah to obtain and renew business licenses. The vast majority of these provisions were adopted in 1961 and few have been updated since their adoption. Prudent management practices require a periodic review of these provisions to consider potentially beneficial additions, amendments, or deletions of provisions as may be deemed necessary. As part of the larger review of these provisions undertaken by the Community Development Department, Staff determined that while enforcement authority over the business license requirements and regulations is properly given to the Director of Finance, as business licenses are deemed a tax by case law, the Code Enforcement Division of the Community Development Department may be better equipped to efficiently enforce these provisions as part of their general code enforcement authority.

Article 6 of Division 2, Chapter 1, which contains the enforcement provisions for business licenses, currently authorizes the Director of Finance to delegate enforcement authority only to the Chief of Police and states that assistants of the Director, including police officers, may conduct inspections of businesses to determine whether a place of business is operating with a current and valid business license. Staff recommends that these provisions be amended via ordinance ("Ordinance") to allow the Director of Finance to delegate enforcement authority to the Chief Code Enforcement Official and to authorize code enforcement officers to conduct business license inspections.

Discussion: The Ordinance, attached hereto as Attachment 1 (Redline) and Attachment 2 (Clean) amends Section 2170 of the City Code to state that the Director of Finance has the duty to enforce all provisions of Division 2, Chapter 1 regarding business license regulations, and that the Chief Code Enforcement Official, in addition to the Chief of Police, are directed to assist the Director in enforcement as may be required. This Section is also amended to state that every staff member in the Code Enforcement Division of the Community Development Department is appointed an Assistant License Inspector and directed to assist the Director of Finance in the enforcement of Division 2, Chapter 1.

In addition, the Ordinance amends Section 2171 of the City Code to state that code enforcement officers are authorized to act as assistants of the Director of Finance in fulfilling his duty to examine each business to

confirm compliance with the business license requirements and regulations.

Staff recommends Council introduce the Ordinance in Attachment 2 by title only, which would amend the City Code provisions regarding enforcement of business license regulations.

Recommended Action: Introduce by title only the Ordinance amending the City Code provisions regarding enforcement of business license regulations.

BUDGET AMENDMENT REQUIRED: N/A

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

REVENUE: Yes / No GRANT: Yes / No N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Craig Schlatter, Community Development Director; Matt Keizer, Chief Code Enforcement Officer; Dan Buffalo, Director of Finance

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): Policy LU-14.1 Code Enforcement

Approved:


Sage Sangiacomo, City Manager

ORDINANCE NO.

ORDINANCE OF THE CITY COUNCIL OF THE CITY OF UKIAH AMENDING ARTICLE 6, CHAPTER 1, DIVISION 2 OF THE CITY CODE TO DELEGATE AUTHORITY TO THE CITY'S CODE ENFORCEMENT DEPARTMENT TO ENFORCE VIOLATIONS OF THE CITY'S BUSINESS LICENSE REGULATIONS.

The City Council of the City of Ukiah hereby ordains as follows:

SECTION ONE.

Article 6 in Division 2, Chapter 1 of the Ukiah City Code is hereby amended to read as follows :

§ 2170 DIRECTOR OF FINANCE AS ENFORCING AUTHORITY

It shall be the duty of the Director of Finance, and he/~~she~~ is hereby directed to enforce each and all of the provisions of this Chapter. The Chief of Police ~~is and~~ Chief Code Enforcement Official are hereby directed to render such assistance in the enforcement hereof as may from time to time be required by the Director of Finance. Every member of the Police Department and Code Enforcement Division of the Community Development Department are hereby appointed an Assistant License Inspector and directed to assist the Director of Finance in the enforcement of this Chapter.

§2171 DUTY TO EXAMINE EACH BUSINESS

It shall be the duty of the Director of Finance, acting through his deputies and assistants, to examine each business to determine that this Chapter is being complied with. He or she and any of his or her deputies and assistants, including police officers and code enforcement officers, may enter any business free of charge and demand exhibition of the business license. Refusal of any person to so exhibit such license shall be a misdemeanor.

SECTION TWO.

1. Publication: Within fifteen (15) days after its adoption, this Ordinance shall be published once in a newspaper of general circulation in the City of Ukiah. In lieu of publishing the full text of the Ordinance, the City may publish a summary of the Ordinance once 5 days prior to its adoption and again within fifteen (15) days after its adoption.
2. Effective Date: The ordinance shall become effective thirty (30) days after its adoption.
3. Severability: If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council of the City of Ukiah hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

Introduced by title only on _____, 2025, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Adopted on _____, 2025, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Douglas F. Crane, Mayor

ATTEST:

Araceli Sandoval, Deputy City Clerk

ORDINANCE NO.

ORDINANCE OF THE CITY COUNCIL OF THE CITY OF UKIAH AMENDING ARTICLE 6, CHAPTER 1, DIVISION 2 OF THE CITY CODE TO DELEGATE AUTHORITY TO THE CITY'S CODE ENFORCEMENT DEPARTMENT TO ENFORCE VIOLATIONS OF THE CITY'S BUSINESS LICENSE REGULATIONS.

The City Council of the City of Ukiah hereby ordains as follows:

SECTION ONE.

Article 6 in Division 2, Chapter 1 of the Ukiah City Code is hereby amended to read as follows:

§ 2170 DIRECTOR OF FINANCE AS ENFORCING AUTHORITY

It shall be the duty of the Director of Finance, and he/she is hereby directed to enforce each and all of the provisions of this Chapter. The Chief of Police and Chief Code Enforcement Official are hereby directed to render such assistance in the enforcement hereof as may from time to time be required by the Director of Finance. Every member of the Police Department and Code Enforcement Division of the Community Development Department are hereby appointed an Assistant License Inspector and directed to assist the Director of Finance in the enforcement of this Chapter.

§2171 DUTY TO EXAMINE EACH BUSINESS

It shall be the duty of the Director of Finance, acting through his deputies and assistants, to examine each business to determine that this Chapter is being complied with. He or she and any of his or her deputies and assistants, including police officers and code enforcement officers, may enter any business free of charge and demand exhibition of the business license. Refusal of any person to so exhibit such license shall be a misdemeanor.

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2. Effective Date: The ordinance shall become effective thirty (30) days after its adoption.
3. Severability: If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this Ordinance, or its application to any person or circumstance, is for any reason held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the remaining sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases of this Ordinance, or its application to any other person or circumstance. The City Council of the City of Ukiah hereby declares that it would have adopted each section, subsection, subdivision, paragraph, sentence, clause or phrase hereof, irrespective of the fact that any one or more other sections, subsections, subdivisions, paragraphs, sentences, clauses or phrases hereof be declared invalid or unenforceable.

Introduced by title only on _____, 2025, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Adopted on _____, 2025, by the following roll call vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Douglas F. Crane, Mayor

ATTEST:

Araceli Sandoval, Deputy City Clerk



AGENDA SUMMARY REPORT

SUBJECT: New Year Review, Discussion, and Appointments Regarding 2025 Council Assignments; and Consideration of Disbandment and Modification to City Council Committees and Ad Hocs/Standing Committees.

DEPARTMENT: City Clerk

PREPARED BY: Kristine Lawler, City Clerk

PRESENTER: Mayor Crane and City Manager Sangiacomo

ATTACHMENTS:

1. Draft 2025 City Council Special Assignments

Summary: City Council members will provide reports and updates on their committee and ad hoc/standing committee assignments.

Each year following the rotation of the mayor position, the incoming mayor leads a review of assignments. The Council will also consider modifications, additions and elimination of committee and ad hocs/standing committees.

Background: Local / County / Regional Committees - City of Ukiah Councilmembers take an active role in various commissions and committees that are part of city, county, regional, and statewide governance and interests. Each year, the incoming mayor leads a discussion and makes annual appointments for members assigned to various committee assignments. Committee assignments are organized into Local / County / Regional classifications. Roles on committee assignments will vary from liaison to a voting board seat. Assignments are typically filled by a Councilmember, but in some cases it may be appropriate or desired to appoint a Staff member. In some instances, there might be a primary and alternate designated for assignment.

Ad Hoc and Standing Committees - The City Council may establish and appoint ad hoc and standing committees at any time throughout the year. Ad Hocs are established on an as needed, temporary basis for the purpose of addressing particular issues and will disband once the work is complete. Standing Committees are established for the purpose of addressing broader and/or ongoing issues and are subject to the Brown Act meeting noticing requirements.

*****Note:** Although the Council Ad Hoc and Standing Committees are a part of the Council Special Assignment List, they are officially appointed by the Council at various meetings, and are subject to Council approval for any changes.

Discussion: Attachment #1 is a draft of the 2025 Council Special Assignment List and Ad Hoc Committees, inclusive of recommended changes - delineated by added text and strike-through edits in red for vacated positions and Council request. Mayor's recommendations are in green. In addition, ad hoc committees highlighted in red are recommended by Staff for disbandment.

The Mayor will lead a discussion with Council regarding Council committee assignments and make any appointments or reassignments per that discussion. In addition, the Council will consider modifications, additions and disbandment of ad hocs and standing committees. Staff recommends directing the City Clerk to

attach the finalized copy of the 2025 City Council Special Assignments List to the January 15, 2025, minutes for recordation.

Note: All subsequent agendas throughout the year will have a continuation item to allow Council to receive reports on committee and ad hoc work and to allow for further modifications (including the addition of any new ad hocs) as warranted.

Recommended Action: 1) Receive report(s); 2) Discuss the Mayor's recommended assignments, making any possible appointments or re-assignments; 3) Consider the possible continuation, disbandment, and addition of City Council Ad Hoc and/or committees; and 4) Direct the City Clerk to finalize and attach the 2025 Council Assignments and Ad Hoc/Standing Committees List to the January 15, 2025, Minutes.

BUDGET AMENDMENT REQUIRED: No

CURRENT BUDGET AMOUNT: N/A

PROPOSED BUDGET AMOUNT: N/A

FINANCING SOURCE: N/A

PREVIOUS CONTRACT/PURCHASE ORDER NO.: N/A

COORDINATED WITH: Mayor Crane

DIVERSITY-EQUITY INITIATIVES (DEI): N/A

CLIMATE INITIATIVES (CI): N/A

GENERAL PLAN ELEMENTS (GP): N/A

Approved: 
Sage Sangiacomo, City Manager

LOCAL / UKIAH VALLEY		MTG DATE/TIME	MEETING LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
City Broadband Project		TBD	TBD	Civic Center 300 Seminary Ave. Ukiah, CA 95482	to evaluate the Request for Proposal (RFP) for the Internet Service Provider (ISP) for the California's Public Utilities Commission (CPUC) Last Mile Broadband	Orozco	Jim Robbins, Grants Manager, 463-6708; jrobbins@cityofukiah.com
Investment Oversight Committee		Varies	Civic Center 300 Seminary Ave. Ukiah, CA 95482	Civic Center 300 Seminary Ave. Ukiah, CA 95482	Reviews City investments, policies, and strategies	Crane Orozco - Alternate Alan Carter, Treasurer	Dan Buffalo, Director of Finance; 463-6220 dbuffalo@cityofukiah.com
Disaster Council		Shall meet a minimum of once a year at a time and place designated upon call of the chair	Place designated upon call of the chair or, if she/he is unavailable or unable to call such meeting, the first vice chair and then the City Manager or her/his designee.	Office of Emergency Management 300 Seminary Ave. Ukiah, CA 95482 467-5720 - Traci Boyl	Develop any necessary emergency and mutual aid plans, agreements, ordinances, resolutions, rules, and regulations.	Orozco Duenas-Criss - Alternate Request: Criss	Traci Boyl, City Manager's Office Management Analyst; 467-5720; tboyl@cityofukiah.com
Greater Ukiah Business & Tourism Alliance (GUPTA)		4th Monday of month, 10 a.m.	200 S School St. Ukiah, CA 95482	200 S School St. Ukiah, CA 95482	Promotes tourism and works to strengthen and promote the historic downtown and businesses within the greater Ukiah area	Marianne Davison - Community Services Department Staff Duenas Orozco - Alternate Request: Orozco	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Mendocino County Inland Water and Power Commission (IWPC)		2nd Thursday of month, 6:00 p.m.	Civic Center 300 Seminary Avenue conference room 5	IWPC Staff P.O. Box 1247 Ukiah, CA 95482 391-7574 - Candace Horsley	Develops coordination for water resources and current water rights: Potter Valley project - Eel River Diversion	Rodin Orozco - Alternate	Sean White, Director of Water Resources; 463-5712 swhite@cityofukiah.com
North Coast Opportunities (NCO)		4th Wednesday of month, 2 p.m.	Alternating locations - Ukiah and Lakeport	Governing Board Chair North Coast Opportunities 413 North State Street Ukiah, CA 95482	Assist low income and disadvantaged people to become self reliant	Neil Davis Request: Criss This Request will require NCO application and approval; Staff recommends reconsidering after a year given the recent appointment of Director Davis. Mayor Recommends No Change	Neil Davis, Community Services Director; 467-5764 ndavis@cityofukiah.com
Sun House Guild ex officio		2nd Tuesday of month, 4:30 p.m.	Sun House 431 S. Main St. Ukiah, CA	431 S. Main Street Ukiah, CA 95482 467-2836	Support and expand Grace Hudson Museum	Duenas Orozco, Sher Neil Davis - Alternate Requests: Orozco, Criss, Sher	David Burton, Museum Director; 467-2836 dburton@cityofukiah.com
Ukiah Valley Basin Groundwater Sustainability Agency (GSA)		2nd Thursday of month, 1:30 p.m.	Board of Supervisors Chambers; 501 Low Gap Road Ukiah, CA	County Executive Office 501 Low Gap Rd., Rm. 1010 Ukiah, CA 95482 463-4441	GSA serves as the Groundwater Sustainability Agency in the Ukiah Valley basin	Crane Duenas- Alternate	Sean White, Director of Water Resources; 463-5712 swhite@cityofukiah.com
MENDOCINO COUNTY		MTG DATE/TIME	MEETING LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
City Selection Committee		Called as required by the Clerk of the Board	BOS Conference Room 501 Low Gap Rd. Rm. 1090 Ukiah, CA	C/O: BOS 501 Low Gap Rd., Rm 1090 Ukiah, CA 95482 463-4441	Makes appointments to LAFCO and Airport Land Use Commission (Mayor - Primary; Vice Mayor - Alternate)	Mayor Duenas Crane Vice Mayor Crane Sher	Kristine Lawler, City Clerk; 463-6217 klawler@cityofukiah.com
Economic Development & Financing Corporation (EDFC)		2nd Thursday of month, 2:00 p.m.	Primarily 631 S. Orchard Street (location varies)	Executive Director 631 South Orchard Avenue Ukiah, CA 95482 467-5953	Multi-agency co-op for economic development and business loan program	Riley (appointed 12/19/18)	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Library Advisory Board		3rd Wednesdays of alternate months; 1:00 p.m.	Various Mendocino County Libraries	Ukiah County Library 463-4491	Review library policy and activities	Sher Rodin - Alternate	Kristine Lawler, City Clerk; 463-6217; klawler@cityofukiah.com
Mendocino County 1st District Liaison		Monthly; TBD	Civic Center Annex conference room #5 411 West Clay St. Ukiah, CA 95482	Civic Center 300 Seminary Ave. Ukiah, CA 95482	To coordinate activities and policy development with the City's 1st District Supervisor	Rodin Crane- Alternate Mayor Recommendation: Crane Rodin - Alternate	Sage Sangiacomo, City Manager; 463-6221; ssangiacomo@cityofukiah.com
Mendocino County 2nd District Liaison		1st Wednesdays of month, 8:00 a.m.	Civic Center Annex conference room #5 411 West Clay St. Ukiah, CA 95482	Civic Center 300 Seminary Ave. Ukiah, CA 95482	To coordinate activities and policy development with the County's 2nd District Supervisor	Rodin Duenas - Alternate	Shannon Riley, Deputy City Manager; 467-5793 sriley@cityofukiah.com
Mendocino Council of Governments (MCOG)		1st Monday of month, 1:30 p.m.	Board of Supervisors Chambers 501 Low Gap Road Ukiah, CA	Executive Director 367 N. State Street, Ste. 206 Ukiah, CA 95482 463-1859	Plan and allocate State funding, transportation, infrastructure and project County wide	Duenas Criss Sher - Alternate Requests: Orozco, Criss	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com
Mendocino County Airport Land Use Commission		As needed	BOS Conference Room 501 Low Gap Rd., Rm. 1090, Ukiah, CA	Mendocino County Executive Office 501 Low Gap Rd. Rm. 1010 Ukiah, CA 95482	To formulate a land use compatibility plan, provide for the orderly growth of the airport and the surrounding area, and safeguard the general welfare of the inhabitants within the vicinity	Liaisons: Owen/Schlatter	Greg Owen, Airport Manager; 467-2855; gowen@cityofukiah.com Craig Schlatter, Director of Community Development; 463-6219; cschlatter@cityofukiah.com

Mendocino County Local Area Formation Commission (LAFCO)	1st Monday of month, 9:00 a.m.	Board of Supervisors Chambers	Executive Director 200 S. School Street, Ste. 2 Ukiah, CA 95482 463-4470	Required by legislation - planning spheres of influence, annexation, service areas, and special districts	Rodin Crane - Alternate for both city seat members on Commission Request: Criss Mayor Recommendation: No Change due to defined terms/appointees made by City Selection Committee	Craig Schlatter, Director of Community Development; 463-6219; cschlatter@cityofukiah.com	
MENDOCINO COUNTY Continued	MTG DATE/TIME	MEETING	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Mendocino Solid Waste Management Authority (MSWMA)	3rd Thursday of every other month (varies), 10:00 a.m.	Willits Council Chambers	Solid Waste Director 3200 Taylor Drive Ukiah, CA 95482 468-9710	County-wide Solid Waste JPA	Crane Sher - Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com	
Mendocino Transit Authority (MTA) Board of Directors	Last Wednesday of month, 1:30 p.m.	Alternating locations - Ukiah Conference Center or Fort Bragg, or Point Arena	Executive Director 241 Plant Road Ukiah, CA 95482 462-1422	County-wide bus transportation issues and funding	Sher Duenas - Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com	
Mendocino Youth Project JPA Board of Directors	3rd Wednesday of month, 7:45 a.m.	776 S. State Street Conference Room	Mendocino Co. Youth Project 776 S. State Street, Ste. 107 Ukiah, CA 95482 707-463-4915	Targets all youth with a focus on drug and alcohol prevention, healthy alternatives and empowering youth to make healthy choices	Cedric Crook, Police Chief Duenas Criss - Alternate Request: Criss	Cedric Crook, Police Chief; 463-6771; ccrook@cityofukiah.com	
Russian River Flood Control District (RRFCD) Liaison	1st Monday of month, 5:30 p.m.	151 Laws Ave., Suite D Ukiah, CA	151 Laws Ave., Ukiah, CA 95482; rrfc@pacific.net; 462-5278	Proactively manage the water resources of the upper Russian River for the benefit of the people and environment of Mendocino County	White/Orozco	Sean White, Director of Water Resources; 463-5712 swhite@cityofukiah.com	
Ukiah Players Theater Board of Directors	3rd Tuesday of month, 6:00 p.m	1041 Low Gap Rd Ukiah, CA 95482 462-1210	1041 Low Gap Rd Ukiah, CA 95482 462-1210	To oversee the activities, organization and purpose of the Ukiah Players Theater	Greg Owen, Airport Manager (appointed 12/19/18)	Kristine Lawler, City Clerk; 463-6217 klawler@cityofukiah.com	
Ukiah Unified School District (UUSD) Committee	Quarterly	511 S. Orchard, Ste. D Ukiah, CA 95482	511 S. Orchard Ukiah, CA 95482	Information exchange with UUSD Board Chair, Mayor, Superintendent, and City Manager	Duenas Orozco, Criss Rodin - Alternate Sage Sangiacomo, City Manager Cedric Crook, Police Chief Requests: Orozco, Criss, Sher	Sage Sangiacomo, City Manager; 463-6221 ssangiacomo@cityofukiah.com	
REGIONAL	MTG DATE/TIME	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT	
Great Redwood Trail Agency (GRTA)	Bi-monthly, 3rd Thursdays, 10:30 a.m.	Various Locations - announced	419 Talmage Road, Suite M Ukiah, CA 95482 463-3280	Provides a unified and revitalized rail infrastructure meeting the freight and passenger needs of the region	Rodin Duenas Sher- Alternate Requests: Orozco, Criss, Sher	Neil Davis, Community Services Director 467-5764 ndavis@cityofukiah.com	
League of California Cities Redwood Empire Legislative Committee	Prior to Division Meetings, meets 3x in person and then via conference call	Various locations that are announced	Redwood Empire League President; Public Affairs Program Manager (916) 658-8243	Elected city officials and professional city staff attend division meetings throughout the year to share what they are doing and advocate for their interests in Sacramento	Duenas-Orozco Orozco - Alternate	Sage Sangiacomo, City Manager; 463-6221 ssangiacomo@cityofukiah.com	
Russian River Watershed Association (RRWA)	4th Thursday of month, 9:00 a.m. (only 5 times a year)	Windsor Town Hall 9291 Old Redwood Hwy, #400 Windsor, CA 95492 707-838-1000	Russian River Watershed Association 2235 Mercury Way, Suite 105 Santa Rose, CA 95407 info@rrwatershed.org 707-508-3670 (message only)	Consider issues related to Russian river - plans projects and funding requests	Rodin Sher - Alternate	Tim Eriksen, Public Works Director/City Engineer; 463-6280 teriksen@cityofukiah.com	
Northern California Power Agency (NCPA) - Commission	4th Thursday of month, 9:00 a.m. (see NCPA calendar)	Roseville, CA and other locations	651 Commerce Drive Roseville, CA 95678 916-781-4202	Pool of State and local power utilities developing and operating power generation, providing scheduling and related energy services and providing regulatory and legislative support.	Crane - Commissioner Sher - City Council Alternate Sauers - Alternate and Commissioner in absence of Commissioner Crane	Cindi Sauers - Electric Utility Director; 463-6286 csauers@cityofukiah.com	
Northern California Power Agency (NCPA) – Lodi Energy Center (LEC) Appointment	2nd Monday of month, 10:00 AM	Lodi, CA and other locations	651 Commerce Drive Roseville, CA 95678 916-781-4299	Committee oversees the operation, maintenance and expenditures of the LEC 300 MW generating project.	Sauers – Project Participate Appointee	Cindy Sauers, Electric Utility Director, 463-6286, csauers@cityofukiah.com	
Transmission Agency of Northern California (TANC)	4th Wednesday of month, 10 a.m.	35 Iron Point Circle Suite 225 Folsom, CA	35 Iron Point Cir #225 Folsom, CA 95630 916-852-1673; info@tanc.us	Provide electric transmission to its Member utilities through transmission line ownership or contract arrangements.	Crane Sauers - Alternate	Cindi Sauers - Electric Utility Director; 463-6286 csauers@cityofukiah.com	
STANDING COMMITTEES	MTG DATE/TIME	LOCATION	MAILING ADDRESS/CONTACT	COMMITTEE FUNCTION	ASSIGNED TO	PRINCIPAL STAFF SUPPORT	
Diversity and Equity	TBD	Virtual Meeting Room (link to be created)	Civic Center 300 Seminary Ave. Ukiah, CA 95482	Improve diversity and equity in the City's workforce and municipal services	Orozco/Duenas Criss Request: Criss	Traci Boyl, City Manager's Office Management Analyst; 467-5720; tboyl@cityofukiah.com	
Fire Executive Committee	2nd Tue, every other month beginning in January; 5:00 p.m.	Ukiah Valley Conference Center, 200 S. School Street Ukiah, CA	Civic Center 300 Seminary Ave. Ukiah, CA 95482 sabba@cityofukiah.com	Per the recently adopted agreement between the City of Ukiah and the Ukiah Valley Fire Protection District	Orozco/Sher Alternates: Criss Request: Criss	Doug Hutchison, Fire Chief; 463-6263; dhutchison@cityofukiah.com	
Countywide Oversight Board to the RDA Successor Agencies	4th Thursday of January, 4:00 p.m.; meets annually	Ukiah Valley Conference Center, 200 S. School Street Ukiah, CA	City of Ukiah ATTN: City Clerk 300 Seminary Ave. Ukiah, CA 95482	Oversee and direct the Successor Agencies of the former redevelopment agencies	Crane	Dan Buffalo, Director of Finance; 463-6220 dbuffalo@cityofukiah.com Kristine Lawler, City Clerk; 463-6217, klawler@cityofukiah.com	
Water Executive Committee (Ukiah Valley Water Authority)	1st Tue of each month at 6:00 p.m.	Ukiah Valley Conference Center, 200 S. School Street Ukiah, CA	City of Ukiah ATTN: Sean White 300 Seminary Ave. Ukiah, CA 95482	Oversight of UVWA; set annual budget for the combined water system; Manage rates and collect levies; modify existing water rights for the provision of water service; mediation and dispute resolution;	Crane/Orozco Request: Rodin Mayor Recommendation: No Change	Sean White, Director of Water Resources; 463-5712 swhite@cityofukiah.com	

2025 AD HOC COMMITTEES		
COMMITTEE	ASSIGNED TO	PRINCIPAL STAFF SUPPORT
Electric Grid Operational Improvements	Crane/Orozco	Cindy Sauers, Electric Utility Director, 463-629686 csauers@cityofukiah.com
Trench Cut Policy Development	Crane	Tim Eriksen, Public Works Director/City Engineer, 463-6280 teriksen@cityofukiah.com
Advance Planning & Policy Sphere of Influence (SOI), Municipal Service Review (MSR), Annexation, Tax Sharing, Detachment, and Out of Area Service Agreements- <i>Recommending disbandment due to advanced planning items having been completed, but the addition of a new ad hoc for annexation applications (below)</i>	Crane/Rodin	Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com
Advance Planning & Policy for Annexation Applications	Crane/Rodin	Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com
UVSD/ City Relations <i>Ad hoc committee to address specific issues with the Ukiah Valley Sanitation District, including discussion of overall sewer system service delivery policies, operating policy revisions, potential revisions to the current Operating Agreement, and cost sharing</i>	Crane/Orozco	Dan Buffalo, Director of Finance; 463-6220 dbuffalo@cityofukiah.com Sean White, Water Resources Director 463-5712 swhite@cityofukiah.com
Orr Street Bridge Corridor	Rodin/Sher	Tim Eriksen, Public Works Director/City Engineer, 463-6280 teriksen@cityofukiah.com
Complete Streets	Rodin/Crane Request*: Criss	Tim Eriksen, Public Works Director/City Engineer, 463-6280 teriksen@cityofukiah.com Shannon Riley, Deputy City Manager 467-5793 sriley@cityofukiah.com Neil Davis, Community Services Director 467-5764 ndavis@cityofukiah.com
Special Districts (Water District Consolidation)	Orozco/Crane	Shannon Riley, Deputy City Manager 467-5793 sriley@cityofukiah.com
Corp Yard Planning	Crane/Orozco	Jason Benson, Senior Civil Engineer 463-6284 jbenenson@cityofukiah.com
Mendocino County Courthouse Project and Reuse	Sher/Orozco	Shannon Riley, Deputy City Manager 467-5793 sriley@cityofukiah.com
Climate Action Plan <i>Will coordinate with the Community Development Director to identify and assign representation to each of the identified categories, and also coordinate with the Community Development Director and the Climate Action Plan Working Group related to other outreach efforts during the development of the draft municipal Climate Action Plan related to the 2040 General Plan</i>	Sher/Duenas- Criss Requests: Orozco, Criss	Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com
City's 150-Year Anniversary Planning	Orozco/Rodin	Shannon Riley, Deputy City Manager 467-5793 sriley@cityofukiah.com
Zoning Reform <i>Function is to explore creation of a new ministerial zoning permit and identify additional zoning streamlining and reform efforts to provide better and more consistent development outcomes</i>	Crane/Orozco Request*: Criss	Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com
Community Health Needs Assessment (CHNA) Steering Committee <i>assist in the creation of the 2025 CHNA Report for the communities served by the three Adventist Health hospitals in Mendocino County. providing insight, identifying, gathering and analyzing the health needs of our community. Additionally</i>	Rodin/Sher Request*: Criss	Jeremy Malin, NP Director of Community Health Analytics Adventist Health Howard Memorial Adventist Health Ukiah Valley Adventist Health Mendocino Coast 978-289-3330; malinjr@ah.org
Parks & Recreation Special District Exploration	Rodin/Orozco	Neil Davis, Community Services Director 467-5764 ndavis@cityofukiah.com
Downtown Zoning code	Crane/Rodin Request*: Criss	Craig Schlatter, Community Development Director 463-6219 cschlatter@cityofukiah.com
Tourism Advisory Committee	Rodin/Sher	Shannon Riley, Deputy City Manager 467-5793 sriley@cityofukiah.com
City Council Handbook Review and Update	Sher	Kristine Lawler, City Clerk 463-6217; klawler@cityofukiah.com