

**CARROLL COUNTY BOARD OF COMMISSIONERS  
211 MOODY AVE SW OFFICE RENOVATION****HAI PROJECT NO. 24013.000****TO: ALL BIDDERS**

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This Addendum becomes a part of the Contract Documents and modifies the original Bidding Documents dated October 15, 2024, as noted below. The Bidder shall acknowledge receipt of this Addendum on the Form of Proposal. Failure to do so may subject the Bidder to disqualification.

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**CHANGES TO PRIOR ADDENDA:**

1. Refer to attached updated specification section which adds Siemens as an acceptable manufacturer as noted in question #9 in Addendum 01.

**GENERAL CLARIFICATIONS:**

1. None

**QUESTIONS FROM BIDDERS:**

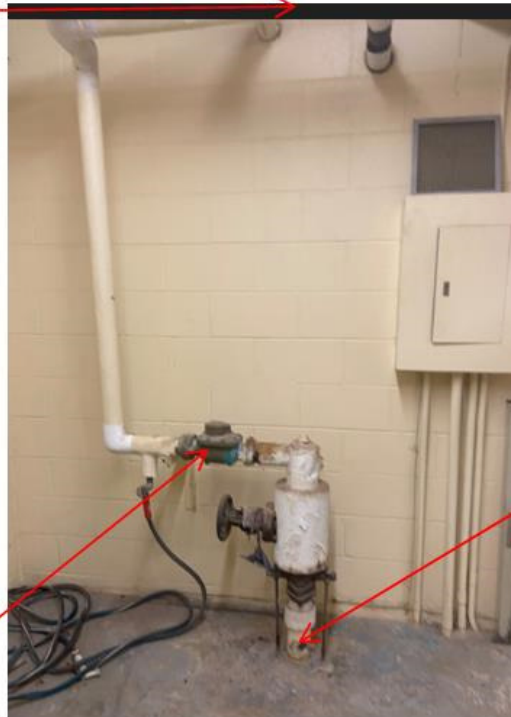
1. **Question:** Would it be possible to obtain the contact information for the roofing contractor?  
**Answer:** The roofing contractor under contract with the Owner is Damschroder Roofing, Inc., 2625 E State Street, Fremont, OH 43420, (419) 556-6510.
2. **Question:** For the casework it calls out 3mm edges, is plastic laminate edges acceptable?  
**Answer:** No, we specify 3mm for durability.
3. **Question:** Is there a specified manufacture listed for the canopy for alternate 2?  
**Answer:** No, this is a delegated design item by a canopy manufacturer since it is a custom item.
4. **Question:** Demo Plan Note 23: Temporary Partition - What is the extent of the partition and what material should the partition be made from?  
**Answer:** The partition is located in Corridor 175 to separate the work area from the remaining portion of the building that is outside the project scope. The partition can be made at the contractor's option on materials that will resist the passage of dust into the non-project area.
5. **Question:** Demo Plan Note 24: Remove existing curtains and blinds from windows. – At the walkthrough, no curtains or blinds were visible in the in-person voting room. Do you know the extent of these items?  
**Answer:** Since the issuance of the drawings, the Owner has removed curtains and blinds.
6. **Question:** Demo Plan Note 28: Prepare existing door frame and new door. – What preparations need to be made to this door frame?  
**Answer:** Door frame is existing. Contractor will need to examine frame and prep door to accept hardware to match frame or modify frame to match new door hardware.
7. **Question:** Opening #121 is a pair of doors detailed as door type E, wood door x HMF. The hardware set detailed is hardware set #025 which makes reference to door seal & meeting stile furnished by aluminum door supplier. Is this opening supposed to be an aluminum door & frame or a wood door and hollow metal frame as detailed?  
**Answer:** Opening revised to be aluminum door and frame.

8. **Question:** Please advise on Specifications for Boiler replacement (Alternate #3)?  
**Answer:** Refer to attached specification section 235216 – Fire-Tube Condensing Boilers.
9. **Question:** Drawing A2-1 Keynote 13, are bidders to extend the existing columns to existing soffit? Or patch and repair as is? Existing columns do not extend all the way up to existing soffit.  
**Answer:** Refer to A3-1, note 1 at columns and detail 7/A3-0. Columns to be enclosed with break metal collar per detail.
10. **Question:** Reference photo, does the existing exterior soffit at lower level entrance require patch/repair and paint?  
**Answer:** Refer to Sheets A1-3 and A3-1 for soffit replacement. Detail 7/A3-0 is also applicable.
11. **Question:** Per summary of work, roofing scope of work direct with owner. Does this include the new roofing shown over the canopy (Drawing A2-1) or is the GC to carry a portion of the roofing for that area?  
**Answer:** Roofing shown as part of this project at the canopy at Loading/Unloading 008 is part of this contract. The reroofing of the existing building is by Owner only.
12. **Question:** Specifications include 113100 – Residential Appliances which include MO-1, RF-1, DW-1, etc. Per drawing elevation sheets A7-1 to A7-5 it shows these appliances dashed which says “Owner Furnished, Owner Installed”. Please clarify if appliances are by contractor or owner.  
**Answer:** Updated A7-2 and A7-4 to reflect appliances being furnished and installed by Contractor.
13. **Question:** Please supply more information on the roof drains, who supplies the assembly, what type of roof drain will be used, is there a specification we cannot find?  
**Answer:** Roof drains are not part of this project. Roofing is under separate contract by Owner.
14. **Question:** Is it possible that an allowance is created for general notes 4 and 5 on A2-0?  
**Answer:** No, an allowance will not be created for these notes.
15. **Question:** The electrical specifications state that NM cable is preferred? Is this correct? I don't typically see NM cable being allowed on commercial projects.  
**Answer:** NM Cabling is not permitted. Refer to updated specification included herein.
16. **Question:** Is it possible to get a copy of As-Built plans for the existing sprinkler system?  
**Answer:** As-built drawings of the existing sprinkler system do not exist.
17. **Question:** According to drawing number A2-2 the work being done on the plan west side is to be considered alternate 1. According to drawing number E206 the lighting in the mentioned area is also Alternate 1 but no indication for the UV units. Are the UV units to be bid in alternate 1 or the base bid? Please advise.  
**Answer:** UV Units should be included in Alternate 1. All work associated with rooms 171, 172, 173, and 174 is to be included in Alternate 1.
18. **Question:** Specification section Hydronic Piping item 3.7 Chemical Treatment and drawing M406 new chemical system, should this work be part of base bid or alternate #3?  
**Answer:** . This should be a part of Alternate #3 and the heating water plant replacement as noted in heating water schematic.
19. **Question:** On the door schedule door material type ‘glass’. Is this an aluminum storefront door or hollow metal?  
**Answer:** Door EX016A clarified to be existing to remain.

20. **Question:** . For spec section 084113 Aluminum Storefront, can delegated design and seismic performance be omitted?  
**Answer:** Opening #121 revised to be aluminum door and frame.
21. **Question:** For spec section 084113 Aluminum Storefront, can a standard 1-3/4" non thermal door be used in lieu of a 2-1/4" thermal door?  
**Answer:** No, provide as specified.
22. **Question:** Please provide window elevations of windows where the bottom lite of glass is to be replaced per note 12 on the floor plans.  
**Answer:** Windows will need to be verified in field for size and fit within existing frame.
23. **Question:** Please provide a manufacturer and model number for the triple track slider. This is not something CR Laurance offers.  
**Answer:** Provide one double and one single track to permit free movement of all three glazing panels.
24. **Question:** Specs state NM cable preferred. Is this allowed in this building?  
**Answer:** NM Cabling is not permitted. Refer to updated specification included herein.
25. **Question:** Are we to include signage scope of work as a part of this bid? If so, please provide plan & details.  
**Answer:** Signage will be by Owner.
26. **Question:** For the voice and data what exactly is the EC's scope of work? I do not see any wire or equipment details on the specs or drawings.  
**Answer:** EC's scope of work is for pathways only. Owner will contract directly with security and teledata vendors. Provide pull strings in all empty voice/data raceways/conduits.
27. **Question:** Is there demolition of exiting finishes required under Alt. 1. Area is scheduled to receive new finishes but no demolition notes, maybe by abatement contract?  
**Answer:** On sheet A1-2 general note #11: Remove flooring and base where new finishes are indicated and as noted unless previously removed under asbestos abatement. Patch and repair substrates for new finishes. Flooring/base to be removed is VCT with resilient base unless noted otherwise. The rooms in Alt.1 are carpet and will be updated on the drawings.
28. **Question:** Would stranded wire type THHN #13 and larger be acceptable?  
**Answer:** Yes, stranded wire larger than #12 is acceptable
29. **Question:** Opening #121 is a pair of doors detailed as door type E, wood door x HMF. The hardware set detailed is hardware set #025 which makes reference to door seal & meeting stile furnished by aluminum door supplier. Is this opening supposed to be an aluminum door & frame or a wood door and hollow metal frame as detailed?  
**Answer:** Opening #121 revised to be aluminum door and frame.

30. **Question:** P-102 note 12 talks about removing the waterline back to this point. p-102 note 13 talks about removing water main and capping main in the underground. P-202 note 9 talks about tying water line back into the water service? Can you please provide some direction?  
**Answer:** Note remains as is. Remove piping back and extend new piping under new work. Upstream piping from service being removed is addressed by note 13. Piping from service needs removed back to below grade as noted in note 13. Downstream piping needs removed back to point indicated by note 12. This service is anticipated to be abandoned and is currently backfed from the newer water service located in the basement boiler room. Work to be closely coordinated with water dept. Refer to section view below.

REMOVE FOR TIE  
IN AND EXTENSION  
(NOTES 12 AND 9)



BACK TO BELOW  
GRADE (NOTE 13)

WATER METER

31. **Question:** Who is the awarded contractor for the abatement work and can a contact be provided?  
**Answer:** Precision Environmental is the abatement contractor. Contact Al Linger at 216-642-6040 or [alinger@precision-env.com](mailto:alinger@precision-env.com).
32. **Question:** We are trying to coordinate all the openings that will need cut in and receive lintels for the new ductwork. Can you confirm if all existing masonry walls go to deck?  
**Answer:** All masonry walls that are visible extend to deck.
33. **Question:** Is there a plan indicating sizes of masonry openings that need to be infilled at removed ductwork?  
**Answer:** There is not a plan indicated sizes of masonry openings removed. These will need to be field verified.
34. **Question:** Who is responsible for paying for the building permit?  
**Answer:** The contractor will be responsible for any permit costs.
35. **Question:** Who is responsible for providing builder's risk insurance?  
**Answer:** Owner will provide builder's risk insurance.

36. **Question:** Are surface mounted conduits/ raceways acceptable at existing masonry walls?  
**Answer:** Yes
37. **Question:** Please confirm if we are only to provide rough ins for the technology scope.  
**Answer:** Scope for technology is pathways only. Owner will contract directly and separately for technology. Provide pull strings in all empty voice/data raceways/conduits.
38. **Question:** According to page A7-2 in the drawings, under the typical material section, it calls out for window stools to be SS-1 material. The Finish table on A9-1 states these window stools to be corian. A8-0, Detail 5 shows windowsills to be gyp board. I have yet to find a detail that shows SS-1 being used. Please clarify the intent and which detail is correct?  
**Answer:** Window stools in details 5 & 6 on Sheet A8-0 have been revised to include a solid surface window stool.
39. **Question:** According to page A7-1 under the detail for “typical millwork elevations” it shows a keycode lock indication. Spec section 064023.7 line “j” Calls for national lock NO. C-8053 please provide information on the intent or design of the lock to be used. The keycode lock does not have a specification. Please advise.  
**Answer:** The keycode lock should be removed from the project as it is not used. A7-1 updated to reflect this.

**CHANGES TO PROJECT MANUAL:**

1. Section 113013 RESIDENTIAL APPLIANCES
  - a. Replace section in its entirety. Updated dishwasher to be ADA compliant.
2. Section 235216 FIRE-TUBE CONDENSING BOILERS
  - a. Add section
3. Section 260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
  - a. Replace section in its entirety. Removes NM cable from project.
4. Section 284000 FIRE ALARM SYSTEM
  - a. Replace section in its entirety. Siemens added as acceptable manufacturer.

**CHANGES TO DRAWINGS:**

1. A1-1 DEMOLITION PLAN – LOWER LEVEL
  - a. Added removal of locker bases in Public Restrooms 018 & EX005.
2. A1-2 DEMOLITION PLAN – UPPER LEVEL
  - a. Added note 46 in Alternate 1 area to clarify removal of carpet.
3. A7-1 GENERAL INFO & TYPICAL MILLWORK DETAILS
  - a. Updated Typical Millwork Elevations to remove keycode lock.
4. A7-2 INTERIOR ELEVATIONS
  - a. Appliances updated to be provided and installed by Contractor.
5. A7-4 INTERIOR ELEVATIONS
  - a. Appliances updated to be provided and installed by Contractor.
6. A8-0 DOOR & FRAME SCHEDULE & DETAILS
  - a. Revised door 121 to be aluminum in aluminum frame.
  - b. Clarified existing doors to remain that receive new hardware.
  - c. Details 5 & 6 revised to include a solid surface window stool.

**END OF ADDENDUM**

SECTION 113013

RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
  - 1. Cooking appliances.
  - 2. Refrigeration appliances.
  - 3. Cleaning appliances.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include installation details, material descriptions, dimensions of individual components, and finishes for each appliance.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
- B. Product Schedule: For appliances. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer.
- B. Product Certificates: For each type of appliance.
- C. Field quality-control reports.
- D. Sample Warranties: For manufacturers' special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each residential appliance to include in operation and maintenance manuals.

1.6 WARRANTY

- A. Special Warranties: Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain residential appliances from single source.

2.2 PERFORMANCE REQUIREMENTS

- A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Accessibility: Where residential appliances are indicated to comply with accessibility requirements, comply with applicable provisions in the DOJ's 2010 ADA Standards for Accessible Design and ICC A117.1.

2.3 MICROWAVE OVENS

- A. Microwave Oven MO-1:

- 1. Manufacturers:

- a. Frigidaire
    - b. GE
    - c. Kenmore
    - d. Whirlpool

- 2. Mounting: None

- 3. Type: Conventional.

- 4. Dimensions:

- a. Width: 24 inches.
    - b. Depth: 19-1/2 inches.
    - c. Height: 14 inches.

- 5. Capacity: 2.0 cu. ft.

- 6. Oven Door: Door with observation window and pushbutton latch release.

- 7. Microwave Power Rating: 1200 W.

- 8. Electric Power Supply: 120 V, 60 Hz, 1 phase, 15 A

- 9. Controls: Digital panel controls and timer display.

- 10. Other Features:

- a. Turntable
    - b. Lock-out feature
    - c. Sensor cooking controls
    - d. 10 power levels

- 11. Material: Manufacturer's standard.

- a. Color/Finish: White.

2.4 REFRIGERATOR/FREEZERS

- A. Refrigerator/Freezer RF-1: Two-door refrigerator/freezer with freezer on top and complying with AHAM HRF-1.
1. Manufacturers:
    - a. Frigidaire
    - b. GE
    - c. Kenmore
  2. Type: Freestanding.
  3. Dimensions:
    - a. Width: 28 inches.
    - b. Depth: 31-5/8 inches.
    - c. Height: 65 inches.
  4. Storage Capacity:
    - a. Refrigeration Compartment Volume: 11.5 cu. ft.
    - b. Freezer Volume: 4 cu. ft.
    - c. Shelves: Two adjustable spill-proof glass shelves minimum.
  5. General Features:
    - a. Door Configuration: Two with reversible swings.
    - b. Separate temperature controls for each compartment.
  6. Refrigerator Features:
    - a. Interior light in refrigeration compartment.
    - b. Door Storage: Modular compartments.
  7. Freezer Features: One freezer compartment configured with one door.
    - a. Automatic defrost.
    - b. Interior light in freezer compartment.
    - c. Ice maker
  8. Front Panel(s): Porcelain enamel
    - a. Panel Color: White
  9. Appliance Color/Finish: White.



2.5 DISHWASHERS

A. Dishwasher DW-1: Complying with AHAM DW-1.

1. Manufacturers:
  - a. Frigidaire
  - b. GE
  - c. Whirlpool
2. Type: Built-in undercounter, **ADA Compliant.**
3. Dimensions:
  - a. Width: 24 inches.
  - b. Depth: 24 inches
  - c. Height: Adjustable, **32 inches – 32-1/4 inches.**
4. Capacity:
  - a. International Place Settings of China: 12.
5. Tub and Door Liner: Stainless steel with sealed detergent and automatic rinsing-aid dispensers.
6. Rack System: Nylon-coated sliding dish racks, with removable cutlery basket.
7. Controls: Touch-pad controls with minimum four wash cycles and hot-air and heat-off drying cycle options.
8. Features:
  - a. Waste food disposer.
  - b. Self-cleaning food-filter system.
  - c. Hot-water booster heater for 140 deg F wash water with incoming water at 100 deg F (38 deg C).
  - d. Digital display panel.
9. Front Panel: Porcelain enamel
  - a. Panel Color: White.
10. Appliance Color/Finish: White.

2.6 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, power connections, and other conditions affecting installation and performance of residential appliances.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before appliance installation.
- C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install appliances according to manufacturer's written instructions.
- B. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.
- C. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.

3.3 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.
  - 2. Leak Test: After installation, test for leaks. Repair leaks and retest until no leaks exist.
  - 3. Operational Test: After installation, start units to confirm proper operation.
  - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.
- B. An appliance will be considered defective if it does not pass tests and inspections.
- C. 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 residential appliances.

END OF SECTION

SECTION 235216 – FIRE-TUBE CONDENSING BOILERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes packaged, factory-fabricated and -assembled, gas-fired, fire-tube condensing boilers, trim, and accessories for heating hot water.

1.3 SUBMITTALS

- A. Product Data: Include performance data, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: For boilers, boiler trim, and accessories.
  - 1. Include plans, elevations, sections, details, and attachments to other work.
  - 2. Wiring Diagrams: Power, signal, and control wiring.
- C. Source quality-control test reports: Indicate and interpret test results for compliance with performance requirements before shipping.
- D. Field quality-control test reports: Indicate and interpret test results for compliance with performance requirements.
- E. Efficiency Data Points: Data shall be submitted per ASHRAE 155 Method of Testing for Rating Commercial Space Heating Boiler Systems. This data shall cover steady state thermal efficiency, part load efficiency, and idling energy input rate. Efficiency data not supported by a third party published test standard shall not be permitted.
- F. Warranty: Standard warranty specified in this Section.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For boilers to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The manufacturer must have been involved in the manufacture of fire tube condensing hydronic boilers for no less than 5 years. The manufacturer must be headquartered in North America and manufacture in an ASME-certified facility wholly owned by the manufacturer. The specifying engineer, contractor and end customer must have the option to visit the factory to witness test fire and other relevant procedures.
- B. 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.
- C. ASME Compliance: Fabricate and label boilers to comply with ASME Boiler and Pressure Vessel Code.
- D. ASHRAE/IESNA 90.1 Compliance: Boilers shall have minimum efficiency according to "Gas and Oil Fired Boilers - Minimum Efficiency Requirements."
- E. AHRI Compliance: Boilers shall be AHRI listed and must meet the minimum efficiency specified under AHRI BTS-2000 as defined by Department of Energy in 10 CFR Part 431.
- F. ANSI Compliance: Boilers shall be compliant with ANSI Z21.13 test standards for US and Canada. Boilers shall be tested in an ISO 17025 recognized laboratory. Boilers tested to UL 795 shall not be permitted.
  - 1. ANSI Z21.13 pertains to gas-fired low-pressure steam and hot water boilers. UL 795 pertains to commercial-industrial gas heating equipment.
- G. CSA Compliant: Boilers shall be compliant with CSA certification.

1.6 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.7 WARRANTY

- A. Standard Warranty: Boilers shall include manufacturer's standard form in which manufacturer agrees to repair or replace components of boilers that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period for Fire-Tube Condensing Boilers:
    - a. Heat Exchanger, Pressure Vessel and Condensation Collection Basin shall carry a 10 year limited warranty against defects in materials or workmanship.
    - b. Heat exchangers/pressure vessel are warranted against thermal shock for the lifetime of the boiler.
    - c. The burner shall carry a five (5) year limited warranty against defective material or workmanship from the date of shipment.

- d. All other components shall carry a one year limited warranty from date of boiler start up or 18 months from shipment if start up cannot be proven.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Refer to alternate manufacturer's list in Boiler Schedule remarks sheet M403.

### 2.2 CONSTRUCTION

- A. Description: Boiler shall be natural gas fired, fully condensing, and fire tube design. The boiler shall be factory-fabricated, factory-assembled, and factory-tested, fire-tube condensing boiler with heat exchanger sealed pressure tight, built on a steel base; including insulated jacket; flue-gas vent; combustion-air intake connections; water supply, return, and condensate drain connections; and controls.
- B. Heat Exchanger: The heater exchanger shall bear the ASME "H" stamp for 160 psi working pressure and shall be National Board listed. The heat exchanger shall be constructed of a fully welded 316L stainless steel interior with a carbon steel shell and of fire tube design. Cast iron, aluminum, or copper tube or water tube boilers will not be accepted.
- C. Condensate Collection Basin: Fully welded 316L stainless steel.
- D. Intake Filter and Dirty Filter Switch: Boiler shall include an intake air filter with a factory installed air pressure switch. The pressure switch will alert the end user on the screen of the boiler that the intake filter is dirty and needs to be changed.
- E. Pressure Vessel: The pressure vessel shall be in accordance with ASME Section IV pressure vessel code. The pressure vessel shall be designed for a single-pass water flow to limit the water side pressure drop. Pressure drop shall be no greater than 6.5 psi at 180 gpm.
- F. Burner: Natural gas, forced draft single burner premix design. Operation of the burner shall not exceed that of 5.7% oxygen level or 40% excess air. The burner shall be high temperature stainless steel with a woven FeCrAlloy outer covering to provide modulating firing rates. The burner shall be capable of the stated gas train turndown without loss of combustion efficiency. The burner shall be removable from the boiler without removing the gas/air manifold.

- G. Blower: Boiler shall be equipped with a pulse width modulating blower system to precisely control the fuel/air mixture to provide modulating boiler firing rates for maximum efficiency. The burner firing sequence of operation shall include pre-purge, firing, modulation, and post-purge operation.
  - H. Gas Train: The boiler shall be supplied with two gas valves designed with negative pressure regulation and shall be capable of scheduled turndowns.
  - I. Ignition: Spark ignition with 100 percent main-valve shutoff with electronic flame supervision. Boilers using a pilot for ignition and/or UV scanners for flame supervision shall be deemed unacceptable.
  - J. Casing:
    - 1. Jacket: Heavy gauge primed and painted steel jacket with snap-in closures. Jacket panels shall be fully removal; the front door and side panels shall not require tools for removal. The jacket shall be mounted on a steel base with a minimum thickness = ¼”.
    - 2. Control Compartment Enclosures: NEMA 250, Type 1A.
    - 3. Insulation: Minimum ½ inch thick, mineral fiber insulation surrounding the heat exchanger.
    - 4. Combustion-Air Connections: Inlet and vent duct collars.
    - 5. Clearances: Boilers shall feature zero (0) clearance to combustibles. Boilers shall have the ability to be placed side by side in multiples with no clearance in between if necessary. Local codes should be considered.
  - K. Outdoor Capability: Manufacturer shall offer an outdoor certified boiler to allow outdoor installation in suitable climates.
  - L. Rigging and Placement: Boiler shall include lifting lugs and fork truck accessibility for rigging.
  - M. Characteristics and Capacities:
    - 1. Heating Medium: Hot water.
    - 2. Design Water Pressure Rating: 160 psi working pressure.
    - 3. Safety Relief Valve Setting: 75 psig – coordinate final with field installed conditions.
    - 4. Minimum Water Flow Rate: 25 gpm
  - N. Oxygen Sensor
    - 1. An O<sub>2</sub> sensor shall be offered as an optional package with this boiler. The O<sub>2</sub> sensor shall be made by a top automotive supplier and is only available through Lochinvar. The O<sub>2</sub> sensor shall be located in the combustion chamber. Boilers with O<sub>2</sub> sensors placed elsewhere on the unit shall not be permitted.
- 2.3 TRIM
- A. Safety Relief Valve:
    - 1. Size and Capacity: 75 lb.
      - a. System pressures should be confirmed.
      - b. Custom relief valve sizes can be ordered.

2. Description: Fully enclosed steel spring with adjustable pressure range and positive shutoff; factory set and sealed.
- B. Pressure Gage: Minimum 3-1/2 inch diameter. Gage shall have normal operating pressure about 50 percent of full range.
- C. Drain Valves: Minimum NPS 3/4 or nozzle size with hose-end connection.
- D. Condensate Trap: Factory supplied condensate trap with condensate trip sensor.

## 2.4 CONTROLS

- A. Refer to specification section 230923 and also temperature controls drawings.
- B. Boiler controls shall feature the following standard features:
  1. 8" LCD screen display displaying status, modulation percentage, setpoints, and sensor data at a minimum on the home screen. Additional information such as history and parameters can be accessed via the touchscreen display without the need for navigation buttons. A screen saver mode shall be available with the display.
  2. Variable Speed Boiler Pump Control: Boiler may be programmed to send a 0-10V DC output signal to an ECM or VFD boiler pump to maintain a designed temperature rise across the heat exchanger. The boiler shall be able to operate in this mode with a minimum temperature rise of 20 degrees F and a maximum temperature rise of 60 degrees F.
  3. Password Security: Boiler shall have a different password security code for the User and the Installer to access adjustable parameters.
  4. Outdoor air reset: Boiler shall calculate the set point using a field installed, factory supplied outdoor sensor and an adjustable reset curve.
  5. Pump exercise: Boiler shall energize any pump it controls for an adjustable time if the associated pump has been off for a time period of 24 hours.
  6. Ramp delay: Boiler may be programmed to limit the firing rate based on six limits steps and six time intervals.
  7. Boost function: Boiler may be programmed to automatically increase the set point a fixed number of degrees (adjustable by installer) if the setpoint has been continuously active for a set period of time (time adjustable by installer). This process will continue until the space heating demand ends.
  8. PC port connection: Boiler shall have a PC port allowing the connection of PC boiler software.
  9. Time clock: Boiler shall have an internal time clock with the ability to time and date stamp lock-out codes and maintain records of runtime.
  10. Service reminder: Boiler shall have the ability to display a yellow colored service notification screen based upon months of installation, hours of operation, and number of boiler cycles. All notifications are adjustable by the installer.

11. Anti-cycling control: Boiler shall have the ability to set a time delay after a heating demand is satisfied allowing the boiler to block a new call for heat. The boiler will display an anti-cycling blocking on the screen until the time has elapsed or the water temperature drops below the anti-cycling differential parameter. The anti-cycling control parameter is adjustable by the installer.
  12. Night setback: Boiler may be programmed to reduce the space heating temperature set point during a certain time of the day.
  13. Freeze protection: Boiler shall turn on the boiler and system pumps when the boiler water temperature falls below 45 degrees. When the boiler water temperature falls below 37 degrees the boiler will automatically turn on. Boiler and pumps will turn off when the boiler water temperature rises above 43 degrees.
  14. Isolation valve control: Boiler shall have the ability to control a 2-way motorized control valve. Boiler shall also be able to force a fixed number of valves to always be energized regardless of the number of boilers that are firing.
  15. BMS integration with 0-10V DC input: The Control shall allow an option to Enable and control set point temperature or control firing rate by sending the boiler a 0-10V input signal.
  16. Data logging: Boiler shall have non-volatile data logging memory including last 10 lockouts, hours running and ignition attempts and should be able to view on boiler screen.
- C. The boiler shall have a built in Cascade controller to sequence and rotate lead boiler to ensure equal runtime while maintaining modulation of up to 8 boilers of different btu inputs without utilization of an external controller. The factory installed, internal cascade controller shall include:
1. Lead lag: The Control module shall minimize the number of boilers firing to achieve the heating load.
  2. Efficiency optimization: The Control module shall allow multiple boilers to fire at minimum firing rate in lieu of Lead/Lag.
  3. Front end loading: The Control modulate shall have the ability to communicate with other Lochinvar boilers featuring the SmartTouch™ and Smart System™ control platforms. This allows for a combination of units that feature condensing and non-condensing operation if so desired.
  4. Rotation of lead boiler: The Control module shall change the lead boiler every hour for the first 24 hours after initializing the Cascade. Following that, the leader will be changed once every 24 hours.
  5. Redundancy: The Control module shall have a built in feature to continue operating with follow boilers if the Lead boiler is not operational.
- D. Boiler operating controls shall include the following devices and features:
1. Set-Point Adjust: Set points shall be adjustable.
  2. Operating Pressure Control: Factory wired and mounted to cycle burner.
  3. Sequence of Operation: Factory installed controller to modulate burner firing rate to maintain system water temperature in response to call for heat.
  4. Sequence of Operation: Electric, factory-fabricated and factory-installed panel to control burner firing rate to reset supply-water temperature inversely with outside-air temperature. At



10 deg F outside-air temperature, set supply-water temperature at 180 deg F; at 60 deg F outside-air temperature, set supply-water temperature at 140 deg F.

- E. Burner Operating Controls: To maintain safe operating conditions, burner safety controls limit burner operation.
  - 1. High Temperature Limit: Automatic and manual reset stops burner if operating conditions rise above maximum boiler design temperature. Limit switch to be manually reset on the control interface.
  - 2. Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low water. Cutoff switch shall be manually reset on the control interface.
  - 3. Blocked Inlet Safety Switch: Manual-reset pressure switch field mounted on boiler combustion-air inlet.
  - 4. High and Low Gas Pressure Switches: Pressure switches shall prevent burner operation on low or high gas pressure. Pressure switches to be manually reset on the control interface.
  - 5. Blocked Drain Switch: Blocked drain switch shall prevent burner operation when tripped. Switch to be manually reset on the control interface.
  - 6. Low air pressure switch: Pressure switches shall prevent burner operation on low air pressure. Switch to be manually reset on the control interface.
  - 7. Audible Alarm: Factory mounted on control panel with silence switch; shall sound alarm for any lockout conditions.
- F. Building Automation System Interface: Factory installed Modbus and BACnet MSTP gateway interface to enable building automation system to monitor, control, and display boiler status and alarms.
  - 1. BACnet IP and LonWorks gateways are available as optional equipment.
- G. Software Update: The control shall have the ability to receive updates in the field without hardware component replacement. This update can be performed via USB flash drive, internet connection, or via wireless connection. This service shall be provided at no additional and/or annual cost to the owner.

## 2.5 ELECTRICAL POWER

- A. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in Division 26 Sections.
- B. Single-Point Field Power Connection: Factory-installed and factory-wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to boiler.
- C. Electrical Characteristics: Refer to drawings.

## 2.6 VENTING

- A. Exhaust flue must be Category IV approved PVC, CPVC, PP or stainless steel sealed vent material from one of the approved manufacturers listed in the Installation and Operation manual. Boilers

exhaust vent length must be able to extend to 100 equivalent feet. Install and test per manufacturer requirements.

- B. Intake piping for all models must be of approved material as listed in the Installation and Operations manual. Boilers intake pipe length must be able to extend to 100 equivalent feet.
- C. Boiler venting and intake piping configuration shall be installed per one of the approved venting methods shown in the Installation and Operation manual.
- D. Boiler shall come standard with a flue sensor to monitor and display flue gas temperature on factory provided LCD display.
- E. Boilers using common venting must contact the factory for sizing.
- F. Refer to manufacturer's Installation and Operations manual for detailed venting instructions and approved manufacturers.

## 2.7 SOURCE QUALITY CONTROL

- A. Burner and Hydrostatic Test: Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve combustion efficiency; perform hydrostatic test.
- B. Test and inspect factory-assembled boilers, before shipping, according to ASME Boiler and Pressure Vessel Code.
- C. Allow Owner access to source quality-control testing of boilers. Notify Architect 14 days in advance of testing.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Before boiler installation, examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations, and piping and electrical connections to verify actual locations, sizes, and other conditions affecting boiler performance, maintenance, and operations.
  - 1. Final boiler locations indicated on Drawings are approximate. Determine exact locations before roughing-in of piping and electrical connections.
- B. Examine mechanical spaces for suitable conditions where boilers will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 BOILER INSTALLATION

- A. Install equipment on 4" concrete housekeeping pad. Modify existing pads as required.

- B. Install gas-fired boilers according to NFPA 54.
- C. Assemble and install boiler trim.
- D. Install electrical devices furnished with boiler but not specified to be factory mounted.
- E. Install control wiring to field-mounted electrical devices.

### 3.3 CONNECTIONS

- A. Install boilers level on concrete bases. Concrete base is specified in Division 23 Section "Common Work Results for HVAC," and concrete materials and installation requirements are specified in Division 03.
- B. Install piping adjacent to boiler to allow service and maintenance.
- C. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.
- D. Connect gas piping to boiler gas-train inlet with union. Piping shall be at least full size of equipment connection. Provide a reducer if required. Gas regulator shall also be installed per IOM. Manufacturer shall offer a 2 and 5 psi gas regulator offering for each boiler model.
- E. Connect hot-water piping to supply and return boiler tappings with shutoff valve and union or flange at each connection.
- F. Install piping from safety relief valves to nearest floor drain.
- G. Boiler Venting:
  - 1. Install flue venting kit and combustion-air intake.
  - 2. Connect full size to boiler connections. Flues and intake piping to be as specified by equipment manufacturer.
- H. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."
- I. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

### 3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
  - 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. Perform installation and startup checks according to manufacturer's written instructions. Complete startup form included with Boiler and return to Manufacturer as described in the instructions.
  2. Leak Test: Hydrostatic test. Repair leaks and retest until no leaks exist.
  3. Operational Test: Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion.
  4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
    - a. Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level and water temperature.
    - b. Set field-adjustable switches and circuit-breaker trip ranges as indicated.
- C. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other than normal occupancy hours for this purpose.
- D. Performance Tests:
1. Engage a factory-authorized service representative to inspect component assemblies and equipment installations, including connections, and to conduct performance testing.
  2. Boilers shall comply with performance requirements indicated, as determined by field performance tests. Adjust, modify, or replace equipment to comply.
  3. Perform field performance tests to determine capacity and efficiency of boilers.
  4. Repeat tests until results comply with requirements indicated.
  5. Provide analysis equipment required to determine performance.
  6. Provide temporary equipment and system modifications necessary to dissipate the heat produced during tests if building systems are not adequate.
  7. Notify Architect in advance of test dates.
  8. Perform a combustion analysis after installation and adjust gas valve per the Installation and Operations manual and note in startup report.
  9. Document test results in a report and submit to Architect.

### 3.5 DEMONSTRATION

- A. Engage a factory representative or a factory-authorized service representative for boiler startup and to train Owner's maintenance personnel to adjust, operate, and maintain boilers. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 235216

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Copper building wire rated 600 V or less.
2. Aluminum building wire rated 600 V or less.
3. Metal-clad cable, Type MC, rated 600 V or less.
4. Armored cable, Type AC, rated 600 V or less.
5. Connectors, splices, and terminations rated 600 V and less.

- B. Related Requirements:

1. Section 260523 "Control-Voltage Electrical Power Cables" for control systems communications cables and Classes 1, 2, and 3 control cables.
2. Section 271500 "Communications Horizontal Cabling" for cabling used for voice and data circuits.

1.3 DEFINITIONS

- A. RoHS: Restriction of Hazardous Substances.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA.
  1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Standards:
  - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
  - 2. RoHS compliant.
  - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- D. Conductor Insulation:
  - 1. Type THHN and Type THWN-2: Comply with UL 83.

2.2 ALUMINUM BUILDING WIRE

- A. Aluminum wire is NOT allowed for branch circuits. Aluminum wire is allowed for service entrance feeders. Contractor is responsible for redesign of aluminum service entrance feeders if aluminum is desired on this project.
- B. Description: Flexible, insulated and uninsulated, drawn aluminum current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- C. Standards:
  - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
  - 2. RoHS compliant.
  - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Aluminum, complying with ASTM B 800 and ASTM B 801.
- E. Conductor Insulation:
  - 1. Type THHN and Type THWN-2: Comply with UL 83.

2.3 METAL-CLAD CABLE, TYPE MC

- A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.
- B. Standards:

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1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Comply with UL 1569.
3. RoHS compliant.
4. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

## C. Circuits:

1. Single circuit and multicircuit with color-coded conductors.
2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.

## D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

## E. Ground Conductor: Insulated.

## F. Conductor Insulation:

1. Type TFN/THHN/THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

## G. Armor: Steel, interlocked.

## H. Jacket: PVC applied over armor.

## 2.4 ARMORED CABLE, TYPE AC

## A. Description: A factory assembly of insulated current-carrying conductors with or without an equipment grounding conductor in an overall metallic sheath.

## B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Comply with UL 4.
4. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

## C. Circuits:

1. Single circuit and multicircuit with color-coded conductors.
2. Power-Limited Fire-Alarm Circuits: Comply with UL 1424.

## D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.

## E. Ground Conductor: Insulated.

## F. Conductor Insulation: Type THHN/THWN-2. Comply with UL 83.

## G. Armor: Steel, interlocked.

2.5 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Conductors shall be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Stranded for No. 12 AWG and larger.
- C. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN/THWN-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- F. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway, Armored cable, Type AC, Metal-clad cable, Type MC, Nonmetallic-sheathed cable, Type NM. Verify with local AHJ prior to selecting type of conductors being used on project. Coordinate "Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground" Paragraph below with Section 260543 "Underground Ducts and Raceways for Electrical Systems."
- G. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, 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.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.



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- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. 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.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."
- G. Complete cable tray systems installation according to Section 260536 "Cable Trays for Electrical Systems" prior to installing conductors and cables.

## 3.4 CONNECTIONS

- A. 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-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material.
  - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

## 3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

## 3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

## 3.7 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

## 3.8 FIELD QUALITY CONTROL

- A. Perform tests and inspections.

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1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
2. Perform each of the following visual and electrical tests:
  - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
  - b. Test bolted connections for high resistance using one of the following:
    - 1) A low-resistance ohmmeter.
    - 2) Calibrated torque wrench.
    - 3) Thermographic survey.
  - c. Inspect compression-applied connectors for correct cable match and indentation.
  - d. Inspect for correct identification.
  - e. Inspect cable jacket and condition.
  - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
  - g. Continuity test on each conductor and cable.
  - h. Uniform resistance of parallel conductors.
- B. Cables will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports to record the following:
  1. Procedures used.
  2. Results that comply with requirements.
  3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

SECTION 28400  
FIRE ALARM SYSTEM

PART 1 - GENERAL

1.1 SCOPE AND RELATED DOCUMENTS

- A. The work covered by this section of the specifications include the furnishing of all labor, equipment, materials, and performance of all operations in connection with the installation of the fire alarm system as shown on the drawings and is herein specified.
- B. The requirements of the conditions of the contract, supplementary conditions, and general requirements, apply to the work specified in this section.

1.2 REFERENCES

- A. NFPA 72 - National Fire Alarm Code
- B. NFPA 101 - Life Safety Code
- C. BOCA
- D. Local Codes/Standards
- E. Americans with Disabilities Act (ADA)
- F. Local Authority Having Jurisdiction

1.3 SYSTEM DESCRIPTION

- A. The Contractor shall furnish all labor, services, and materials necessary to furnish and install a complete functional fire alarm system. The system shall comply in respects with all pertinent codes, rules, regulations and laws of the authority, and local jurisdiction. The system shall comply in all respects with the requirements of the specifications, manufacturer's recommendations, and Underwriters Laboratories Inc. (ULI) listings.
- B. All equipment herein specified is that of IPA Series Potter Signal, as distributed by NEOSES, LLC and constitutes the type and quality of the equipment to be furnished. Refer to submittals, products, manufacturers, and products/substitutions sections in these specifications for further information and qualifications.
- C. All life safety equipment shall be arranged and programmed to provide a system for the early detection of fire, the notification of building occupants, the automatic summoning of the local fire department, the override of the HVAC System operation, and the activation of other auxiliary systems to inhibit the spread of smoke and fire, and to facilitate the safe evacuation of building occupants.
- D. The system shall utilize independently addressed, pull stations, smoke detectors, heat detectors, and input/output modules as described elsewhere in this specification.

- E. The fire alarm system shall be an electrically supervised system, which shall monitor the integrity of circuit conductors and power supplies.
  
- 1. Sequence of Operations:
  - a. The alarm activation of any area smoke detector, heat detector, manual pull station, sprinkler  
water flow, the following functions shall automatically occur:
    - The internal audible device shall sound at the control panel and remote annunciator.
    - The LCD display shall indicate all applicable information associated with the alarm condition including, zone, device, type, device location and time/date.
    - Activate notification audible and visual appliances throughout the building.
    - Transmit signal to the central station.
    - All automatic events programmed to the point shall be executed and the associated outputs activated.
  
- 2. System Display:
  - a. The system shall allow message routing to be configured to all annunciators.
  - b. Each LCD display on each annunciator shall be configurable to display the status of any combination of alarm, supervisory, trouble, monitor, or service group event messages.
  - c. Clear distinction shall be provided between unacknowledged and acknowledged alarm, supervisory, trouble, and monitor status messages.
  - d. A standby power supply shall automatically supply electrical energy to the system upon power supply failure.
  - e. Restoring the alarm initiating devices to normal and activating the system reset switch shall restore all alarm circuits to their normal condition.

#### 1.4 QUALIFICATIONS

- A. The Contractor shall have successfully installed similar fire alarm system components on a previous project of comparable size and complexity. The Owner reserves the right to reject any control components for which evidence of a successful prior installation performed by the contractor cannot be provided.
  
- B. The Contractor shall have in-house engineering and project management capability consistent with the requirements of this project. Qualified and approved representatives of the system manufacturer shall perform the detailed engineering design of central and remote-control equipment. Qualified and approved representatives of the system manufacturer shall produce all panel and equipment drawings and submittals, operating manuals. The Contractor is responsible for retaining approved representatives of those system manufacturers specified for detailed system design and documentation, coordination of system installation requirements, and final system testing and commissioning in accordance with these specifications.
  
- C. The Contractor must employ a NICET Level IV Project Manager, Technician, programmer.

## 1.5 SUBMITTALS

- A. One (1) set of data sheets with the printed logo or trademark of the manufacturer shall be submitted for all equipment. Indicated in the documentation will be the type, size, rating, style, and catalog number for all items proposed to meet the system performance detailed in this specification. The proposed equipment shall be subject to the approval of the Architect/Engineer. A complete set of shop drawings shall be supplied. The drawings shall include complete point to point wiring diagrams, riser diagrams, complete floor plan drawing locating all system devices on a 1/8" = 1'-0" scale plan or as coordinated with the Architect/Engineer.

## 1.6 OPERATOR AND MAINTENANCE DATA

- A. Two (2) copies of the following documents shall be delivered to the Building Owner's representative at the time of system acceptance. The close out submittals shall include:
  - 1. Submitted data sheets.
  - 2. Project specific operating manuals covering the installed life safety system.
  - 3. As-built drawings.
  - 4. A filled-out NFPA 72 record of completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. All equipment herein specified is that of IPA Series Potter Signal, distributed by NEOSSES and constitutes the type and quality of the equipment to be furnished. (Contact: Nate Grimes at 330-232-1208 nateg@neoses.com).
- B. Acceptable manufacturers shall be "AutoCall", "Monaco", "Siemens", and "Notifier" By Paladin.

### 2.2 FIRE ALARM CONTROL PANEL

- A. The control panel shall be a multi-processor-based system designed specifically for fire alarm applications. The control panel shall be listed and approved for the application standards as listed under the general section. "Potter" IPA 4000
- B. The control panel shall include all required hardware, software, and system programming to provide a complete and operational fire alarm system. The control panel shall assure that life safety takes precedence among all panel activities.

- C. The control panel shall include the following capacities:
1. Support a minimum of 127 analog/addressable points.
  2. Support up to 31 fully supervised remote annunciators.
  3. Support up to 4000 chronological events.
  4. Built in IP Communicator
- D. The control panel shall include the following features:
1. Provide an internal audible signal with different programmable patterns to distinguish between alarm, supervisory, trouble and monitor conditions.
  2. Provide a discreet system control switch provided for reset, alarm silence, panel silence, drill switch, up/down/right/left switches, status switch and help switch. Provide system reports that provide detailed description of the status of system parameters for corrective action or for preventative maintenance programs.
  3. Provide an authorized operator with the ability to operate or modify system functions like system time, date, passwords, holiday dates, restart the system and clear control panel event history file.
  4. Provide an authorized operator to perform test functions within the installed system.
  5. Supervision of system components, wiring, initiating devices and software shall be provided by the control panel.
  6. Failure or fault of system component or wiring shall be indicated by type and location on the LCD display.
  7. Software and processor operation shall be independently monitored for failure. The system shall provide fail-safe operation, with a backup level of system operation.
  8. Power Supply
    - a. The system power supply shall be a minimum of 10 amps @ 24 vdc. Upon failure of normal (ac) power, the affected portions of the system shall automatically switch over to secondary power without losing any alarm, trouble or operator acknowledgment signals. Each system power supply shall be annunciated individually and shall annunciate a trouble signal, identifying the inoperable power supply. All standby batteries shall be continuously monitored by the system. Low battery and disconnection of battery power supply conditions shall immediately annunciate as a trouble signal, identifying the deficient batteries. All system power supplies shall be capable of recharging their associated batteries, from a fully discharged condition to a capacity sufficient to allow the system to perform consistent with the requirements of this section, in 48 hours maximum. The power circuit disconnect means shall be clearly labeled fire alarm circuit control and shall have a red marking. The location of the circuit disconnect shall be labeled permanently inside each control panel. Standby power supply shall be an electrical battery with capacity to operate the system under maximum supervisory load for 24 hours and capable of operating the system for 5 minutes in the alarm mode at 100% of load.
  9. Display
    - a. The main display interface shall show the last two most recent highest priority system events without any operator intervention. All system events

shall be directed to one of four message queues. Messages of different types shall never intermixed to eliminate operator confusion. A "help" switch shall provide additional information about any device highlighted by the operator.

10. Initiating Device Circuits
  - a. Initiating device circuits (IDC) monitoring manual fire alarm stations, smoke and heat detectors, waterflow switches, valve supervisory switches, fire pump functions, and air pressure supervisory switches shall be Class B.
11. Notification Appliance Circuits
  - a. Notification appliance circuits (NAC) shall be Class B. All notification appliance circuits shall have a minimum circuit output rating of 2 amps @ 24 vdc. The notification circuits shall be power limited.
12. Signaling Line Circuits
  - a. The signaling line circuit shall communicate from a panel/node to analog/addressable detectors, input modules, output modules, isolation modules and notification appliance circuits. Each signaling circuit shall provide a minimum of 20 spare addresses. When a signaling line circuit covers more than one fire/smoke compartments, a wire-to-wire short shall not affect the operation of the circuit from the other fire/smoke compartments. The signaling line circuit (SLC) connecting panels and annunciators shall be Class B. The signaling line circuit connecting to addressable/analog devices including, detectors, monitor modules, control modules, isolation modules, and notification circuit modules shall be Class B.
13. DACT
  - a. The fire alarm control panel shall contain an IP dialer to notify a central monitoring station. System events to multiple primary and secondary central monitoring station receivers. The system module shall provide multiple monitoring station receiver formats capable of transmitting up to 8 subscribers. The system shall be capable of transmitting point information via contact ID or SIA 4/2 protocols. This Contractor shall provide the first year of monitoring.

### 2.3 INTELLIGENT PERIPHERAL DEVICES

- A. Manual Station - Double action single stage. "Potter" #PAD100-PSDA
- B. Smoke Detector - Photoelectric type. "Potter" #PAD200-PD w/ 6DB base.
- C. Single Input Module - "Potter" #PAD100-MIM for dry contact devices as required.
- D. Dual Input Module - "Potter" #PAD100-DIM, for water flow switch and tamper switches.
- E. Programmable Relay - "Potter" #PAD100-RM, for elevator recall, AHU controls, etc.

05-05/09-10

- F. Duct Detector Housing and Remote Test Station - Provide smoke detector duct housing assemblies to mount an analog/addressable detector along with a standard detector mounting base. The housing shall also protect the measuring chamber from damage and insects. The housing shall utilize an air exhaust tube and an air sampling inlet tube that extends into the duct air stream as required. Drilling templates and gaskets to facilitate locating and mounting the housing shall also be provided. The housing shall be finished in baked red enamel. A remote test station and programmable relay shall be provided for each air handling unit requiring a duct smoke detector. "Potter" #PAD200-Ductr "Potter" #PAD100-LEDK Remote key switch Duct detector furnished and wired by the Electrical Contractor, installed by the Mechanical Contractor.

## 2.4 SIGNALING APPLIANCES

### A. General Notification Appliances

1. All appliances shall be UL Listed for Fire Protective Service.
2. All strobe appliances or combination appliances with strobes shall be capable of providing the "Equivalent Facilitation" which is allowed under the American with Disabilities Act Accessibility Guidelines (ADA(AG)), and shall be UL 1971, UL 1638, and ULC S526 Listed.

### B. Furnish and install where shown on the plans:

1. Combination Horn/Strobes shall provide Multi cd, synchronized flash strobe output, and 100 dBA Peak sound output level from the horn. "Potter" #HS-24R
2. Strobes only shall provide Multi cd synchronized flash output. "Potter" #S-24R.

### C. Signal Boosters

1. Provide a 10 amp 6 circuit signal booster when 80% of the current capacity of the control panel is exceeded.
2. Current draw on any signal booster shall not exceed 80%. "Potter" #PSN-1000E

## 2.5 REMOTE ANNUNCIATOR

- A. Where shown on the plans, provide and install a liquid crystal display annunciator. The LCD annunciator shall communicate to the Fire Alarm Control Panel over one twisted shielded pair of wire and operating power shall be 24VDC and be fused at the control panel. The LCD annunciator shall have two line by 160 character per line alphanumeric display. The following supervisory LED's and acknowledge keys shall be located on the remote annunciator. "Potter" #RA-6500.
1. System Alarm Acknowledge.
  2. System Supervisory Acknowledge.
  3. System Trouble Acknowledge.
  4. System Rest.
  5. Display Time.



### 3.2 FIELD QUALITY CONTROL

- A. The completed fire alarm system shall be fully tested in accordance with NFPA-72, Chapter 7, and local Fire Department requirements by the installer in the presence of the Owner's Representative and the Local Authority.

### 3.3 MANUFACTURER'S FIELD DEVICES

- A. Include on-site services of a NICET Level IV certified technician to provide technical installation support for panel start up, program editing, trouble shooting for the fire alarm system control panel, and assistance to the installer for one complete final system checkout in accordance with the field quality control section of these specifications. The Manufacturer shall also provide one (1) training session with the Owner, or Owner's Representatives, upon completion of installation, for instruction of system operation.

### 3.4 WARRANTY

- A. The Contractor shall warranty all materials, installation, and workmanship for one (1) year from date of acceptance. The Equipment Supplier shall provide the Owner with an additional one-year warranty on all parts. The Equipment Supplier shall maintain a service organization with adequate spare parts stock within 24 hours of the Owner notifying the Contractor.

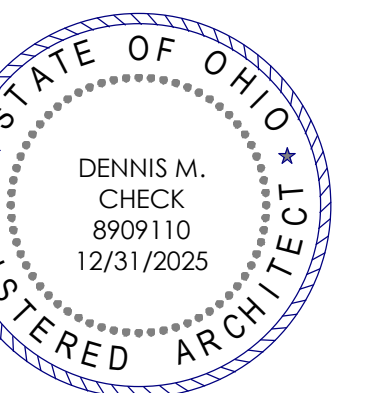
END OF SECTION 28400











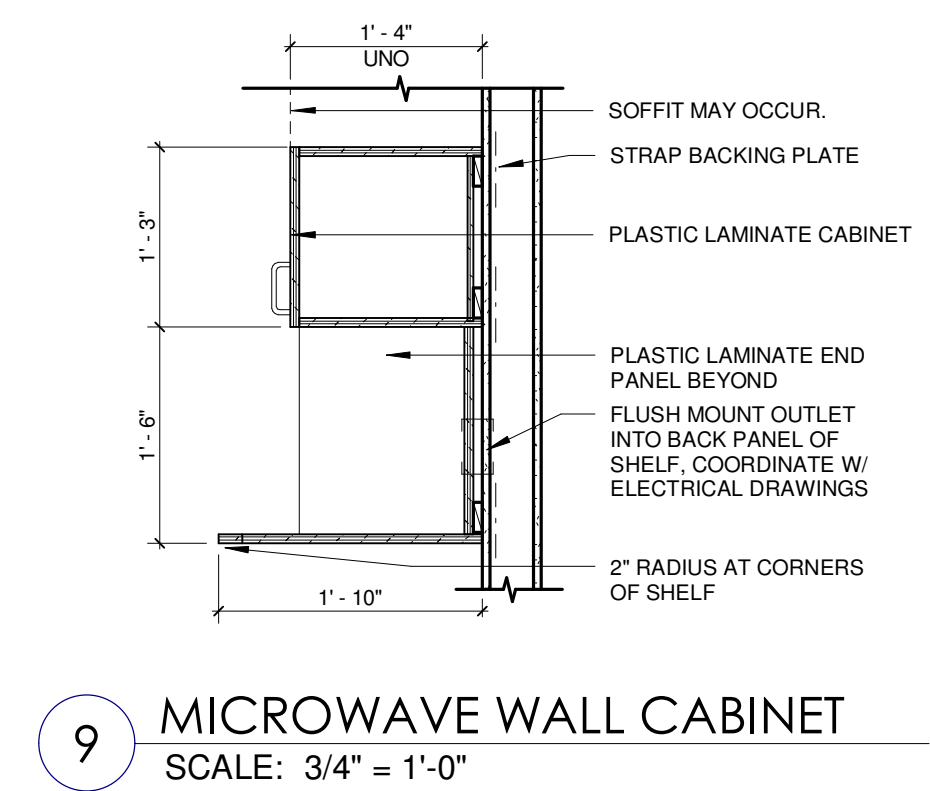
ISSUE / REVISION	DATE
1. BIDDING AND PLAN REVIEW	10/15/2024
2. ADDENDUM 02	11/14/2024

PROJECT NO. 24013.000

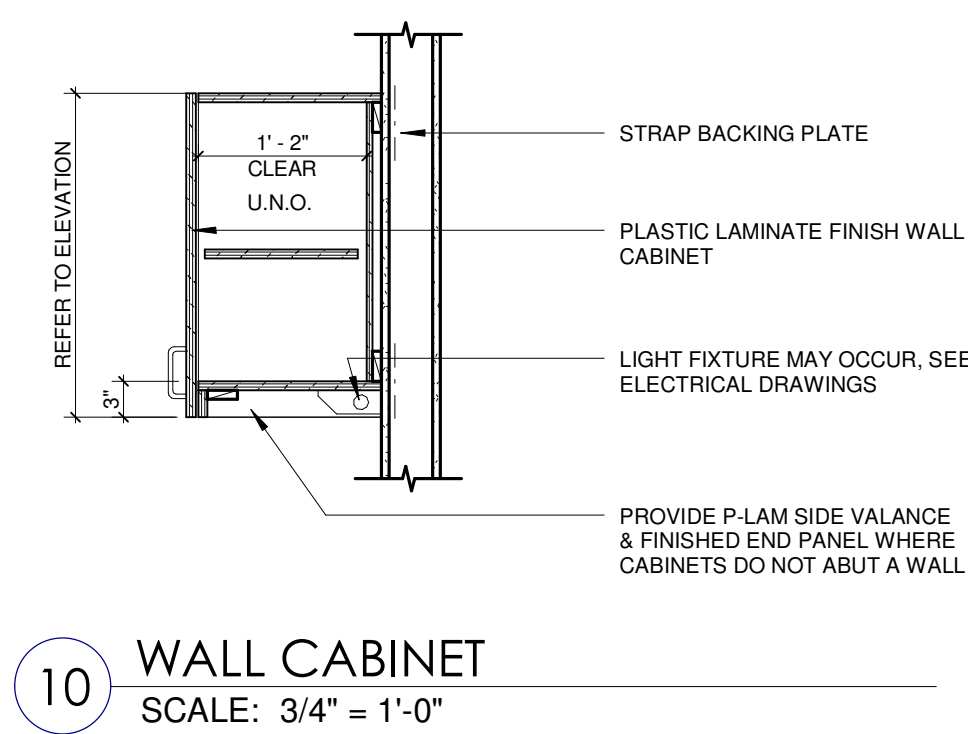
GENERAL INFO & TYPICAL MILLWORK DETAILS

A7-1

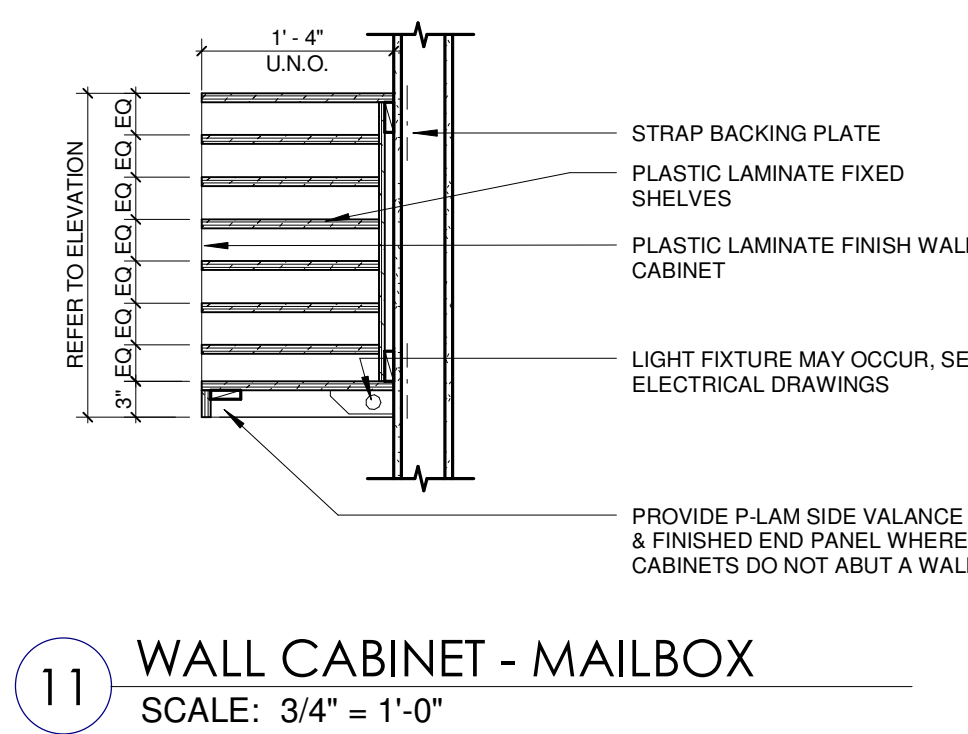
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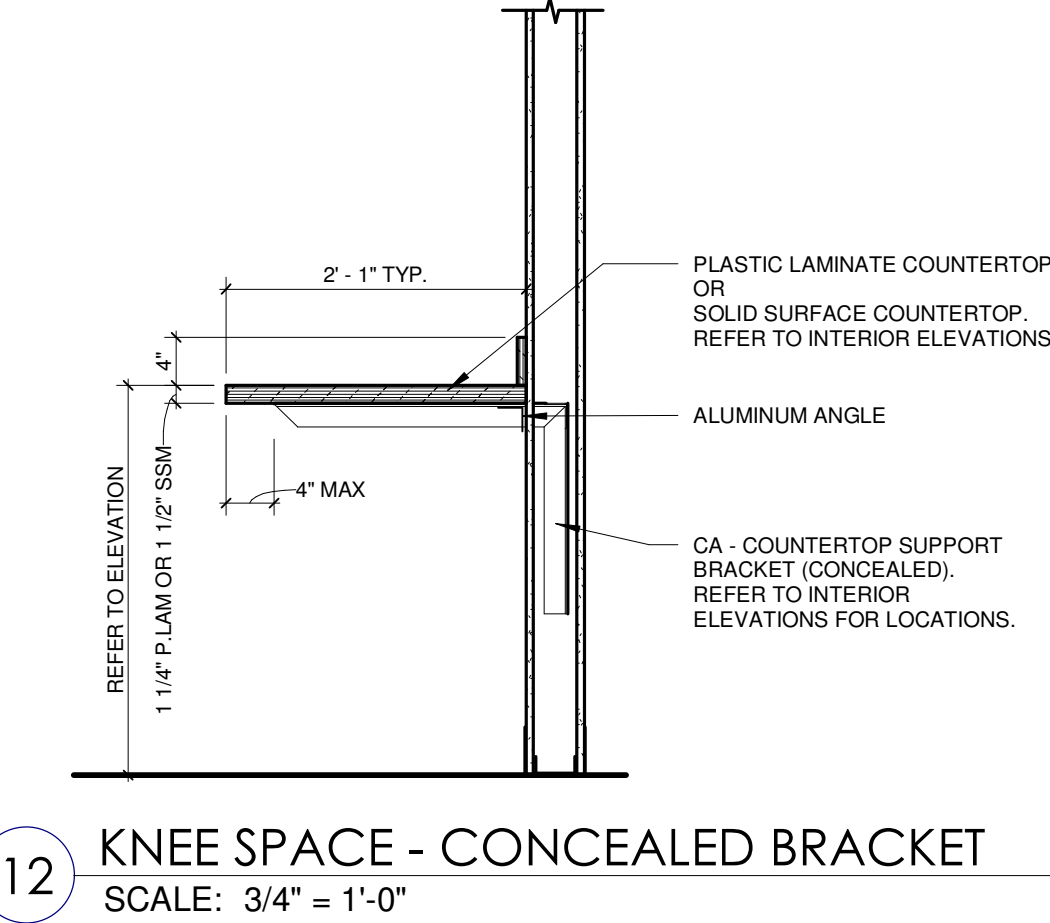
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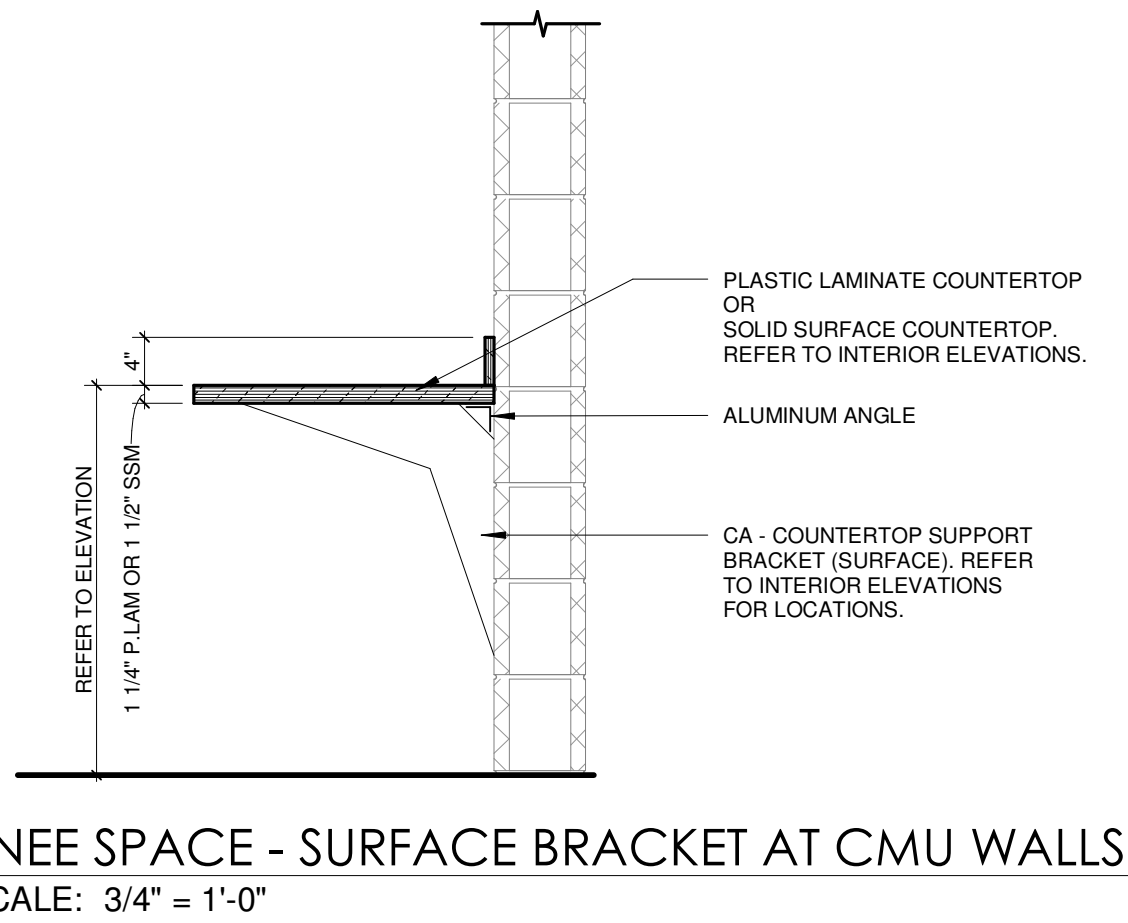
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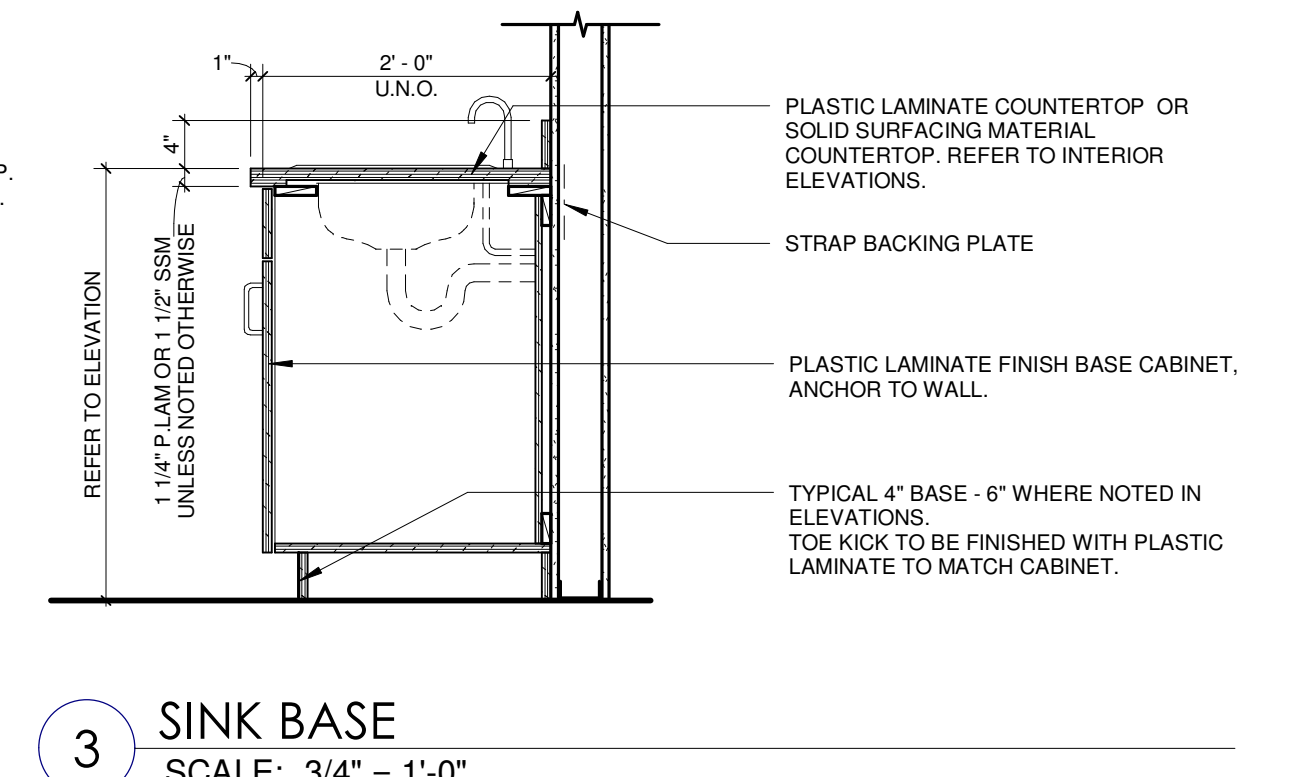
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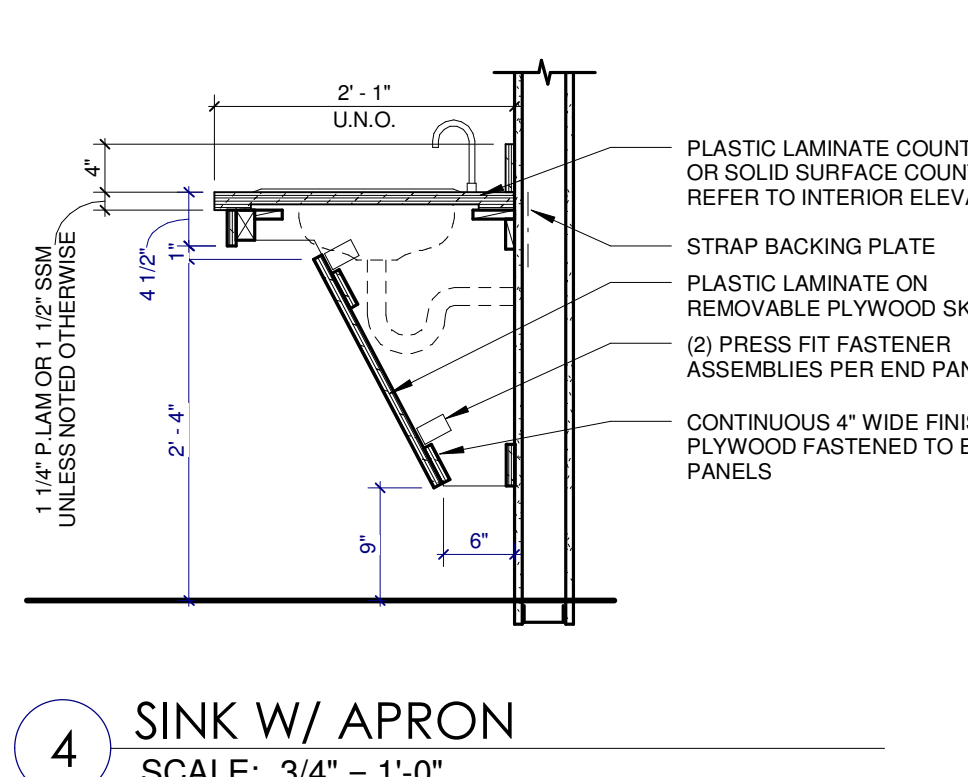
12 KNEE SPACE - CONCEALED BRACKET  
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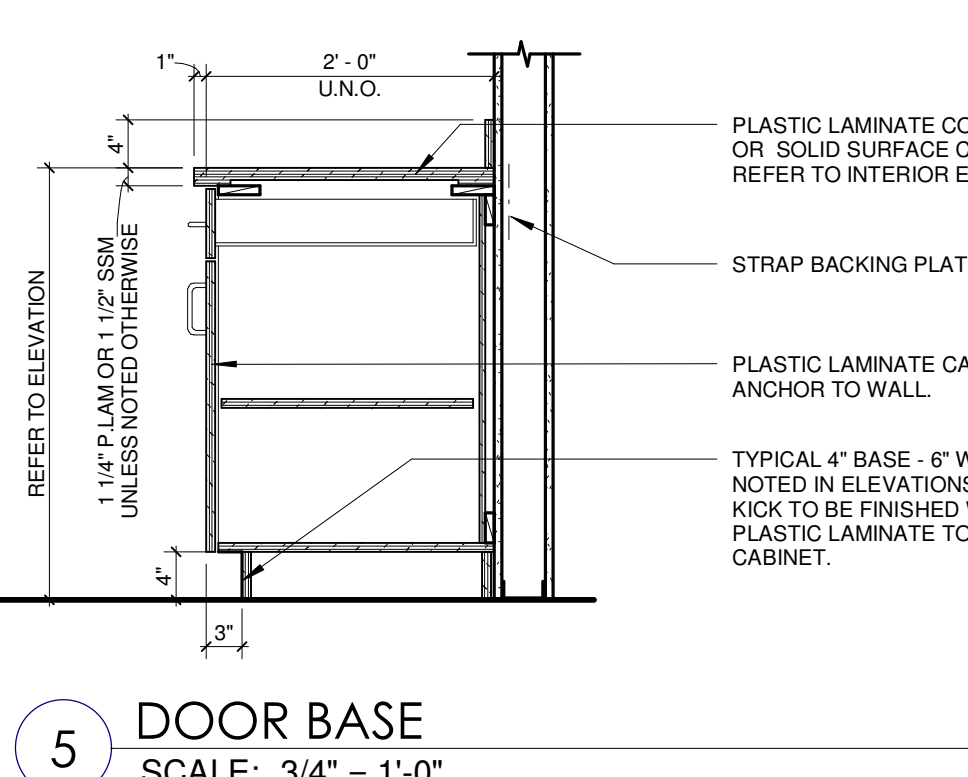
13 KNEE SPACE - SURFACE BRACKET AT CMU WALLS  
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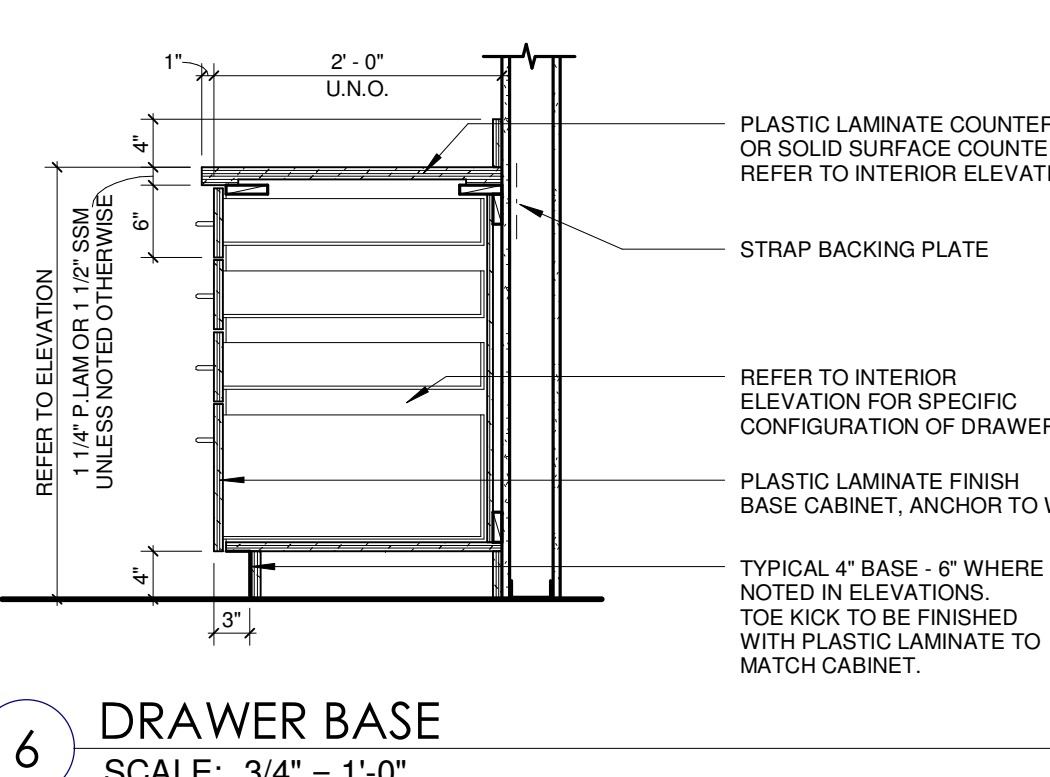
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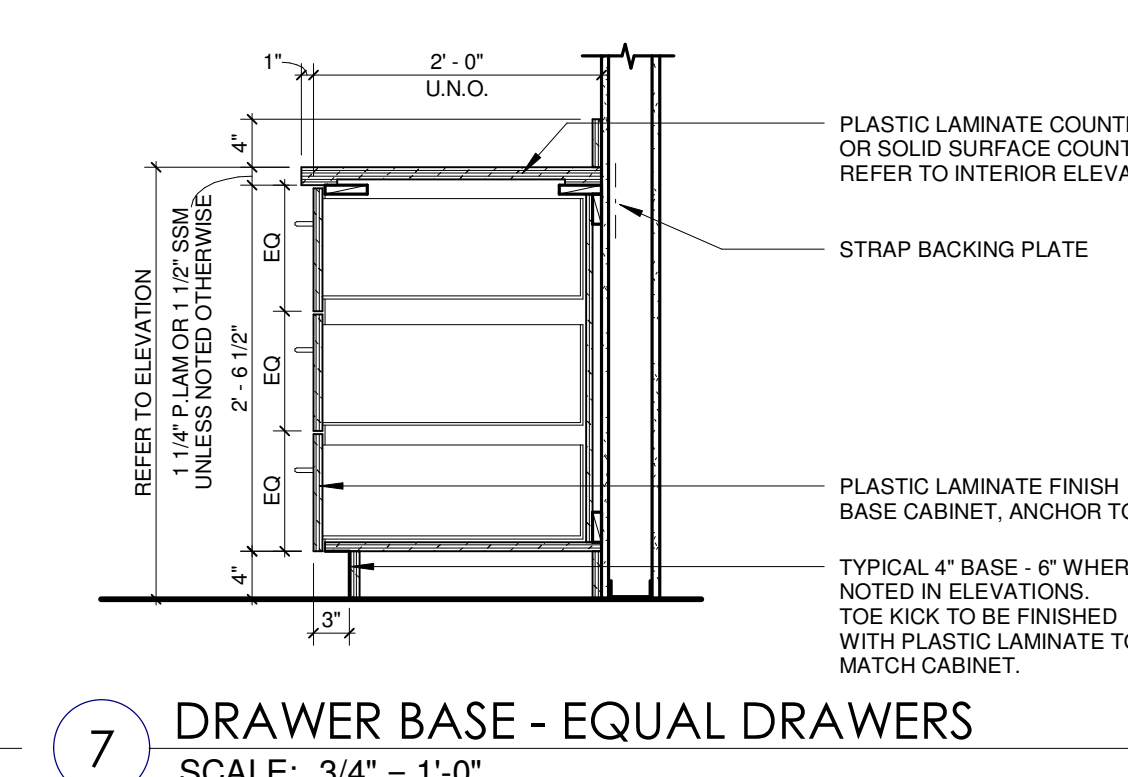
4 SINK W/ APRON  
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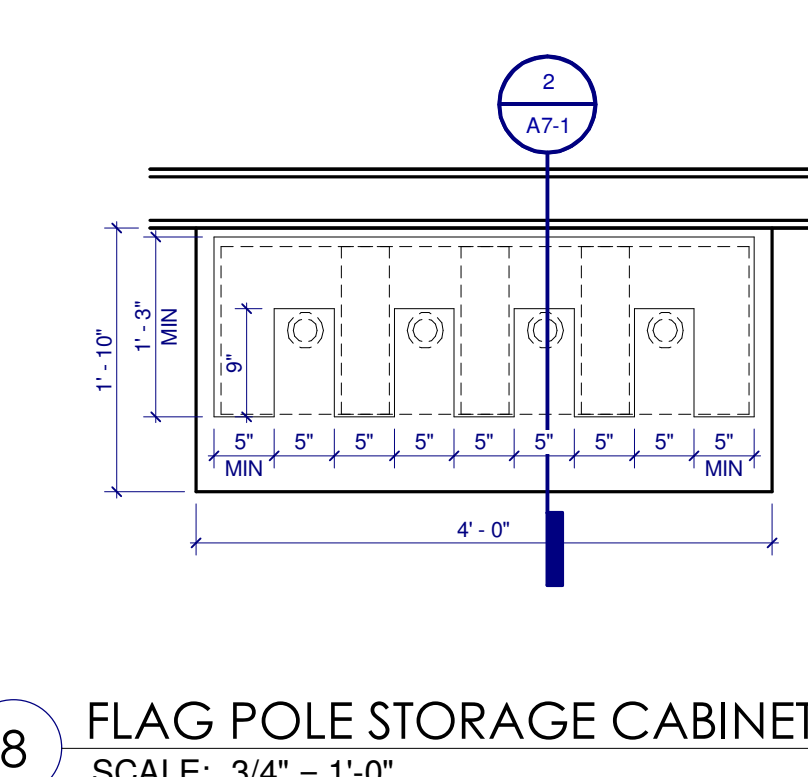
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6 DRAWER BASE  
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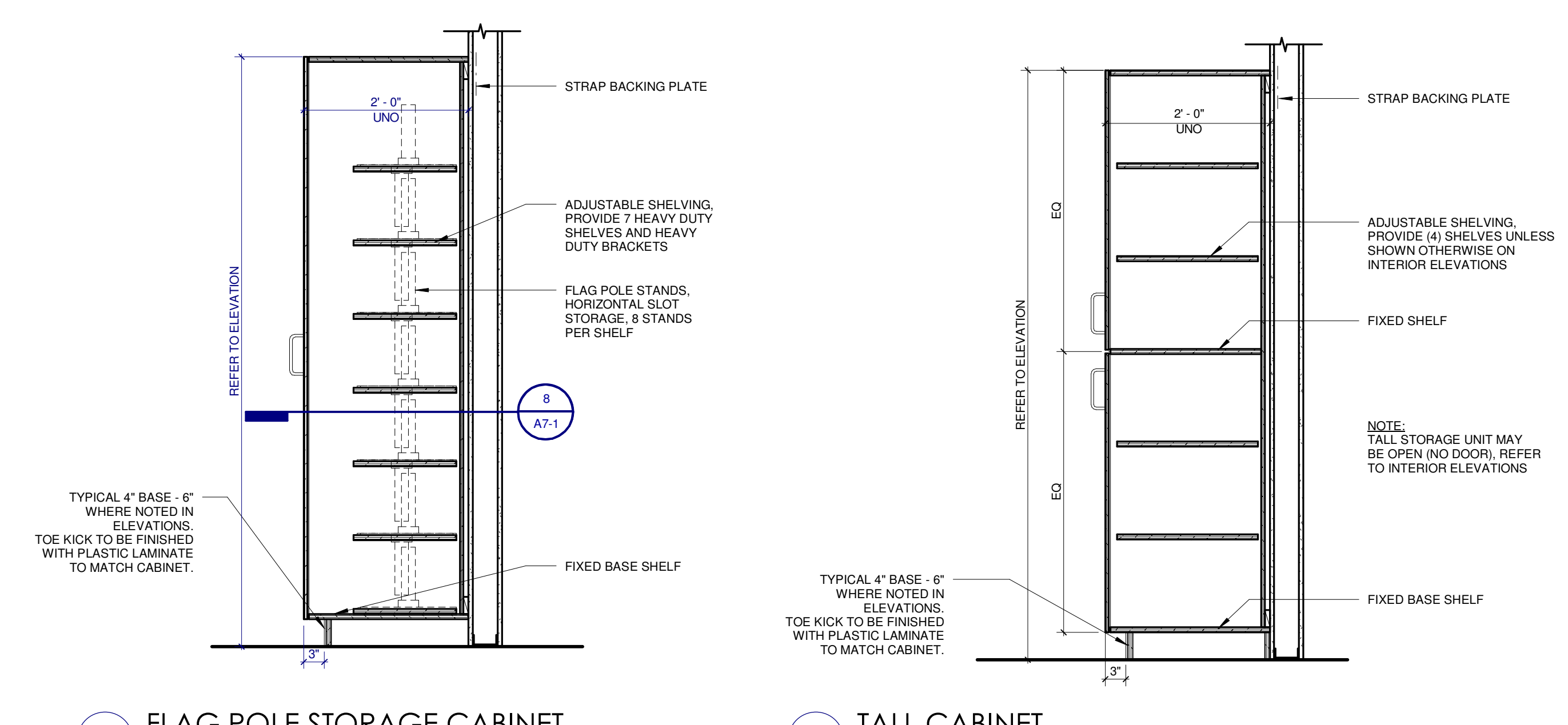
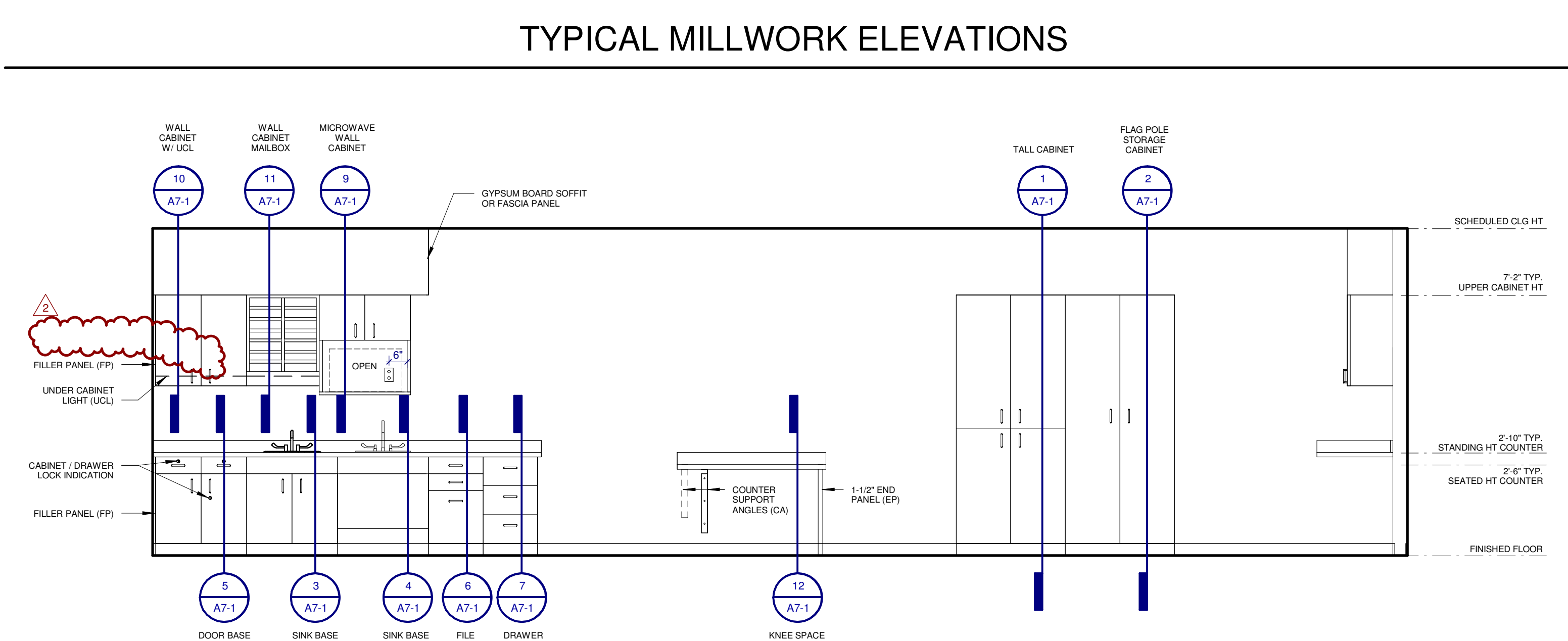


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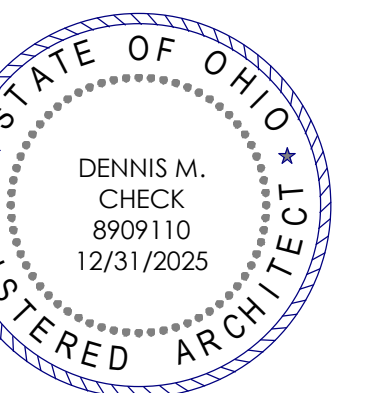


8 FLAG POLE STORAGE CABINET PLAN  
SCALE: 3/4" = 1'-0"

- ### GENERAL NOTES
- WALL MOUNTED ACCESSORIES & EQUIPMENT:**
- REFER TO A7-0 AND PROJECT MANUAL FOR TYPICAL WALL MOUNTED ITEMS AND HEIGHTS. REFER TO REMAINING A7 SERIES DRAWINGS FOR LOCATION, SPECIFIC MOUNTING HEIGHTS AND LOCATIONS OF ACCESSORIES, FIXTURES AND SELECT EQUIPMENT NOT INCLUDED IN THE PROJECT MANUAL.
  - PROVIDE BLOCKING WITHIN GYPSUM BOARD PARTITIONS FOR WALL MOUNTED AND RECESSED ACCESSORIES, FIXTURES AND EQUIPMENT. COORDINATE ROUGH OPENING DIMENSIONS FOR RECESSED EQUIPMENT AND ACCESSORIES WITH MANUFACTURERS REQUIREMENTS.
- MILLWORK:**
- REFER TO TYPICAL MILLWORK DETAILS FOR TYPICAL FASCIA/SOFFIT ABOVE CABINET DETAIL CONDITION.
  - PROVIDE 4\"/>







ISSUE / REVISION	DATE
1 BIDING AND PLAN REVIEW	10/15/2024
2 APPENDUM 02	11/14/2024

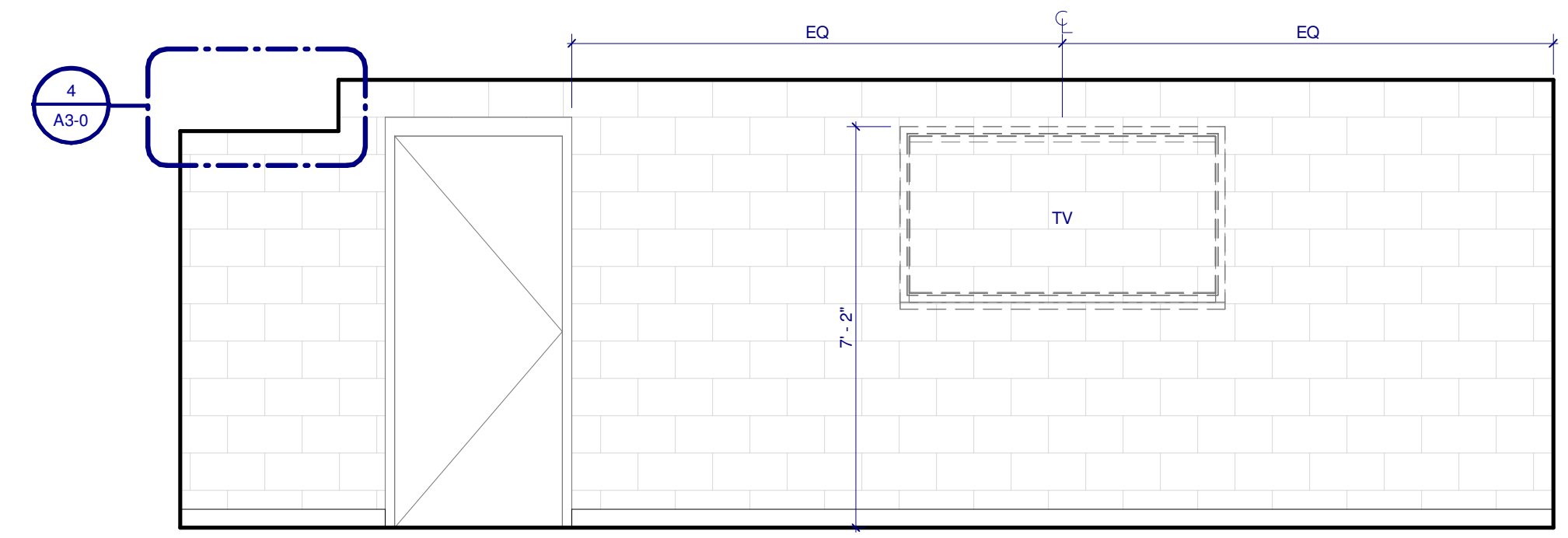
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INTERIOR ELEVATIONS

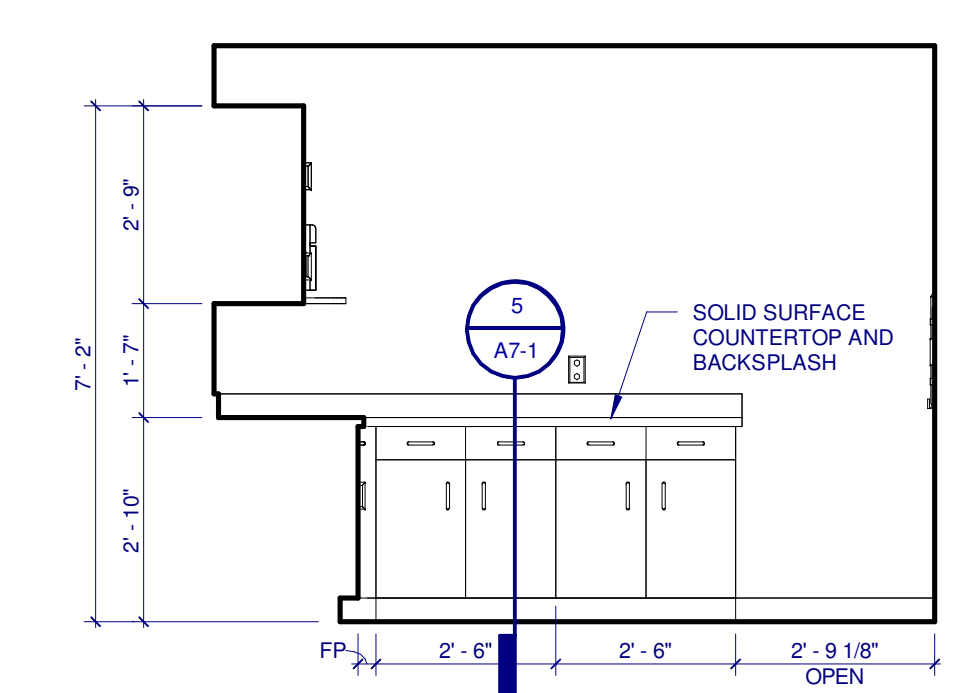
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NO. © 2024

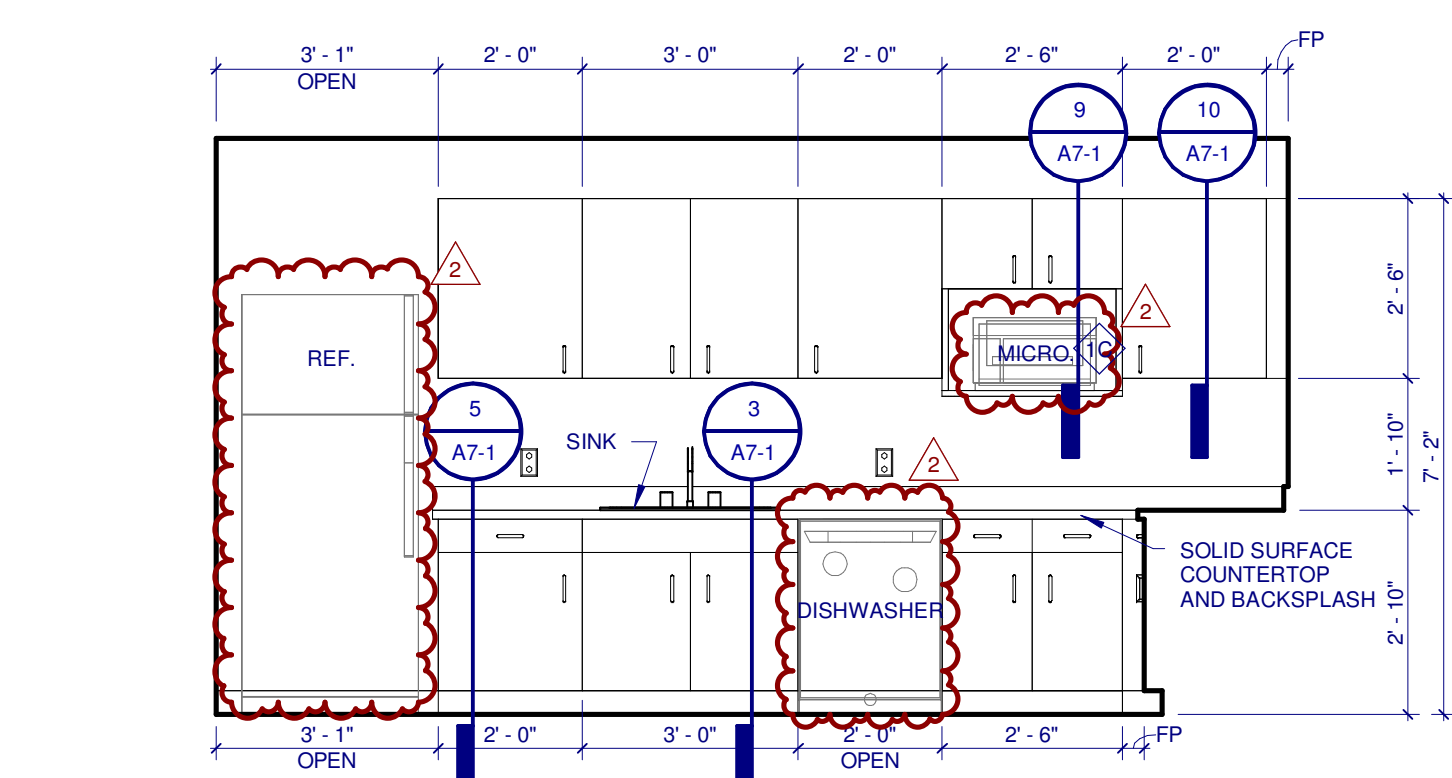
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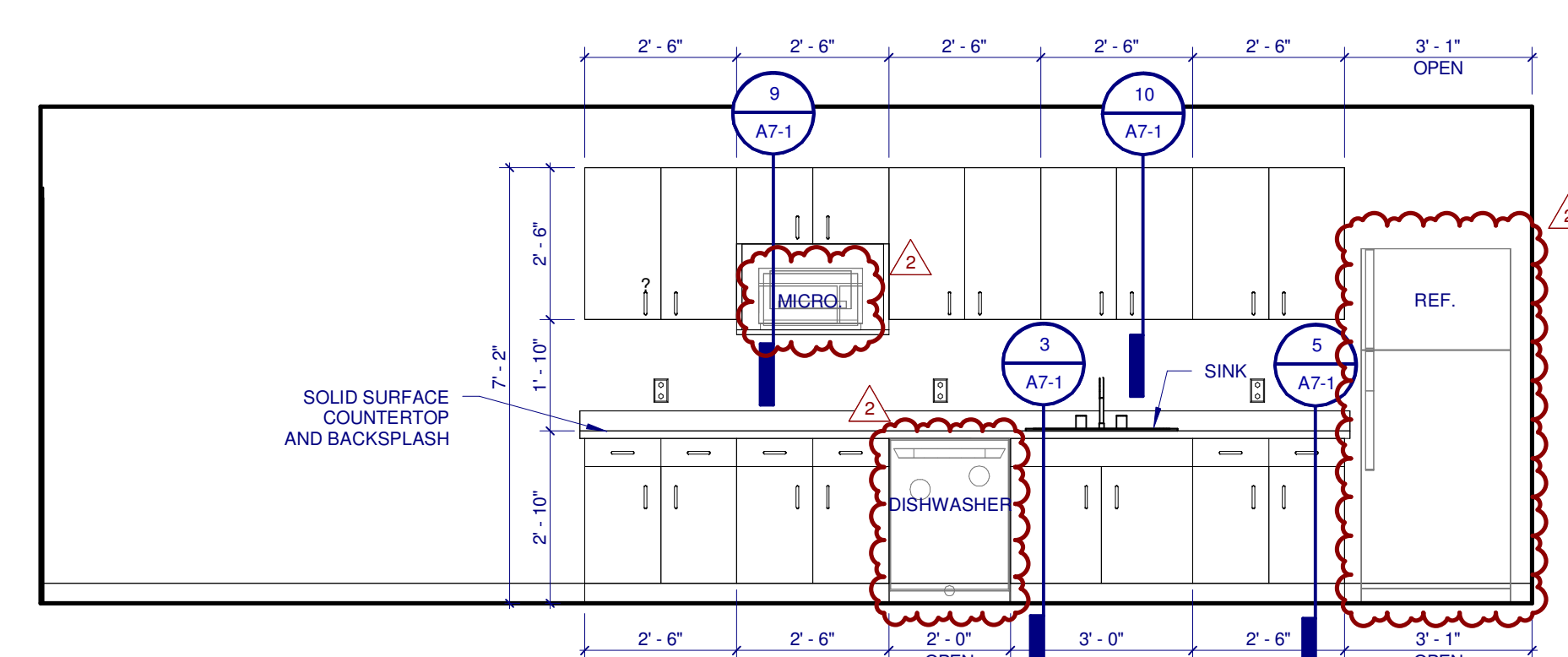
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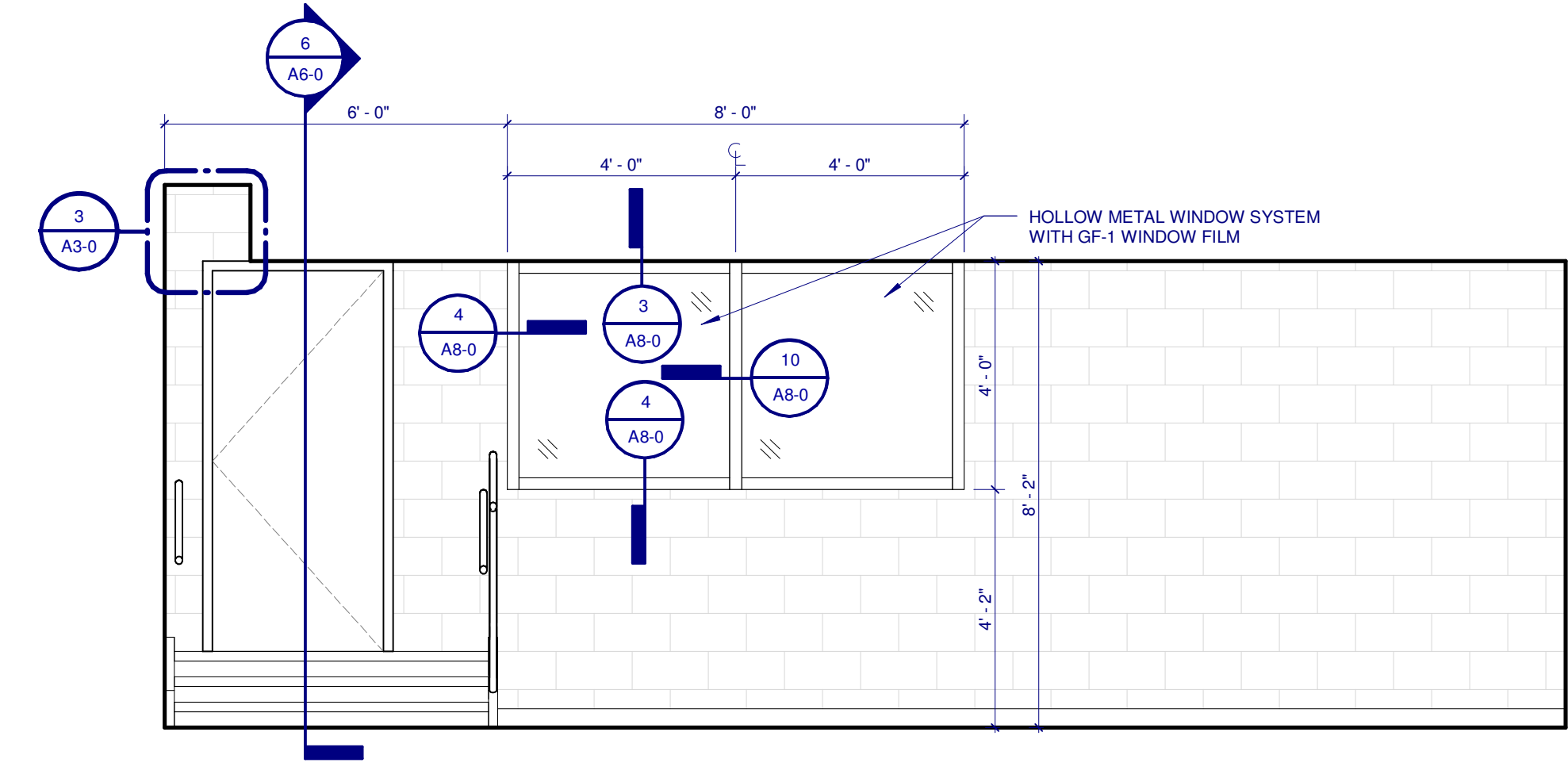
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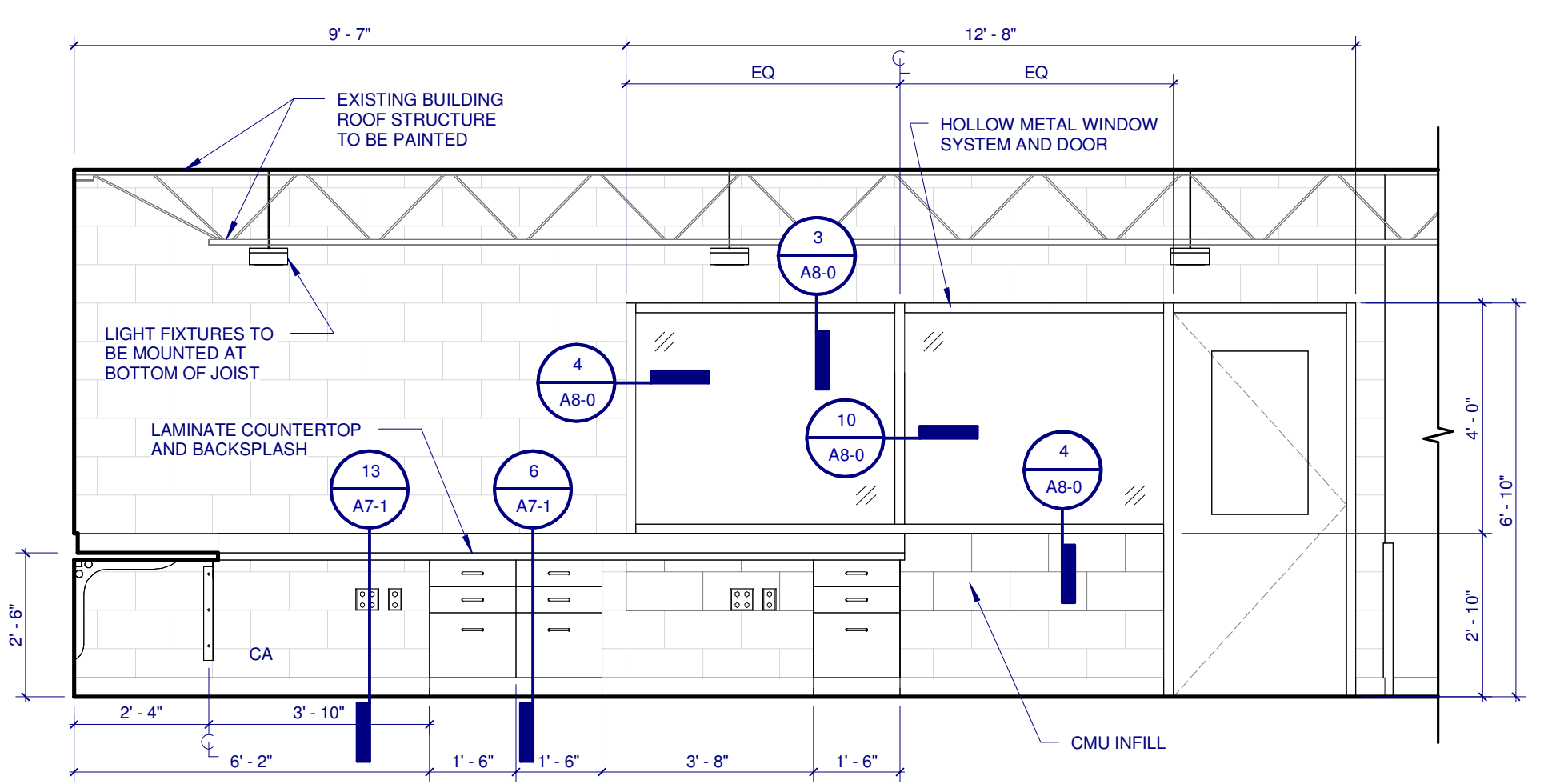
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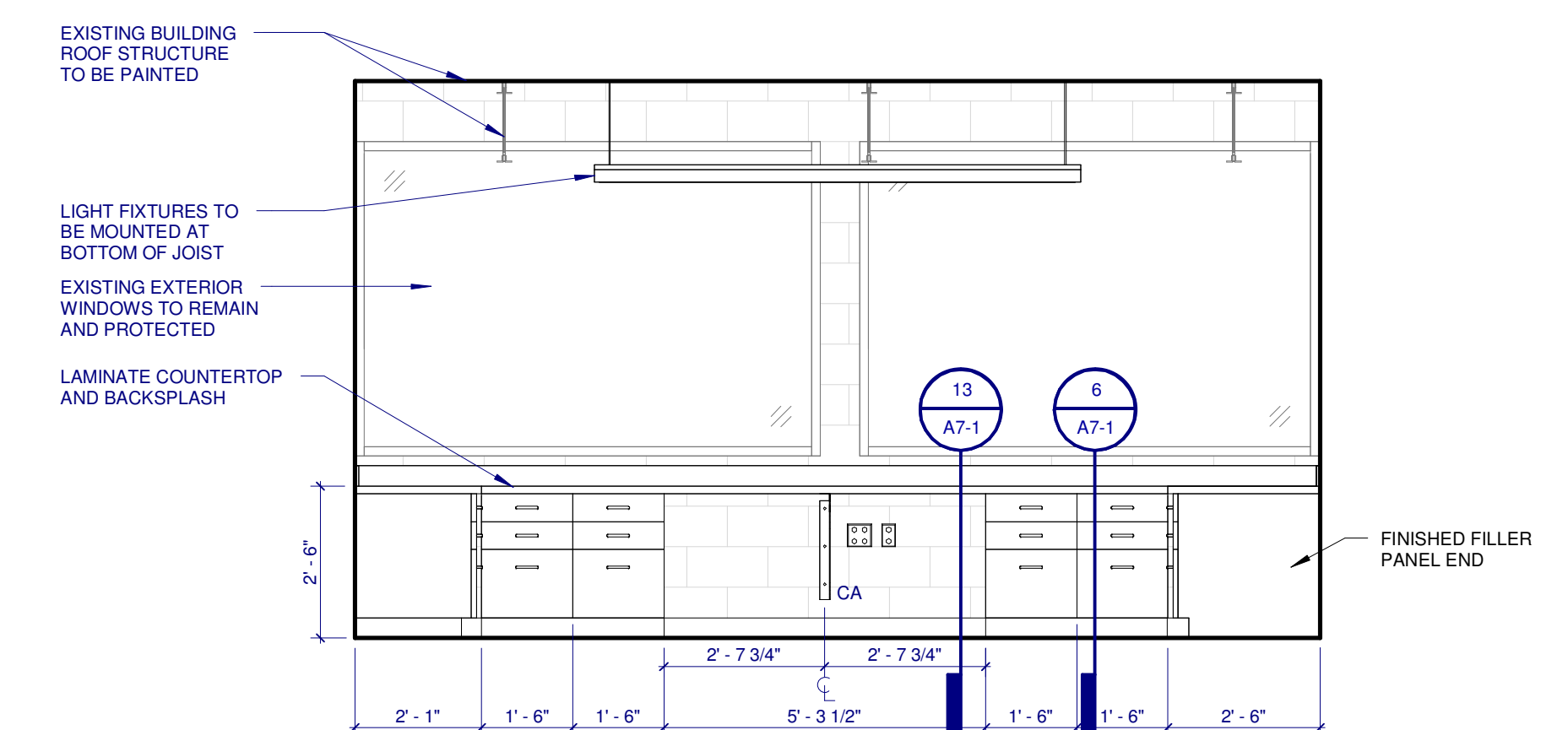
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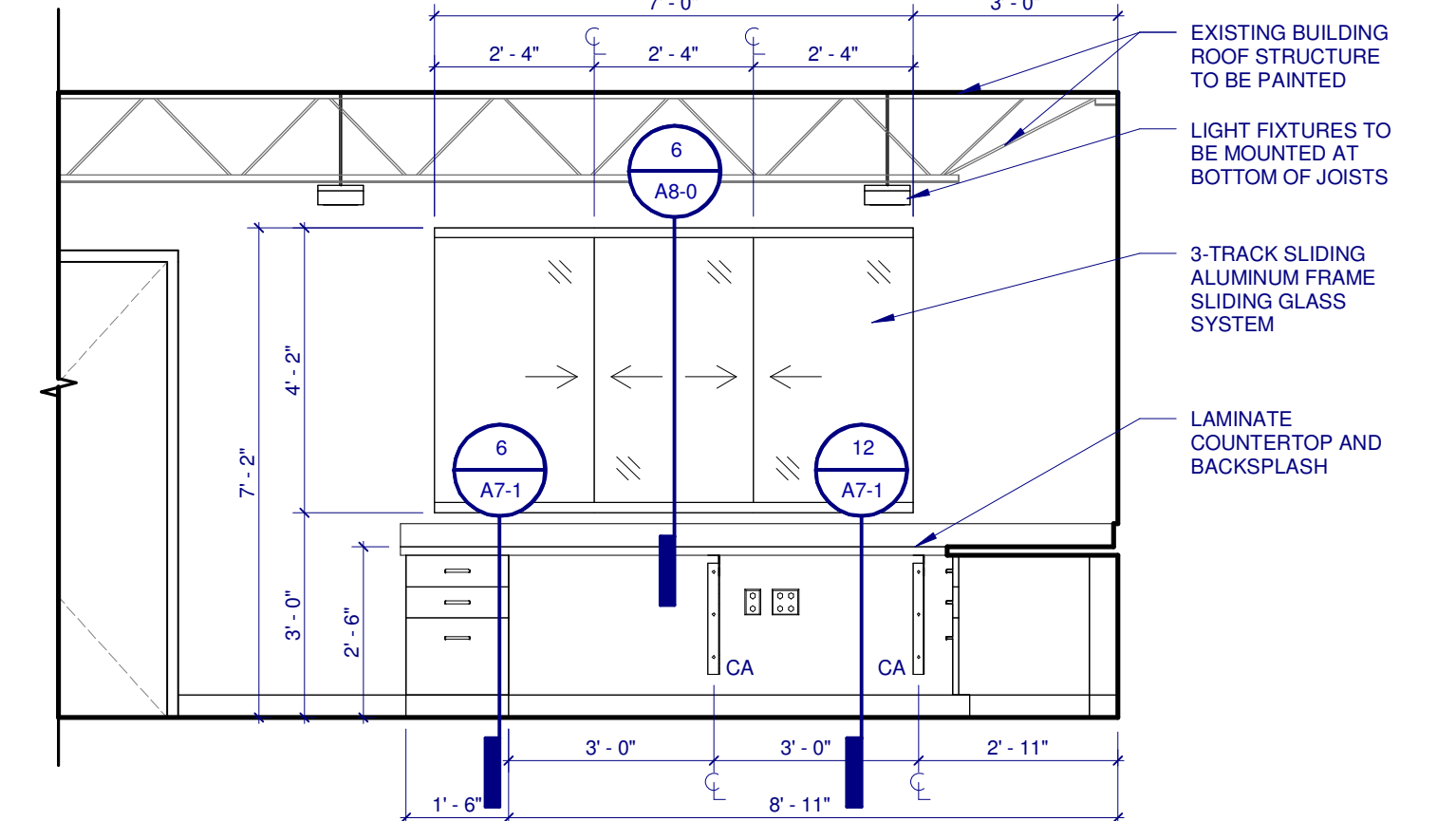
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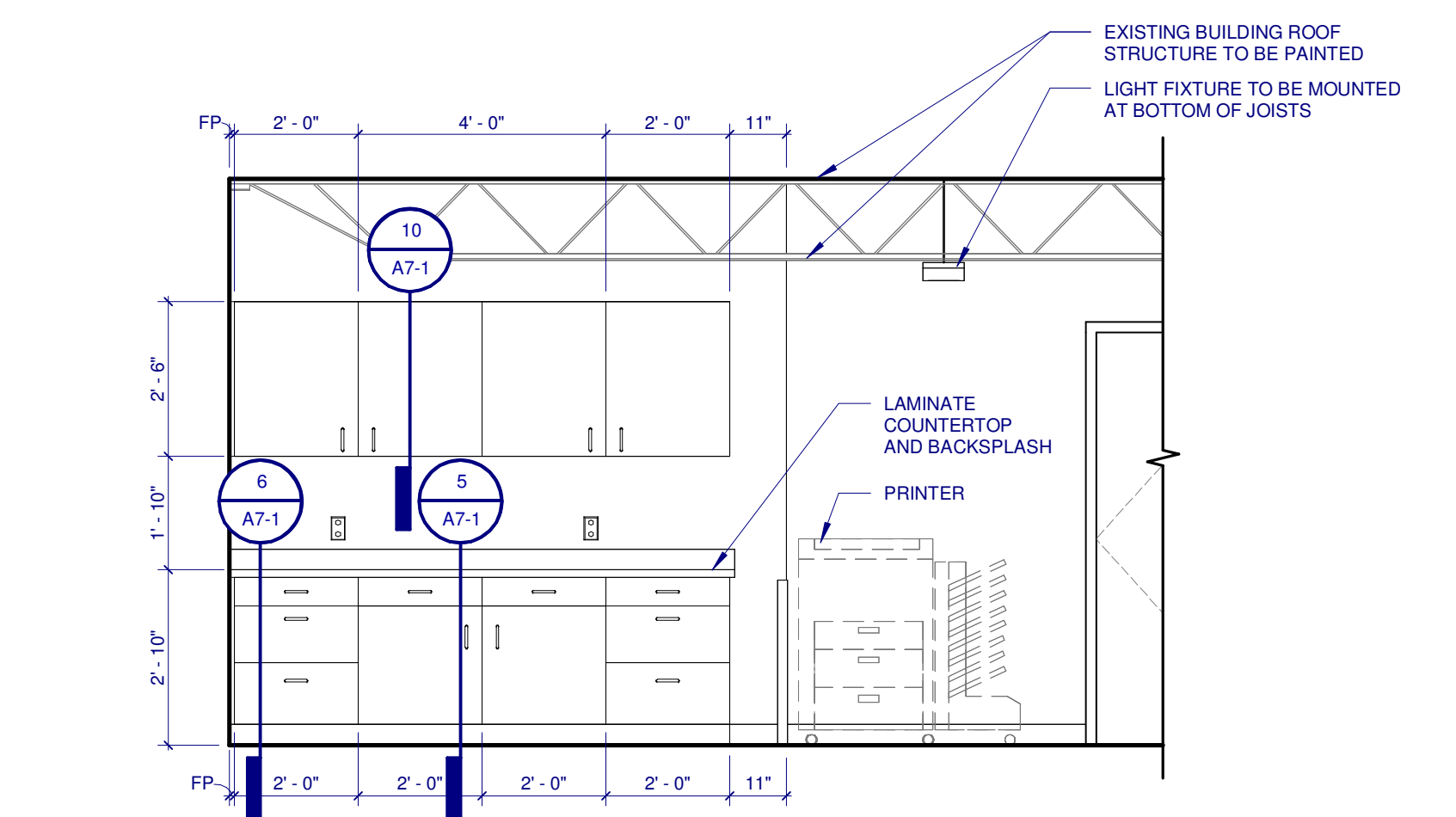
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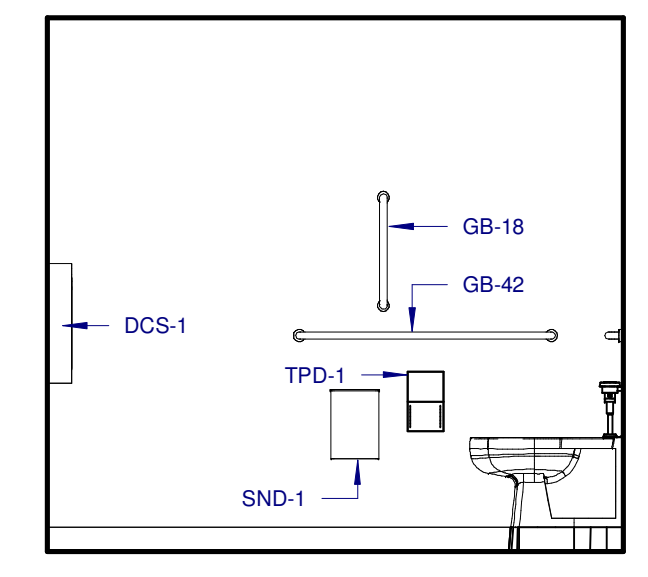
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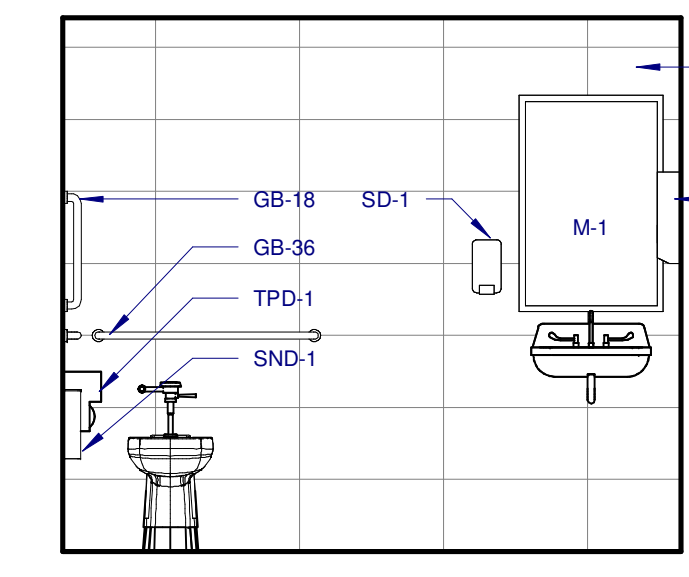
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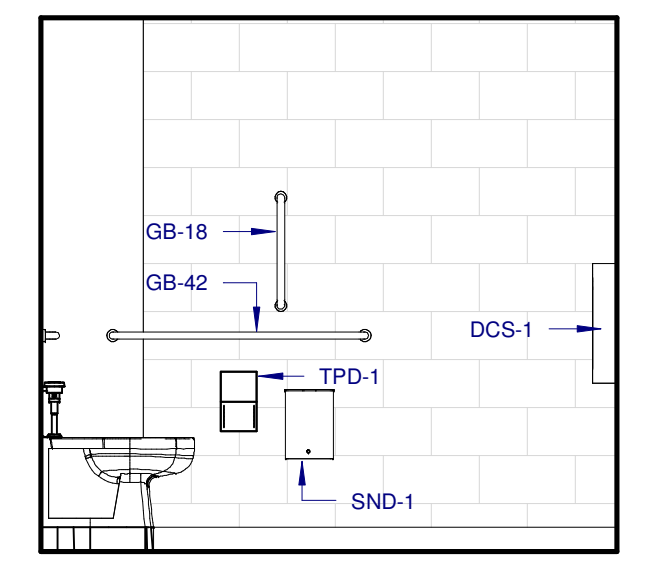
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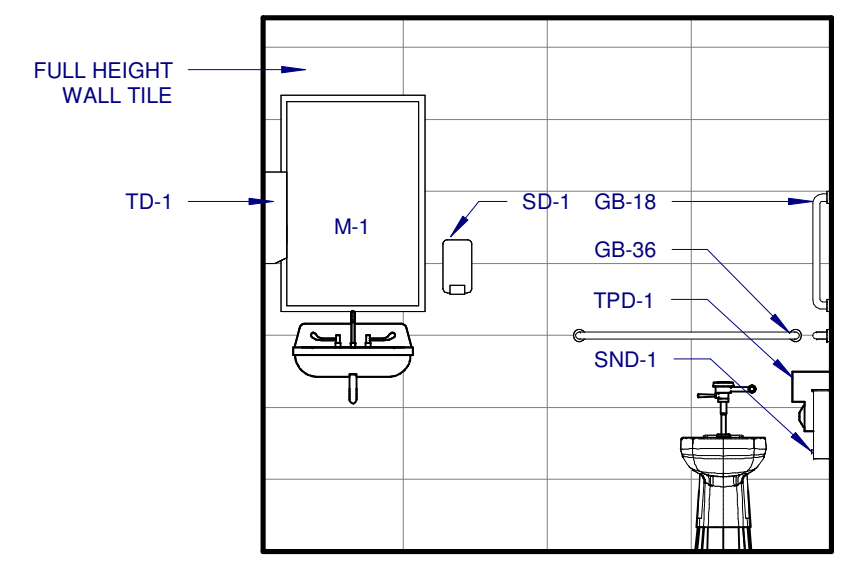
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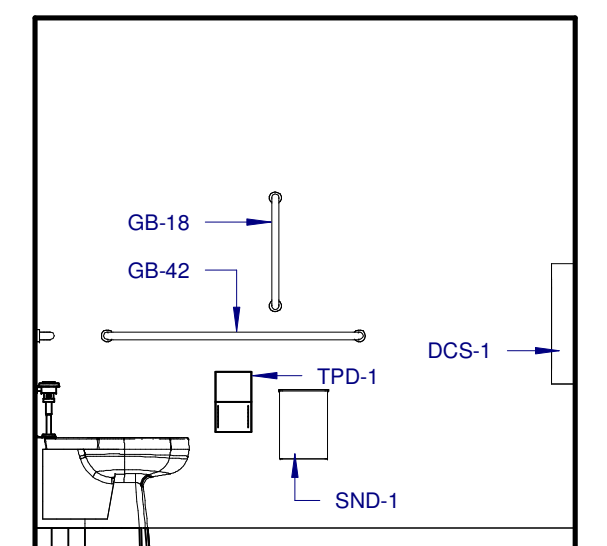
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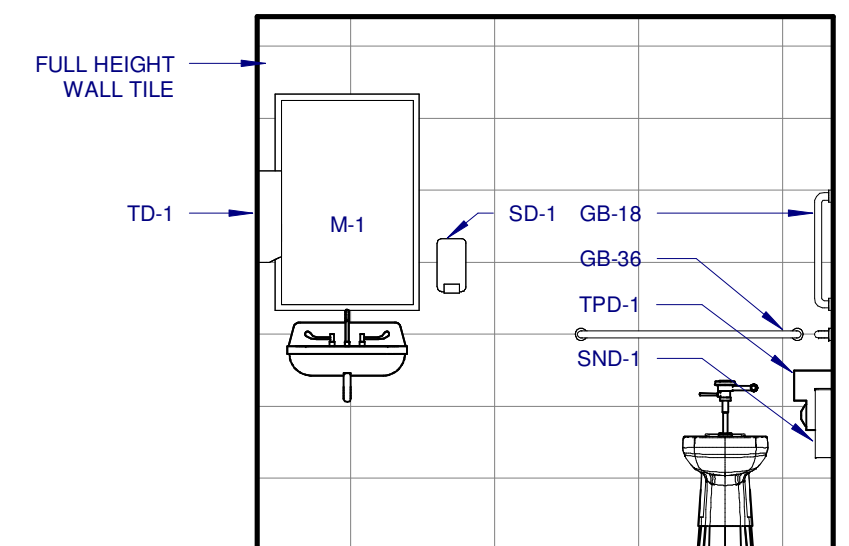
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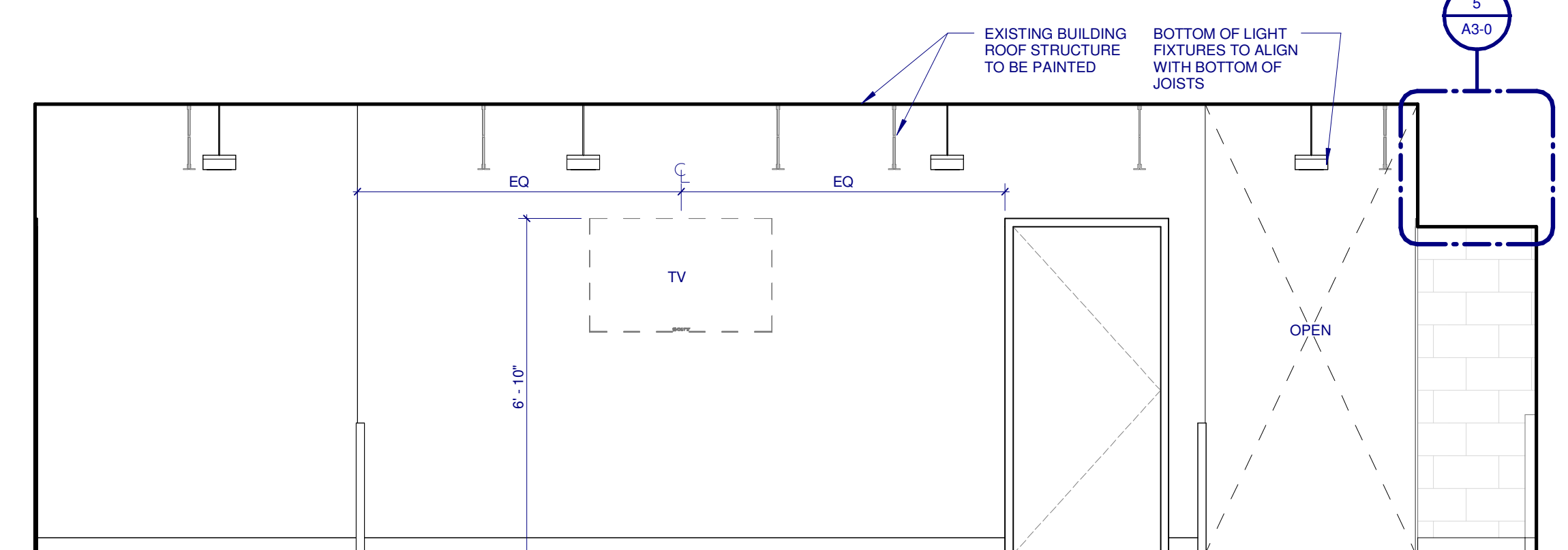
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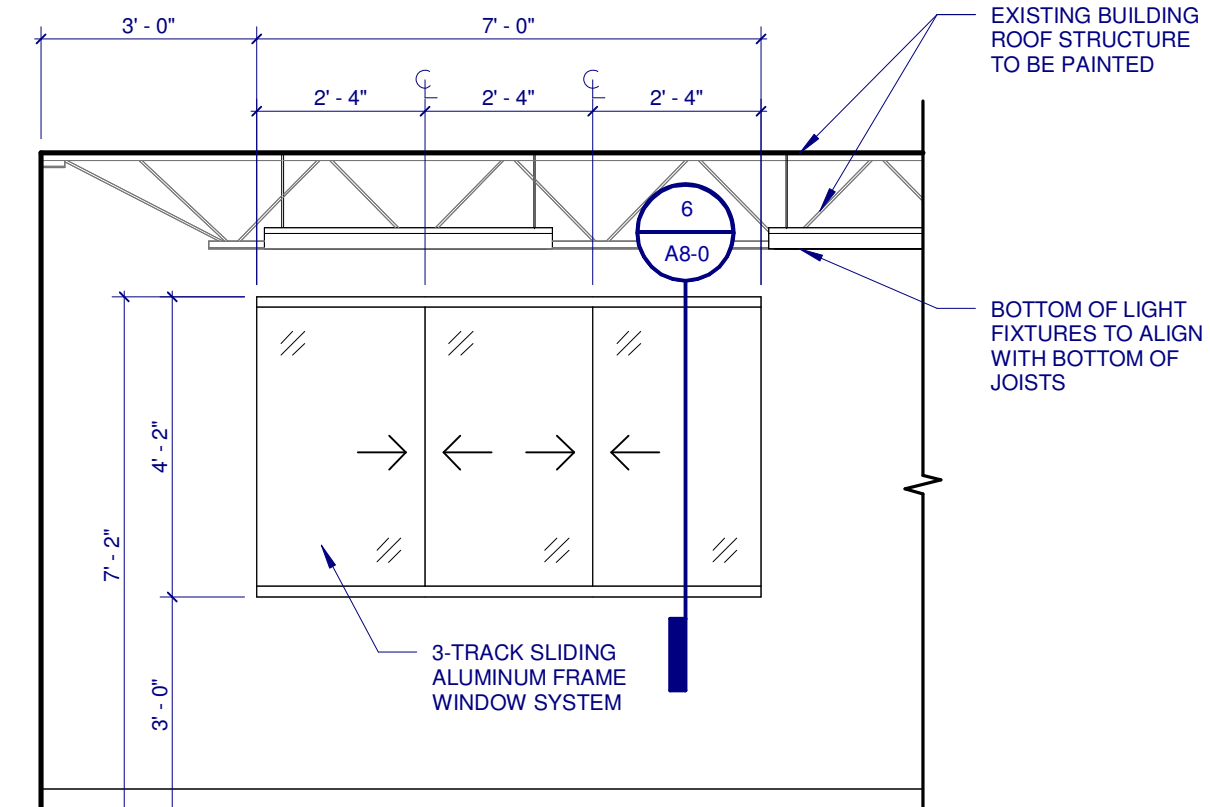
4 PUBLIC RESTROOM  
SCALE: 3/8" = 1'-0"



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



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



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

**GENERAL NOTES**

- WALL MOUNTED ACCESSORIES & EQUIPMENT:**
- REFER TO A7-0 AND PROJECT MANUAL FOR TYPICAL WALL MOUNTED ITEMS AND HEIGHTS. REFER TO REMAINING A7 SERIES DRAWINGS FOR LOCATION-SPECIFIC MOUNTING HEIGHTS AND LOCATIONS OF ACCESSORIES, FIXTURES AND SELECT EQUIPMENT NOT INCLUDED IN THE PROJECT MANUAL.
  - PROVIDE BLOCKING WITHIN GYPSUM BOARD PARTITIONS FOR WALL MOUNTED AND RECESSED ACCESSORIES, FIXTURES AND EQUIPMENT.
  - COORDINATE ROUGH OPENING DIMENSIONS FOR RECESSED EQUIPMENT AND ACCESSORIES WITH MANUFACTURER'S REQUIREMENTS.
- MILLWORK:**
- REFER TO TYPICAL MILLWORK DETAILS FOR TYPICAL FASCIA/SOFFIT ABOVE CABINET DETAIL CONDITION.
  - PROVIDE 4" BACKSPLASH AND SIDESPLASHES TO MATCH COUNTERTOP MATERIAL U.N.O.
  - PROVIDE PLASTIC LAMINATE FACING ON ALL EXPOSED SURFACES OF MILLWORK UNLESS NOTED OTHERWISE.
  - PROVIDE PVC EDGE BANDING FOR PLASTIC LAMINATE COUNTERTOPS AND CABINETS UNLESS NOTED OTHERWISE.
  - PROVIDE FILLERS FOR CABINETS AS REQUIRED.
  - BASE CABINETS AT COUNTERTOPS DEEPER THAN THE STANDARD 25" SHALL HAVE EXTENDED FINISHED ENDS FROM BACK OF BASE CABINET TO WALL BEYOND. FOR DRAWER UNITS, CABINET BODIES CAN REMAIN STANDARD DEPTH. FOR DOOR AND CABINET UNITS, CABINET BODY SHALL BE FULL DEPTH.
  - PROVIDE ONE ADJUSTABLE SHELF AT ALL WALL CABINETS 24" HIGH AND SHORTER. PROVIDE TWO ADJUSTABLE SHELVES AT ALL WALL CABINETS 25" TO 36" HIGH. PROVIDE ADJUSTABLE SHELVES AS NOTED ON ELEVATIONS AT CABINETS TALLER THAN 36" HIGH. PROVIDE ONE ADJUSTABLE SHELF AT ALL BASE CABINETS U.N.O.
  - ALL CABINETRY, DOORS AND DRAWERS, WHETHER THEY ARE SCHEDULED TO RECEIVE LOCKS OR NOT ARE TO RECEIVE GROOVE FOR FUTURE LOCK TAIL PIECE UNLESS NOTED OTHERWISE.

**TYPICAL MATERIALS (UNO)**

ITEM	CODE
COUNTERTOPS, BACKSPLASHES & SIDESPLASHES	PL-2
BASE & WALL CABINETS	PL-1
WINDOW STOOLS	SS-1

**MATERIAL DESIGNATIONS**

PL	PLASTIC LAMINATE
SS	SOLID SURFACE

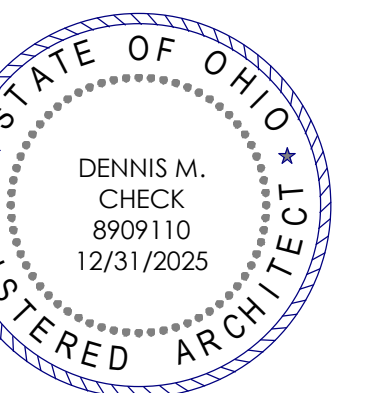
**SERVICE OUTLETS LEGEND**

E	ELECTRICAL OUTLET - NORMAL POWER
EM	ELECTRICAL OUTLET - EMERGENCY POWER
T	TELEPHONE
D	DATA
TV	TELEVISION
INT	INTERCOM
L	LIGHT SWITCH
FP	PUSH PLATE
TH	THERMOSTAT
W	WATERLINE CONNECTION

**LEGEND**

- SPECIALTY ITEM, EQUIPMENT OR FURNISHING TAG REFER TO A11 SERIES OF PROJECT MANUAL FOR TAG SCHEDULE AND INFORMATION
- EQUIPMENT ITEM OWNER FURNISHED, CONTRACTOR INSTALLED
- EQUIPMENT ITEM OWNER FURNISHED, OWNER INSTALLED
- UNDER CABINET LIGHT - SEE ELECTRICAL DRAWINGS
- XXXXX DENOTES NON-TYPICAL FINISH REFER TO A7 SERIES MILLWORK MATERIAL KEY & A9 SERIES FINISH MATERIAL KEY
- MATERIAL FINISH SURFACE





ISSUE / REVISION	DATE
1	10/15/2024
2	11/14/2024

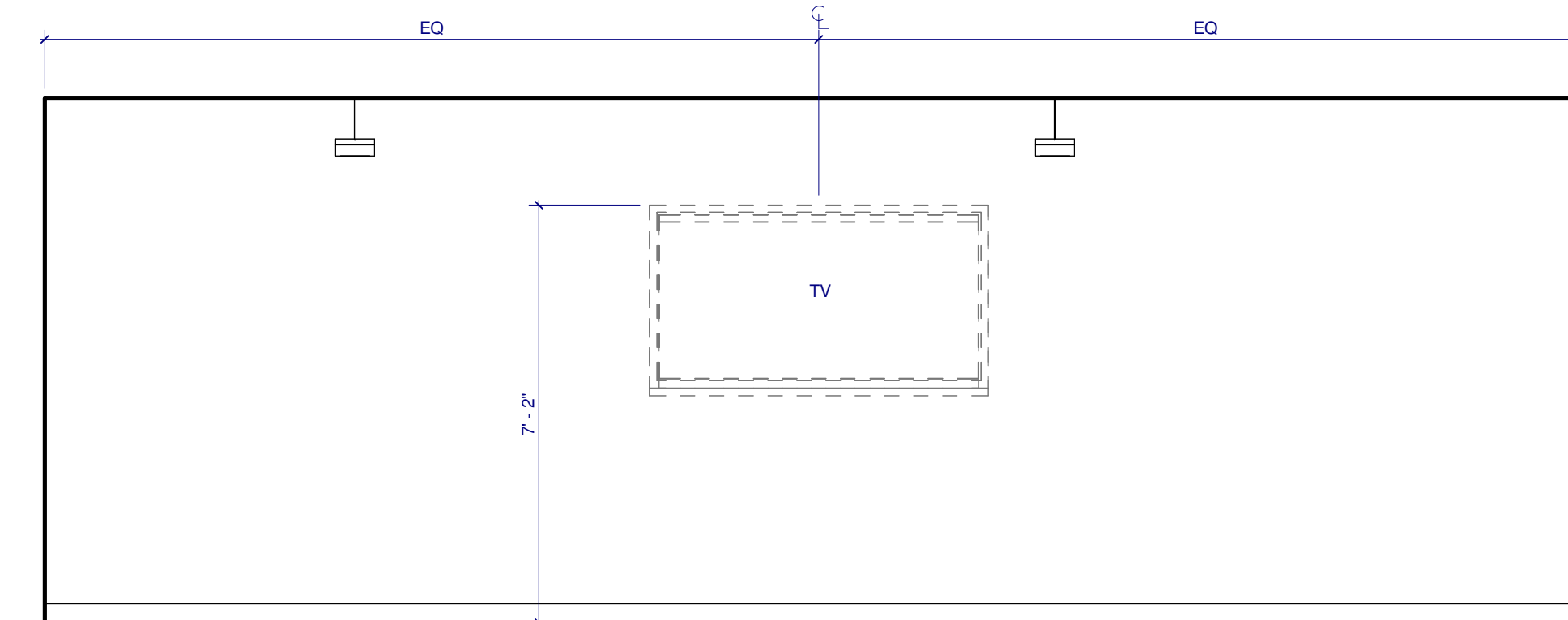
PROJECT NO. 24013.000

INTERIOR ELEVATIONS

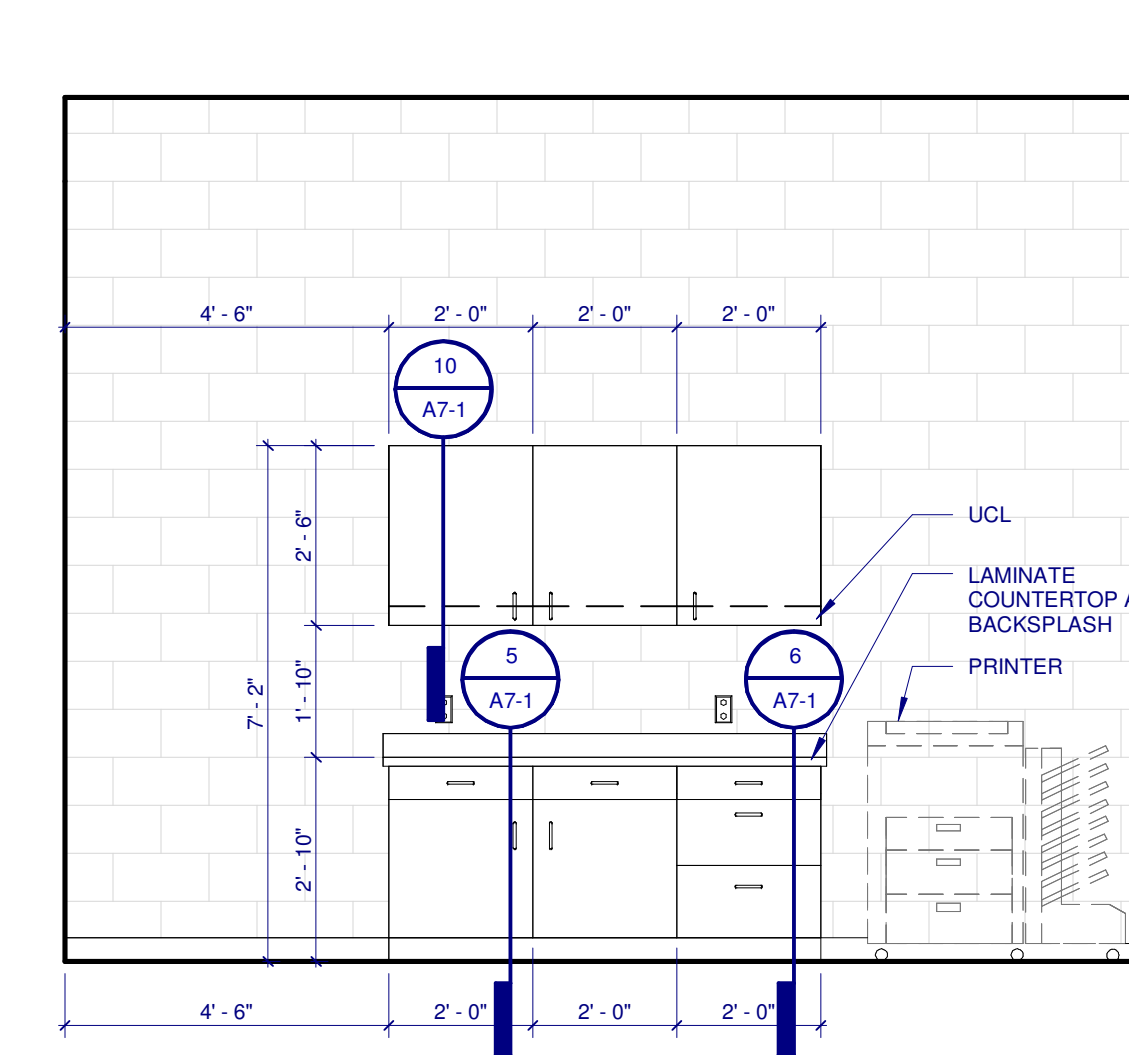
A7-4

**GENERAL NOTES**

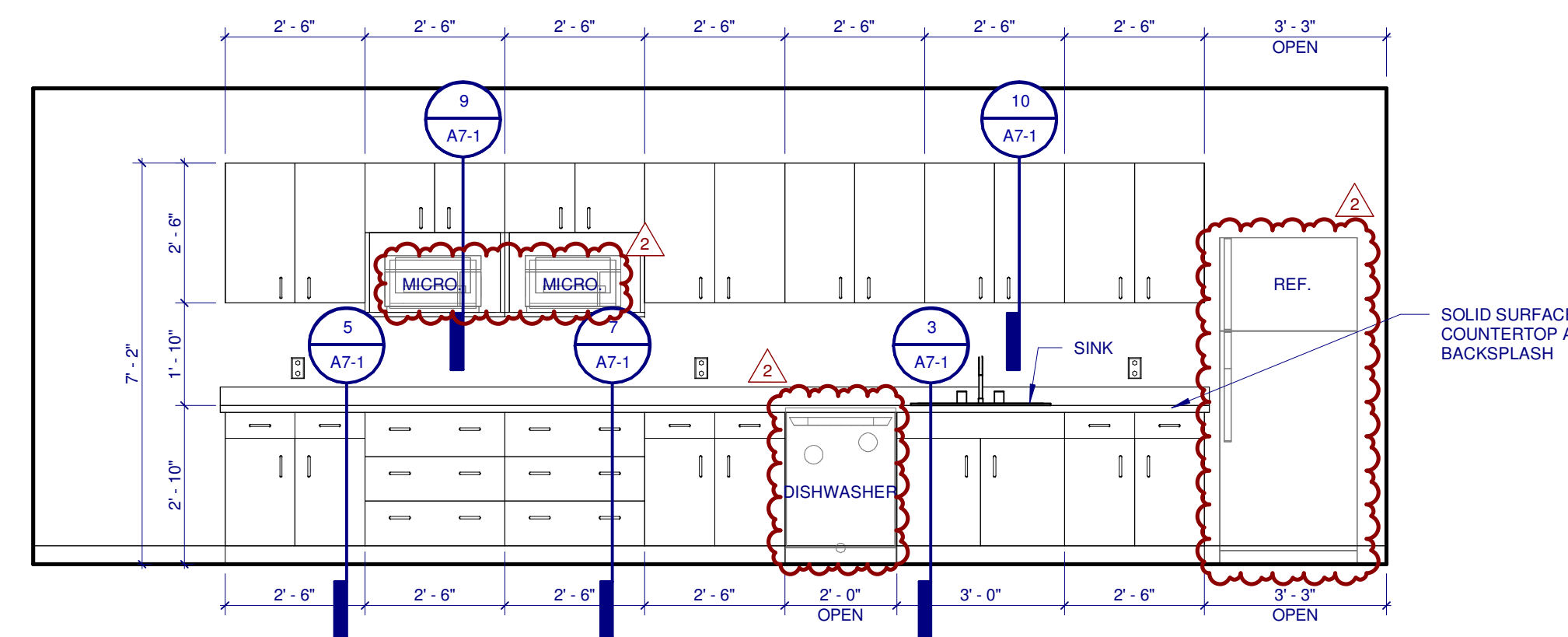
- WALL MOUNTED ACCESSORIES & EQUIPMENT:**
- REFER TO A7-0 AND PROJECT MANUAL FOR TYPICAL WALL MOUNTED ITEMS AND HEIGHTS. REFER TO REMAINING A7 SERIES DRAWINGS FOR LOCATION-SPECIFIC MOUNTING HEIGHTS AND LOCATIONS OF ACCESSORIES, FIXTURES AND SELECT EQUIPMENT NOT INCLUDED IN THE PROJECT MANUAL.
  - PROVIDE BLOCKING WITHIN GYPSUM BOARD PARTITIONS FOR WALL MOUNTED AND RECESSED ACCESSORIES, FIXTURES AND EQUIPMENT.
  - COORDINATE ROUGH OPENING DIMENSIONS FOR RECESSED EQUIPMENT AND ACCESSORIES WITH MANUFACTURER'S REQUIREMENTS.
- MILLWORK:**
- REFER TO TYPICAL MILLWORK DETAILS FOR TYPICAL FASCIA/SOFFIT ABOVE CABINET DETAIL CONDITION.
  - PROVIDE 4" BACKSPLASH AND SIDESPLASHES TO MATCH COUNTERTOP MATERIAL U.N.O.
  - PROVIDE PLASTIC LAMINATE FACING ON ALL EXPOSED SURFACES OF MILLWORK UNLESS NOTED OTHERWISE.
  - PROVIDE PVC EDGE BANDING FOR PLASTIC LAMINATE COUNTERTOPS AND CABINETS UNLESS NOTED OTHERWISE.
  - PROVIDE FILLERS FOR CABINETS AS REQUIRED.
  - BASE CABINETS AT COUNTERTOPS DEEPER THAN THE STANDARD 25" SHALL HAVE EXTENDED FINISHED ENDS FROM BACK OF BASE CABINET TO WALL BEYOND. FOR DRAWER UNITS, CABINET BODIES CAN REMAIN STANDARD DEPTH. FOR DOOR AND CABINET UNITS, CABINET BODY SHALL BE FULL DEPTH.
  - PROVIDE ONE ADJUSTABLE SHELF AT ALL WALL CABINETS 24" HIGH AND SHORTER. PROVIDE TWO ADJUSTABLE SHELVES AT ALL WALL CABINETS 25" TO 36" HIGH. PROVIDE ADJUSTABLE SHELVES AS NOTED ON ELEVATIONS AT CABINETS TALLER THAN 36" HIGH. PROVIDE ONE ADJUSTABLE SHELF AT ALL BASE CABINETS U.N.O.
  - ALL CABINETS, DOORS AND DRAWERS, WHETHER THEY ARE SCHEDULED TO RECEIVE LOCKS OR NOT ARE TO RECEIVE GROOVE FOR FUTURE LOCK TAIL PIECE UNLESS NOTED OTHERWISE.



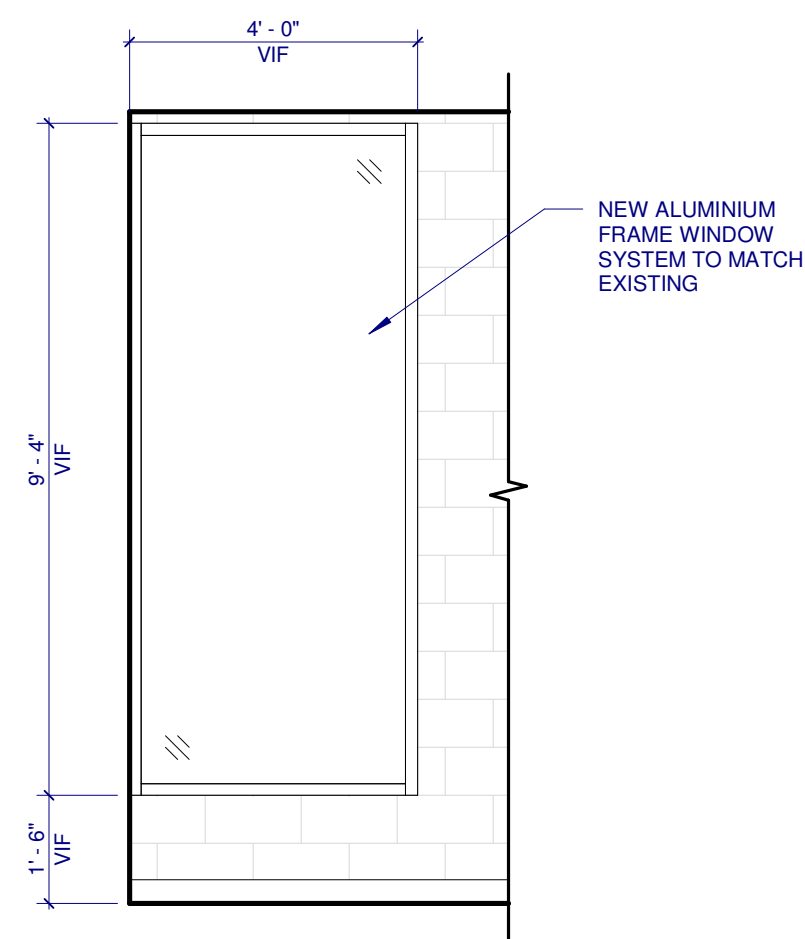
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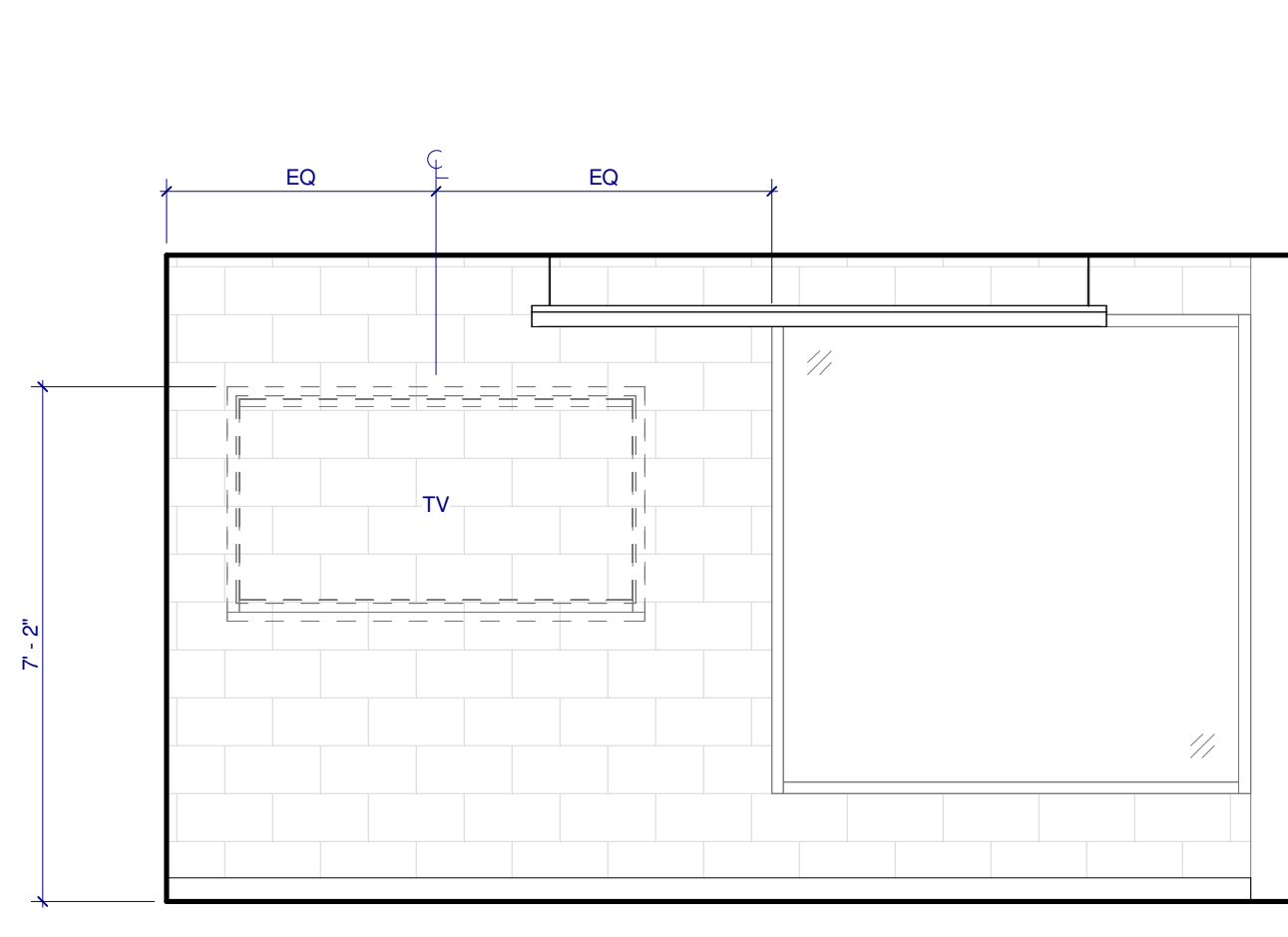
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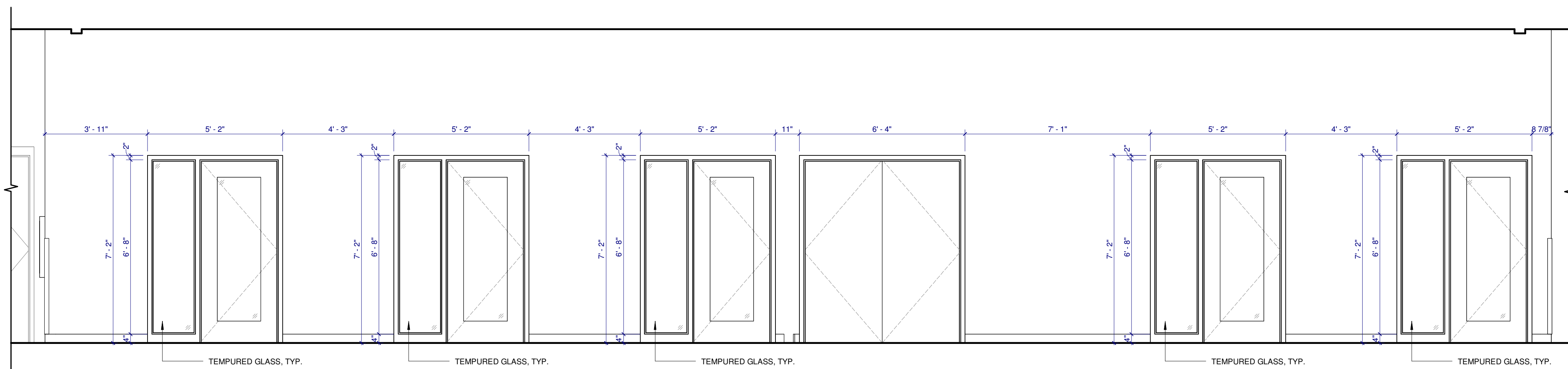
4 STAFF KITCHEN/LOUNGE  
SCALE: 3/8" = 1'-0"



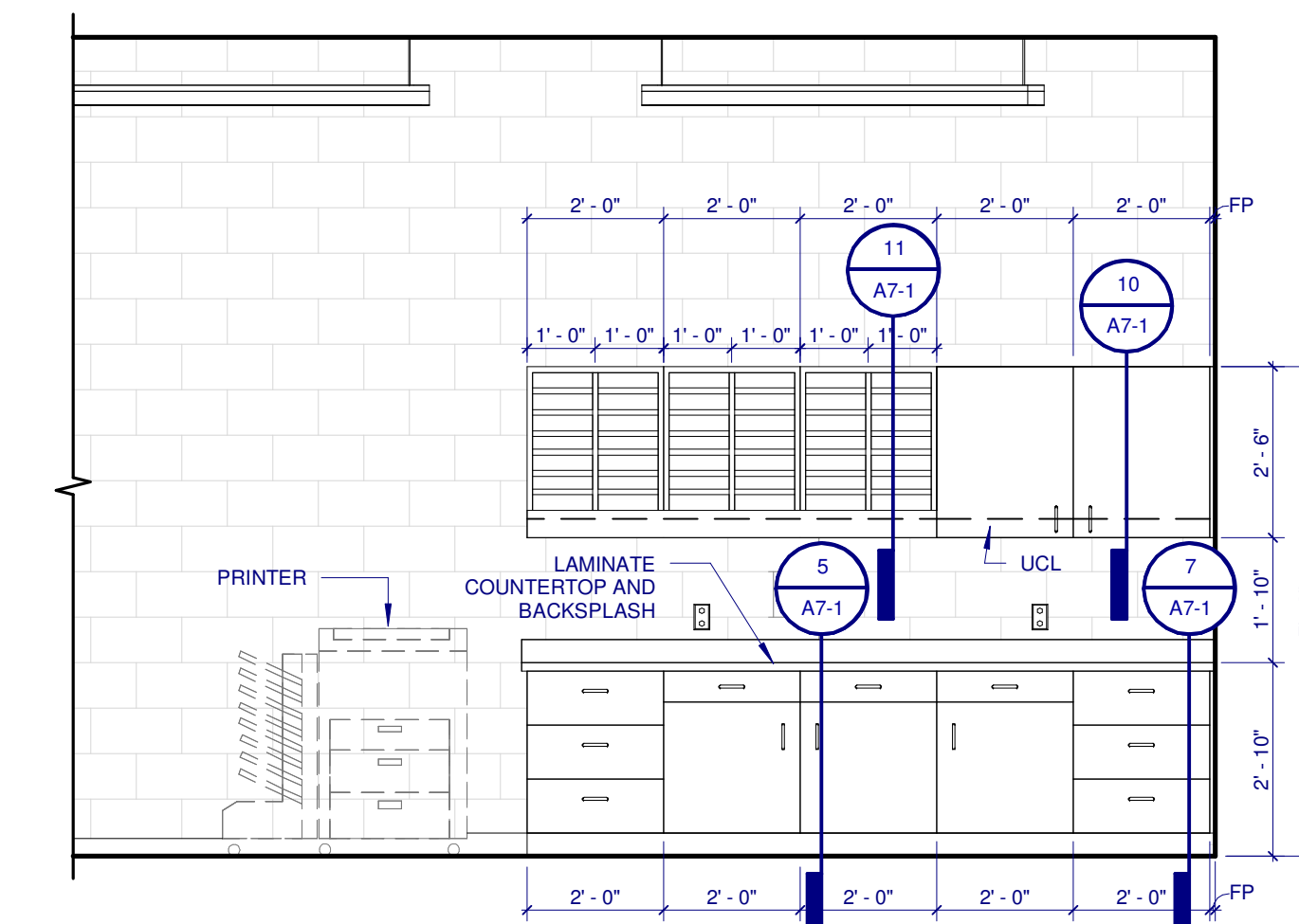
5 HUDDLE WINDOW  
SCALE: 3/8" = 1'-0"



6 SMALL CONFERENCE  
SCALE: 3/8" = 1'-0"



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



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

**TYPICAL MATERIALS (UNO)**

ITEM	CODE
COUNTERTOPS, BACKSPLASHES & SIDESPLASHES	PL-2
BASE & WALL CABINETS	PL-1
WINDOW STOOLS	SS-1

**MATERIAL DESIGNATIONS**

- PL PLASTIC LAMINATE
- SS SOLID SURFACE

**SERVICE OUTLETS LEGEND**

- E ELECTRICAL OUTLET - NORMAL POWER
- EM ELECTRICAL OUTLET - EMERGENCY POWER
- T TELEPHONE
- D DATA
- TV TELEVISION
- INT INTERCOMM
- L LIGHT SWITCH
- PP PUSH PLATE
- TH THERMOSTAT
- W WATERLINE CONNECTION

**LEGEND**

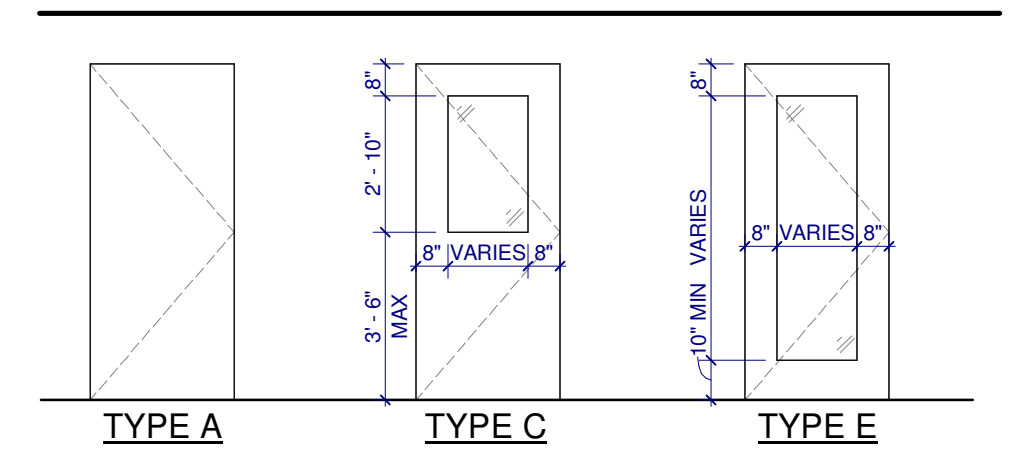
- SPECIALTY ITEM, EQUIPMENT OR FURNISHING TAG REFER TO A11 SERIES OR PROJECT MANUAL FOR TAG SCHEDULE AND INFORMATION
- EQUIPMENT ITEM OWNER FURNISHED, CONTRACTOR INSTALLED
- EQUIPMENT ITEM OWNER FURNISHED, OWNER INSTALLED
- UNDER CABINET LIGHT - SEE ELECTRICAL DRAWINGS
- UCL
- XXXXX DENOTES NON-TYPICAL FINISH REFER TO A7 SERIES MILLWORK MATERIAL KEY & A9 SERIES FINISH MATERIAL KEY
- MATERIAL FINISH SURFACE



# DOOR & FRAME SCHEDULE

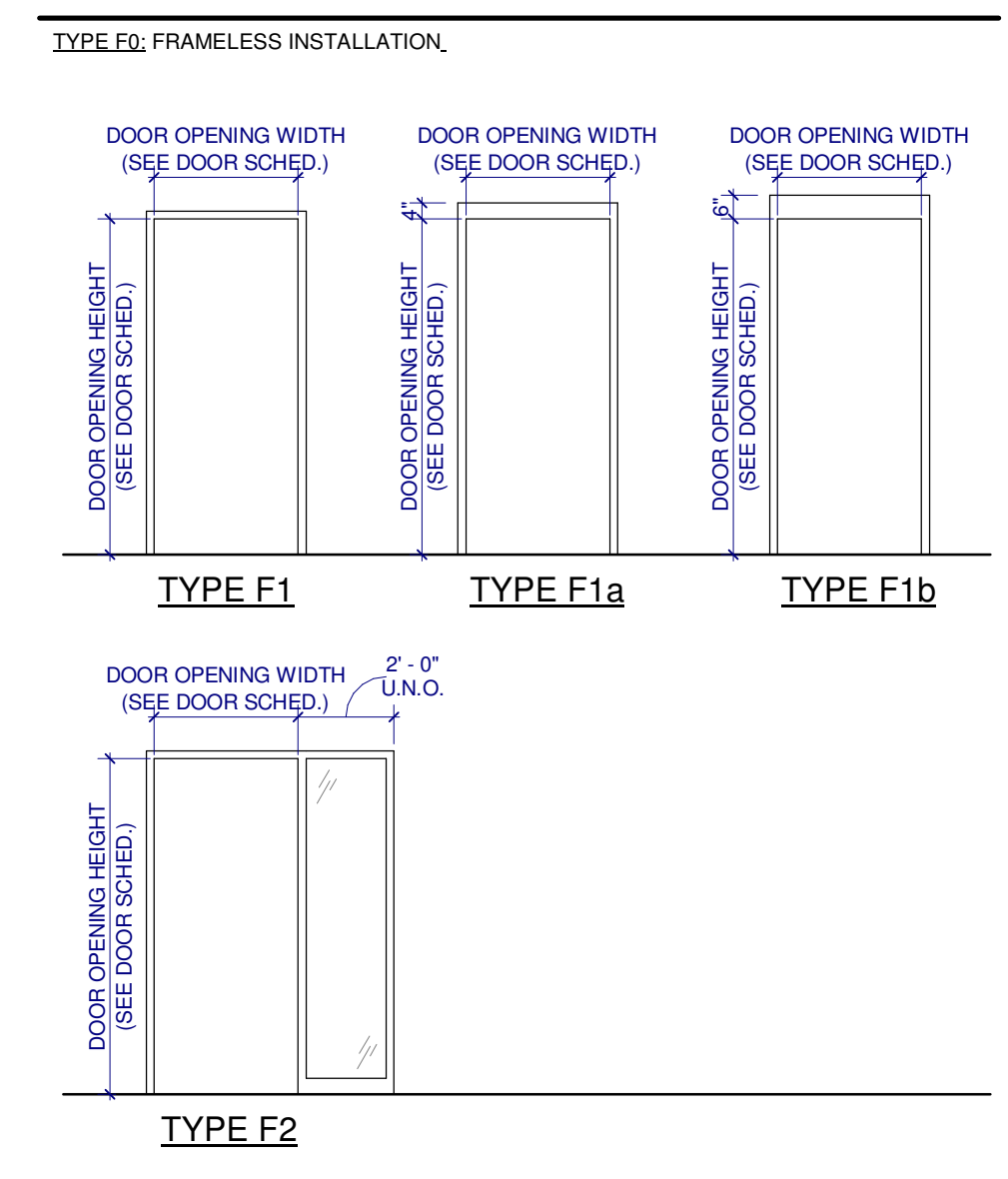
NO.	DOOR OPENING	DOOR PANEL INFORMATION			FRAME		FIRE LABEL	HARDWARE SET #	DETAILS	REMARKS
		MAJOR LEAF TYPE	MINOR LEAF TYPE	MATERIAL	TYPE	MATERIAL				
002A	6'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	002		
002B	6'-0" x 7'-0"	A	3'-0"	WOOD	F1a	HM	0	21A		
0005	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	0	004		
003	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	005		
005	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	006		
008	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	008		
009	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	009		
010	3'-0" x 7'-0"	A	3'-0"	WOOD	F1a	HM	0	007		
011A	3'-0" x 7'-0"	A	3'-0"	WOOD	F1a	HM	0	011		
012	6'-0" x 7'-0"	A	3'-0"	WOOD	F1a	HM	0	013		
015	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	014		
018	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	015		NEW DOOR IN EXISTING FRAME
019	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	015		NEW DOOR IN EXISTING FRAME
EX001	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	001		
EX002	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	001		
EX007A	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	007		
EX007B	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	008		
EX008A	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	010		
EX008B	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	048		
EX011B	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	012		
EX013	2'-4" x 7'-0"	EX	2'-4"	EX	EX	EX	0	042		
EX014	2'-4" x 7'-0"	EX	2'-4"	EX	EX	EX	0	042		
EX016A	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	017		
EX016B	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	043		
EX017	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	018		
101	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	019		
102	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	019		
104	3'-0" x 6'-8"	A	2'-10"	WOOD	F1	HM	20	021		
106	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		
107	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		
108	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		
109	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		
110	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		
111	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		
112A	3'-0" x 6'-8"	C	3'-0"	WOOD	F1	HM	20	020		
112B	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	022		
113	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	020		NEW DOOR IN EXISTING FRAME TO MEET FIRE RATING
115	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	023		
116	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	015		
117	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	015		
118	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	20	024		NEW DOOR IN EXISTING FRAME TO MEET FIRE RATING
120	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	0	015		
121	6'-0" x 6'-8"	E	3'-0"	WOOD	F1	HM	0	025		
122	3'-0" x 6'-8"	A	3'-0"	WOOD	F1	HM	0	026		
123.1	6'-0" x 6'-8"	A	3'-0"	WOOD	F1a	HM	0	027		
124A	3'-0" x 6'-8"	C	3'-0"	WOOD	F1	HM	0	028		
124B	6'-0" x 7'-0"	A	3'-0"	HM	F1b	HM	180	029		
125	3'-0" x 7'-0"	E	3'-0"	WOOD	F1	HM	0	028		
134	3'-0" x 7'-0"	E	3'-0"	WOOD	F1	HM	0	006		
135	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	20	023		
136	3'-0" x 7'-0"	A	3'-0"	WOOD	F1a	HM	20	015		
137	3'-0" x 7'-0"	E	3'-0"	WOOD	F1a	HM	20	015		
138	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	0	030		
139	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	0	015		
140	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	0	015		
143	6'-0" x 7'-0"	A	3'-0"	WOOD	F1a	HM	0	032		
144	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	45	019		
145	3'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	45	034		
146	6'-0" x 7'-0"	A	3'-0"	WOOD	F1b	HM	20	035		
147	6'-0" x 7'-0"	E	3'-0"	WOOD	F1	HM	0	033		
151	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
152	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	031		
153	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
154	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
155	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
158	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
159	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
160	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
164	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
165	3'-0" x 7'-0"	E	3'-0"	WOOD	F2	HM	0	006		
170	3'-0" x 6'-8"	A	3'-0"	WOOD	EX	HM	20	036		NEW DOOR IN EXISTING FRAME TO MEET FIRE RATING
171	3'-0" x 6'-8"	A	3'-0"	WOOD	EX	HM	20	037		NEW DOOR IN EXISTING FRAME TO MEET FIRE RATING
172	3'-0" x 6'-8"	A	3'-0"	WOOD	EX	HM	20	038		NEW DOOR IN EXISTING FRAME TO MEET FIRE RATING
173	3'-0" x 7'-0"	A	3'-0"	WOOD	F1	HM	0	008		
174	3'-0" x 6'-8"	A	3'-0"	WOOD	EX	HM	20	038		NEW DOOR IN EXISTING FRAME TO MEET FIRE RATING
EX100	6'-0" x 6'-8"	EX	3'-0"	EX	EX	EX	0	044		
EX103	6'-0" x 6'-8"	EX	3'-0"	EX	EX	EX	0	001		
EX119	3'-0" x 6'-8"	EX	3'-0"	EX	EX	EX	0	020		
EX127	6'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	001		
EX128	6'-0" x 7'-0"	EX	2'-10"	EX	EX	EX	180	001		
EX130	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	45	040		
EX131	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	180	041		
EX132	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	45	045		
EX142	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	45	017		
EX161	6'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	45	001		
EX167	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	017		
EXA.1	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	0	018		
EXA.2	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	90	039		
EXA.3	3'-0" x 7'-0"	EX	3'-0"	EX	EX	EX	90	039		

# DOOR TYPES



DOOR GLAZING SCHEDULE	
DOOR APPLICATION:	GLAZING TYPE:
NO FIRE LABEL	1/4" CLEAR FULLY TEMPERED, U.N.O.
20 MIN. FIRE LABEL	FIRE-PROTECTION RATED (TEMPERED SAFETY), 20 MIN. U.N.O.
45, 60 OR 90 MIN. FIRE LABEL	FIRE-PROTECTION RATED (LAMINATED CERAMIC), MATCH DOOR RATING, U.N.O.
GREATER THAN 90 MIN. FIRE LABEL	FIRE-PROTECTION RATED, NOT PERMITTED
1. REFER TO EXTERIOR FRAME TYPES SHEET FOR GLAZING TYPES IN EXTERIOR WALLS.	

# DOOR FRAME TYPES



DOOR SIDELITE/TRANSOM GLAZING SCHEDULE	
DOOR APPLICATION:	GLAZING TYPE:
NO FIRE LABEL	1/4" CLEAR FULLY TEMPERED, U.N.O.
20 MIN. FIRE LABEL	FIRE-PROTECTION RATED (TEMPERED SAFETY), 20 MIN. U.N.O.
45. FIRE LABEL	FIRE-PROTECTION RATED (LAMINATED CERAMIC), 45 MIN. U.N.O.
GREATER THAN 45 MIN. FIRE LABEL	FIRE-PROTECTION RATED, NOT PERMITTED

# DOOR & FRAME GENERAL NOTES

- REFER TO TYPICAL INTERIOR DOOR DETAILS FOR ALL INTERIOR DOOR FRAMES. UNO IN DOOR SCHEDULE. TYPICAL INTERIOR DOOR FRAMES ARE REFERENCED BY FRAME MATERIAL.
- FOR ALL OTHER EXTERIOR DOOR FRAME DETAILS, REFER TO EXTERIOR FRAME TYPES SHEET (A4 SERIES).
- REFER TO PROJECT MANUAL FOR DOOR HARDWARE SET INFORMATION.
- REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION ON ACCESS CONTROL SYSTEM AND POWER REQUIREMENTS OF ELECTRIFIED HARDWARE.
- OPENING WIDTH INDICATED IN DOOR SCHEDULE REFERS TO NOMINAL INSIDE WIDTH OF DOOR FRAME.
- REFER TO STRUCTURAL DRAWINGS FOR LINTEL SCHEDULE.
- INSTALL CONTINUOUS IN-WALL CONCEALED BLOCKING AT HEAD FOR DOORS WITH AUTO OPERATORS.
- DOOR AUTO OPERATORS TO BE INSTALLED ON SIDE OF DOOR LEAST VISIBLE TO THE PUBLIC.
- ALL EXISTING DOORS AND FRAMES IN PROJECT AREA TO BE PAINTED P-5.

# INTERIOR FRAME TYPE GENERAL NOTES

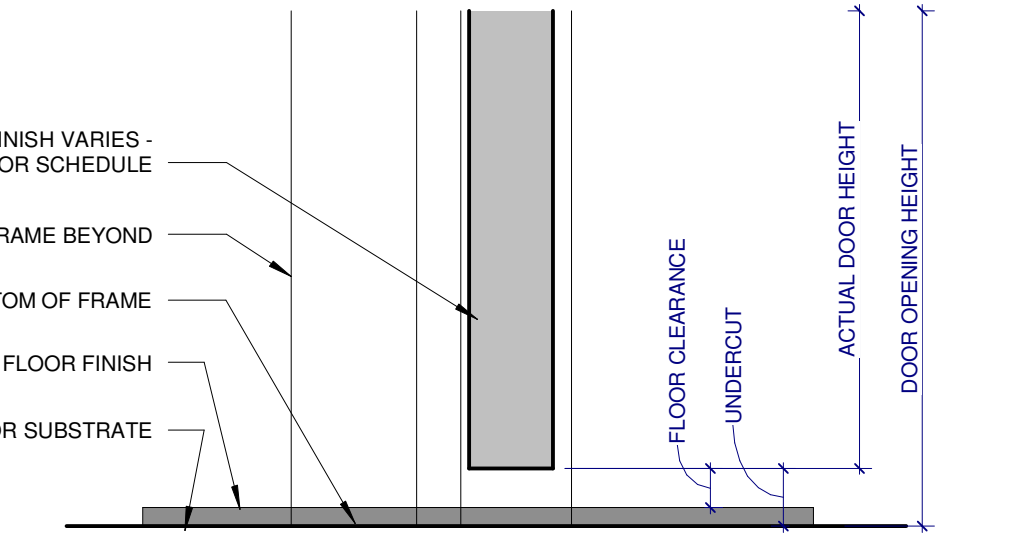
- REFER TO FLOOR PLANS FOR LOCATIONS OF INTERIOR FRAME TYPES
- FOR DETAIL INFORMATION ON INTERIOR FRAME TYPES, REFER TO A4 SERIES
- FOR DETAIL INFORMATION ON INTERIOR FRAME TYPES CONTAINING DOORS, REFER TO DOOR/FRAMES SCHEDULE, DETAILS & PLAN SHEET

INTERIOR FRAME TYPE GLAZING SCHEDULE	
ALL GLAZING IN INTERIOR FRAME TYPES IS 1/4" CLEAR FULLY TEMPERED, UNO.	

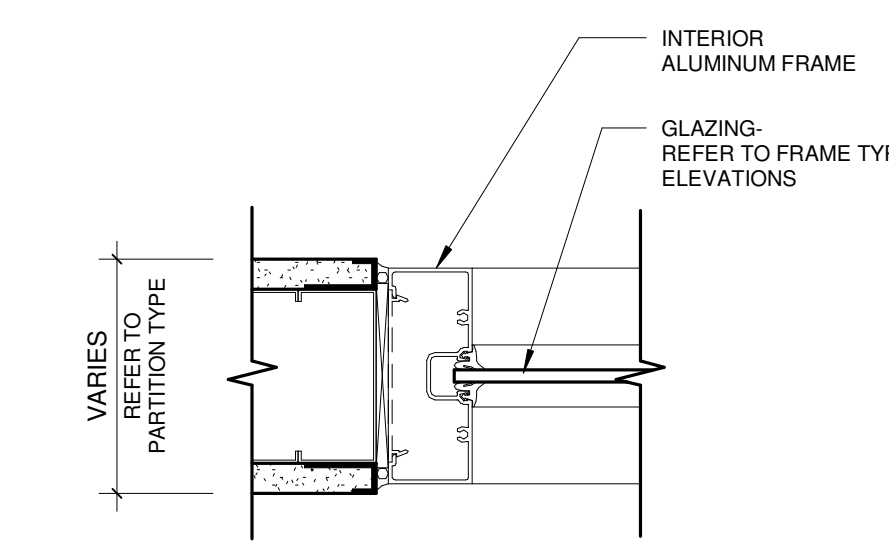
# LINTEL SCHEDULE

SPAN LIMITS	SIZE	BEARING
0'-0" TO 1'-0"	1/4" PLATE	4"
1'-1" TO 3'-0"	L 3 1/2 x 3 1/2 x 1/4	4"
3'-1" TO 4'-0"	L 3 1/2 x 3 1/2 x 1/4	4"
4'-1" TO 5'-0"	L 4 x 3 1/2 x 1/4	6"
5'-1" TO 6'-0"	L 5 x 3 1/2 x 5/16	6"

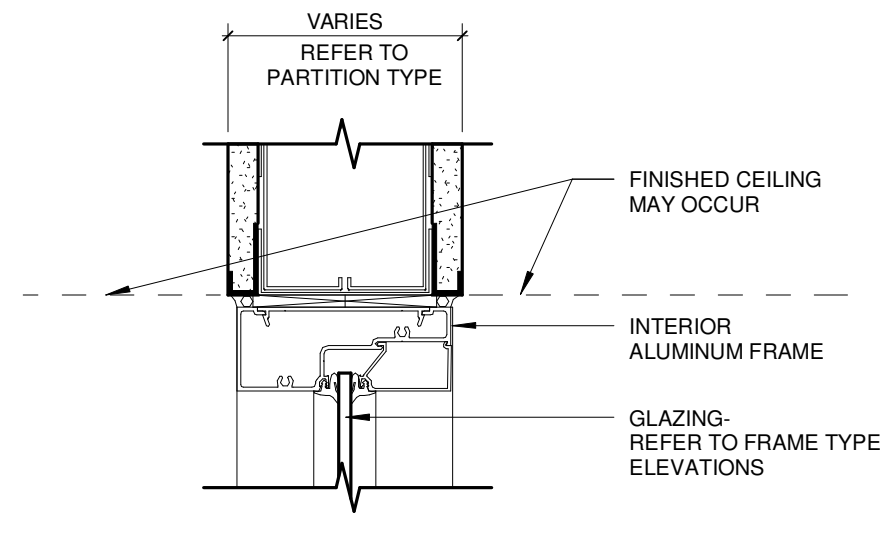
PROVIDE ONE (1) ANGLE FOR EACH 4" OF MASONRY WALL THICKNESS



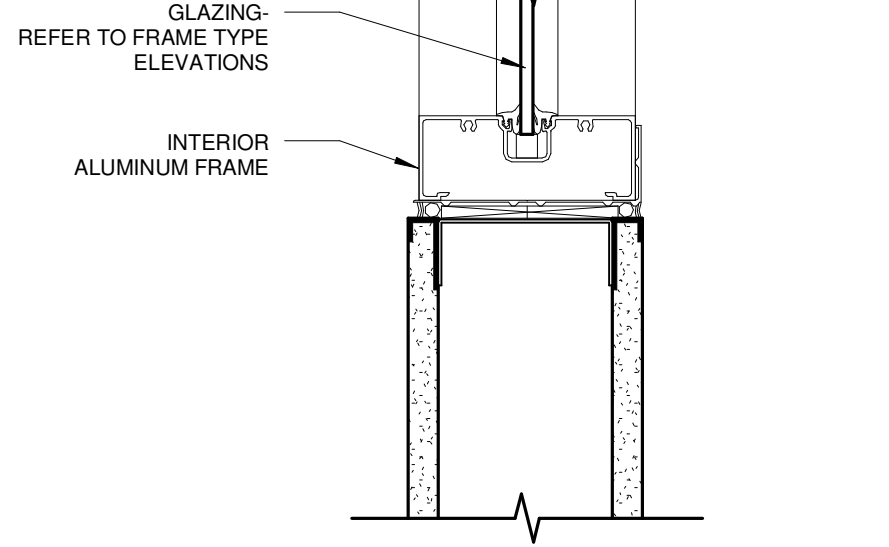
1 DOOR UNDERCUT DETAIL, TYP. SCALE: 3" = 1'-0"



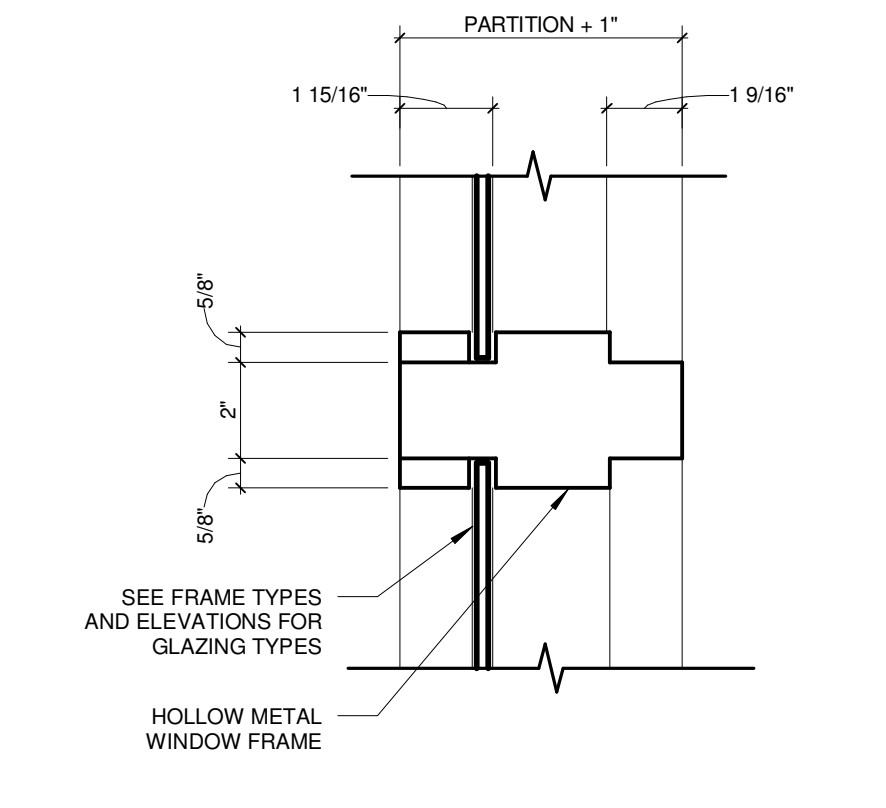
13 ALUMINIUM WINDOW JAMB SCALE: 3" = 1'-0"



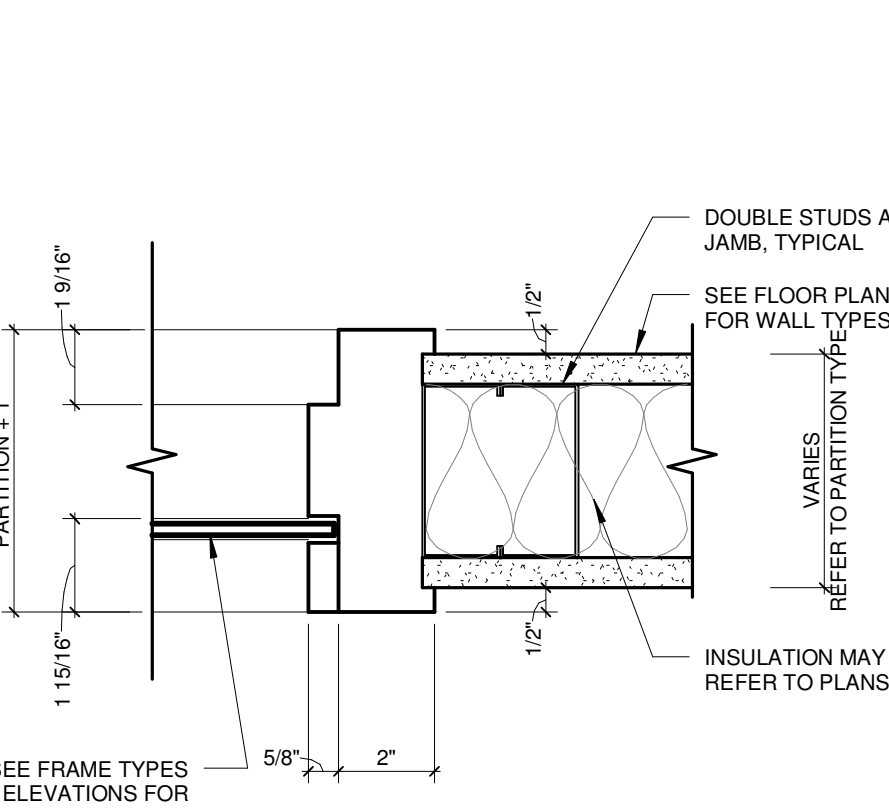
12 ALUMINIUM WINDOW HEAD SCALE: 3" = 1'-0"



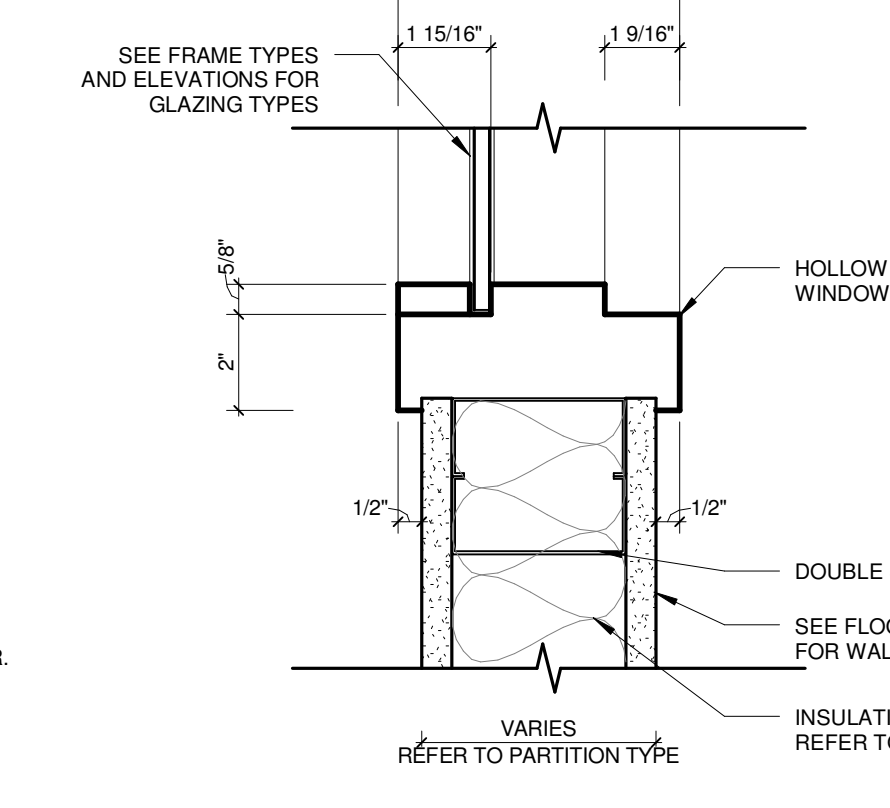
11 ALUMINIUM WINDOW SILL SCALE: 3" = 1'-0"



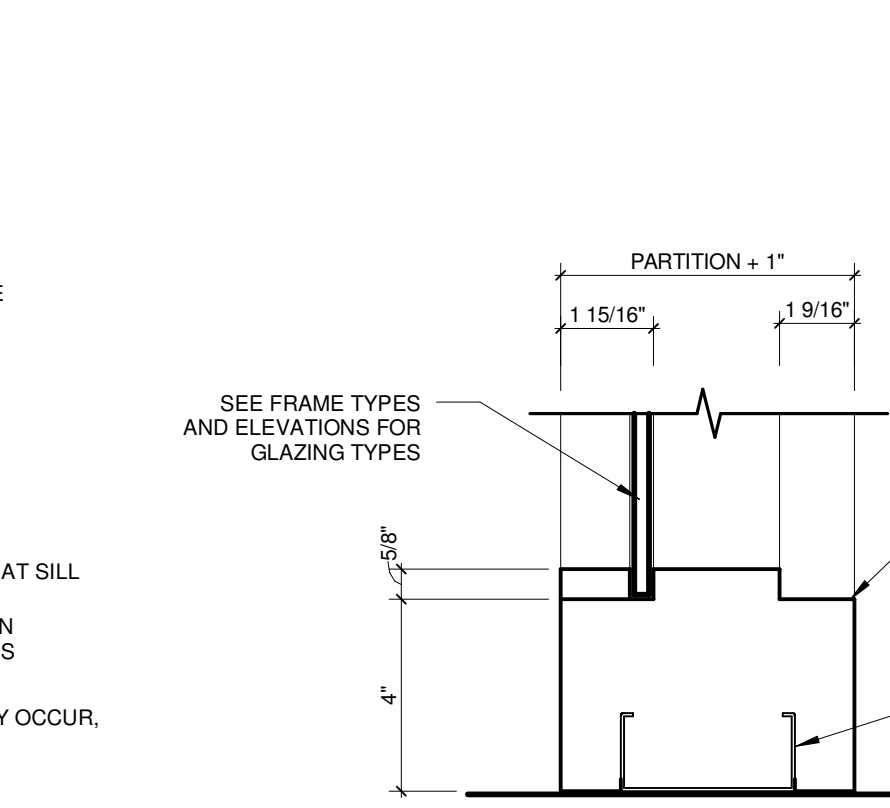
10 HOLLOW METAL MULLION SCALE: 3" = 1'-0"



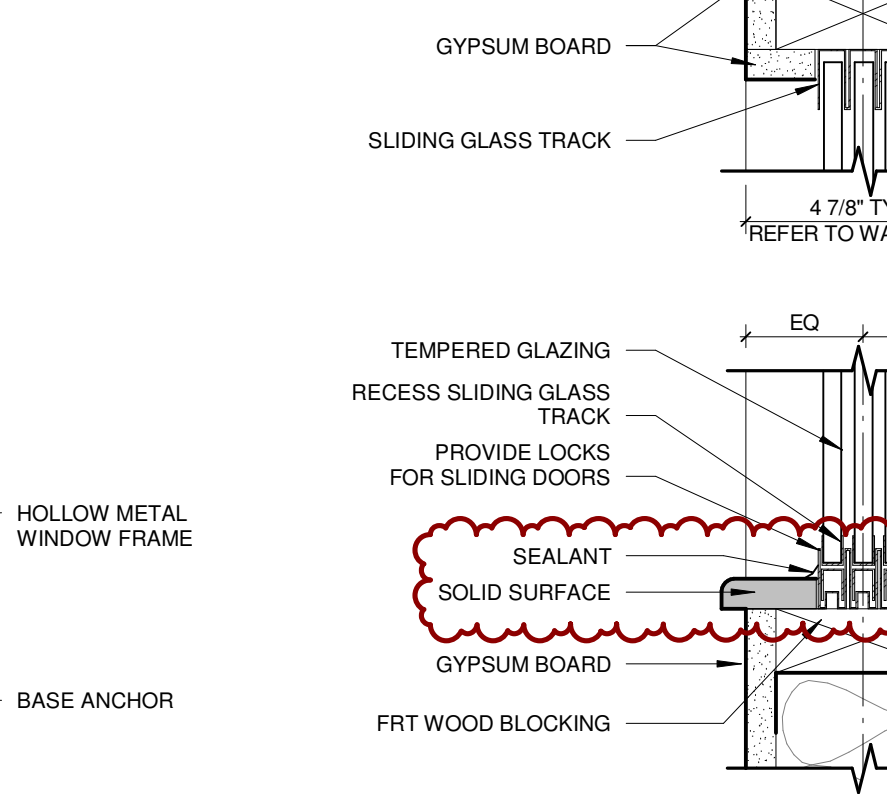
9 HOLLOW METAL WINDOW JAMB SCALE: 3" = 1'-0"



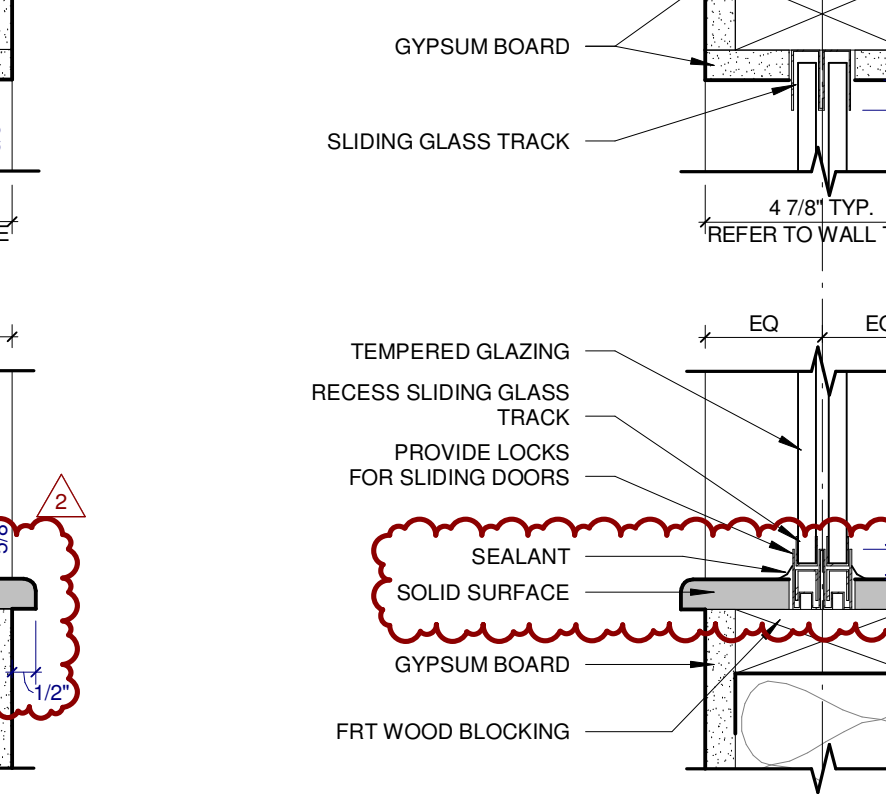
8 HOLLOW METAL WINDOW SILL/HEAD SCALE: 3" = 1'-0"



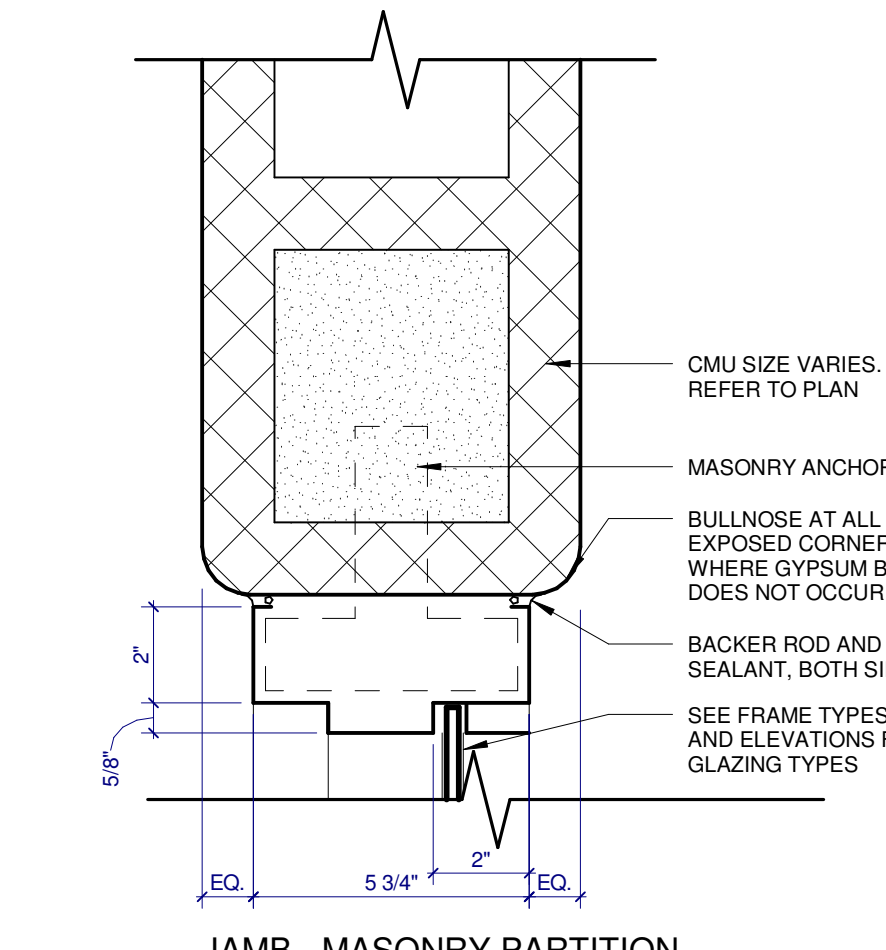
7 HOLLOW METAL WINDOW SILL AT FLOOR SCALE: 3" = 1'-0"



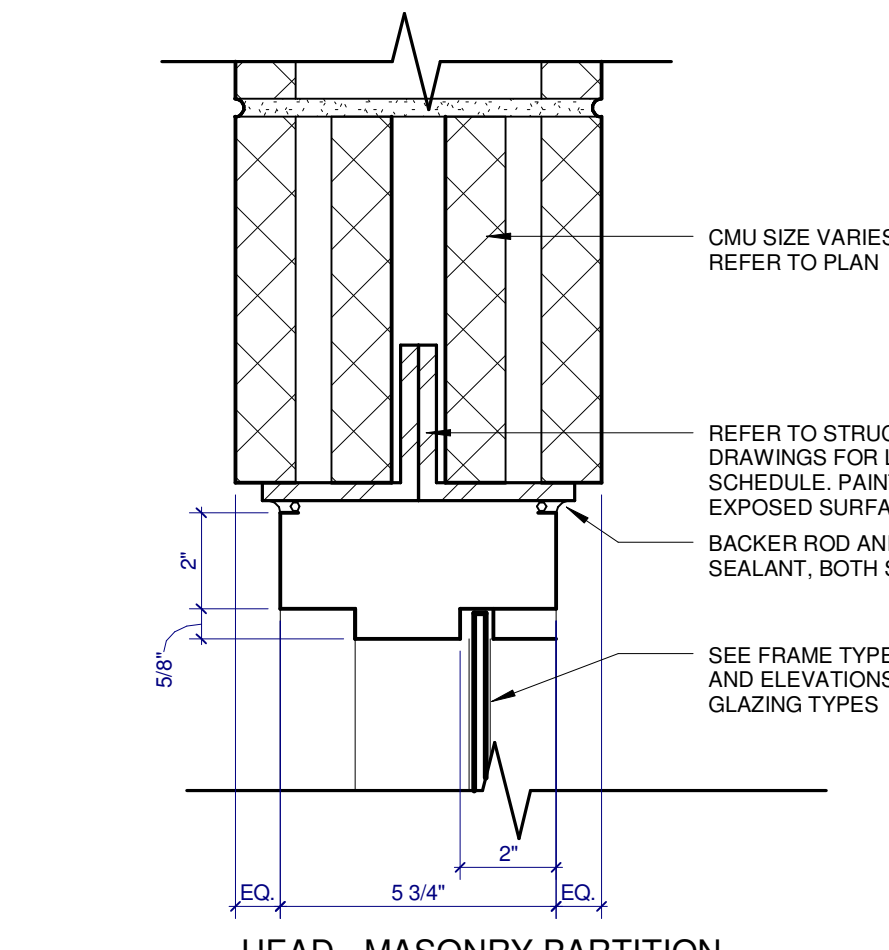
6 3-TRACK SLIDING WINDOW SCALE: 3" = 1'-0"



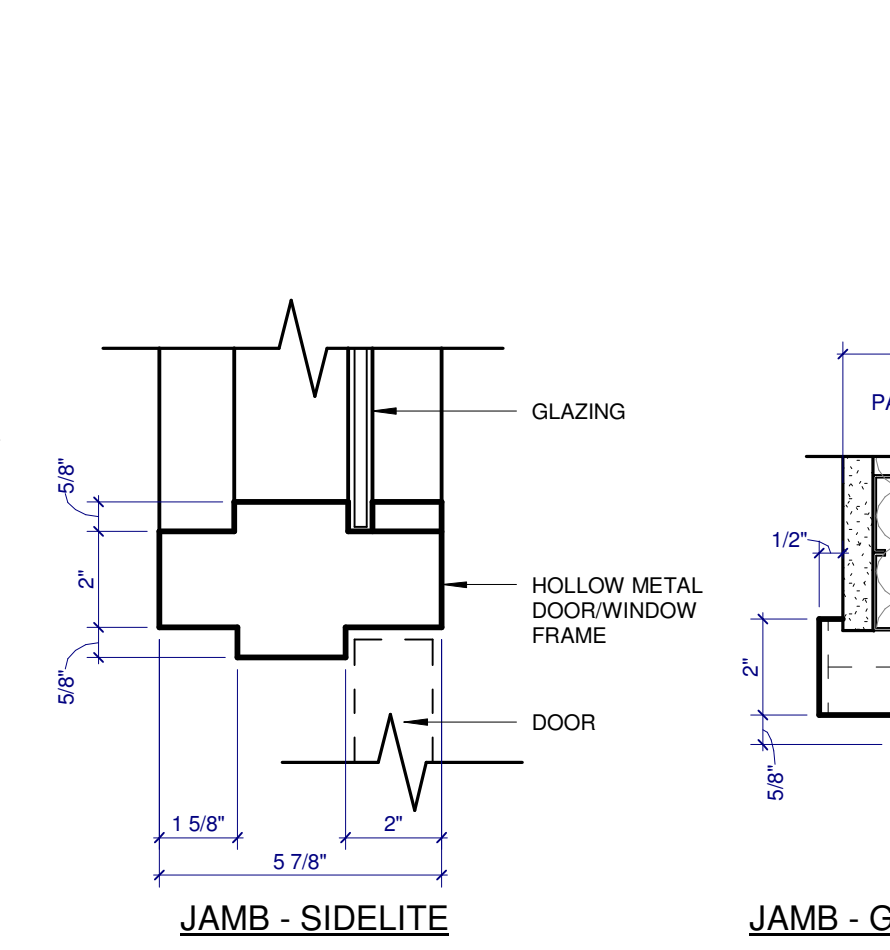
5 2-TRACK SLIDING WINDOW SCALE: 3" = 1'-0"



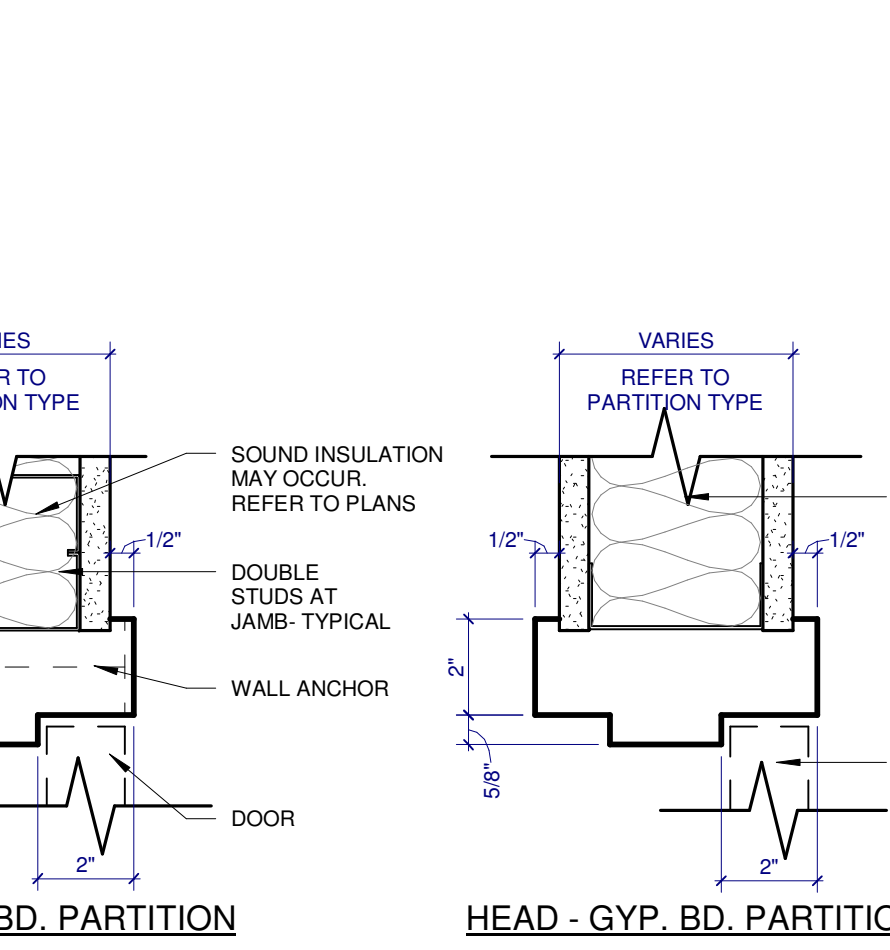
4 HOLLOW METAL WINDOW JAMB/SILL SCALE: 3" = 1'-0"



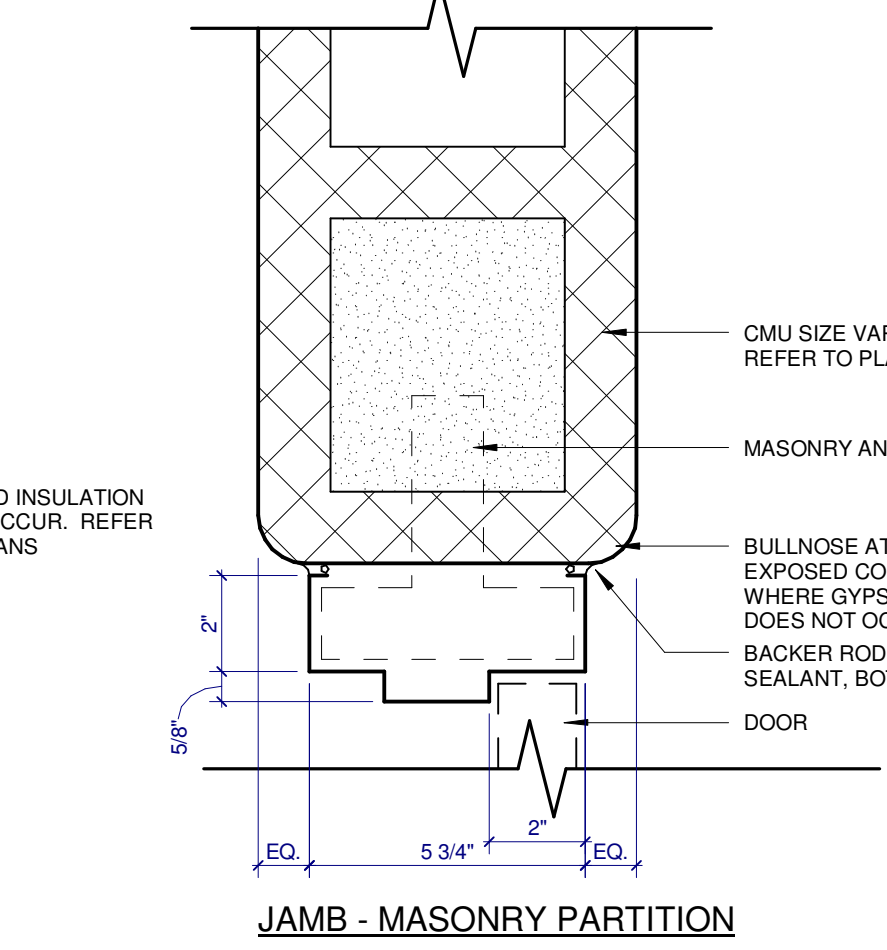
3 HOLLOW METAL WINDOW HEAD SCALE: 3" = 1'-0"



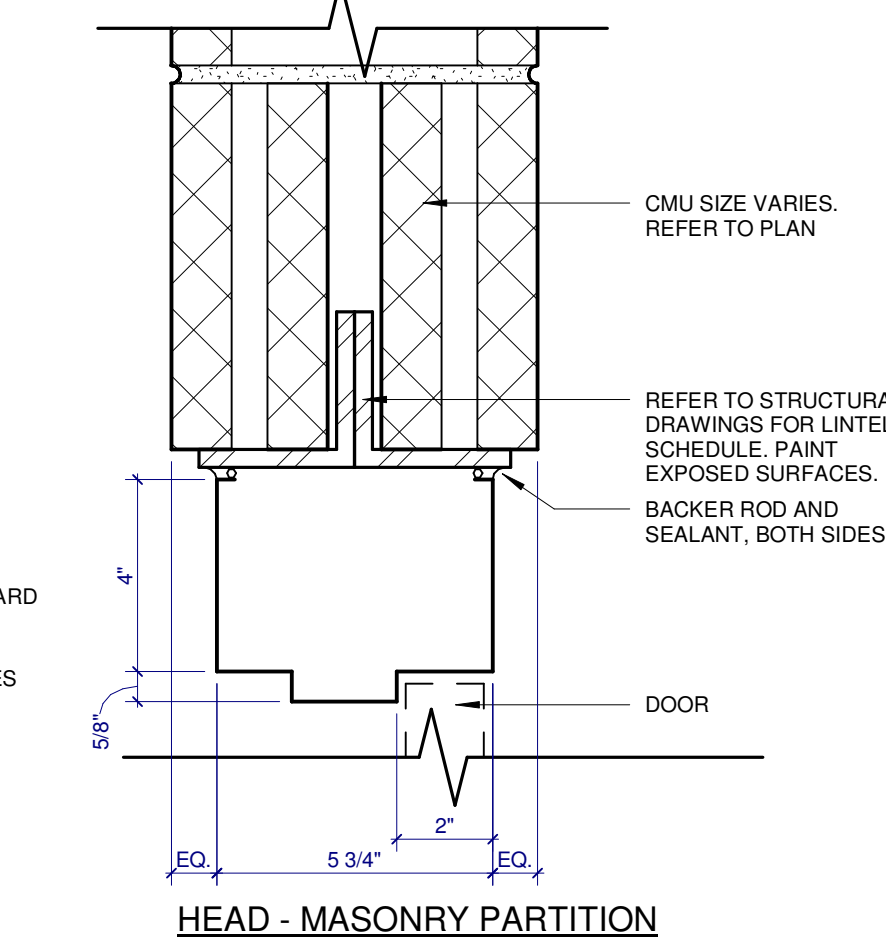
2 TYPICAL INTERIOR DOOR FRAME DETAILS - HOLLOW METAL SCALE: 3" = 1'-0"



JAMB - MASONRY PARTITION



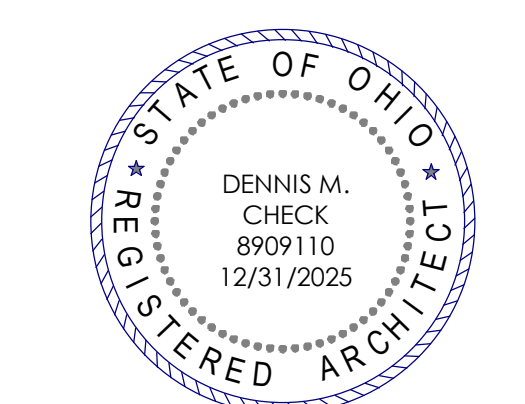
JAMB - GYP. BD. PARTITION



HEAD - MASONRY PARTITION



CARROLL COUNTY BOARD OF COMMISSIONERS  
**CARROLL COUNTY OFFICE RENOVATION**  
 211 MOODY AVE SW  
 CARROLLTON OHIO 44615



ISSUE / REVISION	
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