



QUATTROCCHI KWOK  
ARCHITECTS

# LIBERTY HIGH SCHOOL NEW CLASSROOMS

## Addendum 01

8/29/2022

**DSA File Number: 07-H4**  
**DSA Application Number: 01-119994**  
**PTN: 61721-83**

**Owner:**  
Liberty Union High School District  
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Brentwood, CA 94513

**Architect:**  
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**Architect's Project No.: 1925.00**

### **To: Prospective Bidders**

The following changes, modifications and additions to Project Manual and Drawings described below are made a part thereof and are subject to all of the requirements thereof as if originally specified. The Bidder must acknowledge receipt of the Addendum in the space provided on the Bid Form; failure to do so may subject the Bidder to disqualification.

**Table of Contents - Addendum 01**

This Addendum consists of 9 pages and the attachments as listed below dated August 26, 2022.

Deleted Text is shown in ~~strikeout type~~.

Added Text is shown in ***bold italicized type***.

**ATTACHMENTS:**

**Project Manual**

- ADD 01 07 2114 - THERMAL AND AIR BARRIER WALL SYSTEM
- ADD 01 07 4115 - METAL WALL PANELS
- ADD 01 07 5550 - MODIFIED BITUMEN ROOFING
- ADD 01 27 5102 - INTERNAL COMMUNICATIONS AND IN-ROOM AUDIOVISUAL SYSTEMS

**ADD Drawings** (8.5 inch by 11 inch & 11 inch by 17 inch):

**Drawings: (30 inch by 42 inch)**

- ADD 01 A-A5.1 - EXTERIOR ELEVATIONS
- ADD 01 A-A7.1 - INTERIOR ELEVATIONS
- ADD 01 A-A7.2 - INTERIOR ELEVATIONS
- ADD 01 A-A7.3 - INTERIOR ELEVATIONS
- ADD 01 A-A7.4 - INTERIOR ELEVATIONS
- ADD 01 A-A7.5 - INTERIOR ELEVATIONS
- ADD 01 A-A7.6 - INTERIOR ELEVATIONS
- ADD 01 A-A7.7 - INTERIOR ELEVATIONS
- ADD 01 A-A7.8 - INTERIOR ELEVATIONS
- ADD 01 A-A7.9 - INTERIOR ELEVATIONS
- ADD 01 A-A7.10 - RESTROOM PLANS & INTERIOR ELEVATIONS
- ADD 01 A-B5.1 - BLDG-B EXTERIOR ELEVATIONS
- ADD 01 A-8.1 - DOOR SCHEDULE
- ADD 01 A-8.2 - WINDOW SCHEDULE
- ADD 01 A-9.4 - OPENING DETAILS
- ADD 01 A-9.9 - ELEVATOR, LIFT AND DETAILS
- ADD 01 E1.0 - SITE PLAN OVERALL ELECTRICAL
- ADD 01 E1.1 - SITE ELECTRICAL PLAN
- ADD 01 E-A3.1 - FIRST FLOOR PLAN BLDG. A POWER AND SIGNAL
- ADD 01 E-A3.2 - SECOND FLOOR PLAN BLDG. A POWER AND SIGNAL
- ADD 01 E-5.4 - SINGLE LINE DIAGRAM

**Project Record**

BUILDING B FLOOR PLAN  
BUILDING C FLOOR PLAN  
BUILDING D FLOOR PLAN  
BUILDING D ROOF PLAN  
ASBESTOS SURVEY BUILDING B  
ASBESTOS SURVEY BUILDING C  
ASBESTOS SURVEY BUILDING D  
BUILDING B LEAD REPORT

**End of Table of Contents**

**A. CHANGES TO PREVIOUS ADDENDA**

None

**B. CHANGES TO THE BIDDING AND CONTRACT REQUIREMENTS**

None

**C. CHANGES/ ADDITIONS TO THE SPECIFICATIONS**

**Item No. 1. 01**

The following documents denoted Addendum 01 is added to the project manual.

Section **07 2114 - THERMAL AND AIR BARRIER WALL SYSTEM**

Section **07 4115 METAL WALL PANELS**

Section **07 5550 MODIFIED BITUMEN ROOFING**

Section **27 5102 INTERNAL COMMUNICATIONS AND IN-ROOM AUDIOVISUAL SYSTEMS**

Revise Table of Contents accordingly.

**Item No. 1. 02**

Delete the following section from the Table of Contents and Project Manual:

~~Section 07 5200 MODIFIED BITUMINOUS MEMBRANE ROOFING~~

**Item No. 1. 03**

Delete the following section from the Table of Contents and Project Manual:

~~Section 07 9513 - EXPANSION JOINT COVER ASSEMBLIES~~

**Item No. 1. 04**

Delete the following section from the Table of Contents and Project Manual:

~~Section 27 5101 IP PUBLIC ADDRESS AND CLOCK SYSTEM~~

**D. CHANGES/ ADDITIONS TO THE DRAWINGS**

**Item No. 1. 05**

The following drawings dated August 19, 2022 denoted **Addendum 01** supersede and replace previous drawings with the same titles:

ADD 01 A-A5.1 - EXTERIOR ELEVATIONS

ADD 01 A-A7.1 - INTERIOR ELEVATIONS

ADD 01 A-A7.2 - INTERIOR ELEVATIONS

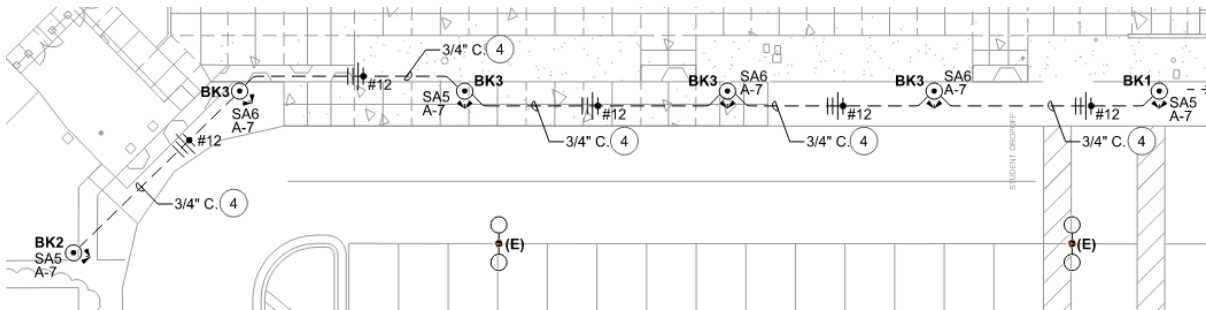
ADD 01 A-A7.3 - INTERIOR ELEVATIONS

ADD 01 A-A7.4 - INTERIOR ELEVATIONS

- ADD 01 A-A7.5 - INTERIOR ELEVATIONS
- ADD 01 A-A7.6 - INTERIOR ELEVATIONS
- ADD 01 A-A7.7 - INTERIOR ELEVATIONS
- ADD 01 A-A7.8 - INTERIOR ELEVATIONS
- ADD 01 A-A7.9 - INTERIOR ELEVATIONS
- ADD 01 A-A7.10 - RESTROOM PLANS & INTERIOR ELEVATIONS
- ADD 01 A-B5.1 - BLDG-B EXTERIOR ELEVATIONS
- ADD 01 A-8.1 - DOOR SCHEDULE
- ADD 01 A-8.2 - WINDOW SCHEDULE
- ADD 01 A-9.4 - OPENING DETAILS
- ADD 01 A-9.9 - ELEVATOR, LIFT AND DETAILS
- ADD 01 E1.0 - SITE PLAN OVERALL ELECTRICAL
- ADD 01 E1.1 - SITE ELECTRICAL PLAN
- ADD 01 E1.2 - SITE PLAN LIGHTING
- ADD 01 E-A3.1 - FIRST FLOOR PLAN BLDG. A POWER AND SIGNAL
- ADD 01 E-A3.2 - SECOND FLOOR PLAN BLDG. A POWER AND SIGNAL
- ADD01 E-B3.1 - FLOOR PLAN BLDG. B POWER & SIGNAL
- ADD 01 E-5.4 - SINGLE LINE DIAGRAM

**Item No. 1. 06**

Sheet E1.2 - SITE LIGHTING PLAN - The six lights in the drawing below are OFCI:



**E. BIDDERS QUESTIONS**

**Item No. 1. 07**

Q: Storefront - On Sheet A8.2 (Window Schedule), the note at the top of the page states that all Aluminum framing is to be 2" x 4 1/2" UON. The details show a 2" x 6" SF System, as well as the specifications call out for a 2" x 6" SF System. Please clarify which is preferred.

A 2" x 6" is the correct size

**Item No. 1. 08**

Q: On Sheet E-5.4, Diagram (1) identifies a Rauland TCU system (correct for this school), however Diagram (2) shows a Bogen IC system which conflicts. - Please clarify/provide Rauland specifications for bidding purposes.

A: See Changes to drawings

**Item No. 1. 09**

Q: The renderings on the (window) schedule show the overall widths of the frames, which I assume the DLO (Day Light Opening) are to be equal. Based on the overall openings, the DLO in these frames (where there are Casement Windows) would be approximately 46". The maximum Casement Window width is 36", so the DLO's would have to be adjusted to accommodate the maximum Casement Window width at 36". The specifications (08 4313 - 2.02A) call to obtain materials from a single source. The basis of design (08 4313- 2.02B.2) for the SF is Kawneer Trifab 601T. the Specifications (084313 - 2.07.8d & e) call for the windows to have Truth Contour ADA Hardware. Unfortunately, Kawneer does NOT offer and ASA hardware in their Casement Windows. If ADA hardware is required, there would be a couple of options:

1. Change the Casement Windows to Project-Out Awning Window, which Kawneer does offer ADA hardware for their NX Series Project-Out Awning.
2. Change the window manufacturer.

A: See Changes to drawings

**Item No. 1. 10**

Q: Per the spec section 075200 there are references of 5/8" Substrate Board and 5/8" Coverboard however, the plans are showing 1/2". Which are we to use and what is the purpose of the 5/8"?

A: See changes to specifications.

**Item No. 1. 11**

Q: Per the spec section 075200 there is mention of provide minimum Avg R-30 while another portion of the spec calls for 1.5" Minimum. Roof notes in plans call for 1" Minimum? What are we to follow?

A: See changes to specifications.

**Item No. 1. 12**

Q: The plans are not clear if Bldg a requires full tapered insulation to slope the roof to the drains

only one cut section shows full tapered between grid lines 5&7 and A&B. No other cuts sections show if the lower roof decks are to be full tapered. Please advise on the intent of the use of tapered insulation.

A: See changes to specifications.

**Item No. 1. 13**

Q: Per spec section 075200 there is mention of Type II, Class 2 insulation as well as Type III. Which are we to follow?

A: See changes to specifications.

**Item No. 1. 14**

Q: Per plans page A-A4.1 there is mention of 1" minimum at low point of roof with the use of 1/2" Perlite coverboard however no perlite is mentioned in specs. Please advise type of coverboard.

A: See Changes to Specifications

**Item No. 1. 15**

Q: In looking at the drawings and specs, I see that there is an Expansion Joint Covers and Louvers specs. But when looking at the drawings, I was not able to locate either one.

A: See Changes to Specifications and changes to drawings

**Item No. 1. 16**

Q: Carpet tile specified for this project does not list a backing type. Is it to be Flexaire cushion back or Ethos backing?

A: Ethos

**Item No. 1. 17**

Q: The Surveys do not address Universal waste (i.e. light tubes, light ballast, thermostats, freon etc.) Or PCB-containing materials. Is there any of these items on the project? If so please provide direction.

A: At the existing buildings that are to be removed by the contractor as a part of the scope of this bid, the District will be responsible for removing the light tubes, light ballasts, thermostats, and any other electronic items that are considered universal waste prior to the start of the project. The Contractor will be responsible for removing and legally disposing of all other universal waste including but not limited to freon in the mechanical systems.

**Item No. 1. 18**

Q: Bid Section 12 3553.19, Item 2.03E.1 (epoxy resin sinks), calls for sink supports. Sink supports are required for undermount sinks. The casework details on 10, 19 & 29/A-10.4 show drop in sinks. Please clarify which type of sink is required

A: Sinks should be undermounts

**Item No. 1. 19**

Q: Is 1200A feeder cable to be included from new MSB to DPHA?

A: Yes. The feeder and a 1200A circuit breaker shall be provided as part of this contract. Space provisions for connection of the 1200A circuit breaker will be present in the new MSB

**Item No. 1. 20**

Q: Is line bore conduits to be included?

A: Yes. The new line bore it to be provided as part of this scope of work.

**Item No. 1. 21**

Q: Is Sonitrol scope to be included?

A: Conduit and Rough-in per the documents is to be provided.

**Item No. 1. 22**

Q: What's the flooring in the elevator

A: It should be LIN1 finish. See finish schedule for more information on LIN1.

**Item No. 1. 23**

Q: In regards to the Asbestos Surveys for buildings B, C, & D, the square footage of each building has been identified as 3,500SF and the actual square footage is approx.. 7,250 SF per building. Please clarify.

A: See Asbestos Survey Report for Building B received 8/26/22, for Building C received 8/26/22, and for Building D received 8/26/22 as issued in Addendum No. 1

**Item No. 1. 24**

Q: Asbestos reports do not mention any testing on the covered walkways. Is this material being treated as asbestos containing materials.

A: The covered walkways that run perpendicular to Buildings B, C, and D were tested, and the results were "Non Detect".



**Item No. 1. 25**

Q: The consultant did not perform a lead evaluation to determine if there was lead-containing materials such as ceramic tiles, canvas wall covering, flooring or if there is any loose and/or peeling paint(s) that require paint stabilization prior to demolition. Please provide the missing survey or do we assume there's not lead abatement on this project?

A: See Lead Test report dated July 21, 2021 as issued in Addendum No. 1.

**Item No. 1. 26**

Q: In addition to the roofing and floor tile mastic, the Survey for Building C identifies window putty, boiler insulation and drywall as asbestos-containing however, no quantities were provided. Please provide missing information.

A: See Asbestos Survey Report for Building B received 8/26/22, for Building C received 8/26/22, and for Building D received 8/26/22 as issued in Addendum No. 1

**Item No. 1. 27**

Q: No quantities for the asbestos-containing materials have been provided, we can assume the roofing and floor tile mastic is approx. 7,250 SF, however we don't know for sure if the flooring mastic is located throughout the entire building, we will have assume worse case scenario. Please confirm these quantities should be used for bidding purposes or provide accurate quantities.

A: See Asbestos Survey Report for Building B received 8/26/22, for Building C received 8/26/22, and for Building D received 8/26/22 as issued in Addendum No. 1

**Item No. 1. 28**

Q: There isn't a specification for the rigid insulation on Bldg. A. Please provide

A: See changes to Specifications

**Item No. 1. 29**

Q: Is there a liquid applied weather barrier over the rigid insulation on the A bldg.?

A: See changes to Specifications

**Item No. 1. 30**

Q: Please advise if vapor emissions will be on both the first and second floors concrete.

A: Yes

**END OF ADDENDUM**

**SECTION 07 2114**  
**THERMAL AND AIR BARRIER WALL SYSTEM**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Provide a Thermal and Air Barrier Wall System for exterior metal wall assemblies, including continuous exterior wall insulation, liquid flashing materials for sealing gaps and penetrations.
- B. Related Sections:
  - 1. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.
  - 2. Section(s) specifying Exterior Metal Wall Framing.
  - 3. Section(s) specifying Exterior Metal Cavity Wall Insulation.
  - 4. Section(s) specifying Interior Gypsum Board Wall Finish.
  - 5. Sections specifying exterior finish cladding installed over Thermal and Air Barrier Wall System.

**1.02 REFERENCES**

- A. ASTM International (ASTM):
  - 1. ASTM C203: Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
  - 2. ASTM C209: Test Method for Cellulosic Fiber Insulating Board.
  - 3. ASTM C518: Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  - 4. ASTM C1289: Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
  - 5. ASTM D1621: Test Method for Compressive Properties of Rigid Cellular Plastics.
  - 6. ASTM D1622: Test Method for Apparent Density of Rigid Cellular Plastics.
  - 7. ASTM D2126: Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
  - 8. ASTM E84: Test Method for Surface Burning Characteristics of Building Materials.
  - 9. ASTM E96/E96M: Test Method for Water Vapor Transmission of Materials.
  - 10. ASTM E331: Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference
  - 11. ASTM E2357: Test Method for Determining Air Leakage of Air Barrier Assemblies.
- B. California Code of Regulations, Title 24, Part 2, California Building Code (CBC), International Building Code.
- C. California Code of Regulations, Title 24, Part 11 California Green Building Standards Code, "CAL-Green".
- D. Factory Mutual (FM):
  - 1. FM 4880: Class I Wall and Ceiling Panels Building Corner Fire Test.
- E. Underwriters Laboratories Inc. (UL):
  - 1. UL 723: Surface Burning Characteristics of Building Materials.
- F. National Fire Protection Association (NFPA):
  - 1. NFPA 285: Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

### 1.03 SUBMITTALS

- A. Provide complete submittals at the same time as submittals for work in related sections to permit review of complete and integrated systems and assemblies.
- B. Product Data: Submit manufacturer's product data and installation instructions for each thermal wall and air barrier assembly component product required. Demonstrate compliance with specified attributes.
- C. CAL-GREEN Submittals: Product Data – VOC Limits: For adhesives sealants, fillers, primers and coatings, documentation including printed statement of VOC contents, comply with limits specified in related section.
- D. Qualifications: Submit proof of Applicator Qualifications as specified in QUALITY ASSURANCE Article.
- E. Reports:
  - 1. Submit Test Reports, summarized by Manufacturer of materials, verifying qualities of thermal and air barrier wall assembly components meet or exceed specified requirements.
    - a. Include results of ASTM E2357 air barrier system testing and ASTM E331 water penetration tests.
    - b. Include NFPA 285 Report demonstrating all components of the exterior wall assemblies are included in the NFPA 285 testing for the Thermal and Air Barrier Wall System.
- F. Samples: Submit following material samples.
  - 1. Insulation panel, 12 inches square.
  - 2. Insulation fasteners/washers and joint flashing tape, one each.
- G. Sample Warranty.
- H. Material Safety Data Sheets (MSDS): For thermal and air barrier wall system components.

### 1.04 QUALITY ASSURANCE

- A. Applicator Qualifications:
  - 1. Certified and trained by Thermal and Air Barrier Wall System manufacturer.
- B. Pre-installation Meeting: Prior to commencement of application review and document methods and procedures related to installation, including the following:
  - 1. Review installation methods and procedures related to application, including manufacturer's installation guidelines, manufacturer's certification program, and quality requirements.
  - 2. Review construction schedule and confirm availability of products, applicator personnel, equipment and facilities.
  - 3. Review governing regulatory requirements, and requirements for insurance and certificates as applicable.
  - 4. Review field quality control procedures.

### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened containers or bundles, fully identified by name, brand, type and grade. Exercise care to avoid damage during unloading, storing and installation.

- B. Store, protect and handle materials in accordance with the manufacturer's recommendations to prevent damage, contamination and deterioration. Keep materials free of dirt and other foreign matter.

#### **1.06 PROJECT CONDITIONS**

- A. Environmental Requirements: Install thermal wall system work only when weather conditions are in compliance with manufacturer's specific environmental requirements and conditions will permit work to be performed in accordance with manufacturer's recommendations and warranty requirements.
- B. Sequence and schedule work in order to not exceed Manufacturer's maximum recommended weather exposure period for materials. Protect installed work that will be exposed to weather beyond the manufacturer-recommended period using methods approved by the manufacturer in writing.

#### **1.07 WARRANTY**

- A. Submit the following warranties:
  - 1. Thermal Insulation warranty: 15 year thermal value.
  - 2. Exposure Warranty: Six month exposure.
  - 3. Water Resistive Warranty: 15 Year.

### **PART 2- PRODUCTS**

#### **2.01 SYSTEM DESCRIPTION**

- A. VOC Limits for adhesives, sealants, fillers, primers and coatings . Comply with limits specified in related section.
- B. Insulating Material Standards: All insulation materials must comply with the California Referenced Standards Code, California Code of Regulations, Title 24, Part 12 / Chapter 12-13 Standards for Insulating Material.
  - 1. Manufactured without HFC134a blowing agents.
- C. Exterior Thermal and Air Barrier Wall System; Assembly that effectively controls thermal, air and water intrusion and movement and provides continuity of the building envelope enclosure, composed of the following:
  - 1. Exterior Continuous Insulation Board: Panel sheathing secured to the exterior of the metal wall framing assembly.
  - 2. Air Barrier: Sprayed liquid flashing applied to the insulation board, blocks infiltration by filling gaps, crack and penetrations.
  - 3. Flashing: Joint, penetration and gap sealing materials for component joints, penetrations through the wall system and gaps between the building envelope enclosure components and wall opening frames. Liquid flashing as specified.
- D. Acceptable Product: Dow Building Solutions; THERMAX™ XARMOR (ci) Wall System: [www.building.dow.com](http://www.building.dow.com).
  - 1. Provide all products by a single manufacturer with a unified warranty.
  - 2. Substitutions: See Section 01 6000 - Product Requirements.
- E. Performance Characteristics:
  - 1. Thermal performance:
    - a. Exterior insulation: ASTM C518, Stabilized R-value of 6.5 per inch of thickness with a minimum six month weather exposure capability to outdoor elements and 15 year thermal warranty.

2. Air Barrier Performance: When tested in accordance with ASTM E2357, at a test pressure of not less than 6.24 psf, air infiltration shall not exceed 0.04 cfm per square foot (0.2 L/s\*m<sup>2</sup>) of fixed wall area. Testing should be conducted at positive and negative sustained wind loading of 12.5psf (600Pa) for one-hour duration in each direction, pressure cycling of the wall at 2000 cycles in both the positive and negative direction, ending with wind gust loading at 25psf.
    - a. System complies with ASTM E2357: Test Method for determining Air Leakage of Air Barrier Assemblies.
  3. Water Penetration: When tested in accordance with ASTM E331, no uncontrolled water penetration shall occur at a minimum differential pressure of 6.24 psf for minimum test duration of 2hrs.
  4. Mold Resistance: Thermal wall and air barrier system components shall provide non-food source for fungal growth.
- F. Fire Resistance Requirements:
1. Board Insulation: Class 1 (<and/or= 25 Flame Spread Index and < 450 Smoke Developed Index) classified at Max. thickness per UL 723 criteria or ASTM E84 criteria.
  2. Fire Performance Evaluation as a component of an NFPA 285 approved wall assembly per the requirements of the International Building Code.
    - a. System complies with NFPA 285: Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus.
  3. Fire-stopping measures included at the floor line in the stud cavity when the wall assembly extends beyond the edge of the floor line.
- G. All joints, penetrations and gaps of the thermal and air barrier wall system shall be made watertight and air-tight.

## 2.02 BOARD INSULATION

- A. Exterior Insulation: Glass-fiber-reinforced enhanced polyisocyanurate foam core sheathing faced with nominal 4 mil embossed gray acrylic-coated aluminum on one side and 1.25 mil embossed aluminum on the other side, complying with ASTM C1289 with the following physical properties:
1. ASTM C1289 Type 1, Class 1
  2. Compressive Strength (ASTM D1621): 25 psi, minimum.
  3. Long-Term Thermal Resistance (ASTM C518, measured at Mean Temp of 75F): R-6.5 per 1 inch of thickness with 15 year thermal warranty.
  4. Flexural Strength (ASTM C203): Minimum 40 psi.
  5. Water Absorption (ASTM C209): Maximum 1.0 percent by volume.
  6. Water Vapor Permeance (ASTM E96): <0.3 perms.
  7. Maximum Use Temperature: 250 degrees F.
- B. Acceptable Products: The Dow Chemical Company, THERMAX™ XARMOR ci Exterior Insulation.
1. Panel Size: 4'-0" wide x 8'-0" long, square edge, shiplap (shiplap on thickness of 1.55" and greater) panels.
  2. Thickness and Stabilized R-Value: 1.55 inch thickness, R-10.1

## 2.03 ACCESSORIES

- A. Fasteners: Provide insulated sheathing manufacturer's recommended organic-polymer or other corrosion-protective coated steel screw fasteners for anchoring sheathing to metal wall framing. Fastener length and size based on wall sheathing thickness.

1. Rodenhouse, Inc. 2 inch diameter "THERMAL-GRIP ci Prong washers" plastic washers which can be installed using either bulk Grip-Deck self-drilling screws or collated Grip-Deck screws. Use the Grip-Lok auto-feed fastening system for high speed application (recommended for wall assemblies up to 2 inches in thickness). Contact Rodenhouse Inc. for more information at 616-454-3100.
  2. Rodenhouse, Inc. "Plasti-Grip PMF" fasteners. Recommended for block, concrete, or masonry substrates. Contact Rodenhouse, Inc. for more information at 616-454-3100.
- B. Liquid Spray Flashing: Provide insulation manufacturer's recommended board joint commercial liquid spray flashing and sealant for sealing joints, seams, window openings, door openings, counter-flashing and penetrations through the insulation layer.
1. Meets ASTM 2357 standard test method for determining air leakage of air barrier assemblies, as part of an approved assembly with continuous foam insulation.
  2. Meets ASTM 331 water penetration of existing windows by uniform static air pressure differences, as part of an approved assembly with continuous foam insulation.
  3. Meets ASTM D412 tensile strength- 340 psi.
  4. Meets ASTM E96 water transmission- 4 perms at typical application thickness.
  5. Density- 11.4 pounds/gallons as liquid.
  6. Application temperature: 35 degrees F to 120 degrees F.
  7. 3 inch  $\pm$  1 inch coverage required at board joints.
  8. UV resistance: 180 days.
  9. Recommended thickness of spray sealant: 50  $\pm$  5 wet mils around screws, veneer anchors and wall penetrations
  10. Passes ASTM D1970/AAMA714 requirements for nail sealing ability.
  11. Acceptable Products:
    - a. The Dow Chemical Company "LIQUIDARMOR™- CM" spray flashing and sealant.
- C. Penetration Filler: Provide insulated sheathing manufacturer's recommended polyurethane foam for sealing penetrations of insulated sheathing.
1. Acceptable Products: The Dow Chemical Company "Great Stuff™ Pro Gaps & Cracks" single-component polyurethane insulating foam sealant.
  2. Acceptable Products: The Dow Chemical Company "Great Stuff™ Pro Window & Door" single-component polyurethane low-pressure foam sealant.
- D. Gap Air Infiltration Filler: Two Component, Quick Cure Polyurethane Foam:
1. Acceptable Products: The Dow Chemical Company FROTH-PAK™ Ultra Foam Insulation two component, quick-cure polyurethane foam.
- E. Flexible polyethylene foam gasketing strip to reduce air infiltration between a concrete foundation and sill plate.
1. Acceptable Products: The Dow Chemical Company "WEATHERMATE™ SILL SEAL Foam Gasket.
- F. Transition Membrane: Flexible silicone transition strip to bridge and seal joints between insulation boards, with 50% movement capacity and proven compatibility between insulation facer and liquid membrane flashing and approved by insulation manufacturer.
1. Acceptable Product: GE UltraSpan Pre-Cured 100% Silicone Sheets, Strips and Pre-Formed Corners.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine substrates and installation conditions for compliance with requirements for installation conditions affecting performance of the work.

1. Verify that metal wall studs, opening framing, bridging, bracing and other framing support members and anchorage have been installed within thermal wall system alignment tolerances and requirements.
2. Verify that items required to penetrate the thermal wall system, including sprayed foam insulation, are placed and penetration gaps and cracks are properly sealed.
3. Do not proceed with thermal and air barrier wall system installation until unsatisfactory conditions have been corrected.
4. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

### 3.02 BOARD INSULATION INSTALLATION

- A. Install insulation in accordance with manufacturer's recommendations. Fasten to exterior face of exterior metal stud wall framing using sheathing manufacturer's recommended type and length screw fasteners with washers. Abut panels tightly together and around openings and penetrations.
  1. Install sheathing panels horizontally with gray aluminum facing to exterior. Use maximum lengths to minimize number of joints. Locate edge joints parallel to and on framing. Center end joints over supports and stagger in each course. Provide additional framing wherever panel joints do not bear against framing, plates or sill members.
  2. Fasten panels to each support with fasteners spaced 12 inches on center at perimeter and 16 inches on center in panel field. Set back perimeter fasteners 3/8 inch from edges and ends of panel units. Drive fasteners to bear tight and flush with surface of insulation. Do not countersink. Perimeter fasteners can be detailed to bridge the gap of abutting board joints due to the 1.75 inch diameter of the washer used to fasten the board to the studs. Maximum of two board joints may be bridged per fastener.
  3. Install LIQUIDARMOR-CM flashing at end and edge joints to ensure seal and in accordance with sheathing manufacturer's joint sealing recommendations.
  4. Install LIQUIDARMOR-CM flashing at wall ties and mechanical fastening assemblies for rain screen claddings.
  5. Seal sheathing joints and penetrations of sheathing with LIQUIDARMOR-CM in accordance with sheathing manufacturer's joint and penetration sealing recommendations.
  6. After base flashing, including a termination bar running horizontally along the top edge of the flashing, is installed on exterior of insulated sheathing, install LIQUIDARMOR-CM Flashing 6 inch or 9 inch to the exterior sheathing and lapped over the top edge of the base. Where the termination bar is utilized, provide a flat strap in framing at termination bar height to allow proper fastening of the termination bar.
  7. Fabricate expansion joints between boards with sealant over backer rod and silicone transition strips sealed with liquid flashing per insulation manufacturer standard details.

### 3.03 FLUID FLASHING AND SEALANT INSTALLATION

- A. Surface and ambient temperatures should be 35 degrees F and rising and below 120 degrees F during the application.
- B. Do not apply product on surfaces with standing water or frost.
- C. LIQUIDARMOR™ -CM tolerates rain shortly after the curing process has begun (typically 1 to 4 hours), avoid installing on days with a high probability of significant rainfall.
- D. Seal any gaps greater than ¼" with GREAT STUFF PRO Window and Door Insulating Foam Sealant or compatible sealant according to manufacturer's recommendations, prior to applying LIQUIDARMOR™- CM. If facer on insulation board is damaged note the affected area so that additional spray can be applied appropriately. Damaged insulation can also be

replaced or a Flashing Tape acceptable to the insulation board manufacturer can be used to tape down facer flaws.

- E. Flash board joints, penetrations and other fenestration openings as required with a minimum 50 wet mils (+/-5). Spray can be applied on one or two passes depending on site conditions.
- F. Apply 3 inches (+/-1") over the board joints. Make sure that a minimum of 1" of spray covers each side of the joint. Fasteners and washers along the board joints should also be completely covered with LIQUIDARMOR™- CM. Brick anchors can be installed after the application of LIQUIDARMOR™- CM.
- G. For rough openings apply LIQUIDARMOR™- CM a minimum of 3 inches onto the sheathing face, completely covering the sheathing board edge. In turn extend spray a minimum of 3 inches back onto the rough opening substrate. It is recommended to cover a distance back onto the rough opening equal to what is covered by traditional flashing materials
- H. For penetrations through the rigid insulation or substrate apply LIQUIDARMOR™- CM a minimum of 2 inches onto the sheathing face and a minimum of 2 inches onto the penetration substrate or primary flashing substrate..
- I. Use wet mil thickness gauge to ensure proper installation thickness. A paint brush can be used to even out product application thickness. If product is consistently below minimum thickness spray another pass to achieve proper thickness requirements.
- J. LIQUIDARMOR™- CM typically cures to touch within 1 to 4 hours after application. Depending on humidity, temperature, sun exposure and wind direction this time can be longer. Application will dry to an approximate 30 mil thickness when completely cured.

#### **3.04 CLEANING**

- A. Remove overspray from non-prescribed surfaces without causing damage to surfaces.
- B. Remove protective covers from adjacent surfaces.

**END OF SECTION**



**SECTION 07 4115**  
**METAL WALL PANELS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall panels of preformed steel panels.
- B. Accessories and miscellaneous components: Flashings, fasteners, and accessories as required for weatherproof installation.

**1.02 RELATED REQUIREMENTS**

- A. Pertinent Sections specifying Volatile Organic Compound (VOC) Content Restrictions.
- B. Work of other sections which relates to or penetrates the wall.
- C. Section 06 1000 - Rough Carpentry: Wall sheathing.

**1.03 REFERENCE STANDARDS**

- A. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- B. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- C. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Walling Underlayment for Ice Dam Protection.
- D. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials.
- E. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Wall Panel Systems by Uniform Static Air Pressure Difference.
- F. ASTM E1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Wall Panel Systems.
- G. California Code of Regulations, Title 24, Part 2, California Building Code (CBC), International Building Code
- H. California Code of Regulations, Title 24, Part 11 California Green Building Standards Code, "CAL-Green".
- I. Sheet Metal and Air Conditioning Contractors National Association: "Architectural Sheet Metal Manual".
- J. UL 580 - Standard for Tests for Uplift Resistance of Wall Assemblies.

**1.04 SUBMITTALS**

- A. General: Submit in accordance with Section 01 3300.
- B. Product Data: For each type of product indicated, demonstrate compliance with specified attributes. Manufacturer's data sheets on each product to be used, including:
  - 1. Summary of test results, indicating compliance with specified requirements.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  - 4. Specimen warranty.

- C. CAL-GREEN Submittals: Product Data.
  - 1. VOC Limits: For adhesives sealants, fillers, primers and coatings, documentation including printed statement of VOC contents, comply with limits specified in related section.
  - 2. Product Test Reports: For wall materials, indicating that wall materials comply with Solar Reflectance Index requirement and demonstrate Cool Wall Rating Council (CRRC) listing.
- D. Shop Drawings: Include layouts of wall panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, details of trim, gutter, ridge, curved panel and flashing conditions, fastening and anchorage methods, weatherproof techniques, terminations, and flashing of each type of penetrations, and special conditions.
  - 1. Show work to be field-fabricated or field-assembled.
  - 2. Include structural analysis signed and sealed by qualified structural engineer, indicating conformance of walling system to specified loading conditions.
  - 3. Indicate metal thickness and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations; purlin and girt locations, thermal expansion provisions and special supports.
  - 4. Include wall plan showing clip spacing at ridge, eave and field.
  - 5. Indicate relationships with adjacent and interfacing work. Demonstrate continuity of air barriers with related wall assemblies and wall underlayment.
  - 6. Shop drawings must be completed by the metal wall panel manufacturer's engineering department.
  - 7. All changes recommended by Contractor must be approved by the manufacturer in writing prior to submittal.
- E. Selection Samples: For each walling system specified, submit color chips representing manufacturer's full range of available colors and patterns.
- F. Verification Samples: For each walling system specified, submit samples of minimum size 12 inches square, representing actual walling metal, thickness, profile, color, and texture.
  - 1. Include typical panel joint in sample.
  - 2. Include typical fastening detail.
- G. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

#### **1.05 INFORMATIONAL SUBMITTALS**

- A. Delegated-Design Submittal: For metal walls indicated to comply with performance requirements and design criteria, substantiating system performance, structural capacity, anchorages and fasteners sizes and spacings per specified criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
  - 1. Detail fabrication and anchorage of metal walls.
  - 2. Include design calculations.
  - 3. Provide clip fastener pull-out test report and calculations.
- B. Qualification Data: For qualified Installer and testing agency.
- C. Professional Engineer Qualifications: Demonstrate compliance with specified requirements.
- D. Preconstruction Test Reports: For sealant.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating compliance with performance requirements. For each system provide test reports with shop drawings.
- F. Design test reports:

1. Indicate fastener types and spacings; and provide fastener pullout values.
2. Submit copy of manufacturer's structural II, California licensed, stamped, minimum design load calculations according to CBC Chapter 15.
3. Submit test results meeting or exceeding values specified in the Performance Criteria Article of this specification and stamped by an independent Testing Agency.

G. Certificates:

1. Manufacturer's Certificate that all products conform to specified requirements.
2. Manufacturer's Representative Certificate that installation conforms to specified requirements.

H. Quality-control reports.

1. Field quality-control reports.

I. Warranties: Sample of special warranties.

**1.06 SCHEDULING AND SEQUENCING**

A. Include in construction schedule:

1. When field measurement for factory production will be taken.
2. Order and delivery time.
3. Installation period.

B. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage requirements for preformed metal walling system.

C. Schedule field measurements far enough in advance, to permit fabrication of panels to required lengths without delay to the construction schedule.

D. Sequence installation to avoid other activities over metal walling.

E. Do not cover underside of metal walled areas until water intrusion test has been performed.

**1.07 QUALITY ASSURANCE**

A. Manufacturer Qualifications: Company specializing in the manufacture of walling systems similar to those required for this project.

1. Not less than 5 years of documented experience.

B. Installer Qualifications: Company specializing in the type of work specified, with not less than five (5) years of documented experience; trained and authorized by walling system manufacturer with written certification from manufacturer.

1. Maintain a full-time supervisor/foreman with minimum of five (5) years experience with the installation of system similar to that specified on the job-site at all times during installation of new wall system.
2. Upon Owner request, fabricator/installer shall submit work experience and evidence of adequate financial responsibility. The owner's representative reserves the right to inspect fabrication facilities in determining qualifications.

C. Delegated Design: Design assembly components and anchorages under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at California.

D. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of assemblies that are similar to those indicated for this Project in material, design, and extent.

- E. Engineering Responsibility: Prepare design for metal wall systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- F. Manufacturer's Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- G. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
  - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Provide strippable plastic protection on prefinished walling panels for removal after installation.
- B. Store walling panels on project site as recommended by manufacturer to prevent damage to panels prior to installation.
- C. Order materials based on field measurements, not on construction drawings.
- D. Deliver, store, protect and handle products to site under provisions of Section 01 6000 - Product Requirements.
- E. Coordinate delivery schedule with installation schedule. Do not deliver materials of this section to project site until suitable facilities for storage and protection are available.
- F. Protect materials from damage during transit and at project site. Store under cover, off ground, sloped to provide positive drainage, protected from wind, foreign material contamination, mechanical damage, cement, lime or other corrosive substances. Do not expose materials with strippable protective film to direct sunlight or extreme heat.
  - 1. Store preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
  - 2. Provide protective interleaving between contact areas of exposed surfaces to prevent abrasion during shipment, storage, and handling.
  - 3. Prevent contact with materials which may cause discoloration or staining
- G. Inspect materials upon delivery. Reject and remove physically damaged or marred material from project site.
- H. Do not allow storage of other materials or allow staging of other work on installed metal panel wall system.
  - 1. Do not overload wall with stored materials.
  - 2. Do not support wall mounted equipment directly on walling system.

#### **1.09 WARRANTY**

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal wall panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of 20 year period from date of Substantial Completion.

- C. Weatherproof Warranty: Provide manufacturer's warranty for weathertightness wall system, including agreement to repair or replace walling that fails to keep out water within specified warranty period of 20 years from date of Substantial Completion.
  - 1. Warranty must cover calculated wind speed.

## **PART 2 PRODUCTS**

### **2.01 DESIGN REQUIREMENTS**

- A. Wall Panel System: Provide wall system with performance as specified when installed, designed in accordance with applicable codes.
  - 1. Make watertight.
  - 2. Make free from objectionable warp, wave and buckle.
- B. Provide structural performance appropriate to substrate over which wall system is installed.
- C. Design and size components to withstand loads caused by wind pressures as specified in applicable code.
- D. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within the range of test data. Extrapolation for conditions outside test range are not acceptable.
- E. Drainage: Provide positive drainage to exterior for moisture entering building enclosure or condensation occurring within exterior building envelope.

### **2.02 MANUFACTURERS**

- A. Design for Structural Metal Wall Panels is based on Imetco 7.2 Panel, manufactured by Garland Industries or approved equal. Mark Stratton, 650 483 4388.
  - 1. Used for metal wall panels.
- B. Obtain all components of wall system from a single manufacturer including roll good materials if required to comply with metal wall manufacturer warranty. Secondary products required which cannot be supplied by the specified metal wall manufacturer must be those recommended and approved in writing by the specified metal wall manufacturer.
- C. Substitutions: See Section 01 6000 - Product Requirements.
  - 1. Requests for substitution of proposed alternate systems must meet or exceed all performance requirements listed in Performance Criteria, Warranty and Quality Assurance Articles.
  - 2. Submit complete product and test data for each proposed substitution.

### **2.03 STRUCTURAL METAL WALL PANELS**

- A. Metal Panels: Factory-formed panels with factory-applied finish.
  - 1. Type: Single skin, uninsulated.
  - 2. Steel Panels:
    - a. Aluminum-zinc alloy-coated SS (structural steel) sheet conforming to ASTM A792/A792M; minimum AZ50 coating.
    - b. Steel Thickness: Minimum 24 gage (0.024 inch).
  - 3. Texture: Smooth.
  - 4. Length: Maximum possible length to minimize lapped joints.
  - 5. Width:
    - a. Wall panels: maximum panel coverage of 36 inches.

## 2.04 ATTACHMENT SYSTEM

- A. Fasteners: As recommended by manufacturer for project conditions and panel type, concealed wherever possible.
  - 1. Concealed fasteners: Corrosion resistant steel screws designed to meet structural loading requirements. The normal minimum screw size shall be Rawl #14.
  - 2. Exposed fasteners: Corrosion resistant steel screws (cadmium or zinc coatings are not acceptable), stainless steel with neoprene sealing washer, or 3/16 inch diameter waterproof rivets with color matched finish.

## 2.06 PANEL FINISH

- A. Energy Performance: Provide walling system with initial Solar Reflectance not less than 0.70 when tested according to ASTM D 1549 and Thermal Emittance not less than 0.75 when tested according to ASTM D 1371 and listed on Cool Wall Rating Council's CRRC-1.
  - 1. Energy Performance: ENERGY STAR and Cool Wall Rating Council (CRRC) rated.
- B. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss to match sample.
- C. Concealed Surface Finish: Baked-on polyester coating with 0.20-0.30 mil DFT.
- D. Color selected by Architect from the Manufacturer's standard color range.

## 2.07 ACCESSORIES AND MISCELLANEOUS ITEMS

- A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness, and finish as used for the walling panels. Items completely concealed after installation may optionally be made of stainless steel.
- B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.
- C. Sealants: Types specified in related section with the following characteristics, except concealed seam sealant.
  - 1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
  - 2. Concealed sealant must be non-hardening, butyl type.
  - 3. Seam Sealant: Non-skinning, non-drying type recommended and factory-applied by wall panel manufacturer.
  - 4. Exposed sealant colors as selected by Architect, compatible with wall finish color.
- D. Underlayment:
  - 1. Sheet Thickness: 60 mil minimum total thickness.
  - 2. Products:
    - a. Aquablock 60 by IMETCO.
- G. Provide all miscellaneous accessories for complete installation.

## 2.08 FABRICATION

- A. Form metal work true to required shape, accurate in size and radius, square and free from distortion or defects, with clear, sharp, straight, and uniform bends and rises. Hem exposed edges of flashings. Fabricate to predetermined exact lengths wherever possible. Cut panels to precise lengths indicated from field measurements.

- B. Machine roll wall and flashing elements required to be curved or radiused. Do not field bend or "walk-down". Provide true curves, segmented fabrication not allowed.
- C. Panels: Fabricate panels and accessory items at factory to the greatest extent possible, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.
- D. Joints: Factory-install captive gaskets, sealants, or separator strips at panel joints to provide weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.
- E. Accessories: Factory-fabricate trim and flashing components in longest practical lengths.
  - 1. Provide mitered corners, joined using closed end pop rivets and joint sealant.
- F. Wall-related Flashings: Provide as specified in related sections, as required by walling material manufacturers and referenced standards. Coordinate work of this section with related sections. Provide complete systems without conflict or omission.
  - 1. Fabricate walling and related sheet metal work in accord with approved shop drawings and applicable standards.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Do not begin installation of preformed metal wall panels until substrates have been properly prepared.
  - 1. Determine if work of other trades which penetrates the wall or is to be made watertight by the wall is in place and approved prior to installation of walling.
  - 2. Verify pipes, sleeves, or vents through wall are solidly set, reglets are in place, and nailing strips located.
    - a. Locate penetrations in the center of walling panel.
  - 3. Verify walling termination, base flashings and gutter flanges are in place, sealed, and secure.
  - 4. Notify Architect in writing if substrates are not suitable for application of panel system.
  - 5. Do not proceed with installation until substrates are acceptable.
- B. Structural surfaces: Smooth, even, sound, surface dry 19 percent maximum, clean and free of depressions, waves, or projections before material is applied.
  - 1. Examine the alignment and placement of the building structure and substrate. Correct any objectionable warp, waves or buckles in the substrate before proceeding with installation of the preformed metal walling. The installed wall panels will follow the contour of the structure and may appear irregular if not corrected.
- C. Apply no materials during wet weather or on wet surface.

#### **3.02 INTERFACE WITH OTHER WORK**

- A. Coordinate with wall accessories, miscellaneous sheet metal accessories, piping vents and other items specified in related sections penetrating metal walling work. Avoid conflict or omission in weatherproof systems and provide watertight installation.

#### **3.03 PREPARATION**

- A. Verify field dimensions prior to ordering materials.
  - 1. Establish straight side and crosswise benchmarks.
  - 2. Check rectangular walls for squareness and straightness. Gable ends may not be straight; set a true line for the gable clips and flashing with stringline.
  - 3. Measure the wall lengthwise to confirm panel lengths, overhangs, coverage of flashings at eaves and ridges and verify clearances for thermal movement.

- B. Broom clean wood sheathing prior to installation of walling system.
- C. Coordinate walling work with provisions for wall drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed wall will be free of leaks.
- D. Coordinate installation of waterproof membrane over wall sheathing.
- E. Remove protective film from surface of wall panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- F. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by wall panel manufacturer.
- G. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

### 3.04 INSTALLATION

- A. Overall: Install walling system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of walling system securely in place while allowing for thermal and structural movement.
  - 1. Install walling system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances. Where exposed fasteners are unavoidable, use fasteners prefinished to match panels.
  - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
- B. Accessories: Install all components required for a complete walling assembly, including flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, equipment curbs, rib closures, ridge closures, and similar wall accessory items.
  - 1. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.
- C. Flashings: Coordinate to provide weathertight conditions at wall terminations. Fabricate and install in accordance with standards of SMACNA Manual.
  - 1. Install flashings as shown on Drawings and approved shop drawings.
  - 2. Secure flashings in place using concealed fasteners.
  - 3. Cleat and seam all joints.
  - 4. Apply plastic cement compound between metal flashings and felt flashings.
  - 5. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles and radius indicated or required.
  - 6. Seal metal joints watertight with two parallel beads of sealant, do not permit sealant to migrate to exposed surfaces.
  - 7. Overlap wall panels at least 6 inches.
  - 8. Install flashings to allow thermal movement.
- D. Install 1 layer of underlayment on plywood before installing preformed metal wall panels. Secure by methods acceptable to wall panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 4 inches and side and end laps a minimum of 6 inches. Offset seams in successive layers of underlayment.
  - 1. Cover entire surface under panels; holes or tears not permitted.
  - 2. Lap sheet metal flashings. All laps shall weather to exterior.
  - 3. Double layer at changes in plane by extending 6 inches around corner from each side.
  - 4. Install a 3'-0" wide additional layer of self-adhering underlayment at flashing and panel terminations (ridges, eaves, rakes, and wall penetrations).



- E. Wall Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations. Install panels plumb, level, and true to line.
  - 1. Form weathertight standing seams incorporating concealed clips, using an automatic mechanical seaming device approved by the panel manufacturer.
  - 2. Fully interlock panels with adjacent panels; apply sealants as recommended by panel manufacturer to achieve weathertight installation.
  - 3. Provide sealant tape or other approved continuous joint sealer at lapped panel joints.
  - 4. Install sealant or sealant tape, as recommended by panel manufacturer, at end laps and side joints.
  - 5. Cut panels only at approved locations, and only where necessary to make openings for penetrations and field adjustments. Cut using a power saw with metal cutting blade.
    - a. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 0.45 mil.
  - 6. Isolate dissimilar metals and masonry or concrete from metals with bituminous coating. Provide gasketed stainless steel fasteners between dissimilar metals.
  - 7. Provide for temperature expansion/contraction movement of panels at wall penetrations and wall mounted equipment in accordance with panel manufacturer's product data and design calculations.
- F. Anchorage shall allow for temperature expansion/contraction movement without stress or elongation of panels, clips, or anchors. Attach clips to structural substrate using fasteners of size, length and spacing as determined by manufacturer's design analysis to resist imposed loads.
  - 1. Provide fastener head size beneath wall panel as recommended by panel manufacturer.
  - 2. Limit exposed fasteners to extent indicated on shop drawings.
- G. Do not allow shavings, metal dust, or chips to fall on panels.
  - 1. Capture all drilling debris with a rag or cloth placed on the panels at the drilling operation.
- H. Provide installed wall that is true to line and plane, free of dents, and physical defects with a minimum of oil canning.

### 3.05 CONSTRUCTION TOLERANCES

- A. Maximum Alignment Variation: 1/4 inch in 20 feet, 3/8" in 40'-0" or more.

### 3.06 FIELD QUALITY CONTROL

- A. Testing:
  - 1. Re-test until wall is shown to be watertight.
- B. Manufacturer Field Services: Provide daily site inspection for a minimum of one (1) hour during active walling operations by an experienced, full time employee of the walling manufacturer. Submit written reports as specified.

### 3.07 CLEANING

- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.
- B. Touch up minor abrasions and exposed fasteners with matching paint provided by panel manufacturer. Remove and replace panels that cannot be satisfactorily touched up.
  - 1. No exposed sealant or visible raw metal.
- C. Sweep and remove chips, shavings, and dust from wall on a daily basis during installation period. Leave installed work clean, free from grease, finger marks and stains.

- D. Upon completion of installation, remove scraps and debris from project site.

**3.08 PROTECTION**

- A. Do not permit storage of materials or wall traffic on installed wall panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect walling until completion of project.
- B. Touch-up, repair, or replace damaged wall panels or accessories before the Date of Substantial Completion.

**END OF SECTION**

## SECTION 07 5550

### MODIFIED BITUMEN ROOFING

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Modified bitumenous roofing membrnae.
- B. Insulation: flat and tapered.
- C. Deck sheathing.
- D. Cover boards.
- E. Base Flashings.
- F. Roofing cant striped, accessories and walkway pads.

##### 1.02 RELATED SECTIONS

- A. Pertinent Sections specifying Volitile Organic Compounds (VOC) Content Restrictions.
- B. Work of other sections which relates to or penetrateds the roof.
- C. Section 01 8113 – Sustainable Design Requirements.
- D. Section 07 6200 – Sheet Metal Flashing and Trim: Counterflashing, reglets and coping.
- E. Section 07 7100 - Roof Specialties
- F. Section 07 7200 - Roof Accessories: Roof Hatches and curbs.

##### 1.03 REFERENCES

- ASTM D - 41 Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing
- ASTM D - 312 Specification for Asphalt Used in Roofing
- ASTM D - 5147 Test Method for Sampling and Testing Modified Bituminous Sheet Materials
- ASTM E - 108 Test Methods for Fire Test of Roof Coverings
- ASTM B69 Standard Specification for Zinc Sheet.

##### 1.04 SUBMITTALS FOR REVIEW

- A. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements. Include data substantiating that materials comply with the minimum specified requirements including rubber content, low temperature flexibility, tensile strength, tear strength, and amount of recycled content (post consumer and post industrial).
- B. Samples: Submit four (4) samples of the following:

1. Cap Sheet
  2. SBS Modified Base Sheet
- C. Specimen Warranty: Provide an unexecuted copy of the 30 year No Dollar Limit water tight warranty covering every part of the Built Up Roofing system specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.
- D. Any material submitted as equal to or better than the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the installation is to take place. This report shall show that the submitted equal meets the Design and Performance criteria in this specification.
- E. Substitution requests submitted without licensed engineer stamp will be rejected for non-conformance.

#### **1.05 SUBMITTALS FOR INFORMATION**

- A. Manufacturer's Installation Instructions: Submit installation instructions and recommendations indicating special precautions required for installing the membrane.
- B. Manufacturer's Certificate: Certify that roof system furnished is approved by Factory Mutual, Underwriters Laboratories, Warnock Hersey or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.
- C. Manufacturer's Certificate: Certify that the roof system furnished is approved or accepted by Factory Mutual Approval Standard 4470.
- D. Manufacturer's Certificate: Certify that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.
- E. Manufacturer's Certificate: Submit a certified copy of the roofing manufacturer's ISO 9001 compliance certificate.
- F. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147.
- G. Written certification from the roofing system manufacturer certifying the applicator is currently authorized for the installation of the specified roof system.
- H. Design Wind Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7, Method 2 for Components and Cladding, sealed by a registered

professional structural engineer employed by the system manufacturer as a full-time staff engineer. In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article of this specification.

- I. Qualification data for firms and individuals identified in Quality Assurance Article below.
- J. Notarized statement from the Roofing System Manufacturer, signed by an Officer of the Corporation with the Corporate Seal affixed there to stating that the Roofing System Manufacturer will provide field inspections three times a week during the entire period of installation until all construction is completed and to be performed by a full time employee of the manufacturer at no additional cost to the owner.
- K. Plumbing calculation: roofing system manufacturer to supply plumbing calculation verifying all scuppers are properly sized.

#### **1.06 CONTRACT CLOSEOUT SUBMITTALS**

- A. General: Comply with Requirements of Division 01 Section - Closeout Submittals.
- B. Special Project Warranty: Provide specified warranty for the Project, executed by the authorized agent of the Manufacturer.
- C. Roofing Maintenance Instructions. Provide a manual of manufacturer's recommendations for maintenance of installed roofing systems.
- D. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- E. Demonstration and Training Schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed roofing work. Refer to Part 3 for additional requirements.

#### **1.07 QUALITY ASSURANCE**

- A. Installer Qualifications: Installer (Roofing) shall be specializing in modified bituminous roof application with minimum 5 years experience and who is certified by the roofing system manufacturer as qualified to install manufacturer's roofing materials.
- B. It is the intent of this specification to provide a roof system with an external fire rating. The descriptions given below are general descriptions. The insulation, recovery board, and other components shall be as required by the membrane manufacturer to provide a Class A fire resistance rating.
- C. Installer's Field Supervision: Require Installer to maintain a full-time Supervisor/Forman on the job site during all phases of modified bituminous sheet roofing work and at any time roofing work is in progress: proper supervision of workmen shall be maintained. A

copy of the specification shall be in the possession of the Supervisor/Foremen and on the roof at all times.

- D. It shall be the Contractor's responsibility to respond immediately to correction of roof leakage during construction.
- E. Disqualification of Bidders: A Bidder can be disqualified by the Owner's representative or Owner for any of the following reasons, but not limited to:
1. The failure to attend the Pre-Bid conference at the time and place so described under Bidding Dates.
  2. Incorrect use of the "Proposal" as provided by the Owner's representative/Owner. Any changes in said format shall be accepted by the Owner's representative/Owner only when requested and approved in writing prior to the bid opening. Changes in the Proposal after the opening of the bids will not be accepted.
  3. Lack of proficiency as shown by past work or incomplete work under other contracts which, in the judgment of the Owner's representative/Owner, might hinder or prevent the prompt completion of additional work if so awarded or any involvement in any legal actions which relate to past or present performance. This includes, but is not limited to, law suits, court appointed actions, and/or ongoing litigation.
- G. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- H. Pre-application Roofing Conference: Approximately 2 weeks before scheduled commencement of modified bitumen sheet roof system and associated work, meet at Project site with Installer, installer of each component of associated work, installers of deck or substrate construction to receive roofing work, installers of rooftop units and other work in the around roofing that must precede or follow roofing work (including mechanical work if any), Owner's representative/Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, test agencies, and governing authorities. Objectives to include:
1. Review foreseeable methods and procedures related to roofing work.
  2. Tour representative areas of roofing substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations, and other preparatory work performed by other trades.
  3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
  4. Review roofing systems requirements (drawings, specifications, and other contract documents).

5. Review required submittals, both completed and yet to be completed.
6. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
7. Review required inspection, testing, certifying, and material usage accounting procedures.
8. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).
9. Record (contractor) discussion of conference, including decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
10. Review notification procedures for weather or non-working days.

#### **1.08 DELIVERY, STORAGE AND HANDLING**

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- B. Store and handle roofing sheets in a dry, well-ventilated, weather-tight place to ensure no possibility of significant moisture exposure. Store rolls of felt and other sheet materials on pallets or other raised surface. Stand all roll materials on end. Cover roll goods with a canvas tarpaulin or other breathable material (not polyethylene).
- C. Do not leave unused rolled goods on the roof overnight or when roofing work is not in progress unless protected from weather and other moisture sources.
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  2. Provide job site inspections a minimum of three days a week.
  3. Report to the Owner's representative in writing, any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.

4. Confirm, after completion of the project and based on manufacturer's observations and tests, that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.

#### **1.10 PROJECT CONDITIONS**

- A. Weather Condition Limitations: Do not apply roofing membrane during inclement weather or when a 40% chance of precipitation is expected.
- B. Do not apply roofing insulation or membrane to damp deck surface.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
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- A. Uniform Wind Uplift Load Capacity
  1. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria. Attachment shall be installed exactly as given in Part 3. (To be included with bid documents)
    - a. Design Code: ASCE 7, Method 2 for Components and Cladding.
    - b. Category III Building with an Importance Factor of 1.0
    - c. Exposure Category: C



## **PART 2 - PRODUCTS**

### **1.01 GENERAL**

- A. When a particular trade name or performance standard is specified it shall be indicative of a standard required. Provide materials by: The Garland Company or approved equal, Jay Mulligan, (415) 971-2739.
- B. Any item or materials submitted as an alternate to the manufacturer specified must comply in all respects as to the quality and performance, including job site investigation of the brand name specified. The Owner's representative/Owner shall be the sole judge as to whether or not an item submitted as an equal is truly equal. Should the contractor choose to submit on the equal basis, he shall assume all risk involved, monetary or otherwise, should the Owner's representative/Owner find it unacceptable.

### **2.02 ROOFING**

- A. Materials: insulation, modified base sheet, and modified capsheet membrane and surfacing.
  - 1. Base ply: the smooth surfaced modified membrane will be: HPR SA IV Base Sheet, SBS modified base sheet.
  - 2. Modified membrane with coated finish: Stressply IV UV Plus Mineral, smooth. Dual reinforced, fire resistant, SBS modified bitumen.
  - 3. Base flashing base ply: HPR SA IV Base sheet.
  - 4. Flashing capsheet: 195 mil mineral surfaced modified membrane.

### **2.03 MODIFIED BITUMEN MEMBRANE PREFORMANCE REQUIREMENTS**

- A. Tensile Strength, ASTM D 5147
  - 1. 2 in/min. @ 73.4 ± 3.6 °F MD 200 lbf/in XD 200 lbf/in
- B. Tear Strength, ASTM D 5147
  - 1. 2 in/min. @ 73.4 ± 3.6 °F MD 300 lbf XD 300 lbf
- C. Elongation at Maximum Tensile, ASTM D 5147
  - 1. 2 in/min. @ 73.4 ± 3.6 °F MD 3.5% XD 3.5%
- D. Low Temperature Flexibility, ASTM D 5147, Passes -30 degreesF (-34

### **2.04 BITUMINOUS MATERIALS**

- A. Primer: V.O.C. compliant, ASTM D-41.
- B. Asphalt Roofing Mastic: V.O.C. compliant, Silver Flash, ASTM D-2822, Type II.
- C. Insulation adhesive: as approved by roofing system manufacturer.

### **2.05 RELATED MATERIALS**

- A. Caulking and sealant: Tuff-Stuff urethane caulking.

- B. WalkPads: APOC, ½" min.
- C. Drain pans and pipe flashing: 4 lb lead

## 2.06 INSULATION MATERIALS

- A. Polyisocyanurate Roof Insulation: Provide thicknesses of insulation as indicated, or as. Provide combination of types and thicknesses to provide a complete system.
  - 1. Surface Burning Characteristics: Provide assembly with composite flame spread rating of 25 or less and smoke developed of 50 or less, as determined in accordance with ASTM E 84.
  - 2. Closed cell polyisocyanurate foam.
    - a. R-Value: Minimum 30.
  - 3. Tapered insulation: Minimum ¼" per 12" or as indicated on drawings.
  - 4. Tapered crickets: ½" per 12" or 2x's the primary slope of the roof, whichever is greater.
  - 5. Insulation board shall meet the following requirements:
    - a. UL, WH or FM listed under Roofing Systems
    - b. Federal Specification HH-I-1972, Class 1
    - c. Dimensional Stability ASTM D2126 2% max.
    - d. Compressive Strength ASTM D1621 25 psi min.
    - e. Vapor Permeability ASTM E-96 1 perm max.
    - f. Foam Core Density ASTM D1622 2.0 pcf min.
    - g. Water Absorption ASTM C209 <1 %
    - h. Flame Spread ASTM E 84, 25 max.
    - i. R-Factor HR per inch thickness ASTM C 518 (Design Value)
- B. Related Materials:
  - 1. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated or as required to achieve configurations shown, of perlite or organic fiberboard:
- C. Protection Board and vapor barrier support: preprimed gypsum board 1/2 inch thickness.
- D. Adhesive: Viking Products Group, Deckgrabber.
- E. Fasteners:
  - 1. Corrosion resistant screw fastener as recommended by roof membrane manufacturer.
  - 2. Factory Mutual Tested and Approved with 3 in. coated disc for 1-90 rating, length required to penetrate deck one inch.

## 2.07 SURFACINGS

- A. White Elastomeric Roof Coating: Pyramic LO; Energy Star approved white acrylic roof coating as indicated on drawings:
  - 1. Reflectance 81%

## PART 3 EXECUTION

### **3.01 EXAMINATION**

- A. Examine substrate surfaces to receive modified bitumen sheet roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

### **3.02 GENERAL INSTALLATION REQUIREMENTS**

- A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing modified bitumen roofing system.
- B. Insurance/Code Compliance: Where required, install and test modified bitumen roofing system to comply with governing regulations and specified insurance requirements.
- C. Protect other work from spillage of modified bitumen roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace or restore other work damaged by installations of modified bituminous roofing system work.
- D. Coordinate installing roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut offs at end of each day's work to cover exposed ply sheets with two (2) plies of #15 organic felt set in mastic and with joints and edges sealed with roofing cement. Remove cut offs immediately before resuming work.
- E. Substrate Joint Penetrations: Prevent bitumen from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.
- F. Apply roofing materials as specified herein unless recommended otherwise by manufacturer's instructions. Keep roofing materials dry before and during application. Do not permit phased construction. Complete application of roofing plies, modified sheet and flashing in a continuous operation. Begin and apply only as much roofing in one day as can be completed that same day.

### **3.03 INSULATION ATTACHMENT**

- A. Mechanically attach base layers of insulation with screws and plates per manufacturer's wind uplift calculation.
- B. All tapered insulation, crickets and cover board insulation shall be installed in foam insulation adhesive.

### **3.04 BASE PLY INSTALLATION**

- A. Base ply: Install base ply shingled uniformly to achieve one ply throughout over the prepared substrate. Shingle in proper direction to shed water on each area of roof.
- C. Stagger end laps twelve inches minimum.
- D. Extend ply two inches beyond top edges of cants at wall and projection bases.

- E. Install base flashing ply to all perimeter and projections details.

### **3.06 MODIFIED MEMBRANE APPLICATION**

- A. Starting at the low point, apply StressPly IV UV Mineral in the desired position.
- B. Care should be taken to eliminate air entrapment under the membrane.
- C. Apply pressure to all seams to ensure that the laps are solidly bonded to substrate.
- D. Subsequent rolls of modified shall be installed across the roof as above with a minimum of 4" side laps and 8" end laps. The end laps shall be staggered. The modified membrane shall be laid in the same direction as the underlayers, but the laps shall not coincide with the laps of the base layers. Adhere all end laps with mastic.
- E. Extend membrane 2" beyond top edge of all cants in full moppings of the specified asphalt as shown on the drawings.
- F. Seal top of membrane at end of each day.
- G. Base and should be installed same day.

### **3.07 FLASHING MEMBRANE APPLICATION (GENERAL)**

- A. All curb, wall and parapet flashings shall be sealed with an application of mastic and mesh on a daily basis. No condition should exist that will permit moisture entering behind, around, or under the roof or flashing membrane.
- B. Prepare all walls, penetrations and expansion joints to be flashed and where shown on the drawings, with asphalt primer at the rate of one gallon per 100 square feet Allow primer to dry tack free.
- C. The modified membrane will be used as the flashing membrane and will be adhered to an underlying base flashing ply and nailed off 8" O.C. at all vertical surfaces. Over 12" the modified membrane will be 80 mils with a mineral cap sheet installed over the top.
- D. The entire sheet of flashing membrane must be solidly adhered to the substrate.
- E. Seal all vertical laps of flashing membrane with a three course application of Flashing Bond and fiberglass mesh.
- F. Counter flashing, cap flashings, expansion joints, and similar work to be coordinated with modified bitumen roofing work are specified in other sections.
- F. Roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices to be coordinated with modified bituminous roof system work are in other sections.
- G. Ensure all flashing are nailed off and sealed with a three course application of mastic and mesh.

### 3.08 APPLICATION OF SURFACING

- A. Prior to installation of surface, obtain approval from manufacturer as to work completed.
  - 1. Reflective coating: Apply Pyramic LO at two gallons per sq. per coat. Apply one coat.

### 3.09 CLEANING

- A. Remove drippage of bitumen from all walls, windows, floors, ladders, and finished surfaces.
- B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

### 3.10 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with the performance of the roofing system.
- B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each parting attending.
- C. The Roofing System Manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor at a negotiated price.
- D. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.
- E. Repair or replace (as required) deteriorated or defective work found at time above inspection to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- F. The Contractor is to notify the Owner upon completion of corrections.
- G. Following the final inspection, acceptance will be made in writing by the material manufacturer.

END OF SECTION

## SECTION 07 5550

### MODIFIED BITUMEN ROOFING

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Modified bitumenous roofing membrnae.
- B. Insulation: flat and tapered.
- C. Deck sheathing.
- D. Cover boards.
- E. Base Flashings.
- F. Roofing cant striped, accessories and walkway pads.

##### 1.02 RELATED SECTIONS

- A. Pertinent Sections specifying Volitile Organic Compounds (VOC) Content Restrictions.
- B. Work of other sections which relates to or penetrateds the roof.
- C. Section 01 8113 – Sustainable Design Requirements.
- D. Section 07 6200 – Sheet Metal Flashing and Trim: Counterflashing, reglets and coping.
- E. Section 07 7100 - Roof Specialties
- F. Section 07 7200 - Roof Accessories: Roof Hatches and curbs.

##### 1.03 REFERENCES

- ASTM D - 41 Specification for Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing
- ASTM D - 312 Specification for Asphalt Used in Roofing
- ASTM D - 5147 Test Method for Sampling and Testing Modified Bituminous Sheet Materials
- ASTM E - 108 Test Methods for Fire Test of Roof Coverings
- ASTM B69 Standard Specification for Zinc Sheet.

##### 1.04 SUBMITTALS FOR REVIEW

- A. Product Data: Provide manufacturer's technical product data for each type of roofing product specified. Include data substantiating that materials comply with specified requirements. Include data substantiating that materials comply with the minimum specified requirements including rubber content, low temperature flexibility, tensile strength, tear strength, and amount of recycled content (post consumer and post industrial).
- B. Samples: Submit four (4) samples of the following:

1. Cap Sheet
  2. SBS Modified Base Sheet
- C. Specimen Warranty: Provide an unexecuted copy of the 30 year No Dollar Limit water tight warranty covering every part of the Built Up Roofing system specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.
- D. Any material submitted as equal to or better than the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the installation is to take place. This report shall show that the submitted equal meets the Design and Performance criteria in this specification.
- E. Substitution requests submitted without licensed engineer stamp will be rejected for non-conformance.

#### **1.05 SUBMITTALS FOR INFORMATION**

- A. Manufacturer's Installation Instructions: Submit installation instructions and recommendations indicating special precautions required for installing the membrane.
- B. Manufacturer's Certificate: Certify that roof system furnished is approved by Factory Mutual, Underwriters Laboratories, Warnock Hersey or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.
- C. Manufacturer's Certificate: Certify that the roof system furnished is approved or accepted by Factory Mutual Approval Standard 4470.
- D. Manufacturer's Certificate: Certify that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.
- E. Manufacturer's Certificate: Submit a certified copy of the roofing manufacturer's ISO 9001 compliance certificate.
- F. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147.
- G. Written certification from the roofing system manufacturer certifying the applicator is currently authorized for the installation of the specified roof system.
- H. Design Wind Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7, Method 2 for Components and Cladding, sealed by a registered

professional structural engineer employed by the system manufacturer as a full-time staff engineer. In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article of this specification.

- I. Qualification data for firms and individuals identified in Quality Assurance Article below.
- J. Notarized statement from the Roofing System Manufacturer, signed by an Officer of the Corporation with the Corporate Seal affixed there to stating that the Roofing System Manufacturer will provide field inspections three times a week during the entire period of installation until all construction is completed and to be performed by a full time employee of the manufacturer at no additional cost to the owner.
- K. Plumbing calculation: roofing system manufacturer to supply plumbing calculation verifying all scuppers are properly sized.

#### **1.06 CONTRACT CLOSEOUT SUBMITTALS**

- A. General: Comply with Requirements of Division 01 Section - Closeout Submittals.
- B. Special Project Warranty: Provide specified warranty for the Project, executed by the authorized agent of the Manufacturer.
- C. Roofing Maintenance Instructions. Provide a manual of manufacturer's recommendations for maintenance of installed roofing systems.
- D. Insurance Certification: Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.
- E. Demonstration and Training Schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed roofing work. Refer to Part 3 for additional requirements.

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  - 1. 2 in/min. @ 73.4 ± 3.6 °F MD 200 lbf/in XD 200 lbf/in
- B. Tear Strength, ASTM D 5147
  - 1. 2 in/min. @ 73.4 ± 3.6 °F MD 300 lbf XD 300 lbf
- C. Elongation at Maximum Tensile, ASTM D 5147
  - 1. 2 in/min. @ 73.4 ± 3.6 °F MD 3.5% XD 3.5%
- D. Low Temperature Flexibility, ASTM D 5147, Passes -30 degreesF (-34

### **2.04 BITUMINOUS MATERIALS**

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- B. Asphalt Roofing Mastic: V.O.C. compliant, Silver Flash, ASTM D-2822, Type II.
- C. Insulation adhesive: as approved by roofing system manufacturer.

### **2.05 RELATED MATERIALS**

- A. Caulking and sealant: Tuff-Stuff urethane caulking.

- B. WalkPads: APOC, ½" min.
- C. Drain pans and pipe flashing: 4 lb lead

## 2.06 INSULATION MATERIALS

- A. Polyisocyanurate Roof Insulation: Provide thicknesses of insulation as indicated, or as. Provide combination of types and thicknesses to provide a complete system.
  - 1. Surface Burning Characteristics: Provide assembly with composite flame spread rating of 25 or less and smoke developed of 50 or less, as determined in accordance with ASTM E 84.
  - 2. Closed cell polyisocyanurate foam.
    - a. R-Value: Minimum 30.
  - 3. Tapered insulation: Minimum ¼" per 12" or as indicated on drawings.
  - 4. Tapered crickets: ½" per 12" or 2x's the primary slope of the roof, whichever is greater.
  - 5. Insulation board shall meet the following requirements:
    - a. UL, WH or FM listed under Roofing Systems
    - b. Federal Specification HH-I-1972, Class 1
    - c. Dimensional Stability ASTM D2126 2% max.
    - d. Compressive Strength ASTM D1621 25 psi min.
    - e. Vapor Permeability ASTM E-96 1 perm max.
    - f. Foam Core Density ASTM D1622 2.0 pcf min.
    - g. Water Absorption ASTM C209 <1 %
    - h. Flame Spread ASTM E 84, 25 max.
    - i. R-Factor HR per inch thickness ASTM C 518 (Design Value)
- B. Related Materials:
  - 1. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated or as required to achieve configurations shown, of perlite or organic fiberboard:
- C. Protection Board and vapor barrier support: preprimed gypsum board 1/2 inch thickness.
- D. Adhesive: Viking Products Group, Deckgrabber.
- E. Fasteners:
  - 1. Corrosion resistant screw fastener as recommended by roof membrane manufacturer.
  - 2. Factory Mutual Tested and Approved with 3 in. coated disc for 1-90 rating, length required to penetrate deck one inch.

## 2.07 SURFACINGS

- A. White Elastomeric Roof Coating: Pyramic LO; Energy Star approved white acrylic roof coating as indicated on drawings:
  - 1. Reflectance 81%

## PART 3 EXECUTION

### **3.01 EXAMINATION**

- A. Examine substrate surfaces to receive modified bitumen sheet roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to Installer.

### **3.02 GENERAL INSTALLATION REQUIREMENTS**

- A. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing modified bitumen roofing system.
- B. Insurance/Code Compliance: Where required, install and test modified bitumen roofing system to comply with governing regulations and specified insurance requirements.
- C. Protect other work from spillage of modified bitumen roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace or restore other work damaged by installations of modified bituminous roofing system work.
- D. Coordinate installing roofing system components so that insulation and roofing plies are not exposed to precipitation or left exposed overnight. Provide cut offs at end of each day's work to cover exposed ply sheets with two (2) plies of #15 organic felt set in mastic and with joints and edges sealed with roofing cement. Remove cut offs immediately before resuming work.
- E. Substrate Joint Penetrations: Prevent bitumen from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.
- F. Apply roofing materials as specified herein unless recommended otherwise by manufacturer's instructions. Keep roofing materials dry before and during application. Do not permit phased construction. Complete application of roofing plies, modified sheet and flashing in a continuous operation. Begin and apply only as much roofing in one day as can be completed that same day.

### **3.03 INSULATION ATTACHMENT**

- A. Mechanically attach base layers of insulation with screws and plates per manufacturer's wind uplift calculation.
- B. All tapered insulation, crickets and cover board insulation shall be installed in foam insulation adhesive.

### **3.04 BASE PLY INSTALLATION**

- A. Base ply: Install base ply shingled uniformly to achieve one ply throughout over the prepared substrate. Shingle in proper direction to shed water on each area of roof.
- C. Stagger end laps twelve inches minimum.
- D. Extend ply two inches beyond top edges of cants at wall and projection bases.

- E. Install base flashing ply to all perimeter and projections details.

### 3.06 MODIFIED MEMBRANE APPLICATION

- A. Starting at the low point, apply StressPly IV UV Mineral in the desired position.
- B. Care should be taken to eliminate air entrapment under the membrane.
- C. Apply pressure to all seams to ensure that the laps are solidly bonded to substrate.
- D. Subsequent rolls of modified shall be installed across the roof as above with a minimum of 4" side laps and 8" end laps. The end laps shall be staggered. The modified membrane shall be laid in the same direction as the underlayers, but the laps shall not coincide with the laps of the base layers. Adhere all end laps with mastic.
- E. Extend membrane 2" beyond top edge of all cants in full moppings of the specified asphalt as shown on the drawings.
- F. Seal top of membrane at end of each day.
- G. Base and should be installed same day.

### 3.07 FLASHING MEMBRANE APPLICATION (GENERAL)

- A. All curb, wall and parapet flashings shall be sealed with an application of mastic and mesh on a daily basis. No condition should exist that will permit moisture entering behind, around, or under the roof or flashing membrane.
- B. Prepare all walls, penetrations and expansion joints to be flashed and where shown on the drawings, with asphalt primer at the rate of one gallon per 100 square feet Allow primer to dry tack free.
- C. The modified membrane will be used as the flashing membrane and will be adhered to an underlying base flashing ply and nailed off 8" O.C. at all vertical surfaces. Over 12" the modified membrane will be 80 mils with a mineral cap sheet installed over the top.
- D. The entire sheet of flashing membrane must be solidly adhered to the substrate.
- E. Seal all vertical laps of flashing membrane with a three course application of Flashing Bond and fiberglass mesh.
- F. Counter flashing, cap flashings, expansion joints, and similar work to be coordinated with modified bitumen roofing work are specified in other sections.
- F. Roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices to be coordinated with modified bituminous roof system work are in other sections.
- G. Ensure all flashing are nailed off and sealed with a three course application of mastic and mesh.

### 3.08 APPLICATION OF SURFACING

- A. Prior to installation of surface, obtain approval from manufacturer as to work completed.
  - 1. Reflective coating: Apply Pyramic LO at two gallons per sq. per coat. Apply one coat.

### 3.09 CLEANING

- A. Remove drippage of bitumen from all walls, windows, floors, ladders, and finished surfaces.
- B. In areas where finished surfaces are soiled by asphalt or any other sources of soiling caused by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

### 3.10 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with the performance of the roofing system.
- B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each parting attending.
- C. The Roofing System Manufacturer reserves the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the Roofing Contractor at a negotiated price.
- D. If core cuts verify the presence of damp or wet materials, the Roofing Contractor shall be required to replace the damaged areas at his own expense.
- E. Repair or replace (as required) deteriorated or defective work found at time above inspection to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- F. The Contractor is to notify the Owner upon completion of corrections.
- G. Following the final inspection, acceptance will be made in writing by the material manufacturer.

END OF SECTION



## SECTION 27 5102

### INTERNAL COMMUNICATIONS AND IN-ROOM AUDIO/VISUAL SYSTEMS

#### PART 1. GENERAL

##### 1.01 RELATED DOCUMENTS

- A. The drawings and general provisions of the Contract Documents apply to this Section.

##### 1.02 DEFINITIONS

- A. CALL-IN - A call placed via a classroom call-switch or classroom workflow interface and intended to request assistance from the front office. A call-in will initiate a tone on the office located, administrative console and will be answered by front office staff using the handset or hands-free option on the console.
- B. WORKFLOW REQUEST - A Workflow Request is any action request placed by touching a specifically labeled widget on the classroom workflow interface (not just a standard call-switch) that specifically communicates a need directly to a location other than the main office, maintenance, IT, nurse, Library etc. System of design has minimum of 168 various Workflow Requests initiations that can accommodate specific labeling. System allows for user defined customization of Workflow Requests actions and request target destinations.

##### 1.03 SUMMARY

- A. This section includes a fully operational, IP-based system for a district-wide and individual school internal communication, notification, classroom workflow enhancement, and audiovisual systems. The system shall provide bell scheduling, general paging and intercom functions, school safety enhancements and critical communications with individual school and districtwide emergency notification and management capabilities, and classroom workflow enhancement features, all provided on an enterprise-based, single server platform.
- B. The following attributes shall be required and shall be described as:
  - 1. A TCP/IP enterprise platform installed on a single server that serves the entire district. All capabilities listed within these specifications are intended to be native to a single platform. Systems that require third party application/platform integration or more than one server, or individual servers or PCs at individual school locations shall not be acceptable.
  - 2. Classrooms shall be capable of initiating indications of changing room attributes such as "Needs Cleaned." Rooms needing to be cleaned will be identified by illuminating room status lights and changing room status on mapping. When the room has been cleaned a "Cleaned" status change shall be initiated from the classroom and each status shall be logged on integrated system software. Workflow requests and completion statuses shall be indicated on classroom Status Lights and integrated mapping. Emails relating to requests shall also be sent to a user-defined response group and each status shall be logged on integrated system software.
  - 3. Shall benefit hallway protocols with wayfinding, and workflow and shall be accomplished through user-defined, preprogrammed messaging in hallways between classes. Visual indication of the direction of hallway traffic flow shall be visible on hallway message boards and incremental audio messages reminding students of proper hallway etiquette shall be heard on overhead speakers in hallway zones.
  - 4. Shall include the ability for emergency announcements to override any field adjusted volume levels, assuring that all Emergency/Lockdowns, etc., are heard at each speaker location. Any systems requiring local, hardwired volume controls to control speaker volumes shall not be acceptable.
  - 5. Capable of sending written Emergency Notification instructions directly to classroom or office staff on the interactive POE workflow interface.
  - 6. Capable of creating custom, pre-recorded emergency announcements that can be activated by an administrative console, panic button, SIP trunk connected phone, mobile

- application, POE classroom workflow interface, REST API, and web browser user interface.
7. Integrated two-way, hands-free audio separate from district or facility VOIP phone systems. Platforms that rely on district or facility VOIP telephones as the only two-way audio path to classrooms shall not be acceptable.
  8. Including a REST Application Programming Interface (API) for interface to third-party systems. Systems that do not provide logic-based integration or rely solely on unsupervised, electronic relay inter-connections shall not be acceptable.
  9. Including a same-source, interactive floor plan that displays system activity including call-in and lockdown initiation location as well as device status at each connected school in the district. System device failures and/or off-line status as displayed on the floorplan map shall be communicated via email to the user-defined recipient, or group of recipients. Maps shall be customizable and specific to each school and viewed on a system browser-based, user interface.
  10. Capable of generating visual notifications based on system activity. Emergency priority calls from classrooms shall be visually indicated on all message boards. The visual notification shall include the priority of the call and its origin by classroom name and/or number. Notifications shall also include indications on all associated Status Lights.
  11. Capable of providing authorized administrators the ability to initiate any preprogrammed emergency condition from any classroom with the proper credentials. Systems that are limited to classroom telephone integration, 3rd party mobile applications, or unsupervised hardware to accomplish this shall also provide a second, supervised means to initiate school-wide emergency notifications from all classrooms.
  12. Classroom emergency calls shall initiate a Text-To-Speech, location-specific, real-time audio message to a speaker, zone of speakers, or all speakers. Emergency call-in generated overhead audio messaging shall also be automatically activated or deactivated based on time of day.
  13. Including the ability to send a live or pre-recorded audio page to a SIP trunk connected SIP phone or group of SIP phones.
  14. Providing an associated, same-source IOS and Android mobile application. The mobile application shall give the authorized user the ability to initiate local emergencies from their mobile device, from any location within a school. The application shall also provide authorized users the ability to view, in real-time, classroom check-in status on their mobile device. The mobile application must deactivate once the mobile device has left the school it is associated with. Users of the APP shall be managed via the browser-based user interface.
  15. Capable of network time protocol synchronization (NTP) with class change tones utilizing multiple, programmable schedules for each zone.
  16. Providing district-wide and individual school distribution of pre-recorded and live pages, tones, music, and visual messaging.
  17. Including a web-based user interface for programming, configuration, bell scheduling, and access for all uses as described herein with the proper credentials.
  18. xviii. Providing multiple levels of call-in priorities which shall be user-definable, allowing each call station to place a call with a user-selected priority as chosen from a minimum of 999 different priorities.
  19. Allowing any authorized administrator to call from outside the school into any classroom, page a zone, or entire school directly, via the School District supplied, SIP trunk enabled Telephone Network. This access shall include remote monitoring and two-way conversation from outside the facility as well as paging into the system. Call-ins from the intercom platform to the SIP Trunk connected VIOP phone system shall display all Caller ID information on SIP phones with a display.

20. Providing the capability for authorized system users to create automated sequences that include any or all of the following: voice instructions, tones, emails, program distribution, systems activations by the relay, and logical integration through a REST API, message board notification, and automatic Text-To-Speech announcements.
21. Capable of initiating automated audio and visual message strings from a single button on a console, a panic button, mobile app, web-based user interface, and third-party interfaces as directed by the end user.
22. Providing paging from any system console or SIP trunk connected telephone for each campus or the whole district.
23. xxiii. Providing the means to allow each single campus installation to remain 100% operational for intercom, paging, bells, and emergencies such as lockdown, even when the main, district connection is unavailable. Survivability of individual schools shall last for at least 14 days without connection to the main server.
24. Capable of providing a same-source, integrated, district-wide option for displaying all schools' locations on a single map, showing school status including active emergencies and connection status. Integrated, same source District-Wide application shall allow for live and prerecorded district-wide audio and initiation of emergency sequences to one or all schools in the district. Systems that require a third party or OEM option for this purpose shall not be acceptable.
25. Including the ability to send specific and appropriate written response instructions to all classrooms when an emergency or non-emergency condition has been initiated. Written instructions shall be in addition to audio and visual notifications sent to speakers and message boards. The instructions must be specific as to the type of condition and shall have the ability to be included or excluded from condition sequences. Receipt of instructions shall not solely rely on classroom computers to be received and read.
26. Any costs for annual system firmware updates shall be provided at no charge from the manufacturer for the life of the product (local installation fees may apply). Any fees for annual licensing shall be provided by the installing contractor, for the life of the product.

#### **1.04 QUALITY ASSURANCE**

- A. Installer Qualifications: Submittals shall include documentation from the manufacturer that the installer is an authorized provider of the system.
- B. Factory authorized installers must have a minimum of (30) years, as an authorized installer and service provider of the system being provided for this project and must provide at least three reference sites that attest to their affiliation and competency.

#### **1.05 IN-SERVICE TRAINING**

- A. The contractor shall provide and implement a complete and comprehensive training program for all administrators, facility staff members, and teachers. This mandatory training program will provide school staff with a complete understanding of how to utilize and properly operate all functions.
- B. The training program shall be implemented by a staff member/trainer employed by the system-providing contractor and trained by the manufacturer. Manufacturer certification of trainer shall be provided in the submittals
- C. All staff development training is to be coordinated through the owner's designated representative. As training sessions are completed, the trainer will provide the school's administrative staff and school district's staff a document listing all the staff and faculty members who attended, received, and completed the training program.

#### **1.06 WARRANTY**

- A. Provide a manufacturer's five-year warranty of the internal communication, notification, classroom workflow enhancement, and audiovisual systems equipment against defects in

material and workmanship. This warranty will cover all electronic system components. Additional warranties cover clocks, speakers, and call-in switches. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost (equipment only); a one-year warranty shall be provided for labor.

- B. A copy of the manufacturer's standard statement of warranty proving all equipment provided for the internal communication, notification, and classroom workflow enhancement system is covered with the required five-year warranty shall be included with the project submittal. This statement of warranty shall be provided on the manufacturer's stationery. The contractor shall respond, excluding weekends and holidays, within 24 hours to any warranty service calls. If equipment cannot be repaired within 24 hours of the service visit, the contractor shall provide "loaner" equipment to the facility at no charge.
- C. Make available a service contract offering continuing factory authorized service of the system for regular maintenance on items not covered within the warranty.
- D. Due to potential distributor turn-over, all equipment warranties must be provided by the manufacturer and shall adhere to the 5-year warranty offered by the system selected as the basis of design in these specifications. Submittals shall include documentation of the manufacturer's five-year warranty.

#### 1.07 MANUFACTURERS

- A. The basis of design for the internal communication, notification, classroom workflow enhancement system, and in-room audiovisual systems is the Rauland Telecenter U critical communications system with Lightspeed instructional audio systems and Vivitek laser video projectors. Other manufacturers shall be considered however, the final acceptance of the system will be by the owner. If the installed system for this project is not the basis of design and the owner is not satisfied with the installed system, Final Acceptance will not be given and the system-providing contractor must provide the basis of design, installed at no cost to the owner and to the owner's satisfaction in accordance with the performance requirements of these specifications and adhering to the manufacturer's recommended installation guidelines. Requests for substitution of the manufacturer approved for bidding must be received by the General Contractor and granted by the Engineer of record 10 days prior to the bidding date.
- B. The local Authorized Distributor is
  1. QUALITY SOUND, a division of Bi-Jamar, Inc.
  2. Address: 2010 East Fremont Street, Stockton, CA 95205.
  3. Contact: 209-948-2104 or email: education@qualitysound.net

### PART 2. PRODUCTS

#### 2.01 SYSTEM REQUIREMENTS

- A. Provide complete and satisfactorily operating district-wide and individual school internal communication, notification, emergency notification, management, classroom workflow enhancement, and audiovisual systems as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated.
- B. The single, MS Windows server, the software-based platform shall natively provide but not be limited to, a minimum of 10 audio channels for each individual school, classroom IP Speaker Modules, Status Lights, Message Boards, call switches, IP Zone Modules, IP Administrative Console(s), SIP trunk enabled VOIP integration, local and district-wide paging, emergency notifications, calendar-based scheduling, application programming interface, and integrated mapping. The system shall include the latest classroom workflow enhancement capabilities as described herein.
- C. Each Classroom shall be provided with a speaker, a Speaker Module interface, a status light, and call-in capability from the POE classroom workflow interface. The interface shall provide

the classroom teacher with the ability to place up to 168 different types of calls and workflow requests to specific locations, including "Normal," "Emergency," "Check-in," "Needs Cleaned," "Cleaned," etc. Systems that rely solely on a phone or intercom handset or systems that cannot silently indicate classroom lockdown status shall not be acceptable.

- D. Call-ins shall be prioritized, and each classroom shall be able to select a minimum of 5 call locations simultaneously. Systems that do not allow for classrooms to initiate call-ins and or workflow requests to more than one location, simultaneously shall not be acceptable.
- E. Call-ins shall automatically display priority and origin location on administrative consoles, interactive maps, and SIP trunk-enabled phones. The system shall provide the ability to announce a Text-To-Speech audio message of call-ins that include priority and origin location information, automatically using overhead speakers. Workflow requests shall also be capable of initiating a Text-to-Speech overhead page and visual notification on message boards as described herein.
- F. Call-ins shall be programmed to automatically change priority and annunciation destination based on the age of call-in or time of day the call-in is placed. Workflow requests shall also be capable of being escalated as described herein.
- G. After office staff departs for the day, classroom call-in destinations shall be automatically re-routed to locations attended by security personnel or designated location as defined by the end-user. Classroom call-in destinations shall automatically return to default call destinations before the start of each school day.
- H. The platform shall lend itself to expansion by the simple addition of hardware modules without having to adjust or change the main software.
- I. The system shall allow for the adjustment of individual volume levels of incoming intercom, paging, and program volumes from within the classroom, by properly credentialed personnel on the interactive POE workflow interface. Locally adjusted volume levels shall not interfere with the volume and distribution of emergency notifications.
- J. The system shall include Text-To-Speech capability. Text-To-Speech is required to allow for the automatic distribution of audio messages generated by user-designated system activity. For Text-To-Speech audio messages, individual specifics of a classroom call-in shall be included in an audio notification which is then distributed to a speaker, group of speakers, or all speakers. Messages shall also be displayed visually on designated message boards.
- K. This specific project requires the system to distribute an audio message to all speakers when an emergency call-in has been activated from a classroom. The audio message shall contain and identify the priority name, priority number, room name, and room extension. (All call switches must be capable of initiating a minimum of normal and emergency call priorities from their location.)
  - 1. Example audio and visual page for this specific project: "...An emergency call has been activated in room 116..."
  - 2. Duration, volume, and content shall be programmable and customizable but must include the origin location and priority of the call.
- L. The platform shall connect directly to an existing, standard protocol WAN/LAN network, without the need for a separate server or PC at each school location. Daily use, configuration, bell schedules, and emergency sequences shall all be accessible by an authorized user on the native, web-based user interface.
- M. The platform shall provide the ability to monitor individual classrooms in emergency situations from any administrative console or SIP trunk-connected telephone from within the facility or from outside the facility. Communication from within the classroom shall be hands-free.
- N. The system shall provide but not be limited to the following during a Lockdown condition:

1. A pre-recorded, condition-specific (Lockdown) audio message, shall be distributed to every designated speaker within the affected facility.
  2. A visual notification shall be distributed to every designated message board in the facility.
  3. User-defined, integrated systems shall be activated through logical, API integrations.
  4. User-defined, automatic municipal notification.
  5. Classroom and zone status lights shall indicate lockdown and check-in status conditions.
  6. Initiate classroom check-in requirements.
  7. Appropriate response instructions shall be sent to classrooms and viewable on the POE classroom workflow interface.
  8. Classrooms shall be capable of indicating the successful completion of their classroom lockdown procedures via their call switch and or POE classroom workflow interface. All check-in procedures shall be logged with the system activity logging software.
  9. Administrators shall be able to initiate two-way communication, without a pre-announcement tone, to the classroom during an emergency via the administrative console or any SIP trunk-connected phone.
  10. Individual classroom check-in and school emergency status shall be viewed from the web-based user interface on the native mapping, a local Administrative Console, or the IOS/Android mobile application.
  11. Bell schedules shall be automatically disabled during user-selected emergency sequences.
  12. After the emergency, a system-wide All Clear shall be capable of being sent from an Administrative Console, classroom workflow interface, or the native, web-based, user interface.
  13. Pre-recorded Lockdown audio message shall also be transmitted to all school district radios. If the owner desires, the audio message shall also be capable of being transmitted to local municipal responder radios.
- O. IP Addressable Classroom Speaker Modules for individual rooms shall be system programmable and may be assigned any two through six-digit number as well as name and description. Any extension may be reassigned at any time. Systems that do not allow for IP assignment of classroom control devices shall not be acceptable. Systems that limit or do not contain TCP configuration or systems that are only configured by a MAC address for classrooms shall not be acceptable.
- P. IP-enabled two-way voice communication shall be available from any administrative console, SIP trunk connected a telephone to classroom speakers in a school within the district. A programmable pre-announce tone shall sound immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when the talk/listen path is active, complying fully with all privacy legislation. Preannounce tone, supervisory tones, and bell schedule tones shall be programmed to automatically disable during designated emergencies. The system shall also be able to provide two-way intercom and messaging to the interactive POE workflow interface for general and emergency communications.
- Q. The platform shall include a native, calendar-based scheduling application that allows users to view and amend bell schedules by selecting the month(s) and day(s) to view in a calendar format. Authorized users shall be able to configure multiple bell schedules per school, with a minimum of 500 unique events per schedule. Scheduled events shall include daily bell tones, relay actions, wayfinding announcements and direction, email notifications, visual messaging, status lights, and paging exclusions as system configuration changes. The platform shall allow control of the bell schedules via the district WAN/LAN without the need for a separate server or PC at each school location. Bell schedules shall be locally or remotely created and changed by an authorized user through the native web-based user interface. Scheduling shall include the following minimum features:
1. 20 unique bell schedules per school
  2. Minimum of 5 simultaneously active schedules on any given campus.

3. User selectable tones as well as additional user-created and uploaded audio files for class change signaling and messaging.
- R. The platform shall connect to existing PA/intercom systems throughout the district and utilize them to provide distribution of live, pre-recorded, emergency, or ad-hoc audio distribution as well as bell schedule tones. Connection to existing PA/intercom systems shall also support visual message boards, classroom status lights, POE classroom workflow interfaces, and panic buttons in schools regardless of the manufacturer of the existing and installed intercom system in each school.
- S. The platform shall allow for the hybrid connection of existing 25 Volt analog speakers and call-in devices that remain connected on existing wiring to provide two-way audio, call-in, and event/bell scheduling, classroom check-in, and software-based volume level adjustments. The system shall also provide for the ability to utilize IP-addressable classroom speakers and hybrid connectivity within the same school.
- T. The school district shall not be responsible for recurring annual licensing or subscription fees related to this system. A minimum of 12 years of licensing fees for the provided system shall be included and provided in this contract by the installing contractor at no additional cost to the owner.
- U. The platform allows for emergencies to be initiated as a "Drill." Drill sequences replicate all on-site emergency procedures and can be programmed to exclude any outside connection to municipal responders or actions as determined by the owner. All system activity for drills shall be documented on the included system reporting software.
- V. The platform shall provide status lights that display the status of individual classrooms, and aggregately for hallways, zones, or sections of a school and school-wide status. Status lights shall be customizable in color and flash rate based on event type and priority.
- W. Visual message boards shall be available in 2 sizes. Small message boards shall have 8 by 40 LED displays with 3 color LEDs. Large message board shall provide 1 or 2 lines with 16 by 80 LED display with 3 color LEDs. During idle time, the message boards can display the date and time. Message boards shall also be capable of providing countdowns for class change, displaying emergency status, complying with COVID protocols for wayfinding, and creating messages on the fly. Classroom message boards shall also be capable of a count-up/count-down function for testing.
- X. During a lockdown, status lights shall be configurable so as not to display classroom status until first responders arrive. Check-in notifications shall still be viewable on a web-based browser, the mobile application, system console(s), and mapping application with the appropriate administrative credentials.
- Y. The system shall include a native graphical map application accessible from the web-based user interface. The mapping feature shall include a visual floorplan of the school and informs the user of system activity in real-time. Call-ins, active audio, active emergencies, and device status shall be capable of being viewed on the mapping screen for any school or all schools.
- Z. The system shall provide the ability to connect to other critical systems within this school via a REST API for logic-based inbound and outbound control to and from other systems within a school that include but are not limited to; fire alarm, access control, security systems, and IPCCTV cameras and systems. Systems that rely solely on unsupervised, electronic relay connection of inbound and outbound control shall not be acceptable.
- AA. The in-room audiovisual systems shall include amplifiers, speakers, projectors, screens, wall controllers, and audio and input devices at the locations shown on the drawings.
  1. The projector and speakers may be wall or ceiling mounted depending on the individual needs and architectural realities of each room.

- a. An external audio mute trigger is required at the amplifier for connection to the school's internal communications system.
- b. An external audio output is required for the connection of an assistive listening system
- c. Provide all cabling and hardware required for a complete installation. Provide a 6 foot user cord per AV connector type at each user interface

## 2.02 EQUIPMENT AND MATERIAL

- A. District Server and Software (TCC3000SW)
  1. District Server is existing and already installed at the Districts data center. Provide additional site software licences as required.
  2. Provides a Windows-based, single server platform with district-wide connectivity for native, individual school intercom, paging, bell event scheduling, emergency notification, text to speech, and configuration for individual schools from a single server, accessed from anywhere via the web-based interface. Native, district-wide communication, control, notification, and classroom workflow enhancements.
  3. Systems that require individual servers or PCs at each school location or 3rd party or OEM additions to the main system to accomplish the above, required performances shall not be acceptable.
  4. Shall be capable of being installed in a virtual or physical server.
  5. Supports HTTPS browsing.
  6. Supports advanced encryption to ensure secure access.
  7. Users shall receive email notifications when system devices go offline.
  8. Includes logging and reporting of all system activity for a minimum of one year. These reports shall be capable of being exported to. CSV.
  9. Shall provide a minimum of 20 bell schedules per school, with a minimum of 5 simultaneous schedules assignable to a specific school day.
  10. Bell schedules can be programmed to annunciate tones, activate relays, swing configurations, send emails, activate program distribution, and notify SIP trunk-connected phones.
  11. Schedules shall be accessible from anywhere, via the native, web-based browser interface, with the proper credentials.
  12. Shall allow for programmable endpoints to be automatically included or excluded for live paging, visual notifications, bell tones, or prerecorded audio, depending on the time of day or day of the week. These inclusions/exclusions shall be capable of being applied manually or automatically.
  13. The software shall provide a native, district-wide graphical map view of all schools and their current status including emergency and on/off-line statuses.
  14. The software shall provide the ability to identify individual classrooms that are not checked in during an emergency using any web browser on the district's network. The software shall identify the name, and extension, of the classroom that is not checked in during the emergency.
  15. Shall provide a minimum of 18 customizable emergency sequences, including condition-specific All-Clear - with the ability to return the system to normal status.
  16. Shall provide simultaneous communications to all schools or groups of schools within a district.
  17. The system provides the ability to export lists of bell schedule steps, emergency sequences, staff directory, users, peripherals, and zone targets.
- B. Campus Controller (TCC2000)
  1. Provide a site software license per campus controller.



2. Provides call routing for paging and intercom for a single school or building on the district's network.
  3. Supports a numbering plan allowing two, three, four, five, or six-digit extensions.
  4. Ability to upgrade priority level from individual call-in activation.
  5. The ability to automatically escalate incoming call-ins to an alternate console, telephone, or group of telephones if a call-in remains unanswered for a predetermined amount of time.
  6. Synchronizes system time to the district network time server.
  7. Shall support a minimum of 100 independent zones for zone paging, program/music, distribution zones, and class change tone zones; these assignments are a programmable function, changeable by the time of day.
  8. Shall support program distribution to be activated manually or automatically through an event/bell schedule.
  9. Shall provide local survivability of 100% of local school communications if disconnected from the central server for a minimum of 14 days.
  10. Systems that cannot operate at all or operate in a degraded mode due to the same conditions as indicated above, shall not be acceptable.
  11. Provides SIP trunk interface to a district-provided Telephone Network and shall be capable of allowing connected phones to display classroom call-ins, answer internal intercom call-ins, make pages, and change priorities of call-ins in progress. SIP trunk Interface shall provide:
    - a. Audio paging access from any sip trunk connected telephone to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns throughout the entire facility.
    - b. Ability to answer a call-in directed to a SIP trunk-connected extension.
    - c. Ability to upgrade a call-in directed to a SIP trunk-connected extension.
    - d. Ability to initiate a school-wide emergency including lockdown and evacuation sequences from a SIP trunk-connected telephone.
    - e. SIP device shall display call-in identification including classroom name, room number, and priority level.
    - f. In administrative areas where there are no overhead speakers send audio pages to a SIP trunk connected phone or group of phones, as determined by the owner.
- C. Campus Wireless Clock Transmitter (WCXATRAN)
1. The Wireless Transmitter is designed for quick, "plug and play" installation of a synchronized, wireless clock system.
  2. Automatic time adjustments for Daylight Saving Time and after a power outage provide the user with the assurance that the wireless clock system will always be on time.
  3. Features pre-programmed time zones and non-volatile memory, so all programming is kept safe in case of a power loss.
  4. Easy 2-button operation and 20 character, 2-line LCD front panel display.
  5. Receives time synchronization from a network (LAN) timeserver with NTP using the WCXRVRNTP receiver. One time sync receiver is required.
  6. Uses a 467 MHz transmitter frequency and 10 selectable channels, to synchronize all wireless clocks.
  7. Typical coverage with the antenna mounted on the rear of the transmitter is a 700' (213.4 m) diameter circle centered at the antenna. This is equivalent to a coverage range of 350' (106.7 m) from the antenna.
  8. Optional external transmitter antenna can be used for large, campus-like applications where a wide coverage area is required.
- D. POE Administrative Console (TCC2045)

1. A full-color screen with 64 soft keys, 3-line select, volume control, push to talk, speakerphone mode, and left/right and up/down scrolling.
  2. Shall allow for a PIN code for all actions individually or selected actions. Systems that require a PIN for "all or none" shall not be acceptable.
  3. Audio paging access from any Console to any single intercom speaker, zone (group) of intercom/paging speakers, or all speakers/paging horns throughout the entire school as well as any owner-defined SIP trunk connected phones or groups of phones.
  4. Ability to perform intercom to any single IP Addressable Speaker Module.
  5. Ability to display a minimum of 3 call-ins at a time on the screen while other call-ins are annunciating and the ability to scroll to view all call-ins.
  6. Ability to upgrade a call-in priority via soft key.
  7. Displays classrooms that have not activated a system check-in from a check-in activation, during an emergency event.
- E. POE Classroom/Speaker Modules: (TCC2011A)
1. The system shall include IP Addressable Classroom/Speaker Modules for classroom connection of speaker and other classroom devices.
  2. Shall support DHCP.
  3. Shall connect to the network with a single RJ45 connector.
  4. Shall support privacy. When the Privacy switch is activated, it prevents administrative or classroom telephones from monitoring the specific classroom/location intercom speaker.
  5. Shall be designed to mount near ceiling and wall speakers in a plenum air handling spaces
  6. Shall support intercom, paging, and level adjustment through the browser-based user interface or associated Kiosk.
  7. Manual or analog classroom volume controls that do not allow for emergency notification announcements to override classroom volume settings, shall not be acceptable.
  8. Shall support and power a status light that displays individual classroom status including but not limited to call-ins of any priority, testing, and emergency check-in.
  9. Shall support supervision of call switches.
- F. POE Zone Paging Module (TCC2022)
1. Shall be IP addressable and connect multiple speakers for district all page, zone paging, bells, audio events, and, emergency notification.
  2. Shall be rack and wall mountable.
  3. Shall be able to belong to one or more than one independent zones for live paging, bells, pre-recorded audio, and emergency notification.
  4. Pair the TCC2022 with an external audio amplifier for one-way paging.
    - a. The power amplifier(s) shall provide a minimum of 2 watts of power to all paging speakers, and 15 watts of power to all paging horns.
    - b. The maximum load on the paging/program amplifiers shall be 80% of the rated maximum output of the amplifiers.
    - c. Pre-approved external amplifier manufacturers are Powersoft and Stewart Audio - all other manufacturers must be pre-approved before bidding.
- G. POE Zone Page Powered Amplifier Module (TCC3022)
1. Shall be IP addressable and provide 14 or 35 watts output.
  2. Shall be wall or rack mounted.
  3. Powered with either a wall wort or POE+
- H. POE, Aux I/O Module (TCC2033)
1. Shall be IP addressable with two input contacts and two output contacts.
  2. Contacts shall be individually addressable.
  3. Shall be wall and rack mountable.

4. Shall be activated manually, by event/bell schedule, or as part of an alternative condition sequence.
- I. POE Program Line Input Module (TCC2055)
    1. Shall be IP addressable and provide line-level audio program distribution into the system.
      - a. Shall have a 3.5mm cable jack.
      - b. Shall be configured via the web-based user interface.
      - c. Shall support the assignment of system priority level such that emergency communications may override Line Input Module when active.
  - J. POE Microphone Input Module (TCC2077)
    1. Shall be IP addressable.
    2. Shall support dynamic and condenser style microphones.
    3. Shall support microphones with or without Push-To-Talk functionality.
    4. Shall support configurable paging priorities.
    5. Shall have adjustable microphone gain levels.
    6. Shall support the automatic increase of audio priority during an emergency.
  - K. POE Visual message boards.
    1. Shall be IP addressable and powered by POE or POE+.
    2. Shall be available in 2 sizes
      - a. Small: 1 line 8 by 40 LED (TCC3011S)
      - b. Large: 2 lines 16 by 80 LED display (TCC3012L)
    3. 3 color LEDs: Red, Amber, and Green
    4. Shall be self-contained and mountable on a Sigle-gang box without additional backboxes.
    5. Shall be wall or ceiling mounted. Small message boards shall be dual mountable (back to back.)
    6. A small message board may be mounted in a combination speaker and message board baffle and installed either flush or surface mount.
    7. Shall be capable of displaying messages up to 100 characters long.
    8. Shall support the addition of a Status Light
    9. Shall be assigned to any or all zones or individually for message distribution.
    10. Shall be capable of displaying messages on the fly as generated in the user interface accessible through the web-based browser interface.
    11. Shall display the location of an emergency call button or widget within a school.
    12. Shall be convertible to a count-up/count-down mode with the addition of a local control panel.
  - L. POE Combination Speaker/Clock/Message Board (ACC3011S-USO880)
    1. IP message board, speaker module, and speaker in a single baffle.
    2. Includes high efficiency, full range 8" speaker, and a small message board
    3. Transmits system audio and shows time on a digital display
    4. Visually indicates condition changes and audio messaging
    5. Shall be flush or surface mount
    6. Connects to IP Classroom module for control, programming, and distributed audio and visual messaging.
  - M. POE Combination Speaker/Clock/Message Board (ACCSACX-USO880)
    1. Houses an IP round clock, speaker module, and speaker in the single baffle.
    2. Includes high efficiency, full range 8" speaker, and a 13" round clock.
    3. Transmits system audio and shows time on an analog display.
    4. Shall be flush or surface mount
    5. Connects to IP Classroom module for control, programming, and distributed audio and visual messaging.

- N. POE Analog "Round" Clocks (WC1312P)
  - 1. Available in 13" (WC1312P) or 16" (WC1612P) versions.
  - 2. Provide with all required mounting hardware and patch cables.
    - a. Clock Specifications:
      - 1) (NTP) Network Time Protocol for Time Synchronization.
      - 2) Powered by standard POE network power.
      - 3) Maintenance Free
      - 4) High Durability ABS Casing
      - 5) Shatter Resistant Polycarbonate Lens
      - 6) Microprocessor Controlled, High Efficiency Clock Movement
      - 7) UL Listed per Standard UL863 (File Number 130982)
- O. Wireless Analog "Round" Clocks (WCA1312AC)
  - 1. Available in 13" (WCA1312AC) or 16" (WCA1612AC) versions.
    - a. Provide WCP24AC1 transformer for 120VAC applications.
    - b. Clock Specifications:
      - 1) High Performance 467MHz Receiver for Time Synchronization
      - 2) Powered by 24 VAC
      - 3) Maintenance Free
      - 4) High Durability ABS Casing
      - 5) Shatter Resistant Polycarbonate Lens
      - 6) Microprocessor Controlled, High Efficiency Clock Movement
      - 7) UL Listed per Standard UL863 (File Number 130982)
- P. Status Light (TCC2088)
  - 1. Shall be powered and controlled by an IP Classroom Module.
  - 2. Shall support separation and individual indication of classroom status and school-wide status.
  - 3. Shall provide customizable and user-definable colors and blink patterns based on status priorities.
  - 4. Shall indicate the status of individual, associated classrooms as initiated by teacher via a call station or Kiosk.
  - 5. Shall provide an aggregate condition status of a selected zone of rooms or locations to indicate the overall status of the selected zone.
- Q. Normal Call Switch (TCC2201PB)
  - 1. Normal call stations are single-station, one-button, supervising station that provides call-ins with priority. The "NORMAL" call button shall be clearly labeled and color-coded (white) and shall initiate a normal call to the pre-selected destination. Under Lockdown conditions, the "NORMAL" button shall automatically serve as a classroom, Lockdown Check-in button and shall be capable of changing the associated classroom status light to indicate an absence of or confirmation of completed lockdown response actions by the teacher or designated person within the classroom. All call-in stations shall be supervised by the main system. See plans for required locations of the Normal call stations.
- R. Normal/Emergency Call Switch (TCC603302)
  - 1. Normal/Emergency call stations are single station, the two-button, supervised station that provides call-ins with individual priority for each button. The "NORMAL" call button shall be clearly labeled and color-coded (white) and shall initiate a normal call to the pre-selected destination. The "EMERGENCY" button shall be clearly labeled and color-coded (Red) and shall initiate an emergency call from the classroom to the preselected destination and shall be capable of changing the associated classroom status light to indicate the presence of an initiated emergency call from the classroom. Under

Lockdown conditions, the "NORMAL" button shall automatically serve as a classroom, Lockdown Check-in button and shall be capable of changing the associated classroom status light to indicate an absence of or confirmation of completed lockdown response actions by the teacher or designated person within the classroom. All call-in stations shall be supervised by the main system. See plans for required locations of the Normal/Emergency call stations.

- S. Emergency/Check-In Call Switch (TCC2211PB)
1. Emergency/Check-in call stations are single-station, the two-button, supervised station that provides call-ins with individual priority for each button. The "EMERGENCY" call button shall be clearly labeled and color-coded (Red) and shall initiate an emergency call from the classroom to the preselected destination and shall be capable of changing the associated classroom status light to indicate the presence of an initiated emergency call from the classroom. Under Lockdown conditions, the "CHECK-IN" button shall automatically serve as a classroom, Lockdown Check-in button and shall be capable of changing the associated classroom status light to indicate an absence of or confirmation of completed lockdown response actions by the teacher or designated person within the classroom. The "CHECK IN" button shall be clearly labeled and color-coded (Blue.) All call-in stations shall be supervised by the main system. See plans for required locations of the Emergency/Check-in call stations.
- T. 4-Button Call-In Switch (TCC4PB)
1. 4-Button Call Stations are a single station, 4-button, supervised station that provides call-ins with individual priority for each button. Each station shall be customized as directed by the owner and shall include call buttons to be clearly labeled and color-coded. Each of the buttons shall initiate a pre-selected priority call from the classroom to the preselected destination and shall be capable of changing the associated classroom status light. All call stations shall be supervised by the main system. See plans for required locations of the 4-button call stations.
- U. Ceiling/Wall Speakers and Horns
1. Assemblies for IP/POE locations shall consist of 8 Ohm and 8" speakers.
  2. Assemblies for zone paging locations shall consist of 25v, 8" speakers.
  3. All speakers are connected by an 8-pin RJ45 CAT 5e/6/6a cable. Provide Rauland breakout modules at all 25v speakers/horns to meet this requirement.
  4. All speakers shall be mounted in a baffle, with an integrated back box that covers the full area of the baffle.
  5. All speakers shall include provisions to allow the attachment of a safety cable.
  6. Use any of the following speakers with a TCC2011A speaker module:
    - a. ACC3011S - Message Board Combo with 8ohm Speaker + Baffle
    - b. ACCSACX - Analog Clock Combo with 8ohm Speaker + Baffle
    - c. ACCWB8RJ - Wall Mounted 8ohm Speaker + Baffle
    - d. ACC1480 - Ceiling Mounted 8ohm Speaker + Baffle
    - e. BAFKIT1x2L8RJ - T-Bar Mounted 8ohm Speaker (1'x2')
    - f. BAFKIT2x2L8RJ - T-Bar Mounted 8ohm Speaker (2'x2')
  7. Use any of the following speakers or horns with a TCC3022 or TCC2022 paired with an external amplifier for one-way paging:
    - a. ACC1411 - Wall Mounted 25v Exterior Horn + Baffle
    - b. ACCWB5 - Wall Mounted 25v Speaker + Baffle
    - c. ACC1400 - Ceiling Mounted 25v Speaker + Baffle
    - d. BAFKIT1x2S - T-Bar Mounted 25v Speaker (1'x2')
    - e. BAFKIT2x2L - T-Bar Mounted 25v Speaker (2'x2')
- V. In-room Audio Instruction System

1. The in-room audio system shall be a Lightspeed Topcat, Redcat, or 975 in-room audio system with media connectors and microphones.
2. The Topcat system (TCN-FF-M) should be provided in spaces under 1200sqft where the speaker can be mounted into a ceiling grid.
3. The Redcat system (RCN-FF-M) should be provided in spaces under 1200sqft where the speaker can only be wall mounted.
4. The 975 system (975-FF-M) with speakers should be provided in spaces over 1200sqft. Provide quantity on drawings or 4 speakers if not shown.
5. Each system shall include the following:
  - a. Audio amplifier with integrated DECT 2-way wireless audio
  - b. Wireless transmission range: up to 200 ft (600m) open field
  - c. Up to two microphones for whole room instruction, team-teaching, or student sharing
  - d. Pendant-style Flexmike® classroom microphones with audio input utilizing DECT Technology (1.9 GHz) for transmission. Systems that utilize IR are not acceptable.
  - e. Both microphones must contain a Li-Ion battery with an operation for up to 8 hours.
  - f. Both microphones must be rechargeable via a single cradle charger. The charger must be powered via 5V USB.
  - g. One or Multiple speaker(s) to provide optimum configuration for every classroom size and shape.
  - h. The system must offer single speaker solutions to simplify installation and minimize ceiling clutter. Single speaker solutions must evenly distribute audio throughout the classroom. No directional cone speaker solutions are accepted.
  - i. The system must have separate, purpose-built speaker solutions for instructional audio and PA audio to ensure both applications operate independently and without compromise.
  - j. The amplifier must contain a 70V page mute function that passively detects the audio signal of a page coming through a 25/70V PA system without compromising system performance or voiding warranties. As an audio signal is sent to the PA speaker, page mute detects that signal and immediately mutes all local audio through the 975 amplifiers.
  - k. The amplifier must contain a contact closure input connection to detect a signal from Fire Alarm, IP Paging System, or other device and mutes all local amplifier audio to ensure emergency alerts from external systems can be heard clearly.
  - l. The amplifier must contain a contact closure output to interface with the integrated communication system, enabling an alert to be triggered by the teacher's microphone with a button press.
  - m. The system must be compatible and expandable to operate with 2-way small group speaker Pods allowing interoperability between both small group and whole group instruction.
  - n. Systems utilizing Infrared (IR) or 2.4 GHz wireless transmission are unacceptable due to the possibility of interference with wireless networks and other classroom technologies.
  - o. The system shall carry a standard warranty equivalent to the Lightspeed 5-year Warranty.
  - p. Each in-room instructional audio system should include the following standard and optional components:
    - q. Audio amplifier with integrated wireless DECT receiver.
    - r. Wireless DECT media connector for connection of up to 4 audio devices and an assistive listening system.
    - s. (2) wireless microphones with rechargeable batteries.

- t. Cradle charger to charge 2 microphones.
  - u. Speakers ranging from 1-4 speakers per classroom.
- W. In-room Audio Amplifier and Receiver (975)
- 1. The audio amplifier and receiver units are built into the Topcat and Redcat speaker assemblies; whereas the 975 amplifier and receiver unit is a separate device from the speakers.
  - 2. The audio amplifier and receiver units shall include:
  - 3. Wireless communication: Access Technology (1.9 GHz + RF4CE)
  - 4. Wireless transmission range: up to 200 ft (60m) open field
  - 5. Power output: 20 Watts Total Top/Redcat / 40 Watts on the 975
  - 6. Frequency response: 120 Hz to 7 kHz
  - 7. Power supply (UL Listed): 24V/2.5A
  - 8. Signal-to-noise: >60 dB
  - 9. Total Harmonic Distortion: <1% @ 40 Watts (20W / Channel)
  - 10. Automatic power on when Flexmike is powered on and linked
  - 11. Speaker load impedance: 4? / Output
  - 12. Dimensions (W x D x H): 7.6" x 5" x 1.13" (193 x 127 x 29mm)
  - 13. Weight: 9.5 oz. (269g)
  - 14. Controls:
    - a. (1) Power button with LED indicator
    - b. (1) Volume control with source selection for audio input, audio output Tone
    - c. Page mute (PageFirst™) sensitivity level control
  - 15. Device Pairing: Infrared receiving diode to receive a signal from the microphone to initiate the new device pairing process.
  - 16. Connections:
    - a. (1) 24V DC Power input
    - b. (2) Powered speaker outputs (4-pin euro-block connector)
    - c. (1) Mixed audio output (3.5mm) for recording or assistive listening applications
    - d. (3) 3.5mm Audio inputs, one input configurable for priority override of other sources
    - e. (1) Optical digital audio input
    - f. 6-pin euro-block system interface with:
    - g. 24/70V page-sensing mute (PageFirst™)
    - h. Contact closure input mute
    - i. Contact closure output trigger
- X. In-room Audio Media Connector (MCN)
- 1. The audio media connectors are separate device that provides audio inputs and outputs interfaces wirelessly. Provide with each system.
  - 2. The audio amplifier and receiver units shall include:
  - 3. Wireless communication: Access Technology (1.9 GHz + RF4CE)
  - 4. Wireless transmission range: up to 200 ft (60m) open field
  - 5. Power supply: 5V/1.0A USB-C
  - 6. Dimensions (W x D x H) 7.75" x 4.25" x 1.25" (197 x 108 x 32mm)
  - 7. Weight: 9.5 oz. (269g)
  - 8. Controls:
    - a. (1) Power button with LED indicator
    - b. (1) Audio Link/Pair LED Indicator
    - c. (1) Level control with source selection for audio input, and audio output Tone.
  - 9. Connections:
    - a. (1) 5V DC power USB-C input
    - b. (2) Mixed audio output (3.5mm) for recording and assistive listening applications

- c. (4) 3.5mm Audio inputs for connection of external sources.
- Y. In-Room Audio Flexmike Pendant-style microphone/transmitter (FMN)
- 1. Description: the pendant-style Flexmike transmitter shall contain microphone volume control on the unit allowing users to adjust the volume level from anywhere in the classroom. The Flexmike shall be capable of being worn around a teacher's neck as a hands-free microphone via the lavalier cord or to be used as a handheld student pass-around microphone. The Flexmike must be rechargeable via cradle charger or USB power. It must have a user-replaceable, snap-in rechargeable battery pack.
  - 2. Lanyard: adjustable length with magnetic clasp
    - a. Wireless communication: Access Technology (DECT 1.9 GHz)
    - b. Transmission range: up to 200 ft (60m)
    - c. Audio distortion: <1%
    - d. Integrated microphone type: uni-directional electret
    - e. Digital audio interface: USB-C 2-way digital audio interface
    - f. Earbud output: 3.5mm (for monitoring optional Activate Pods)
    - g. Push button volume control: +/- 6dB (total range = 12 dB)
    - h. Power: on/off/mute button
    - i. Battery Power: 1.7V Li-Ion battery pack
    - j. Battery run time: 8 hours (fully charged)
    - k. Charging: via cradle charger or USB-C cable
    - l. Cradle Charger: 2-slot drop-in cradle charger capable of charging 2 microphones
    - m. Cradle Charger Power: 5V USB-C, charging off AC power or computer
    - n. Pairing: IR emitter to enable one-button pairing with an amplifier
    - o. Dimensions (L x W x H): 2.9" x 1.1" x 0.7" (74 x 28 x 18mm)
    - p. Weight: 1.2 oz (34g)
- Z. In-Room Audio System Speakers
- AA. TOPCAT Multimedia Ceiling Speaker (TCN)
- 1. Description:
    - a. two-way hybrid speaker system with exciter technology sound panel and low-frequency cone driver
  - 2. Specifications:
    - a. Built-in audio amplifier and wireless receiver
    - b. Woofer: 6.5" driver
    - c. Frequency Response: 60 Hz - 18 kHz ± 10dB
    - d. Impedance: 8 ?
    - e. Power Handling: 20 W RMS
    - f. Enclosure: 12" x 24" x 3.7" UL Listed plenum-rated enclosure (UL 2043) suitable for use in air handling spaces
    - g. Weight: 12.5 pounds
  - 3. Connections:
    - a. (1) 24V DC Power input
    - b. (1) 3.5mm Audio input
    - c. (1) Optical digital audio input and output
    - d. 6-pin euro-block system interface with:
    - e. 24/70V page-sensing mute (PageFirst™)
    - f. Contact closure input mute
    - g. Contact closure output trigger
- AB. REDCAT Multimedia Wall Speaker (RCN)
- 1. Description:



- a. Two-way hybrid speaker system with exciter technology sound panel and low-frequency cone driver
2. Specifications:
  - a. Built-in audio amplifier and wireless receiver
  - b. Woofer: 6.5" driver
  - c. Frequency Response: 120 Hz - 13 kHz  $\pm$  10dB
  - d. Impedance: 8 ?
  - e. Power Handling: 20 W RMS
  - f. Enclosure: 16" x 1.75" x 9.5"
  - g. Weight: 2.9 pounds
3. Connections:
  - a. (1) 24V DC Power input
  - b. (1) 3.5mm Audio input
  - c. (1) 3.5mm Audio output
  - d. 6-pin euro-block system interface with:
  - e. 24/70V page-sensing mute (PageFirst™)
  - f. Contact closure input mute
  - g. Contact closure output trigger

AC. DRQ Ceiling Speaker for use with 975 systems

1. Description:
  - a. Two-way speaker system
2. Specifications:
  - a. Driver Size: 6.5" driver; 1" tweeter
  - b. Frequency Response: 40 Hz - 20 kHz  $\pm$  6dB
  - c. Impedance: 8 ?
  - d. Power Handling: 30 W
  - e. Enclosure: white ABS ceiling-mount housing with a metal grille; ABS back-enclosure
  - f. Cut out diameter: 8.15"
  - g. Tile Support: 20-gauge metal tile bridge

AD. WMQ Wall-mount Speaker for use with 975 systems

1. Description:
  - a. Two-way speaker system
2. Specifications:
  - a. Driver Size: 4" with 1" tweeter
  - b. Frequency Response: 60 Hz - 20 kHz  $\pm$  6dB
  - c. Impedance: 8 ?
  - d. Power Handling: 30 W
  - e. Enclosure: white ABS enclosure with a steel mesh grille

AE. In-Room Video Projection System

1. The in-room video projection system shall be a Vivitek wall or ceiling-mounted projector with a projection screen, wall controller, and HDMI wall input plates.
2. Each system shall include the following:
  - a. A short-throw wall-mounted projector should be used wherever possible.
  - b. A ceiling-mounted projector may be used when a wall mount short-throw is not a viable option.
  - c. All projectors shall be laser-type projectors.
  - d. All projectors shall be connected to the in-room audio system.
  - e. Provide a standard warranty equivalent to the Vivitek 5-year Warranty
  - f. Provide all cabling, connectors, and hardware for a complete installation.

3. Each in-room instructional audio system should include the following standard and optional components:
  - a. Laser Video Projector
  - b. Projection Screen
  - c. AV control wall panel
  - d. AV input wall plate
4. In-Room Video Projectors and Mounts
  - a. **Vivitek DH765Z-UST Ultra-short-throw laser projector**
  - b. Provide with Vivitek WM3 projector wall mount.
  - c. Projector Specifications:
    - 1) Display Type: Single Chip 0.65" DLP Technology by TI
    - 2) Brightness: 4,000 Lumens
    - 3) Native Resolution: 1080p (1920 x 1080) 16:9 format
    - 4) Maximum Resolution: VGA (64 x 480) to WUXGA (1920 x 1200)
    - 5) Contrast Ratio: 12,000:1
    - 6) Lamp Life and Type: 20,000 Hours Laser light source technology
    - 7) Image Size (Diagonal)\*: 80-150" Diagonal
    - 8) Aspect Ratio: Native 16:9
    - 9) Lens Shift: No
    - 10) Zoom Ratio: Fixed
    - 11) Throw Ratio: 0.23:1
    - 12) Keystone Correction: Vertical and Horizontal  $\pm 30^\circ$ ; Auto Vertical
    - 13) Horizontal Frequency: 15 K, 102 KHz
    - 14) Vertical Scan Rate: 23-120 Hz
    - 15) Operating Temp.: 0-40° C
    - 16) HDTV Compatibility: 480i, 480p, 576i, 567p, 720p, 1080i, 1080p
    - 17) Video Compatibility: NTSC, PAL, SECAM, SDTV (480i/576i), EDTV (480p/576p, HDTV (720p, 1080i/p 60Hz)
    - 18) I/O Connection Ports: HDMI with MHL , HDMI , Composite Video (in RCA) , S-Video (in Mini DIN 4pin) , Audio in (Mini Jack) , Audio L/R (RCA x2) , Audio Out (Mini Jack) , LAN RJ45 , RS232 (DB-9pin) , USB (Type Mini B) , Computer in (D-sub 15pin) , Monitor Out (D-sub 15pin)
    - 19) Kensington® Security Slot, Security Bar, Keypad Lock
    - 20) Dimensions (WxDxH): 456 x 376 x 132 mm (18" x 14.8" x 5.2")
    - 21) Weight: 10.5kg (23.1lbs)
    - 22) Color: White
    - 23) Noise Level: 31 dB / 28 dB (Normal / Economy Mode)
    - 24) Power: Supply and Cons: AC 100-240V, 50/60 Hz
    - 25) Instant on/off: Yes
    - 26) Standard Accessories: Remote Control w/ Batteries, User Manual CD, Quick Start Guide, Warranty Card, VGA Cable
  - d. **Vivitek DH3660Z Standard throw laser projectors**
  - e. Provide with Chief CMS440, CMS012W, and RSAUW projector ceiling mount, pole, and adapter.
  - f. Projector Specifications:
    - 1) Display Type: Single Chip 0.65" DLP Technology by TI
    - 2) Brightness: 4,500 Lumens
    - 3) Native Resolution: 1080p (1920 x 1080)
    - 4) Contrast Ratio: 20,000:1
    - 5) Laser Life/Type: 20,000 + hours (Laser Phosphor Light Engine)

- 6) Throw Ratio ( $\pm 3\%$ ): 1.39 - 2.09:1
  - 7) Image Size (Diagonal): 25.9" - 324.9"
  - 8) Projection Distance: 1.2m - 10m (3.9ft - 32.8ft)
  - 9) Projection Lens: F#2.42 - 2.97, f=20.7 - 31.05mm
  - 10) Zoom Ratio: 1.5x
  - 11) Aspect Ratio: 16:9 format
  - 12) Offset: 145%/122.5%
  - 13) Keystone Correction: Vertical  $\pm 30^\circ$
  - 14) Horizontal Frequency: 15, 31 - 91.4kHz
  - 15) Vertical Frequency: 24 - 30Hz, 47 - 120Hz
  - 16) 3D Compatibility: Yes (DLP® Link™, HDMI 1.4 (Blu-Ray 3D))
  - 17) Lens Shift: Yes (Vertical)
  - 18) Computer Compatibility: VGA, SVGA, XGA, SXGA, SXGA+, UXGA, WUXGA@60hz, Mac
  - 19) Video Compatibility: SDTV (480i, 576i) / EDTV (480p, 576p) / HDTV (720p, 1080i, 1080p), NTSC (M, 3.58/4.43 MHz), PAL (B,D,G,H,I,M,N) SECAM (B,D,G,K,K1,L)
  - 20) I/O Connection Ports: HDMI v.1.4 (x3) Audio-In 3.5mm Mini-Jack Composite Video RCA (L/R) VGA VGA-In Audio-Out (3.5mm Mini-Jack) VGA-Out Mic-In (3.5mm Mini Jack) Control RJ45 (LAN) Power (5V/1.5A USB Type A) RS-232c Mini USB
  - 21) Projection Method: Table Top, Ceiling Mount (Front or Rear)
  - 22) Kensington® Security Slot, Security Bar, Keypad Lock
  - 23) Dimensions: (WxDxH) 15.5" x 13.3" x 4.9" (395 x 338 x 126mm)
  - 24) Weight: Estimated 7kg (15.4lbs)
  - 25) Color: White
  - 26) Noise Level: 35dB/29dB (Normal/Eco. Mode)
  - 27) Power Supply: AC 100-240V, 50/60Hz
  - 28) Power Consumption: 330W (Normal Mode), 260W (Eco. Mode), <0.5W (Standby Mode), <2W (LAN Standby Mode)
  - 29) Standard Accessories: AC Power Cord, VGA Cable, Remote Control, Documentation Kit
- g. If projector is discontinued provide the current manufactures recommended replacement. No change orders will be approved for discontinued model versions of a currently available solution or series of products.

#### AF. In-Room Video Projection Screens

1. **Da-Lite IDEA Screen Projection Board (25942T)**
2. Provide with required mounting hardware.
3. Board Specifications:
  - a. Size: 50 (H) x 89 (W). 16:9 HDTV Format
  - b. Screen surface to consist of a proprietary projection surface permanently bonded to a magnetic substrate that allows use of dry-erase markers, interactive stylus and touch interactivity.
  - c. Surface to have a gain of 2.5 and a viewing half angle of 25 degrees.
  - d. Frame will be 1" (25 mm) thick with a 0.375" (9.5 mm) bezel in aluminum with a silver finish. Bezel thickness at the screen surface is .06" (1.5 mm).
  - e. IDEA Screens include top mounting brackets, lower mounting brackets, 24" length marker tray, a set of three dry erase markers, foam eraser, cleaning cloth and cleaning solution
4. **Da-Lite Model C with CSR Projection Screen (79882)**

5. Provide with Da-Lite Floating Mounting Bracket (77027)
  - a. Screen Specifications:
    - 1) Size 52 (H) x 92 (W). 16:9 HDTV Format
    - 2) Wall or ceiling mounting type.
    - 3) Equipped with Controlled Screen Return (CSR) to control the return speed of the screen surface back into the case.
    - 4) Black masking borders standard on flame retardant and mildew resistant fiberglass fabric, on a ball bearing rigid steel spring roller.
    - 5) Fabric to be permanently attached to roller.
    - 6) Powder coated white 21-gauge steel case with flat back design. To have heavy-duty end caps concealing roller ends with steel inner plates to support roller and provide added case strength.
    - 7) End caps form sturdy brackets for wall or ceiling installations.
    - 8) Bottom of screen formed into pocket holding tubular metal slat.
    - 9) A steel pull bail shall be attached to the slat.
    - 10) Heavy-duty plastic caps shall protect the ends of the slat.
    - 11) Bumper stops built into the case to prevent slat wedging inside case.
    - 12) A 6' pull cord with plastic knob is included.

#### AG. In-Room Video Control Panels

1. **SP Controls Pixie+ wall control panel. (PXE-DCM+)**
2. Provide PXE-EMIT-232/IR Modules at each projector and display.
3. Configure Buttons
  - a. Power On/Off,
  - b. Source HDMI 1/HDMI 2,
  - c. Volume Up/Down
4. Controller Specifications:
  - a. Single-gang IR/RS232 control system for audio/visual systems
  - b. Package Type: Single-Gang Decora™ Mounting
  - c. Dimensions: 4.130" (h) x 1.745" (w) x .90" (d)
  - d. Power Supply: 6VDC, 300mA
  - e. Output Type: IR Emitter & unidirectional RS232
  - f. Outboard Current-Limiting Resistor (IR Emitter): 150 ohm
  - g. Recommended Wire: 18- to 22-Gauge 3-conductor wire

#### AH. In-Room Video Input Plates

1. **Cables to Go HDMI Keystone Insert Modules (03345)**
2. Provide with white two-port keystone wallplate (03411)
3. HDMI Module Specifications:
  - a. Keystone Snap-in Module
  - b. HDMI Female to Female
  - c. Color: White
4. **Cables to Go HDMI Active High Speed cables**
5. Provide Length as required to extend from projector to input location.
  - a. 15ft HDMI Cable (41412)
  - b. 25ft HDMI Cable (41413)
  - c. 35ft HDMI Cable (41414)
  - d. 50ft HDMI Cable (41415)
  - e. 75ft HDMI Cable (41368)
  - f. 100ft HDMI Cable (41369)
6. Cable Specifications:
  - a. Jacket Material: PVC (Polyvinyl Chloride)

- b. Wire Gauge: 26 AWG
  - c. Video Resolution: 4K 60Hz, 4K 30Hz, 4K, 1080p
  - d. Cable Type: High Speed HDMI, Video
  - e. Data Transfer Rate: 18 Gbps
  - f. Jacket Rating: CL3-Rated (provide plenum equivalent if required)
- AI. Uninterruptible Power Supplies (UPS) (by Middle Atlantic, as required)
- 1. UPS equipment provided for this system will include Power Conditioning to smooth current and voltage fluctuations.
  - 2. UPS equipment will be sized in accordance with the system manufacturer's recommendations. See
  - 3. Provide an individual UPS for EACH SITE CONTROLLER furnished.
  - 4. Provide additional UPS(s) for protection of all other equipment furnished with the system and housed in the equipment racks.
  - 5. All UPS equipment shall be rack mounted.
- AJ. Equipment Racks & Accessories
- AK. All equipment shall mount in the network (MDF/IDF) equipment racks provided and installed by the school district unless otherwise specified.
- 1. All equipment racks shall provide spaces for mounted system equipment.
  - 2. Equipment racks shall be in climate-controlled areas/rooms.
  - 3. All head-end, distribution, and source equipment, including data and power, shall be in racks configured as approved by the Engineer.
  - 4. Rack-mounted equipment shall be accessible from the front and rear.
  - 5. All unused rack spaces will be covered with appropriate blank/vent panels.
  - 6. Provide screws, cable straps, and other hardware as required.
- AL. Network Cables & Equipment
- 1. All network cabling and equipment (servers, routers, switches, etc.) are provided and installed by the school district or their network contractor unless otherwise specified.
  - 2. Provide all patch cables as required to patch all specified system equipment into the district-provided switches and cabling system.

### **PART 3. EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine conditions, with the Installer present, for compliance with requirements and other conditions affecting the performance of the School Communications and School Safety Network.
- B. Do not proceed until unsatisfactory conditions have been corrected.

#### **3.02 INSTALLATION**

- A. General: Install the system in accordance with NFPA 70, ANSI SB-40, and other applicable codes. Install equipment in accordance with the manufacturer's instructions.
- B. Furnish and install all material, devices, components, and equipment for a complete operational system.
- C. Impedance and Level Matching: Carefully match input and output impedance and signal levels at signal interfaces. Provide matching networks where required.
- D. The contractor shall provide necessary transient protection on the AC power feed and all central office trunks. All protection shall be as recommended by the equipment supplier and referenced to earth ground.
- E. Wiring within Enclosures: Provide adequate length of conductors. Bundle, lace, and train the conductors to terminal points with no excess. Provide and use lacing bars.

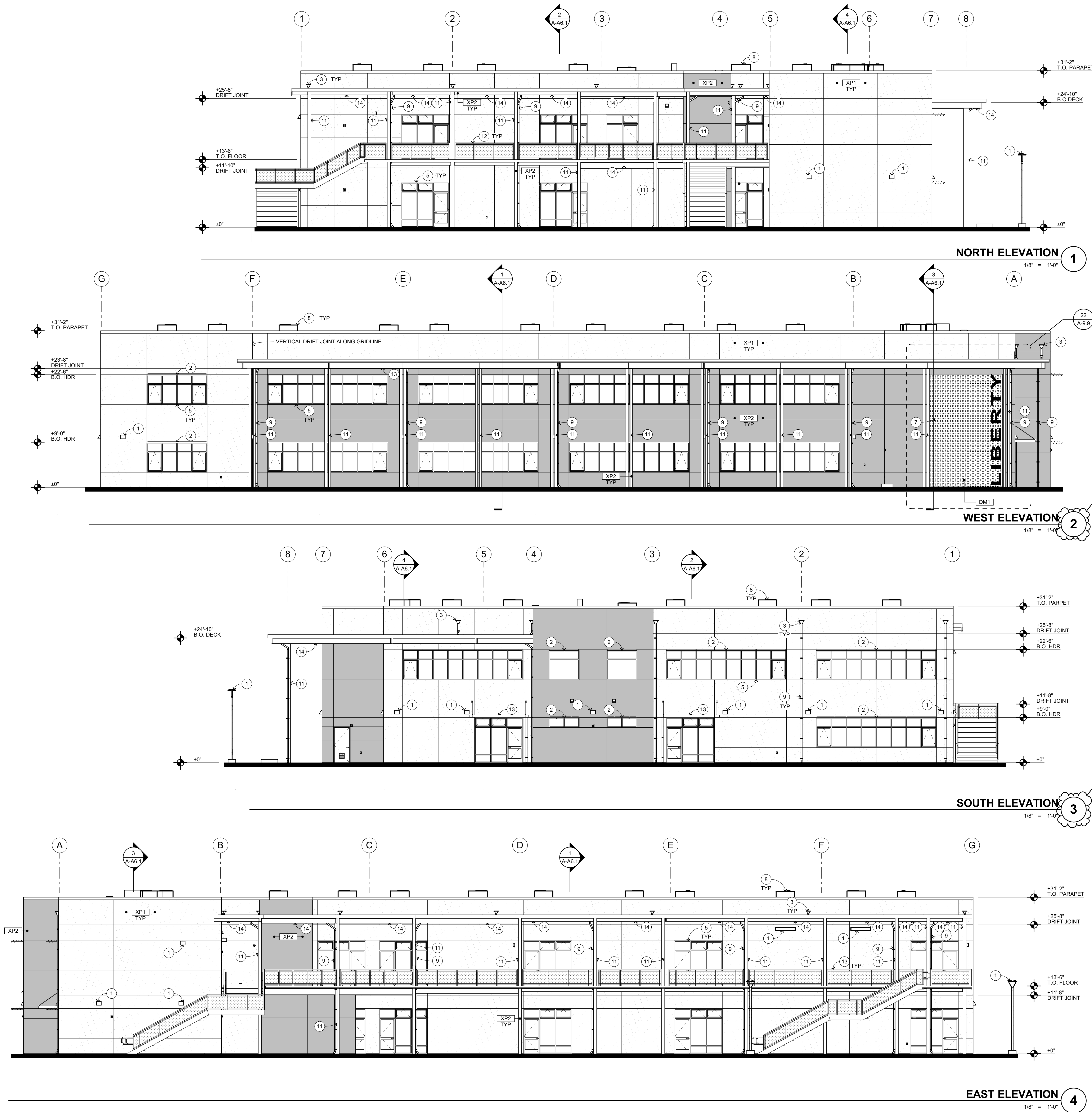
- F. Provide physical isolation from speaker-microphone, telephone, line-level wiring, and power wiring. Run in separate raceways, or were exposed or in the same enclosure, provide a 12-inch minimum separation between conductors to speaker-microphones, telephone wiring, and adjacent parallel power. Provide physical separation as recommended by the equipment manufacturer for other system conductors.
- G. Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all media are identified in coordination with system wiring diagrams.
- H. Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to the weather.

### **3.03 FINAL ACCEPTANCE TESTING**

- A. The Final Acceptance Testing shall be provided to the Owner or the Owner designated representative only. Final acceptance testing to any other trade or service provider for the project will not comply with the requirements of this section.
- B. The contractor will provide a Final Acceptance Test record document signed by both the contractor and the Owner or designated Owner's Representative establishing the "In Warranty" date. The warranty period will not commence until the Final Acceptance Test is completed.
- C. Be prepared to verify the performance of any portion of the installation by demonstration, listening and viewing test, and instrumented measurements. Make additional adjustments within the scope of work that are deemed necessary by the Owner because of the acceptance test.

**END OF SECTION**

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**EXTERIOR ELEVATION KEYNOTES**

NOT ALL KEYNOTES MAY APPLY TO THIS SHEET

- 1 LIGHT FIXTURE, S.E.D.
- 2 SHADE STRUCTURE, SEE 22 A-9.4
- 3 SCUPPER W/ CONDUCTOR HEAD, SEE 11 A-9.5
- 4 ACCESSIBLE HI-LO DRINKING FOUNTAIN W/ BOTTLE FILLER, SEE 2 A-10.3
- 5 STOREFRONT WINDOWS, SEE A-8.2 FOR WINDOW SCHEDULE
- 6 CURTAIN WALL SYSTEM
- 7 STRUCTURAL PERFORATED METAL SIGNAGE
- 8 MECHANICAL ITEM, S.M.D.
- 9 RAIN WATER LEADER, SEE 4 A-9.8
- 10 STANDING SEAM MTL ROOF, SEE 24 A-9.6
- 11 STRUCTURAL COLUMN, S.S.D.
- 12 GUARDRAIL, SEE 10 A-A6.4
- 13 INTEGRATED RAIN CANOPY, SEE 2 A-9.7
- 14 STRUCTURAL BEAM, S.S.D.

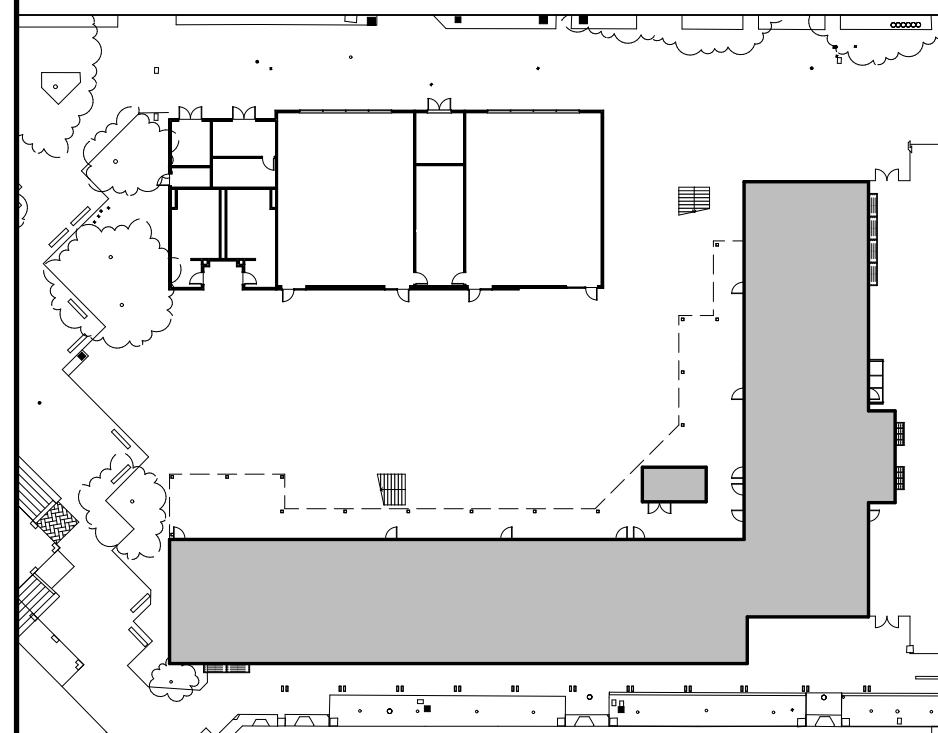
**EXTERIOR ELEVATION LEGEND**

SEE FINISH SCHEDULE ON SHEET A-8.3 FOR FINISH INFORMATION

XX1 XX1 REFERS TO EXTERIOR FINISH CODE SEE BELOW.

- PLASTER CONTROL JOINT, TYP
- XP1 CEMENT PLASTER, SEE 4 A-9.1
- XP2 CEMENT PLASTER, COLUMNS
- DM1 PERFORATED METAL PANELS

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
 Main: 636 Fifth Street, Santa Rosa, CA 95404  
 East Bay: 55 Harrison Street, Suite 525, Oakland, CA 94607  
 (707) 576-0829

**LICENSED ARCHITECT**  
 JIM THEISS  
 LICENSE # C22643  
 EXP JUNE 30, 2023  
 STATE OF CALIFORNIA  
 SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

850 2ND STREET  
 BRENTWOOD, CA  
 94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

DSA APP NO: 01-119994

ARCH PROJECT NO: 1925.00

DRAWN BY: JDS

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

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

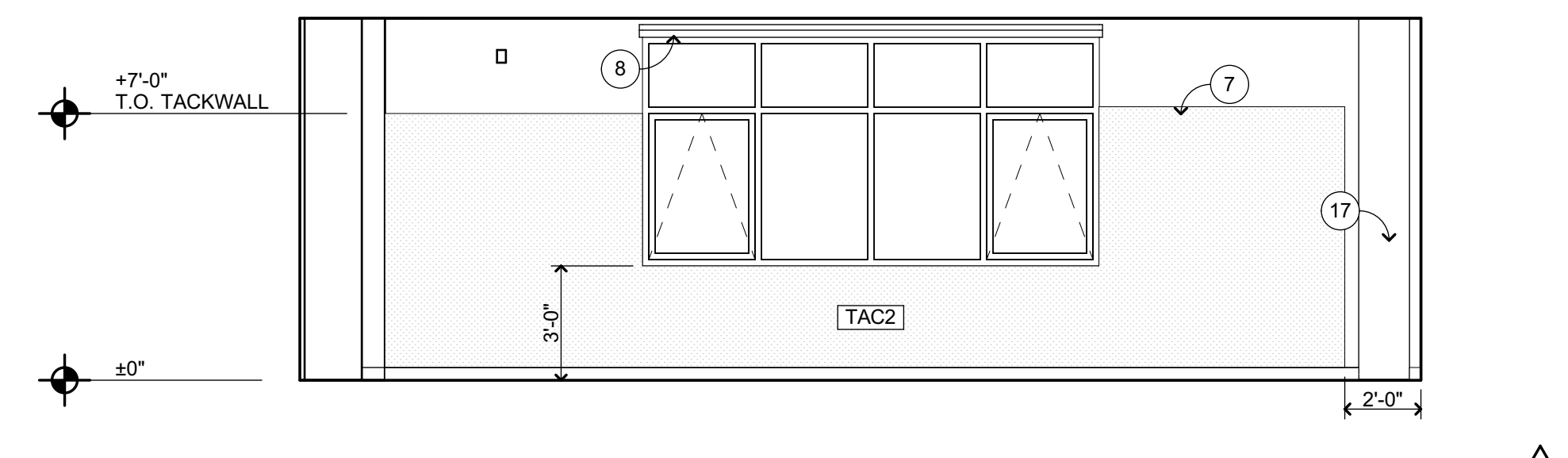
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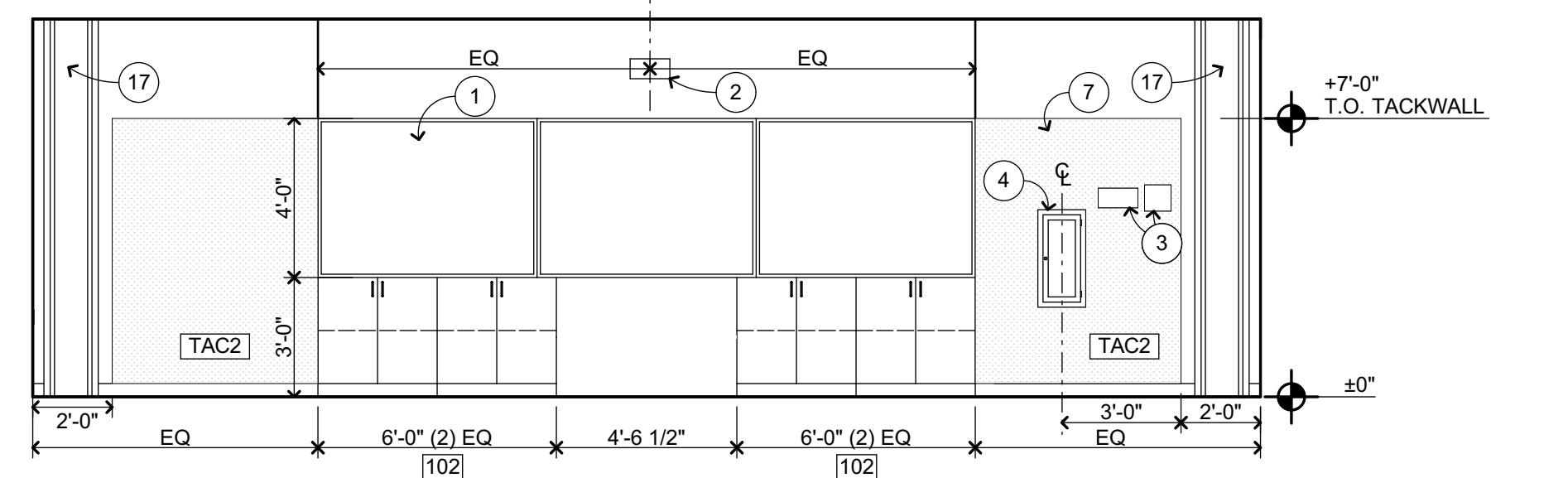
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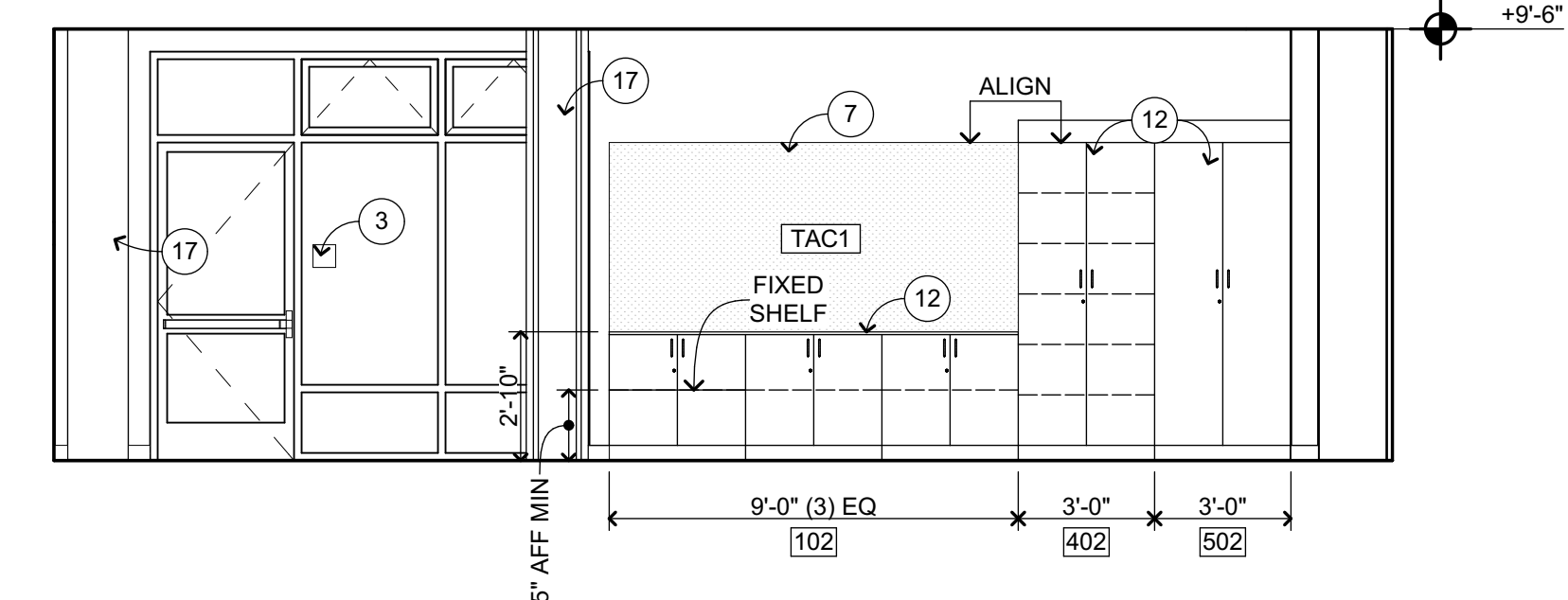
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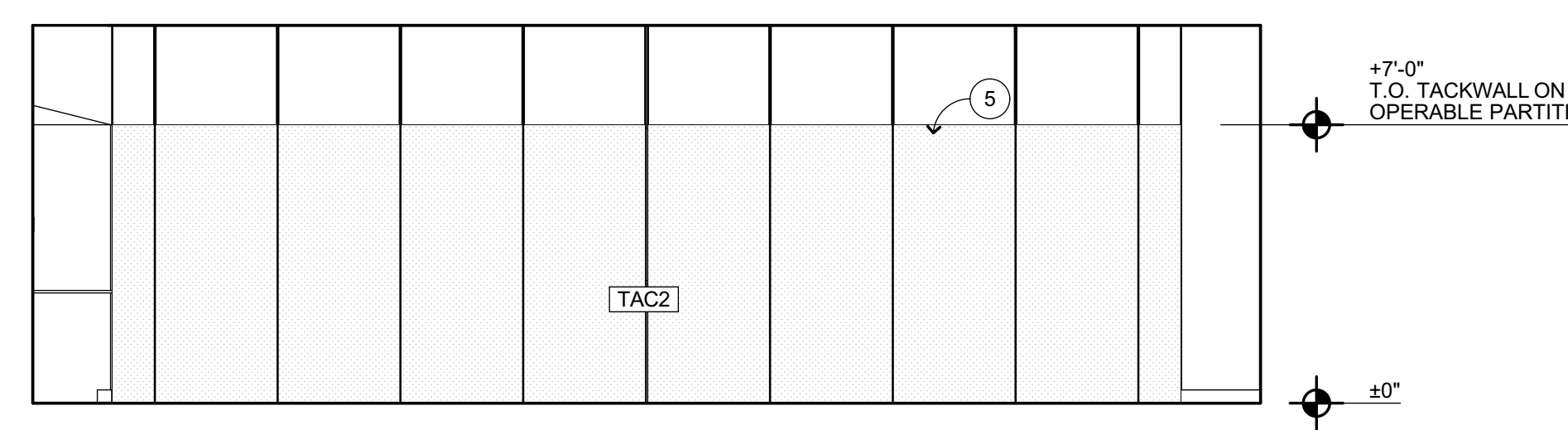
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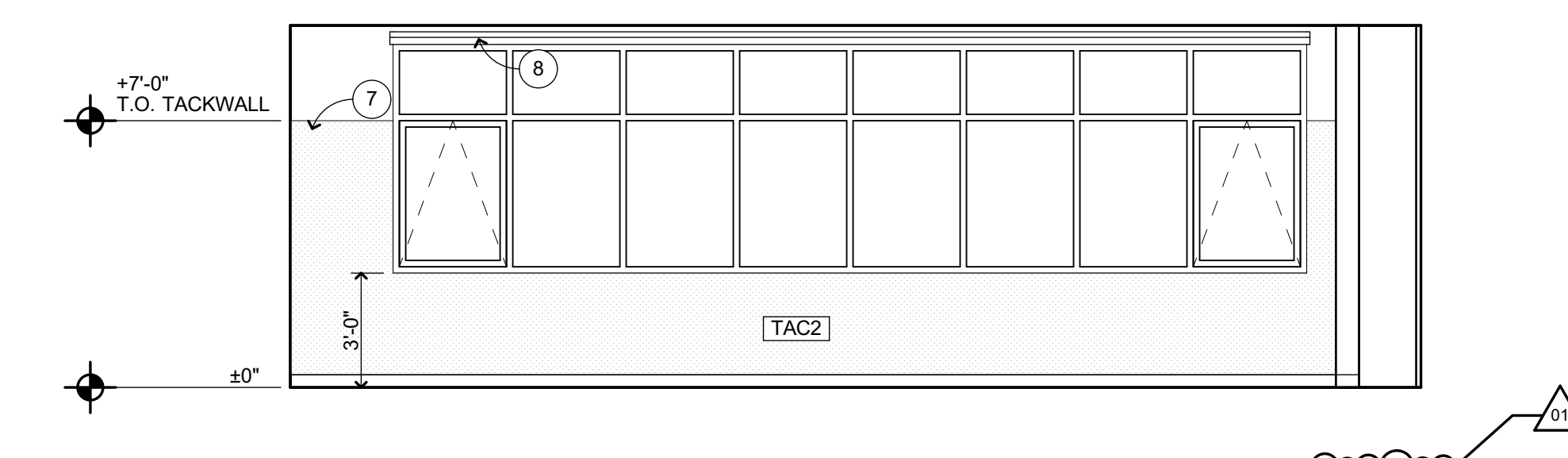


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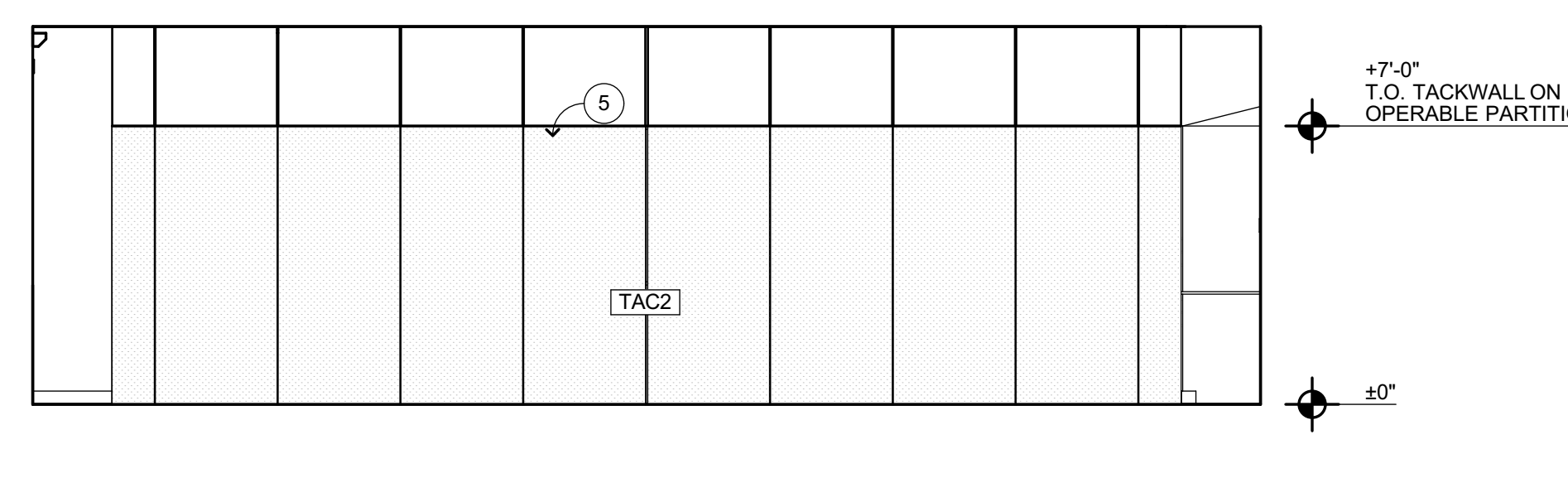


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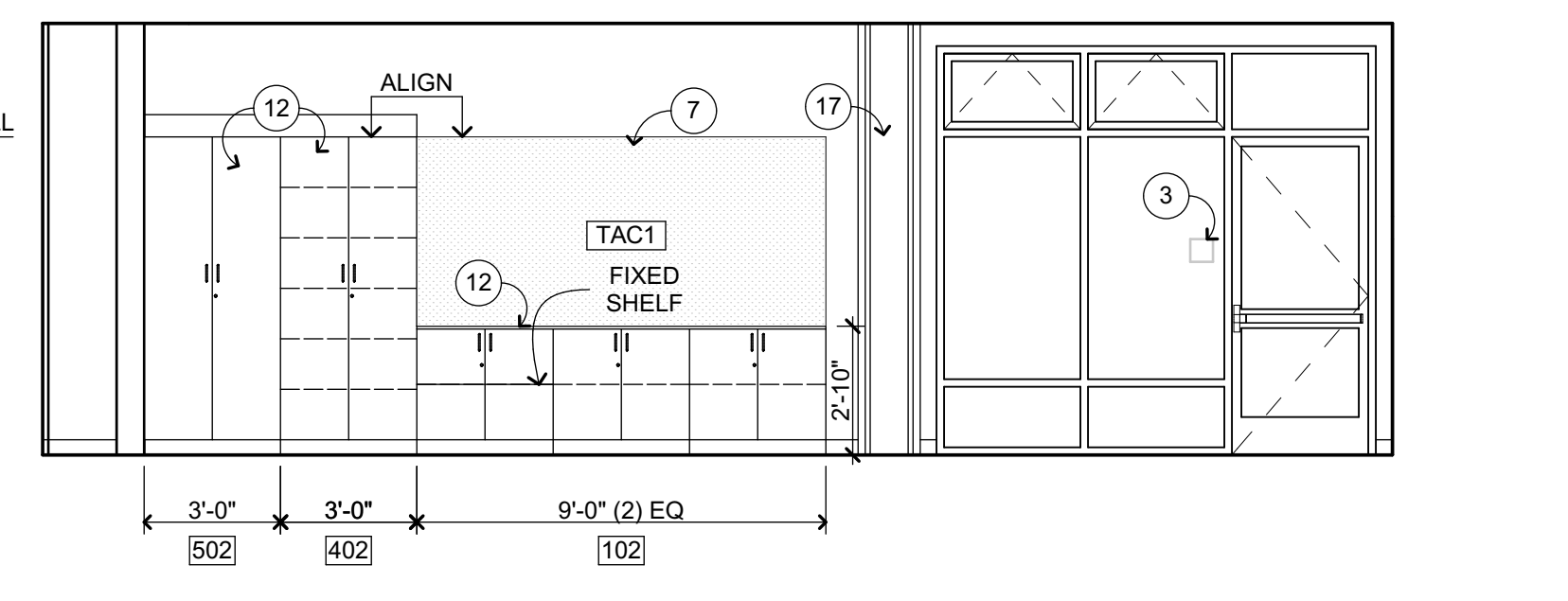
CLASSROOM **A101**  
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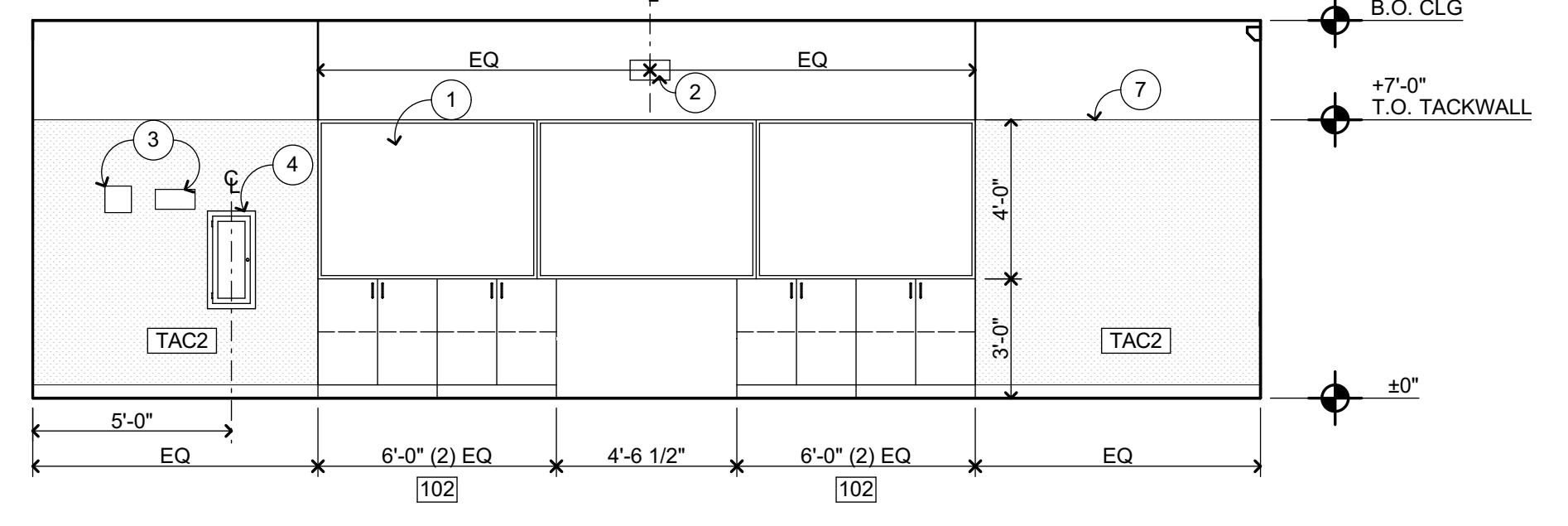
WEST



NORTH



EAST



SOUTH

CLASSROOM **A102**  
1/4" = 1'-0" A-A2.1

**INTERIOR ELEVATION KEYNOTES**

- NOT ALL KEYNOTES MAY APPLY TO THIS SHEET
- MARKER BOARD CASEWORK
  - WALL MOUNTED SHORT THROW PROJECTOR, OFCI
  - SIGNAGE, SEE 10 A-8.1
  - SEMI-RECESSED FIRE EXTINGUISHER, SEE 23 A-9.3 SIM
  - SOLID FOLDING PARTITION W/ TACKWALL COVERING
  - FOAM WALL PADS
  - TACK-WALL, SEE FIN SCHED
  - MANUAL WINDOW SHADES, SEE 27 A-10.3
  - MECHANICAL ITEM, S.M.D.
  - EYEWASH STATION
  - FUME HOOD
  - CASEWORK, SEE 3 A-10.4
  - OPEN-SHELVING BOOKSHELVES
  - FREE STANDING STAINLESS STEEL SINKS
  - ELECTRICAL ITEM, S.E.D.
  - PLUMBING ITEM, S.P.D.
  - STRUCTURAL ITEM, S.S.D.
  - MOP SINK, S.P.D.
  - ROOF ACCESS LADDER, SEE 24 A-9.7, 25 A-9.7
  - MOTORIZED WINDOW SHADES, SEE 28 A-10.3, MTL, WD
  - TOILET PARTITION, SEE 17 A-10.3, 18 A-10.3
  - 4X8 WALL MOUNTED MARKERBOARD, SEE 34 A-10.3
  - ELECTRICAL APPLIANCE, OFCI

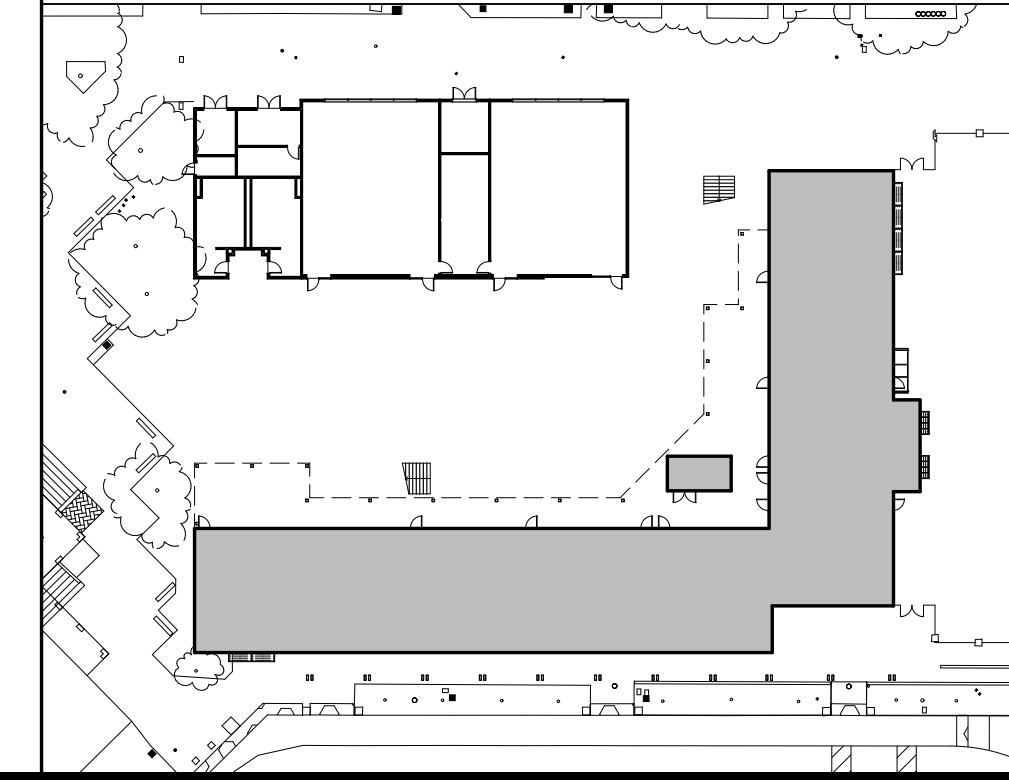
**INTERIOR ELEVATION GENERAL NOTES**

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- REFER TO MECHANICAL DRAWINGS FOR REGISTERS AND VENTS NOT OTHERWISE SHOWN.
- REFER TO ELECTRICAL DRAWINGS FOR HORNS, SPEAKERS, PULL STATIONS AND OTHER FEATURES NOT OTHERWISE SHOWN.
- TYPICAL MOUNTING HEIGHTS OF ACCESSIBLE ELEMENTS AT ACCESSIBLE FIXTURES SEE 5 A-10.3
- FLUSH VALVE HANDLES SHALL BE LOCATED AT THE WIDE SIDE OF ACCESSIBLE STALL.
- FLOORING & BASE SHALL EXTEND UNDER ACCESSIBLE SINK/LAVATORY BASE CABINETS TO THE WALL. WATER SUPPLY AND DRAINPIPES ACCESSIBLE UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
- PROVIDE SOLID BLOCKING FOR CABINET, ACCESSORY, OR EQUIPMENT MOUNTING 1 A-10.3, 21 A-10.3, MTL, FRMG

**WALL FINISH CODES**

- FOR OVERALL WALL AND BASE FINISHES, SEE FINISH PLANS. FOR MATERIAL INFORMATION, SEE FINISH SCHEDULE SEE SHEET A-8.3. FOR PAINT FINISHES SEE SEC. 09 9113 (EXTERIOR) & 09 9123 (INTERIOR). ALL GYP BD TO BE TYPE 'X'.
- P1 PAINT
  - P2 CERAMIC WALL TILE 35 A-10.3
  - WT1 CERAMIC WALL TILE
  - WT2 CERAMIC WALL TILE
  - TAC1 TACK WALL 9 A-10.3
  - TAC2 TACK WALL
  - AP1 ACOUSTIC PANELS
  - MP1 METAL PERFORATED WALL PANELS
  - WP1 FRP PANEL
  - WP3 WALL FOAM PAD
  - PLY1 3/4" MDO FIRE RATED PLYWOOD

**KEY PLAN**



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LIBERTY UNION HIGH SCHOOL DISTRICT

08/19/22 ADDENDUM 1

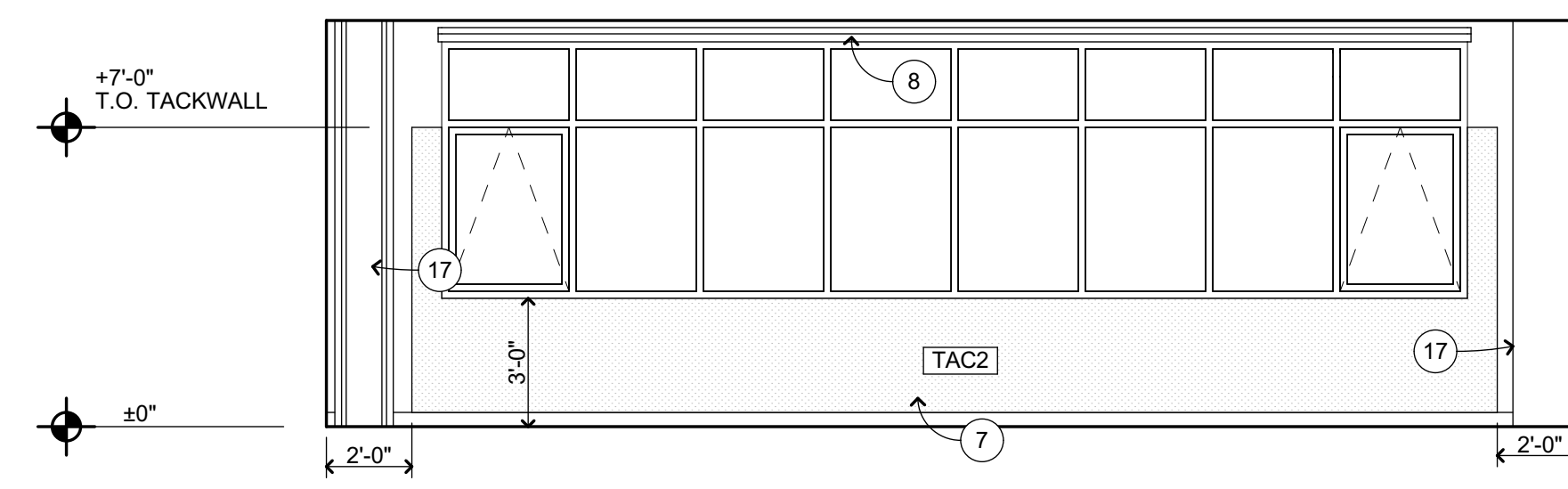
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DRAWING SCALE: 1/4" = 1'-0"  
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CONSTRUCTION DOCUMENTS  
JUNE 24, 2022

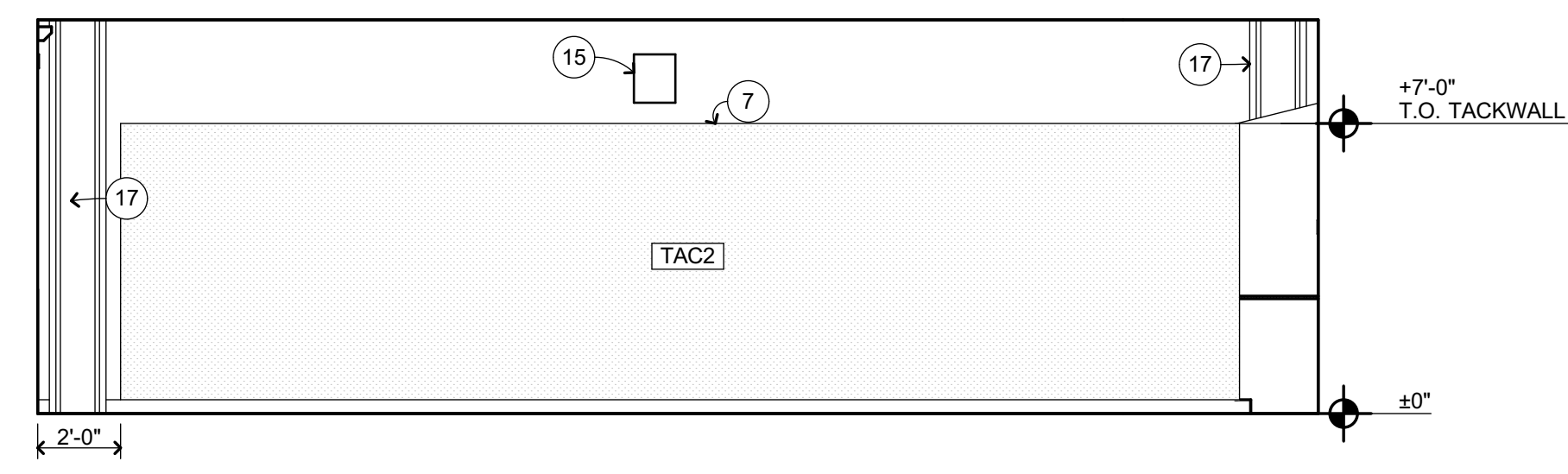
INTERIOR ELEVATIONS

SHEET NUMBER  
**A-A7.1**

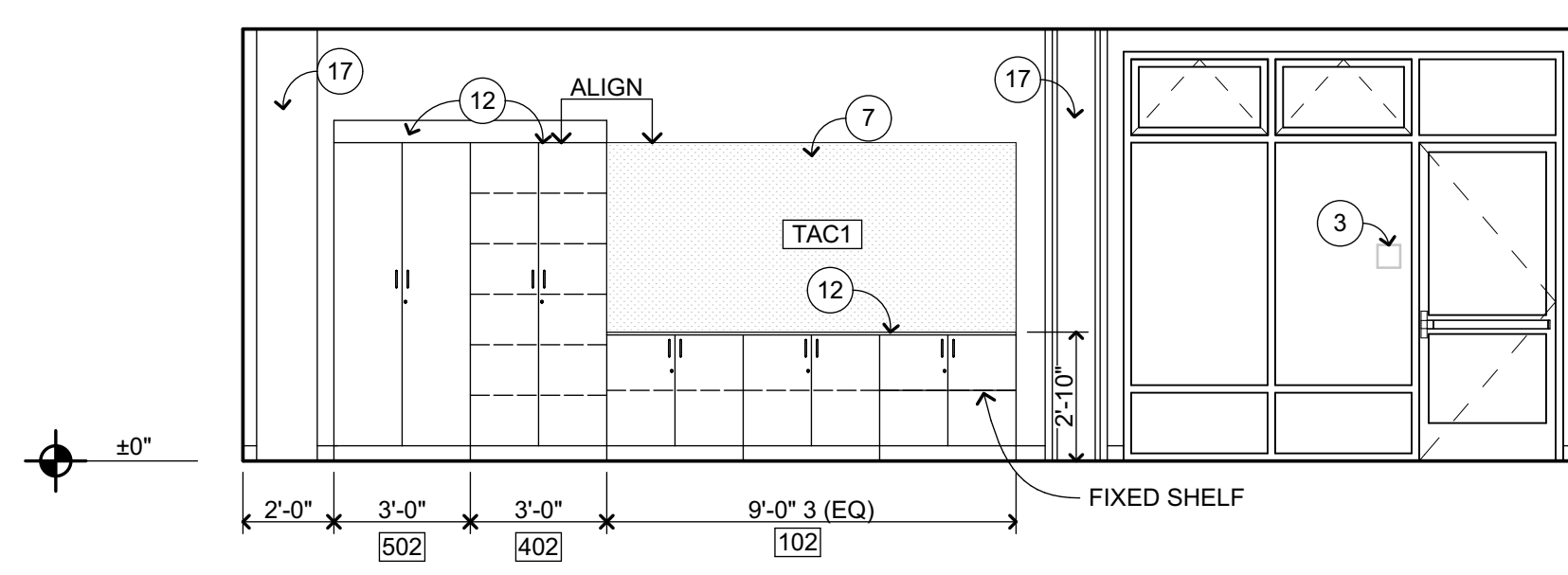




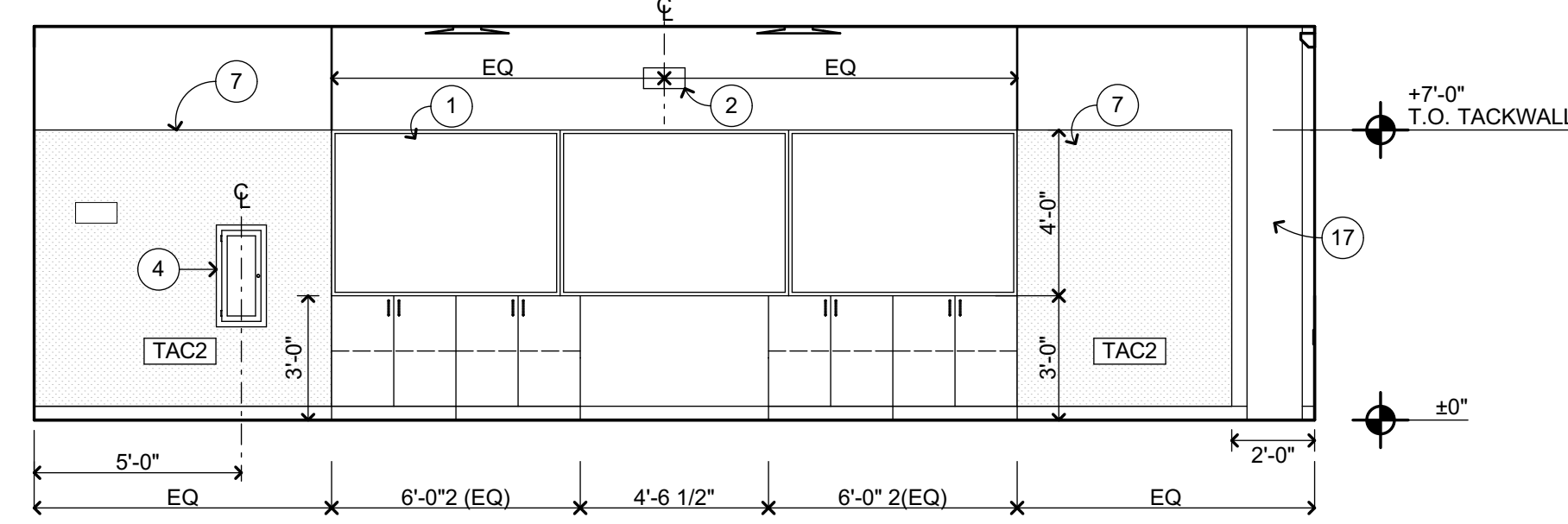
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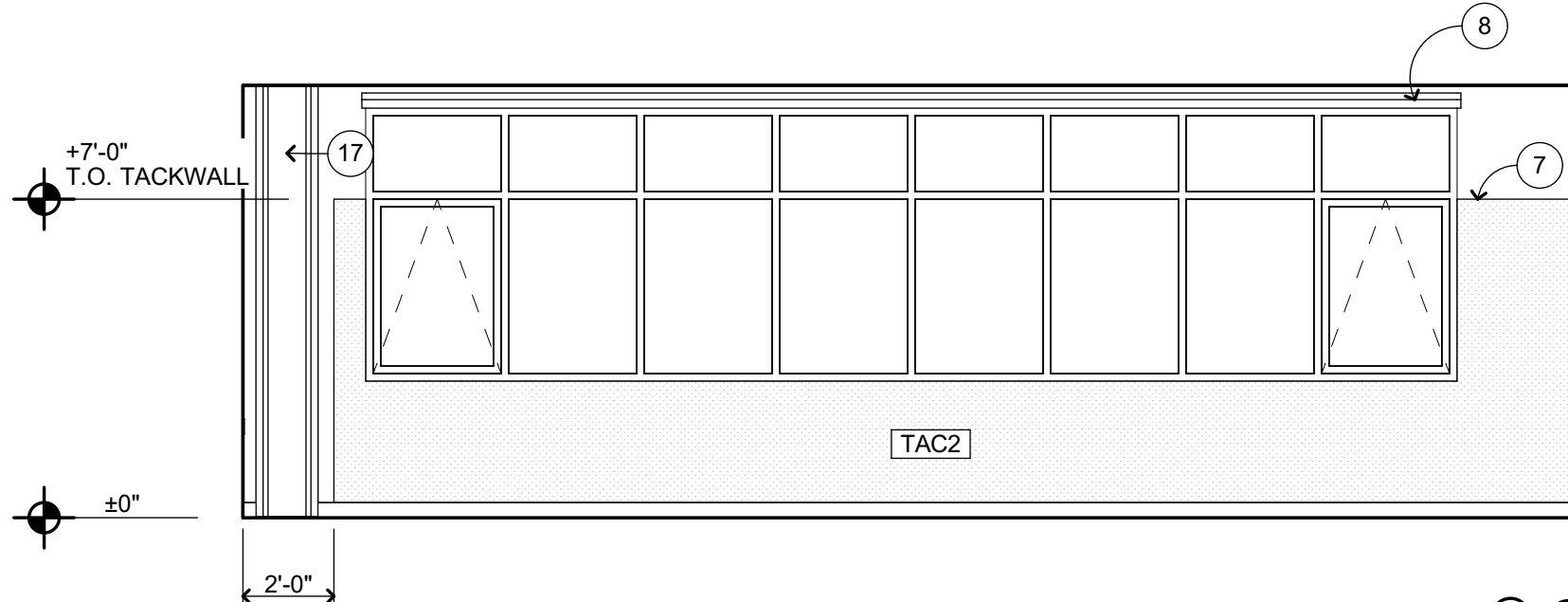


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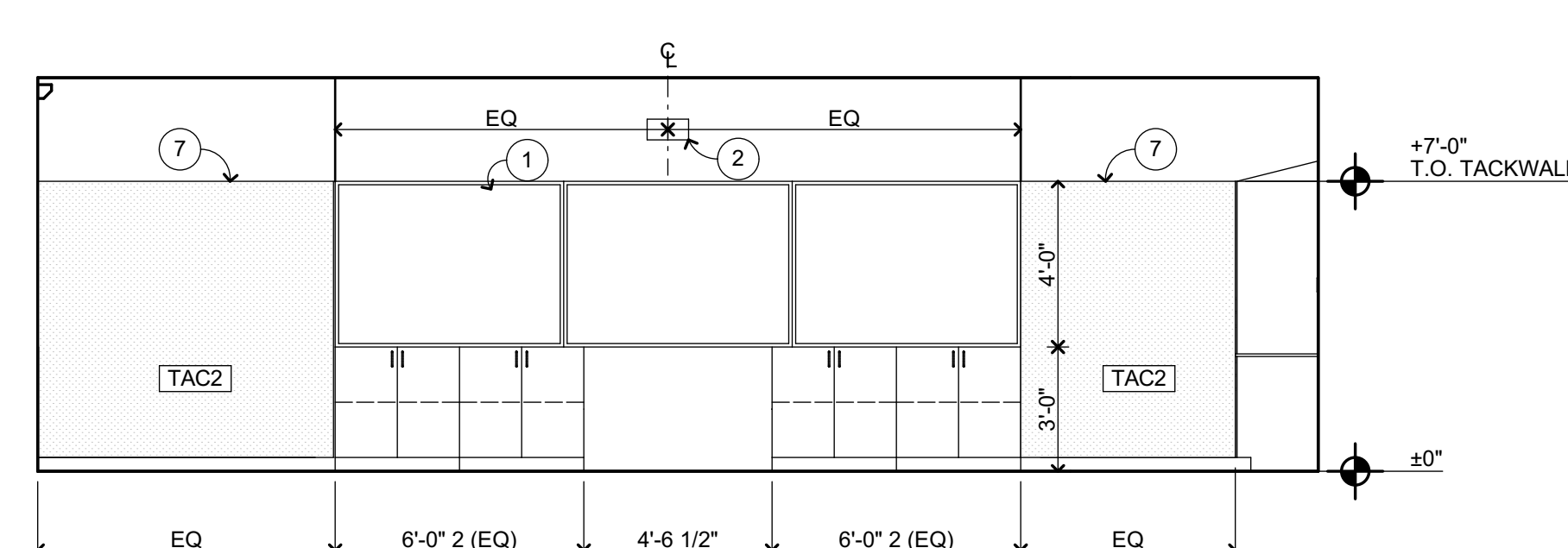


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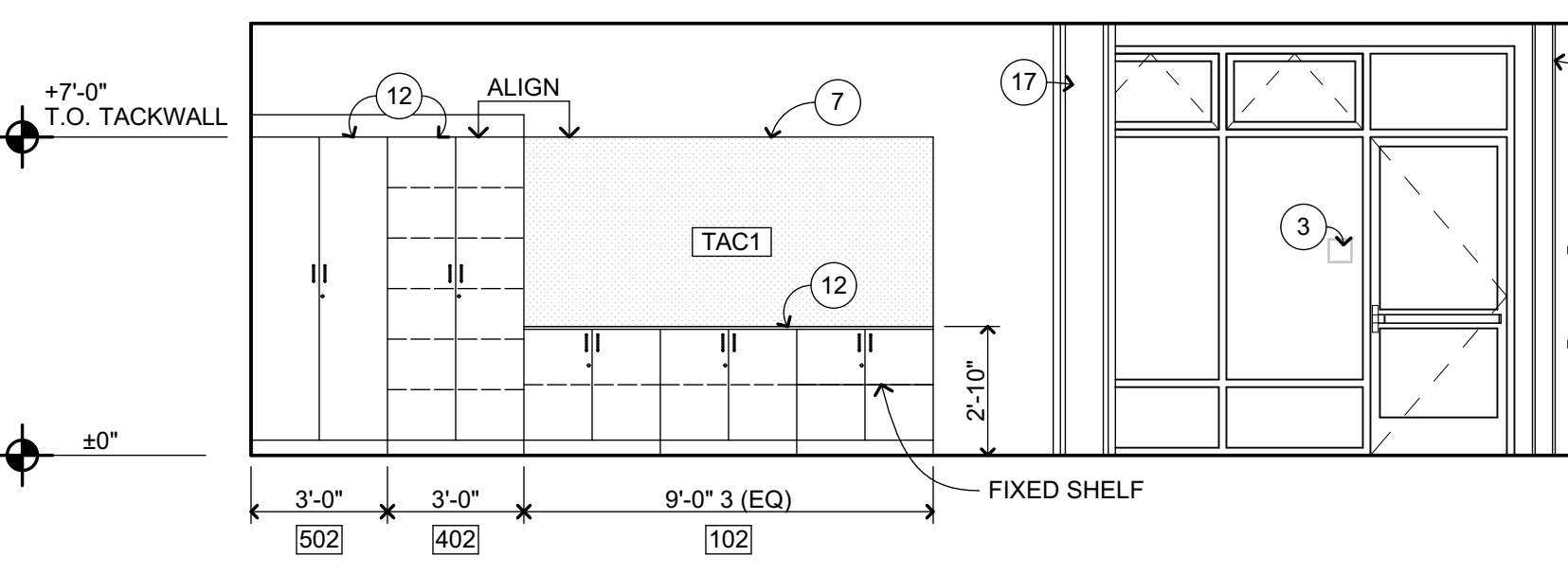
CLASSROOM **A103**  
A-A2.1  
1/4" = 1'-0"



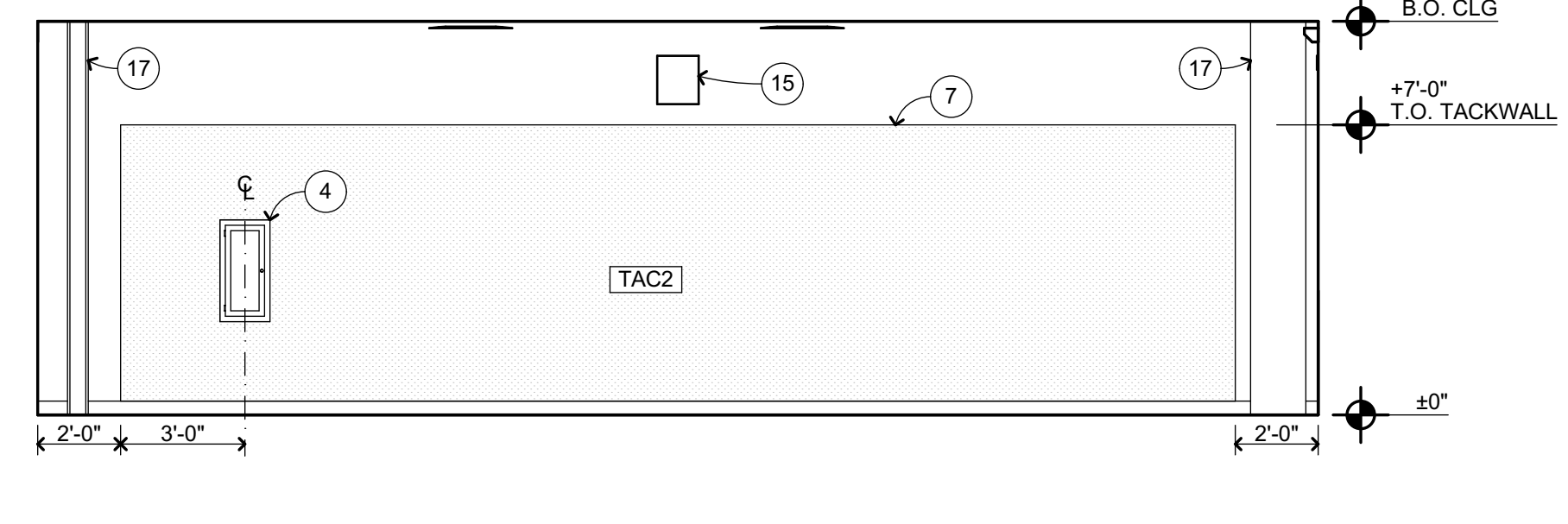
WEST



NORTH



EAST



SOUTH

CLASSROOM **A104**  
A-A2.1  
1/4" = 1'-0"

**INTERIOR ELEVATION KEYNOTES**

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  - WALL MOUNTED SHORT THROW PROJECTOR, OFCI
  - SIGNAGE, SEE 10 A-8.1
  - SEMI-RECESSED FIRE EXTINGUISHER, SEE 23 A-9.3 SIM
  - SOLID FOLDING PARTITION W/ TACKWALL COVERING
  - FOAM WALL PADS
  - TACK-WALL, SEE FIN SCHED
  - MANUAL WINDOW SHADES, SEE 27 A-10.3
  - MECHANICAL ITEM, S.M.D.
  - EYEWASH STATION
  - FUME HOOD
  - CASEWORK, SEE 3 A-10.4
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  - MOP SINK, S.P.D.
  - ROOF ACCESS LADDER, SEE 24 A-9.7 25 A-9.7
  - MOTORIZED WINDOW SHADES, SEE 28 A-10.3 MTL WD
  - TOILET PARTITION, SEE 17 A-10.3 18 A-10.3
  - 4X8 WALL MOUNTED MARKERBOARD, SEE 34 A-10.3
  - ELECTRICAL APPLIANCE, OFCI

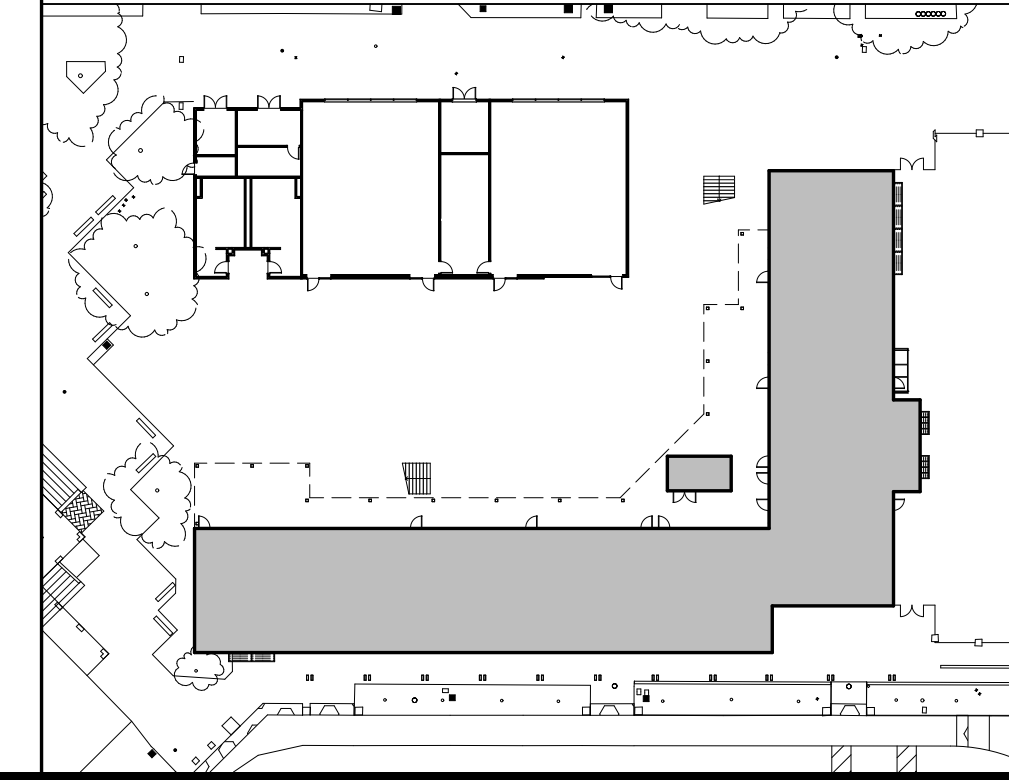
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  - P2 CERAMIC WALL TILE 35 A-10.3
  - WT1
  - WT2
  - TAC1 TACK WALL 9 A-10.3
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  - AP1 ACOUSTIC PANELS
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  - WP1 FRP PANEL
  - WP3 WALL FOAM PAD
  - PLY1 3/4" MDO FIRE RATED PLYWOOD

**KEY PLAN**



QUATTROCCHI KWOK  
ARCHITECTS  
Main:  
636 Fifth Street, Santa Rosa, CA 95404  
East Bay:  
55 Harrison Street, Suite 525,  
Oakland, CA 94607  
(707) 576-0829

LICENSED ARCHITECT  
JIM THEISS  
LICENSE # C22843  
EXP JUNE 30, 2023  
STATE OF CALIFORNIA  
SIGNED: JUNE 24, 2022

LIBERTY  
HIGH SCHOOL

NEW  
CLASSROOM  
BUILDINGS

850 2ND STREET  
BRENTWOOD, CA  
94513

LIBERTY UNION  
HIGH SCHOOL  
DISTRICT

08/19/22 ADDENDUM 1

DSA APP NO. 01-119994  
ARCH PROJECT NO. 1925.00

DRAWN BY: JDS  
DRAWING SCALE: 1/4" = 1'-0"  
PTN: 61721-83 FILE NO: 7-H4

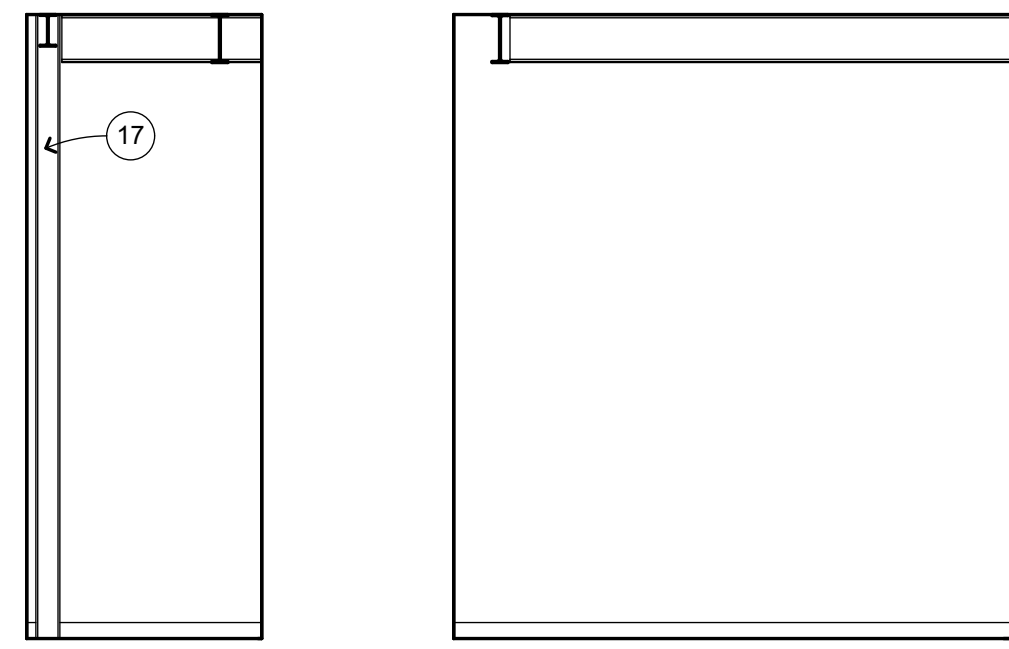
CONSTRUCTION DOCUMENTS  
JUNE 24, 2022

SHEET TITLE

INTERIOR  
ELEVATIONS

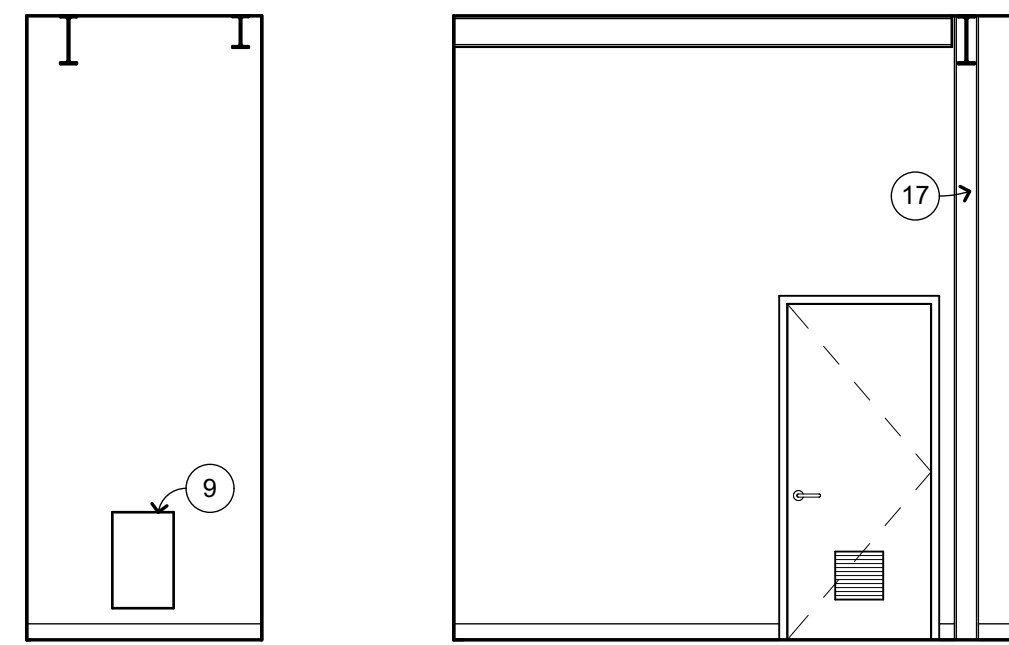
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**A-A7.2**



WEST

NORTH

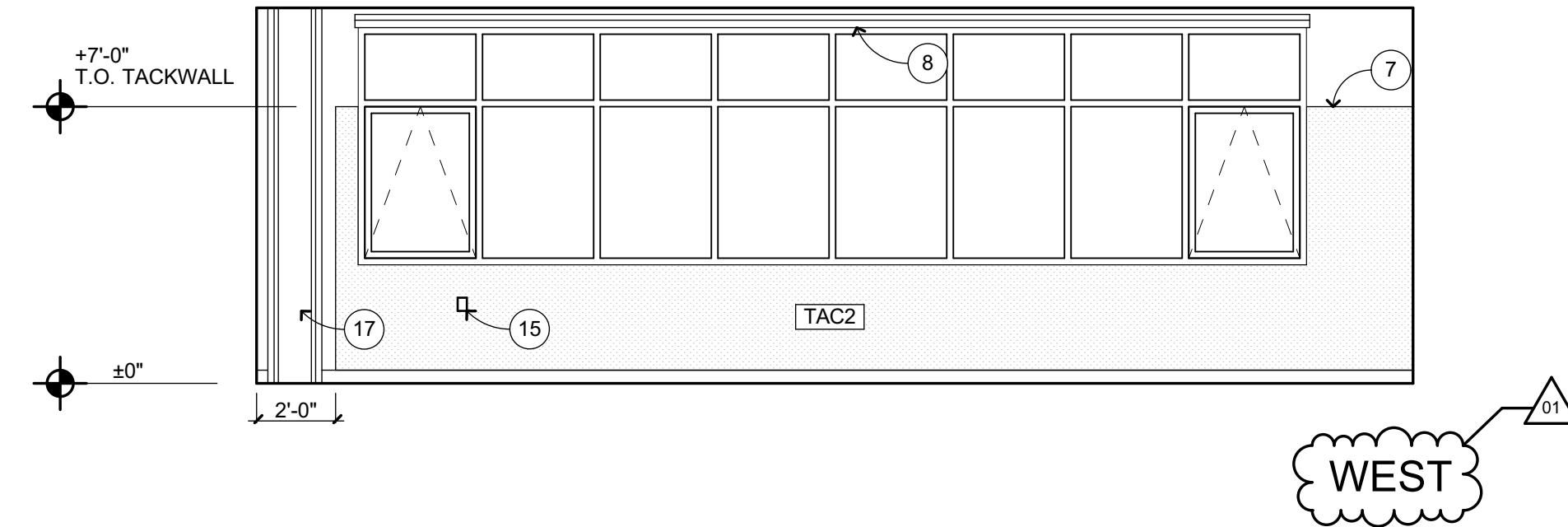


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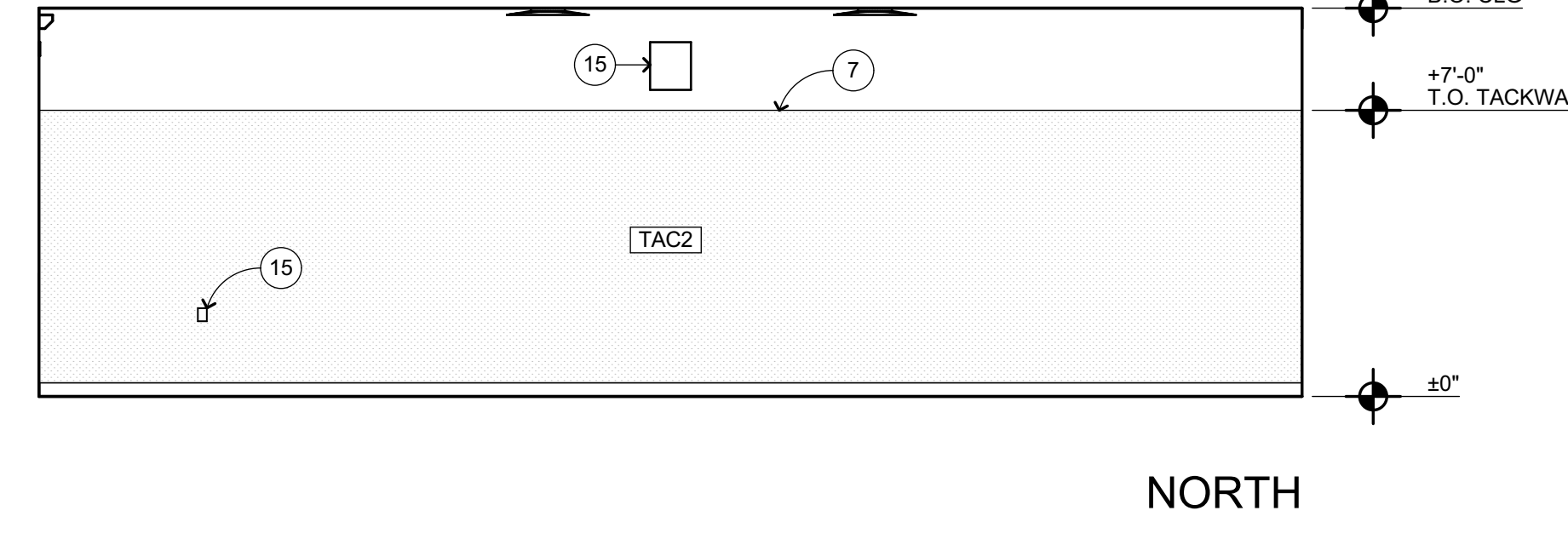
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**FIRE RISER A107**

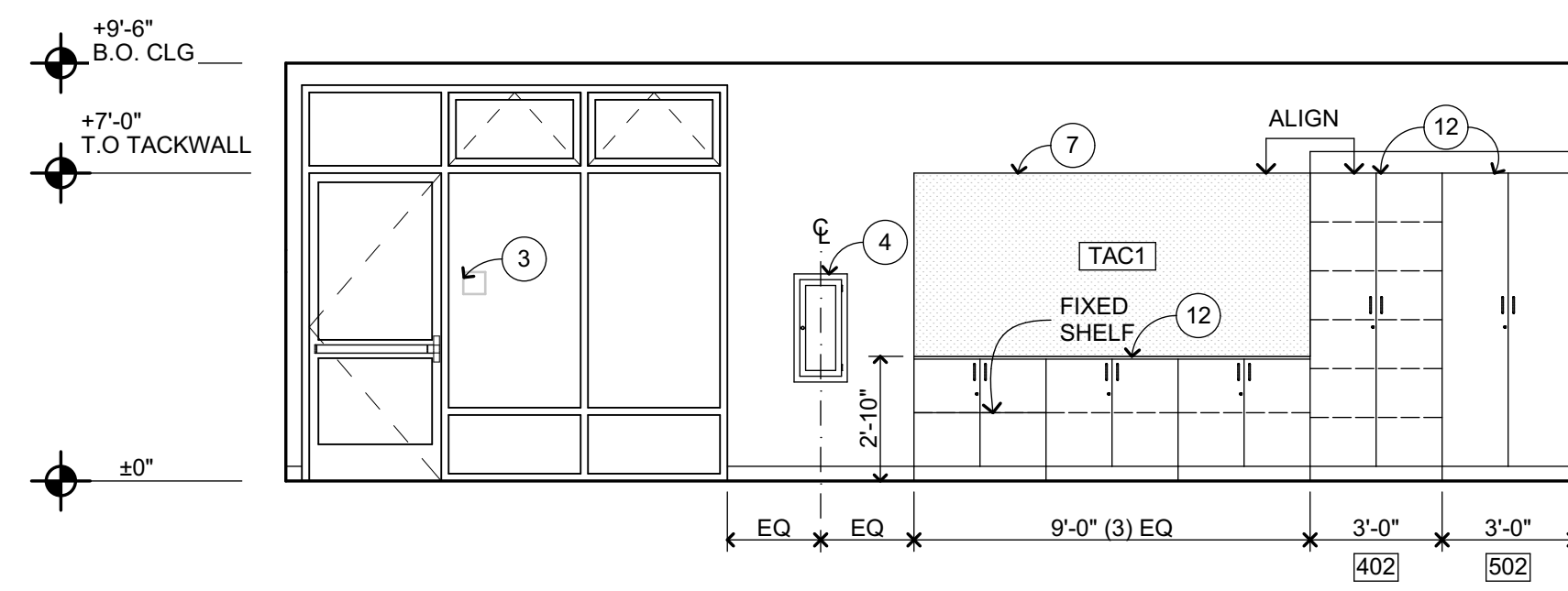
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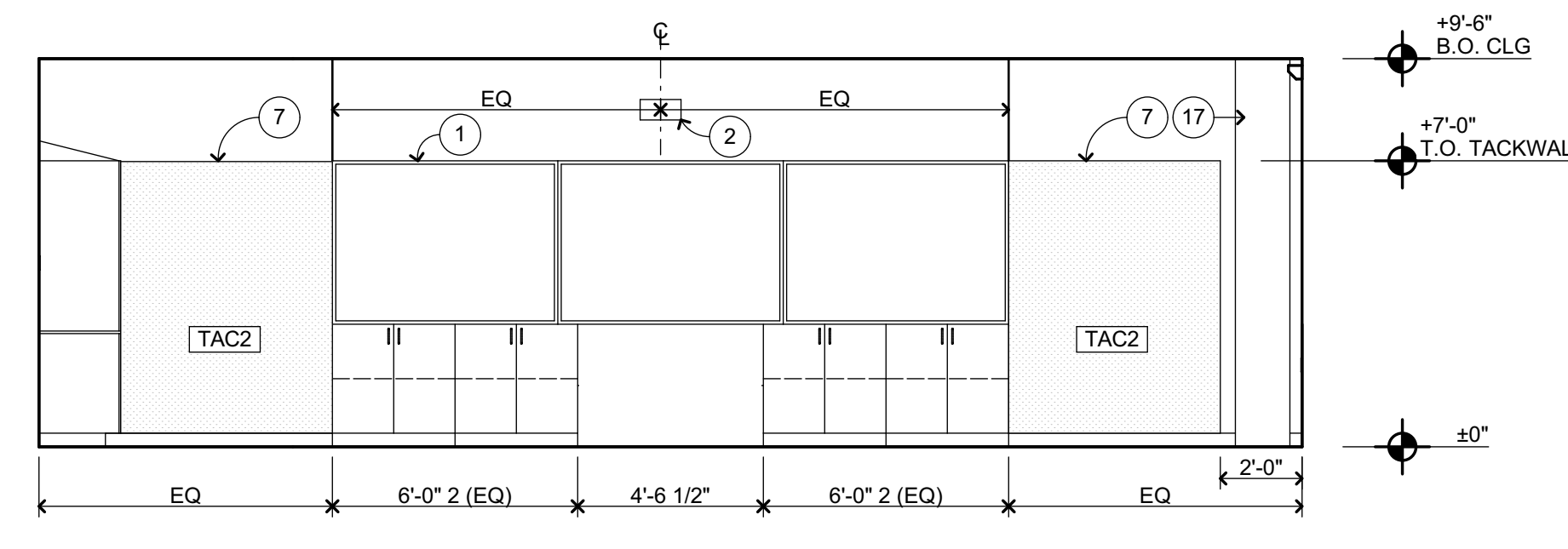
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NORTH



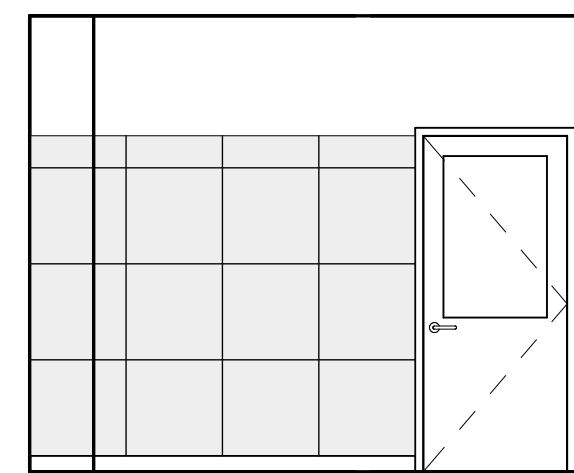
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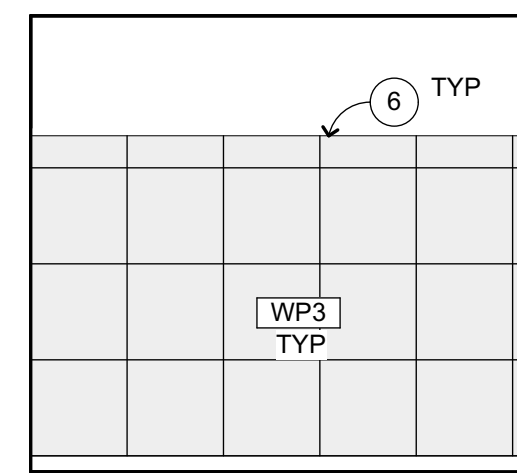
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**CLASSROOM A105**

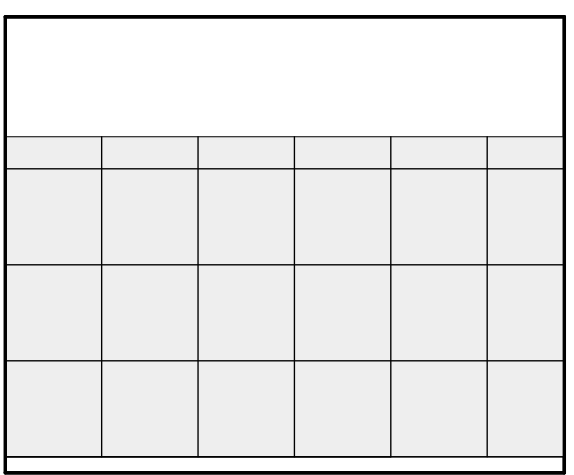
1/4" = 1'-0" A-A2.1



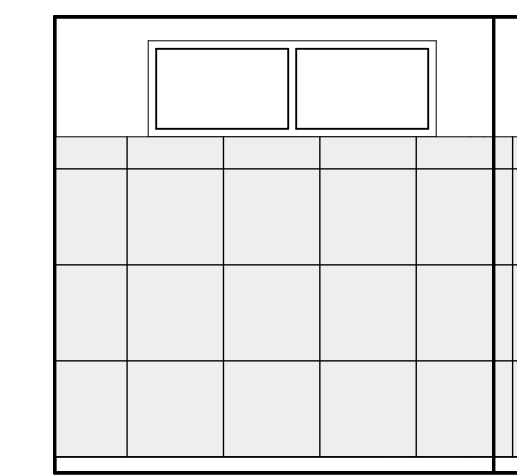
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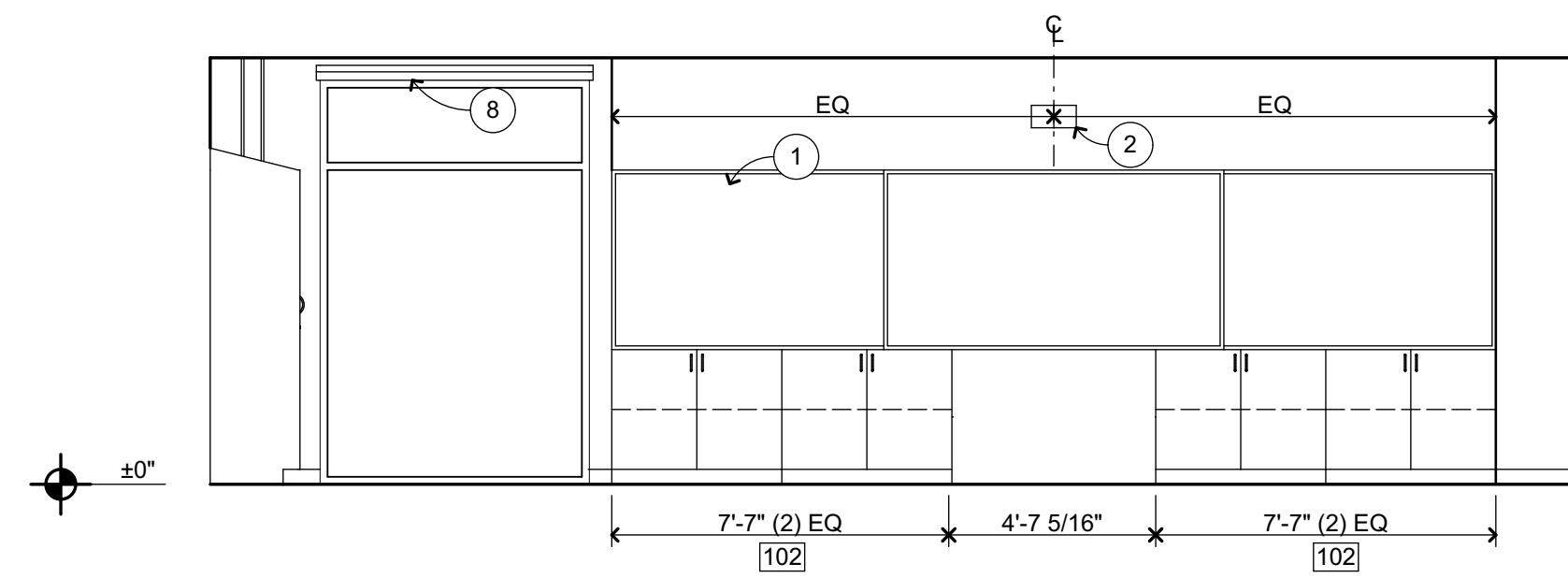
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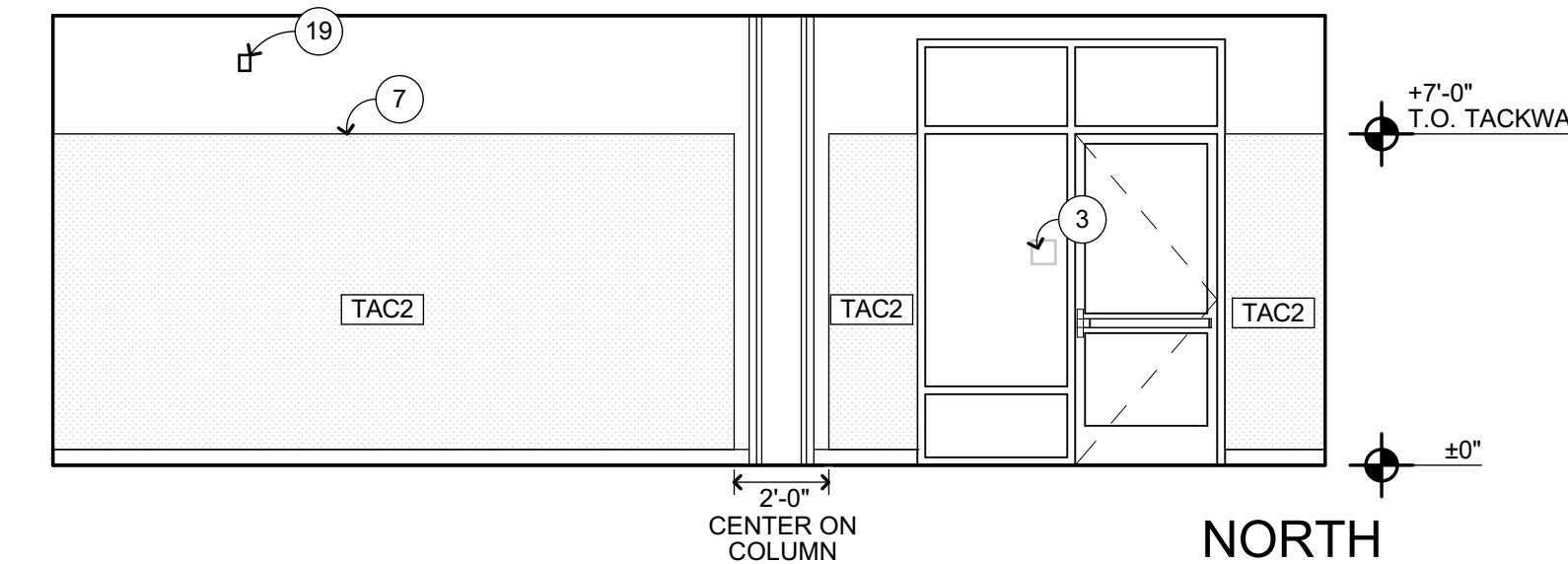
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**SENSORY ROOM A106E**

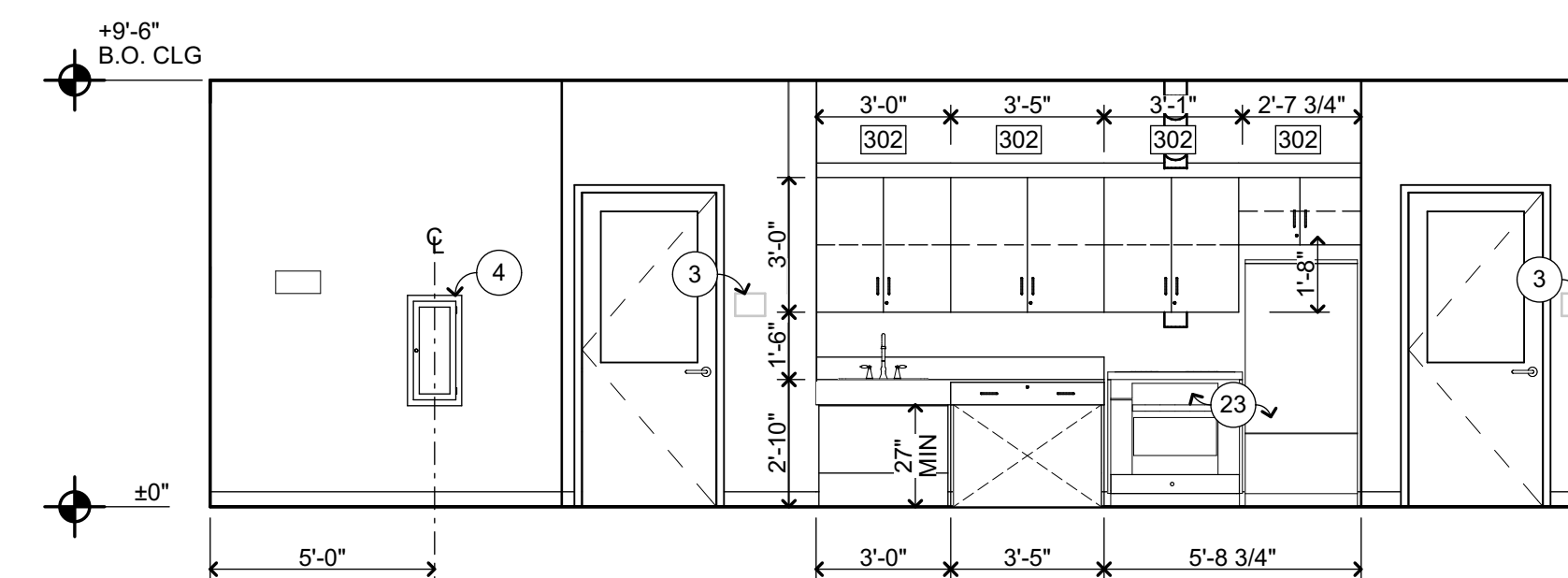
1/4" = 1'-0" A-A2.1



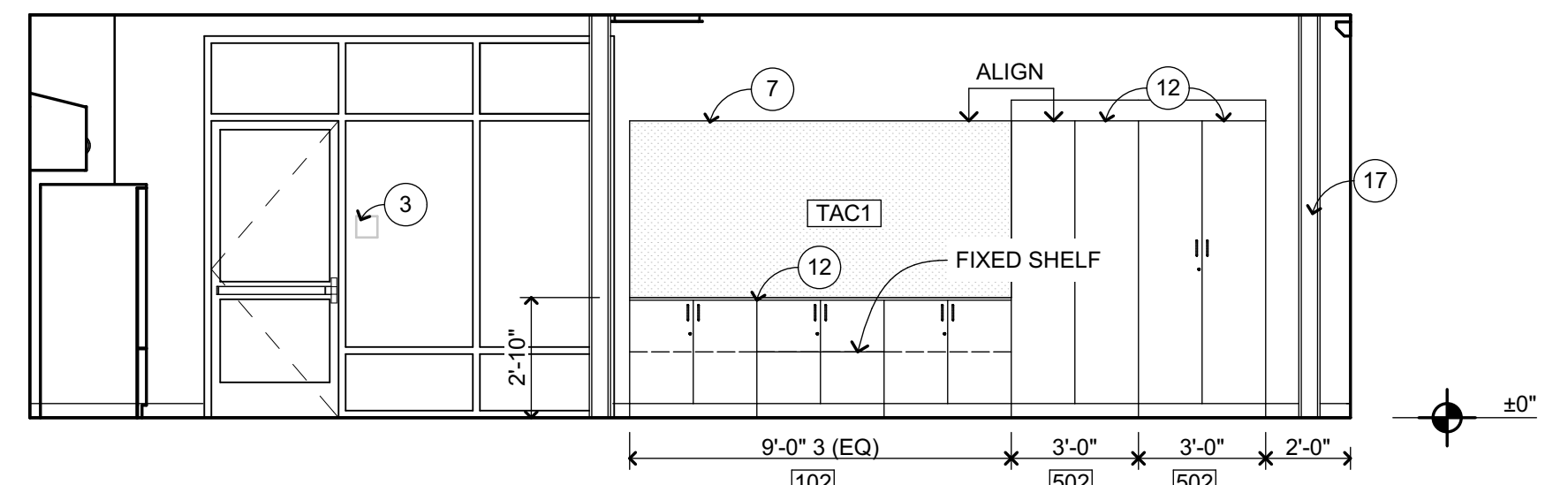
WEST



NORTH



EAST



SOUTH

**SPECIAL DAY CLASSROOM A106**

1/4" = 1'-0" A-A2.1

**INTERIOR ELEVATION KEYNOTES**

NOT ALL KEYNOTES MAY APPLY TO THIS SHEET

- 1 MARKER BOARD CASEWORK
- 2 WALL MOUNTED SHORT THROW PROJECTOR, OFCI
- 3 SIGNAGE, SEE 10 A-8.1
- 4 SEMI-RECESSED FIRE EXTINGUISHER, SEE 23 A-9.3 SIM
- 5 SOLID FOLDING PARTITION W/ TACKWALL COVERING
- 6 FOAM WALL PADS
- 7 TACK-WALL, SEE FIN SCHED
- 8 MANUAL WINDOW SHADES, SEE 27 A-10.3
- 9 MECHANICAL ITEM, S.M.D.
- 10 EYEWASH STATION
- 11 FUME HOOD
- 12 CASEWORK, SEE 3 A-10.4
- 13 OPEN-SHELVING BOOKSHELVES
- 14 FREE STANDING STAINLESS STEEL SINKS
- 15 ELECTRICAL ITEM, S.E.D.
- 16 PLUMBING ITEM, S.P.D.
- 17 STRUCTURAL ITEM, S.S.D.
- 18 MOP SINK, S.P.D.
- 19 ROOF ACCESS LADDER, SEE 24 A-9.7 25 A-9.7
- 20 MOTORIZED WINDOW SHADES, SEE 28 A-10.3 MTL WD
- 21 TOILET PARTITION, SEE 17 A-10.3 18 A-10.3 34 A-10.3
- 22 4X8 WALL MOUNTED MARKERBOARD, SEE 34 A-10.3
- 23 ELECTRICAL APPLIANCE, OFCI

**INTERIOR ELEVATION GENERAL NOTES**

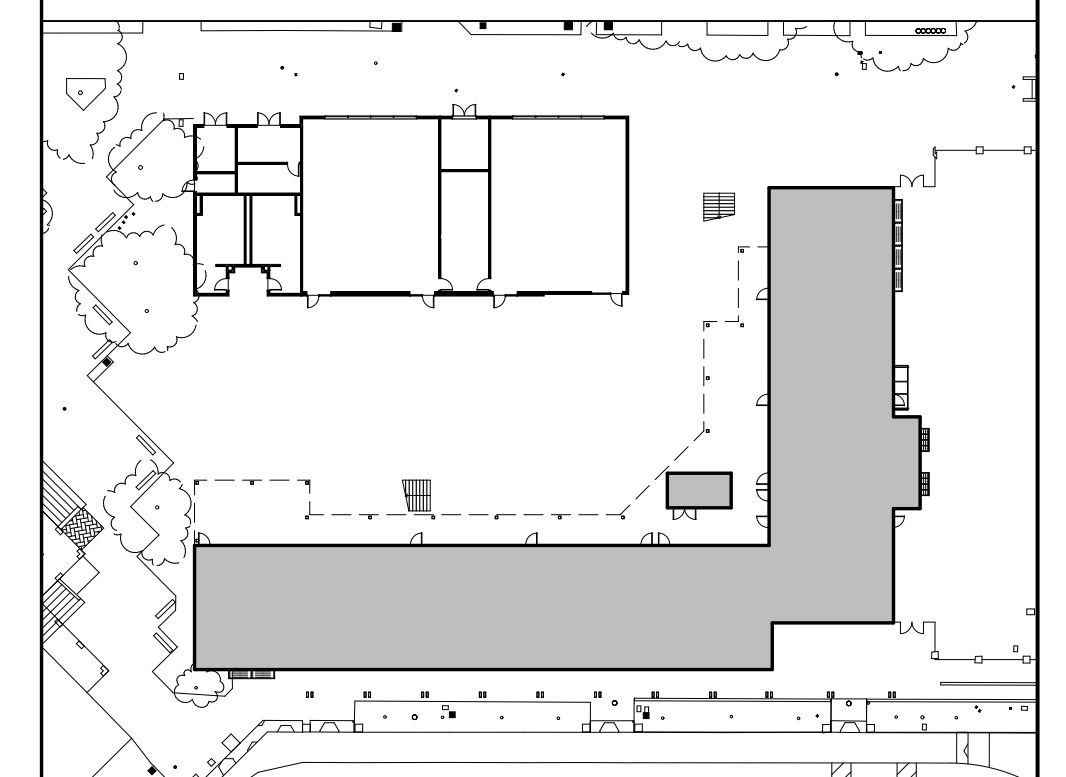
- 1. NOTES AND SYMBOLS ARE TO APPLY AT ALL AREAS OF SIMILAR GRAPHIC REPRESENTATION. SUCH INDICATIONS MAY BE LIMITED TO PROMOTE CLARITY OR AVOID REDUNDANCY. NO LIMITATION OF APPLICATION SHALL BE CONSTRUED WITHOUT SPECIFIC NOTATION.
- 2. REFER TO MECHANICAL DRAWINGS FOR REGISTERS AND VENTS NOT OTHERWISE SHOWN.
- 3. REFER TO ELECTRICAL DRAWINGS FOR HORNS, SPEAKERS, PULL STATIONS AND OTHER FEATURES NOT OTHERWISE SHOWN.
- 4. TYPICAL MOUNTING HEIGHTS OF ACCESSIBLE ELEMENTS AT ACCESSIBLE FIXTURES SEE 5 A-10.3
- 5. FLUSH VALVE HANDLES SHALL BE LOCATED AT THE WIDE SIDE OF ACCESSIBLE STALL.
- 6. FLOORING & BASE SHALL EXTEND UNDER ACCESSIBLE SINK/LAVATORY BASE CABINETS TO THE WALL. WATER SUPPLY AND DRAINPIPES ACCESSIBLE UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
- 7. PROVIDE SOLID BLOCKING FOR CABINET, ACCESSORY, OR EQUIPMENT MOUNTING 1 A-10.3 21 MTL FRMG A-10.3

**WALL FINISH CODES**

FOR OVERALL WALL AND BASE FINISHES, SEE FINISH PLANS. FOR MATERIAL INFORMATION, SEE FINISH SCHEDULE. SEE SHEET A-8.3 FOR PAINT FINISHES. SEE SEC. 09 9113 (EXTERIOR) & 09 9123 (INTERIOR). ALL GYP BD TO BE TYPE 'X'.

- P1 PAINT
- P2 CERAMIC WALL TILE 35 A-10.3
- WT1
- WT2
- TAC1 TACK WALL 9 A-10.3
- TAC2
- AP1 ACOUSTIC PANELS
- MP1 METAL PERFORATED WALL PANELS
- WP1 FRP PANEL
- WP3 WALL FOAM PAD
- PLY1 3/4" MDO FIRE RATED PLYWOOD

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
 Main: 636 Fifth Street, Santa Rosa, CA 95404  
 East Bay: 55 Harrison Street, Suite 525, Oakland, CA 94607  
 (707) 576-0829

**JIM THEISS**  
 LICENSE # C22843  
 EXP JUNE 30, 2023  
 STATE OF CALIFORNIA  
 SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

850 2ND STREET  
 BRENTWOOD, CA  
 94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

08/19/22 ADDENDUM 1

DSA APP NO. 01-119994

ARCH PROJECT NO. 1925.00

DRAWN BY: JDS

DRAWING SCALE: 1/4" = 1'-0"

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

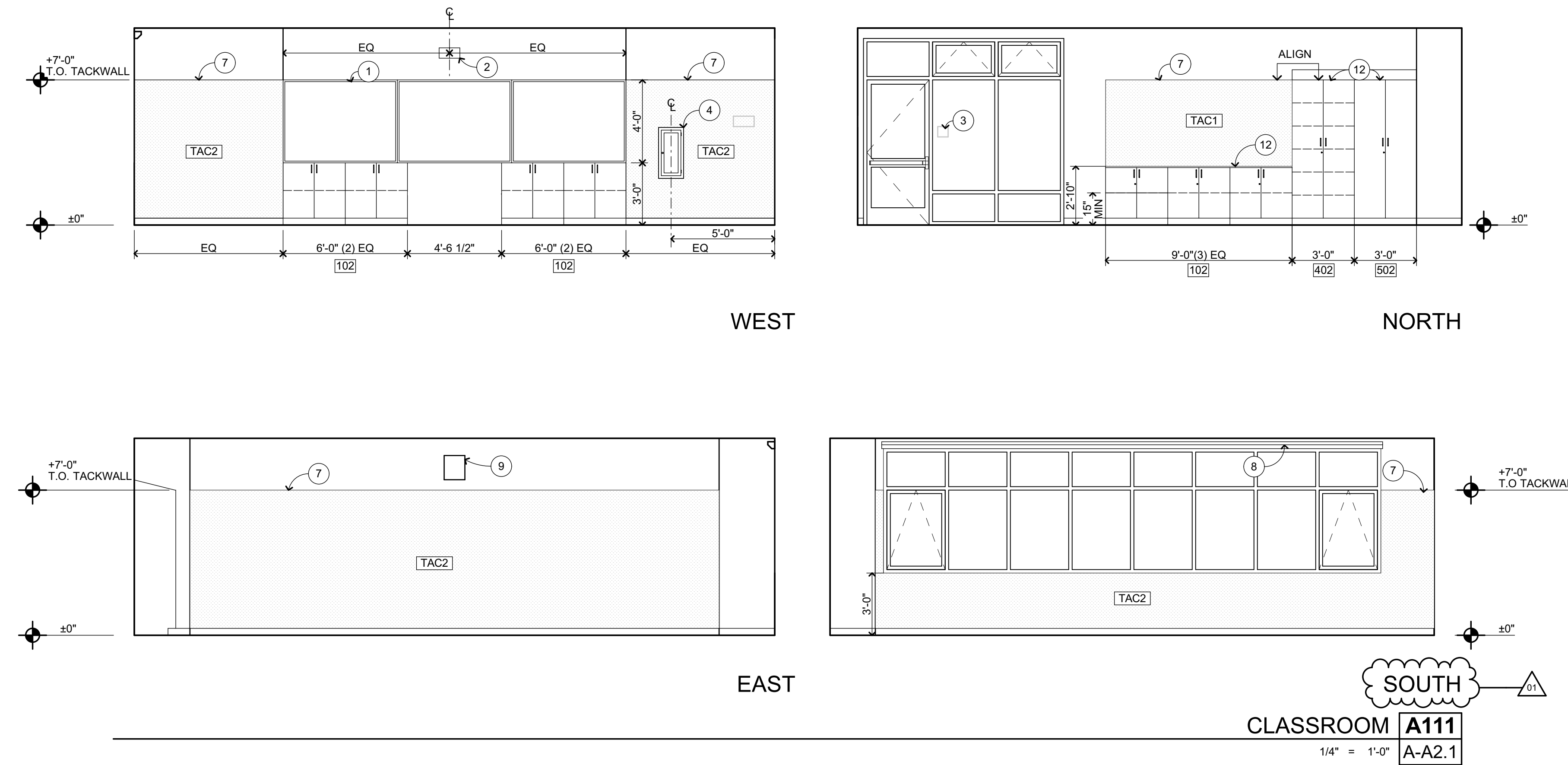
JUNE 24, 2022

**INTERIOR ELEVATIONS**

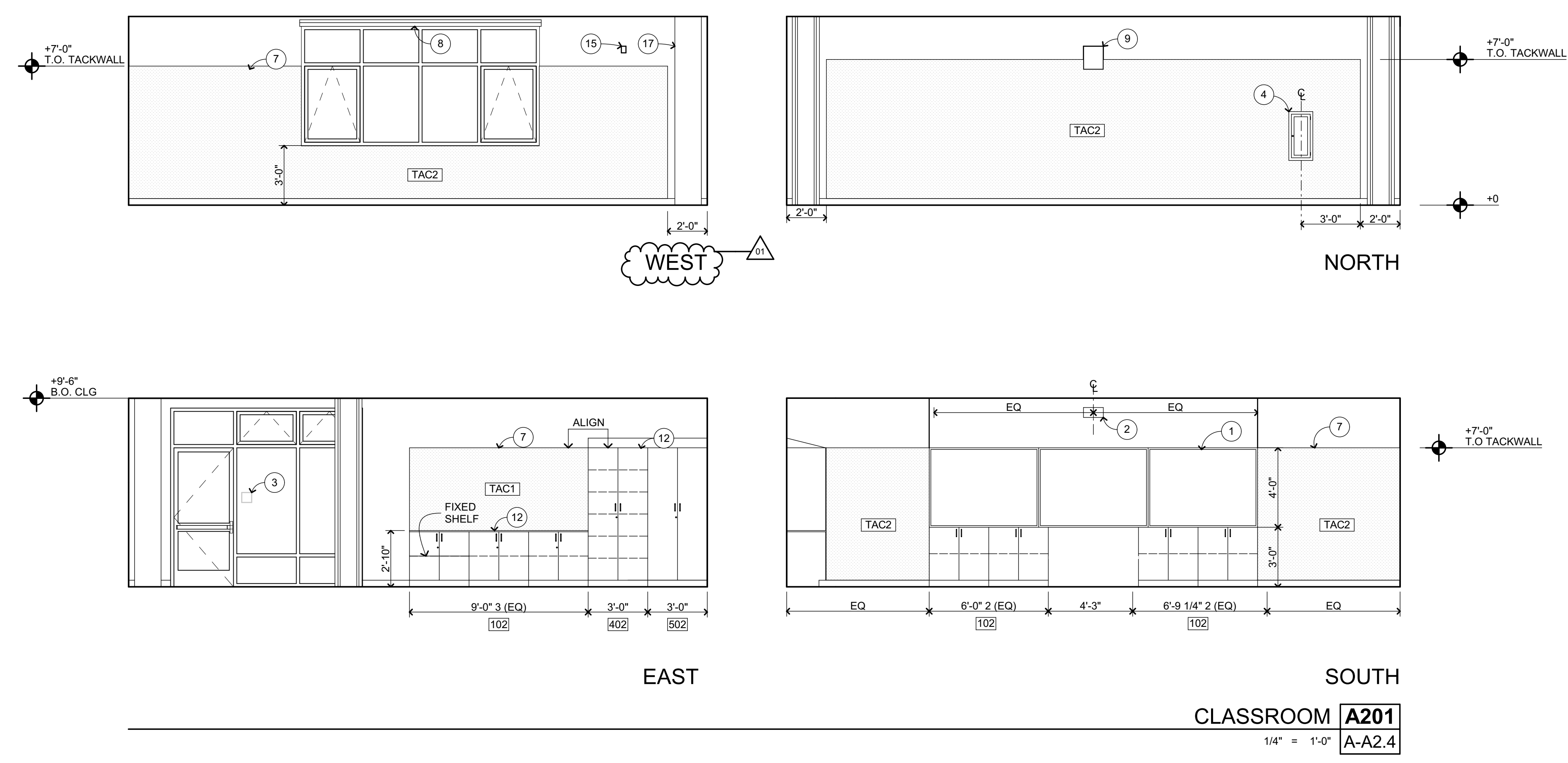
SHEET NUMBER

**A-A7.3**

P:\1925.00 - Liberty HS New Classrooms\_LUHSD\Drawings\05-CA11925.00 Liberty HS Classroom\_BLDG A.pln/8/23/2022 9:31 AM



**CLASSROOM A111**  
1/4" = 1'-0"  
A-A2.1



**CLASSROOM A201**  
1/4" = 1'-0"  
A-A2.4

**INTERIOR ELEVATION KEYNOTES**

- NOT ALL KEYNOTES MAY APPLY TO THIS SHEET
- 1 MARKER BOARD CASEWORK
  - 2 WALL MOUNTED SHORT THROW PROJECTOR, OFCI
  - 3 SIGNAGE, SEE 10 A-8.1
  - 4 SEMI-RECESSED FIRE EXTINGUISHER, SEE 23 A-9.3 SIM
  - 5 SOLID FOLDING PARTITION W/ TACKWALL COVERING
  - 6 FOAM WALL PADS
  - 7 TACK-WALL, SEE FIN SCHED
  - 8 MANUAL WINDOW SHADES, SEE 27 A-10.3
  - 9 MECHANICAL ITEM, S.M.D.
  - 10 EYEWASH STATION
  - 11 FUME HOOD
  - 12 CASEWORK, SEE 3 A-10.4
  - 13 OPEN-SHELVING BOOKSHELVES
  - 14 FREE STANDING STAINLESS STEEL SINKS
  - 15 ELECTRICAL ITEM, S.E.D.
  - 16 PLUMBING ITEM, S.P.D.
  - 17 STRUCTURAL ITEM, S.S.D.
  - 18 MOP SINK, S.P.D.
  - 19 ROOF ACCESS LADDER, SEE 24 A-9.7 25 A-9.7
  - 20 MOTORIZED WINDOW SHADES, SEE 28 A-10.3 MTL WD
  - 21 TOILET PARTITION, SEE 17 A-10.3 18 A-10.3
  - 22 4X8 WALL MOUNTED MARKERBOARD, SEE 34 A-10.3
  - 23 ELECTRICAL APPLIANCE, OFCI

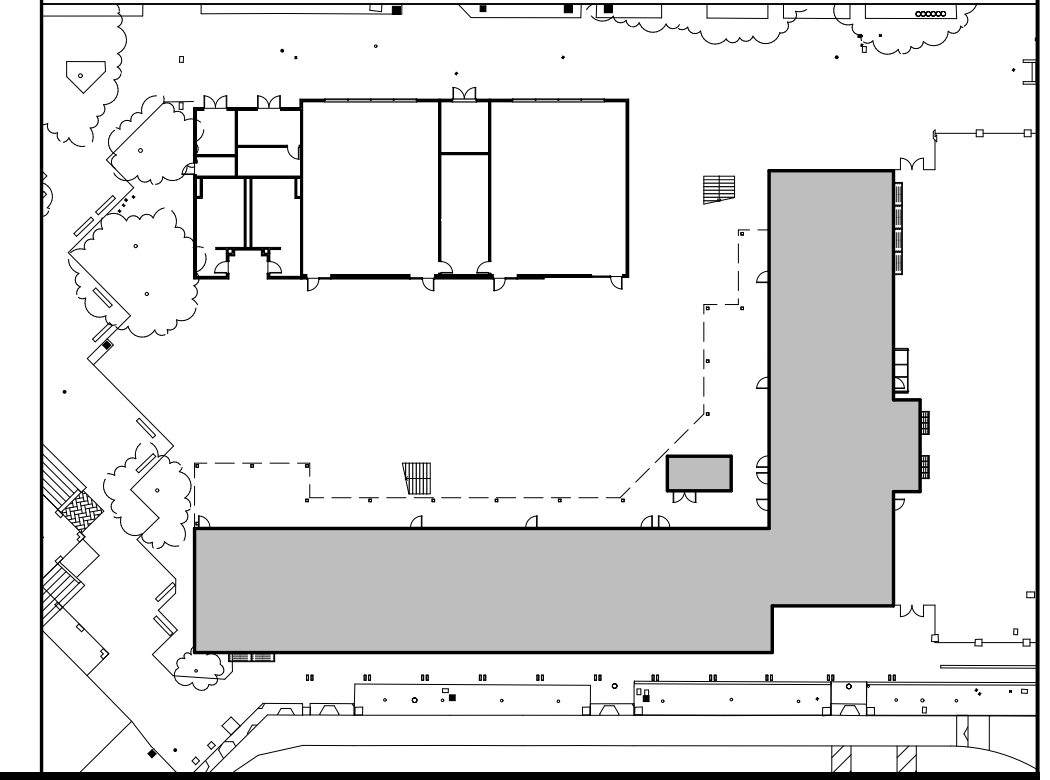
**INTERIOR ELEVATION GENERAL NOTES**

1. NOTES AND SYMBOLS ARE TO APPLY AT ALL AREAS OF SIMILAR GRAPHIC REPRESENTATION. SUCH INDICATIONS MAY BE LIMITED TO PROMOTE CLARITY OR AVOID REDUNDANCY. NO LIMITATION OF APPLICATION SHALL BE CONSTRUED WITHOUT SPECIFIC NOTATION.
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3. REFER TO ELECTRICAL DRAWINGS FOR HORNS, SPEAKERS, PULL STATIONS AND OTHER FEATURES NOT OTHERWISE SHOWN.
4. TYPICAL MOUNTING HEIGHTS OF ACCESSIBLE ELEMENTS AT ACCESSIBLE FIXTURES SEE 5 A-10.3
5. FLUSH VALVE HANDLES SHALL BE LOCATED AT THE WIDE SIDE OF ACCESSIBLE STALL.
6. FLOORING & BASE SHALL EXTEND UNDER ACCESSIBLE SINK/LAVATORY BASE CABINETS TO THE WALL. WATER SUPPLY AND DRAINPIPES ACCESSIBLE UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
7. PROVIDE SOLID BLOCKING FOR CABINET, ACCESSORY, OR EQUIPMENT MOUNTING 1 A-10.3 21 MTL FRMG A-10.3

**WALL FINISH CODES**

- FOR OVERALL WALL AND BASE FINISHES, SEE FINISH PLANS. FOR MATERIAL INFORMATION, SEE FINISH SCHEDULE. SEE SHEET A-8.3 FOR PAINT FINISHES SEE SEC. 09 9113 (EXTERIOR) & 09 9123 (INTERIOR). ALL GYP BD TO BE TYPE 'X'.
- P1 PAINT
  - P2 CERAMIC WALL TILE 35 A-10.3
  - WT1 TACK WALL 9 A-10.3
  - WT2 TACK WALL 9 A-10.3
  - TAC1 TACK WALL 9 A-10.3
  - TAC2 TACK WALL 9 A-10.3
  - AP1 ACOUSTIC PANELS
  - MP1 METAL PERFORATED WALL PANELS
  - WP1 FRP PANEL
  - WP3 WALL FOAM PAD
  - PLY1 3/4" MDO FIRE RATED PLYWOOD

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
Main: 636 Fifth Street, Santa Rosa, CA 95404  
East Bay: 55 Harrison Street, Suite 525, Oakland, CA 94607  
(707) 576-0829

**JIM THEISS**  
LICENSE # C22643  
EXP JUNE 30, 2023  
STATE OF CALIFORNIA  
SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

850 2ND STREET  
BRENTWOOD, CA  
94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

08/19/22 ADDENDUM 1

DSA APP NO. 01-119994

ARCH PROJECT NO. 1925.00

DRAWN BY: JDS

DRAWING SCALE: 1/4" = 1'-0"

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

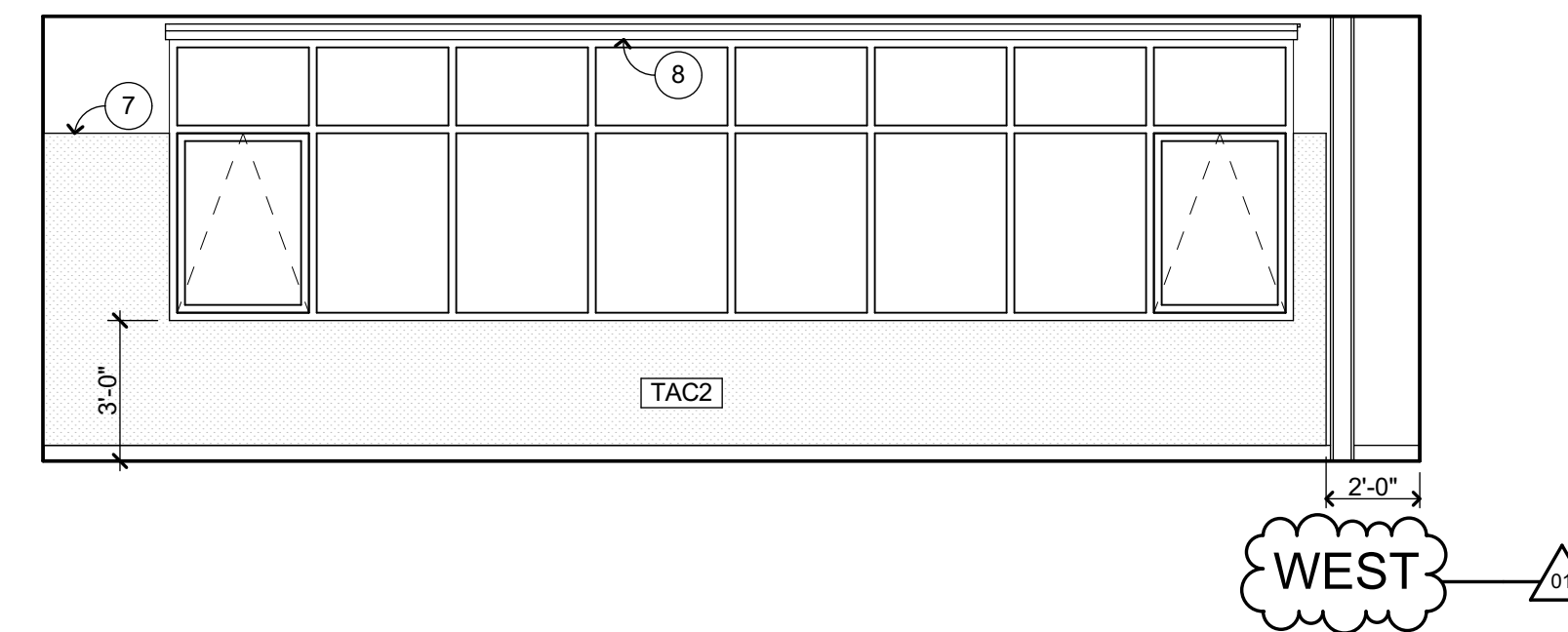
JUNE 24, 2022

**INTERIOR ELEVATIONS**

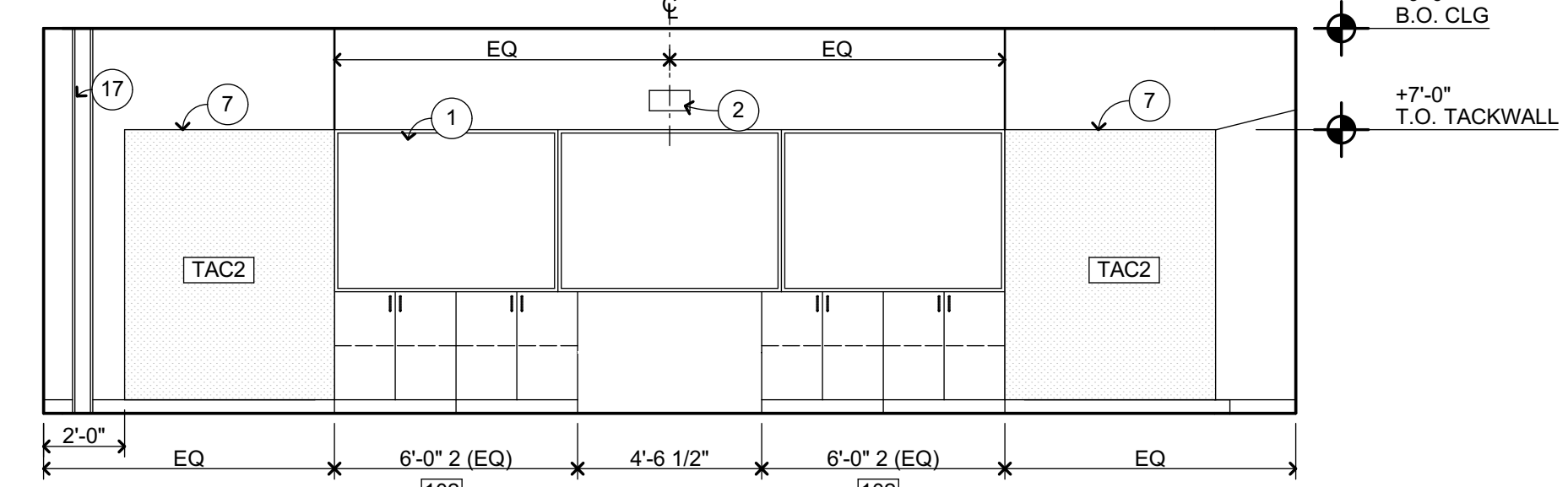
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**A-A7.5**

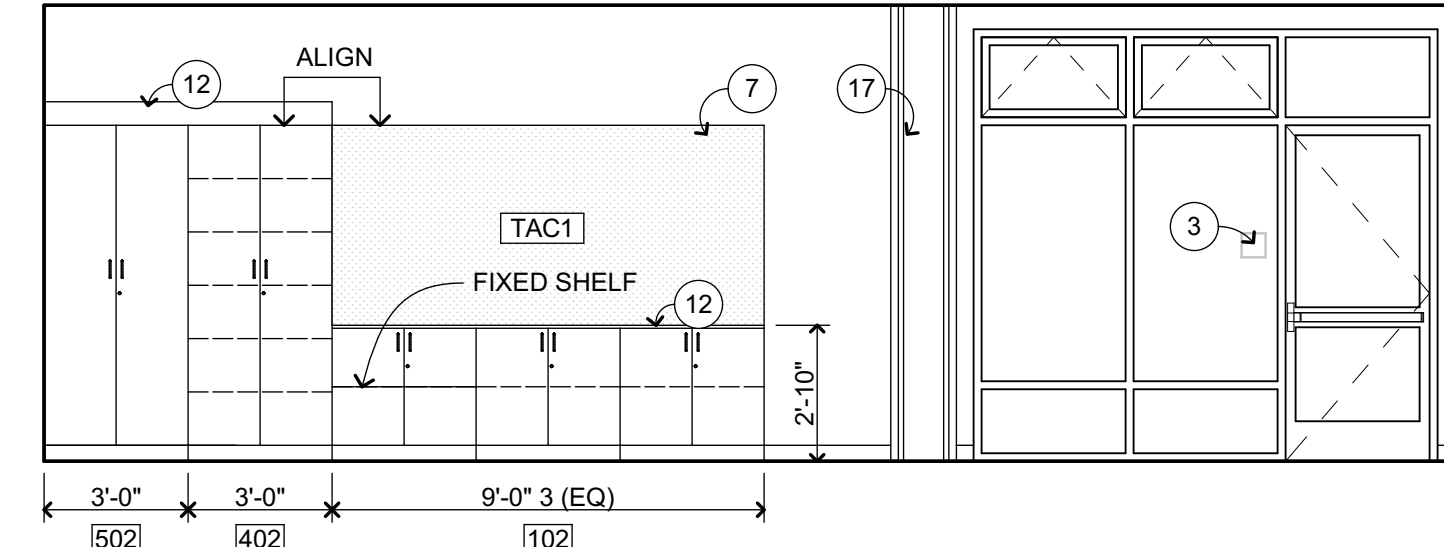
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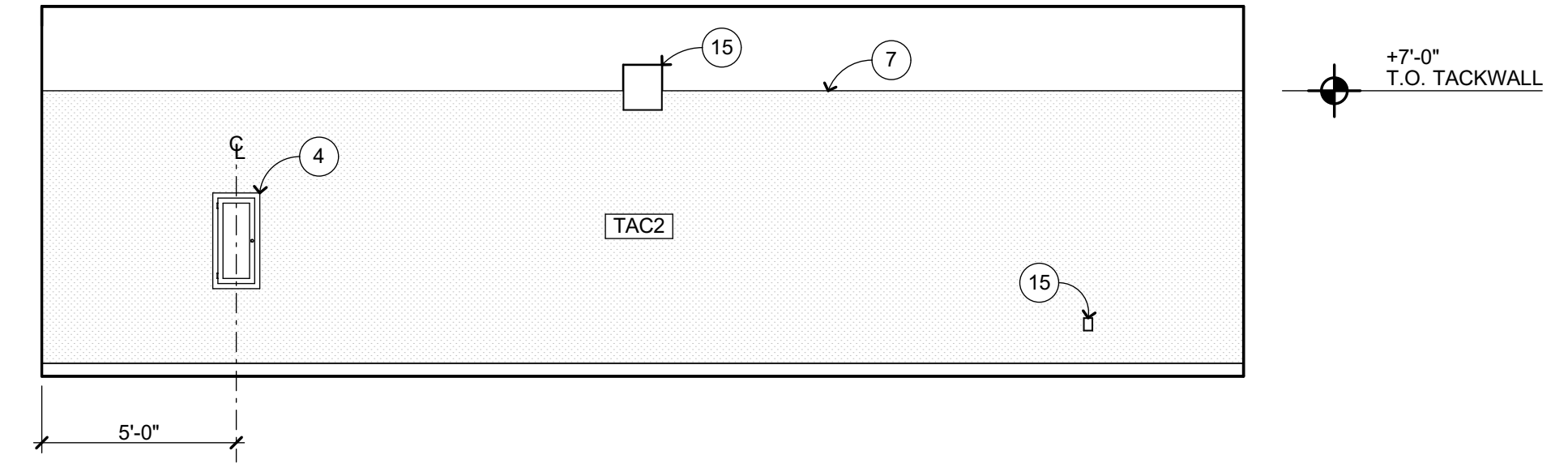
WEST



NORTH

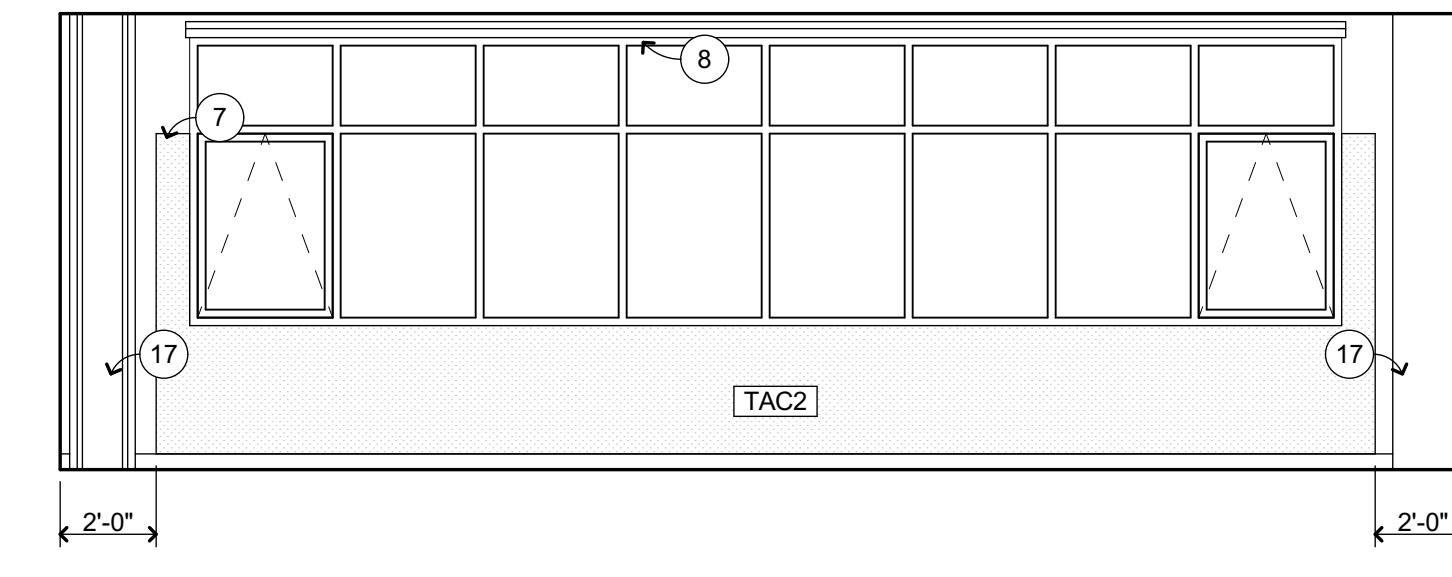


EAST

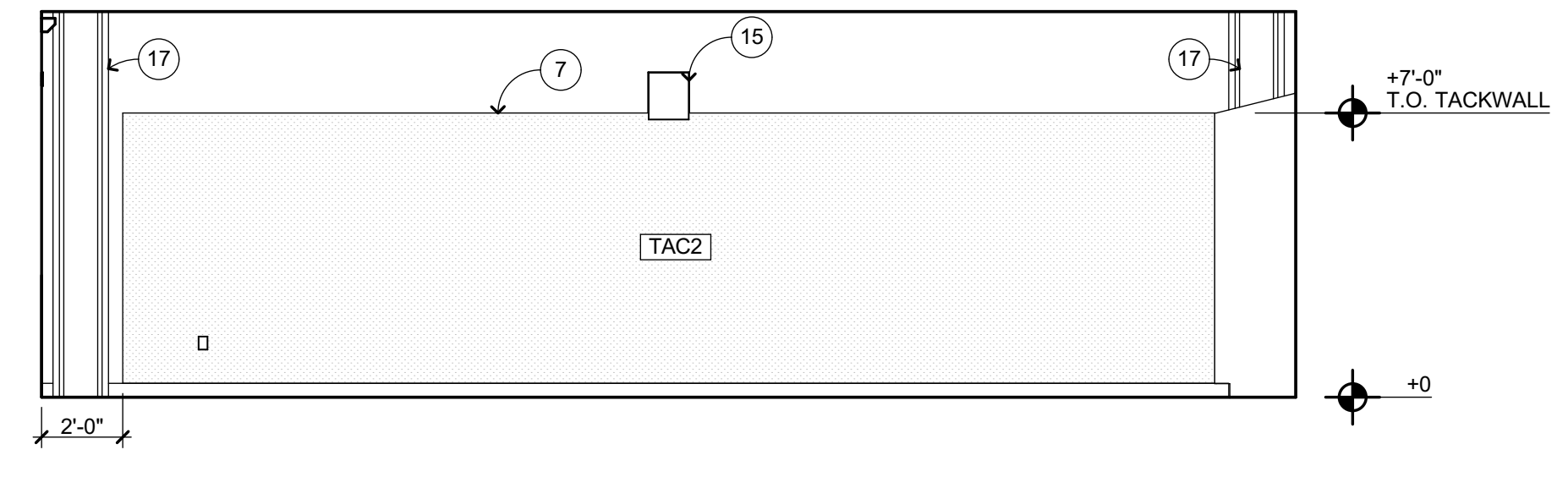


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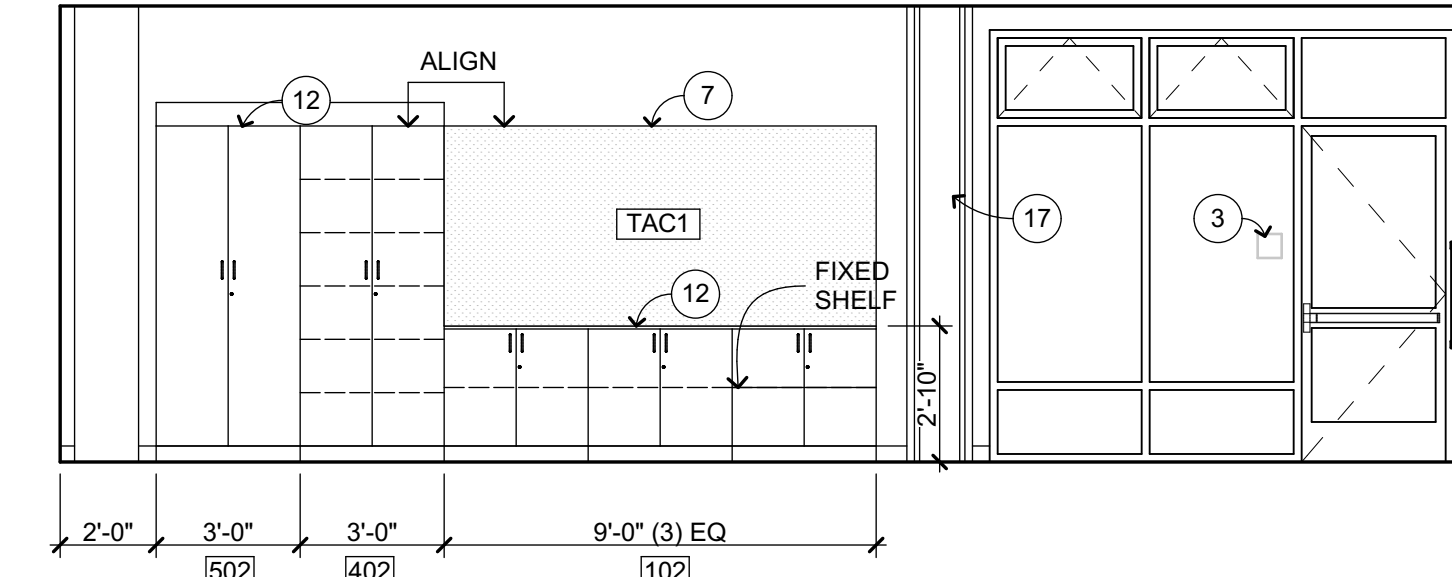
CLASSROOM **A202**  
1/4" = 1'-0" **A-A2.4**



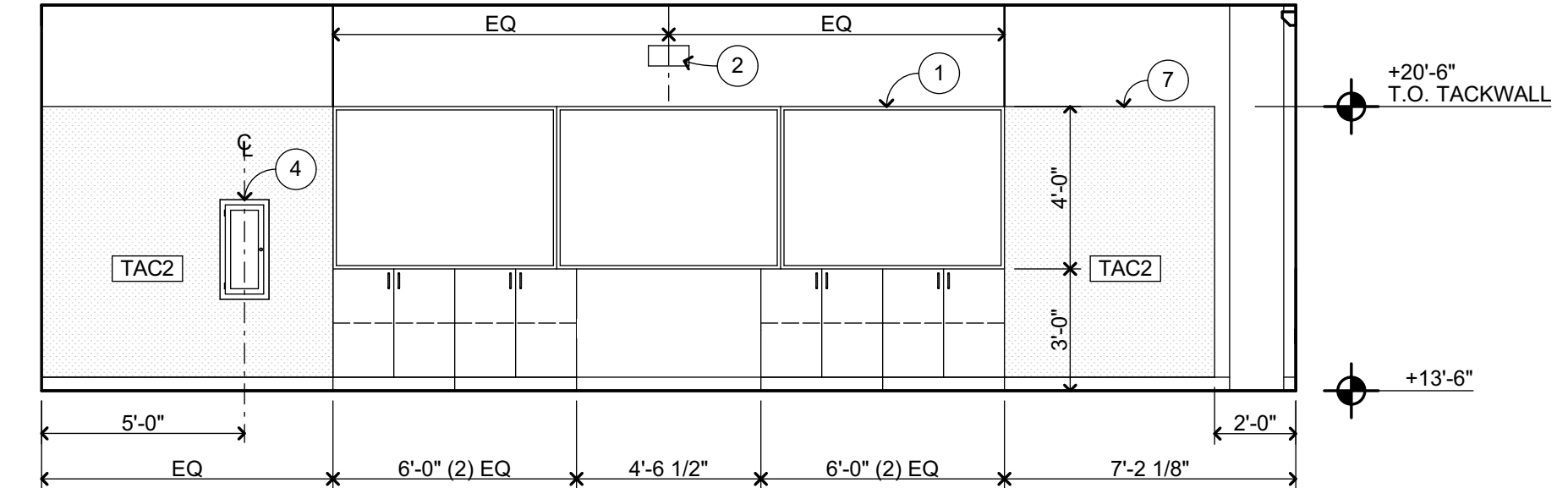
WEST



NORTH



EAST



SOUTH

CLASSROOM **A203**  
1/4" = 1'-0" **A-A2.4**

**INTERIOR ELEVATION KEYNOTES**

- NOT ALL KEYNOTES MAY APPLY TO THIS SHEET
- 1 MARKER BOARD CASEWORK
  - 2 WALL MOUNTED SHORT THROW PROJECTOR, OFCI
  - 3 SIGNAGE, SEE **10** A-8.1
  - 4 SEMI-RECESSED FIRE EXTINGUISHER, SEE **23** A-9.3 SIM
  - 5 SOLID FOLDING PARTITION W/ TACKWALL COVERING
  - 6 FOAM WALL PADS
  - 7 TACK-WALL, SEE FIN SCHED
  - 8 MANUAL WINDOW SHADES, SEE **27** A-10.3
  - 9 MECHANICAL ITEM, S.M.D.
  - 10 EYEWASH STATION
  - 11 FUME HOOD
  - 12 CASEWORK, SEE **3** A-10.4
  - 13 OPEN-SHELVING BOOKSHELVES
  - 14 FREE STANDING STAINLESS STEEL SINKS
  - 15 ELECTRICAL ITEM, S.E.D.
  - 16 PLUMBING ITEM, S.P.D.
  - 17 STRUCTURAL ITEM, S.S.D.
  - 18 MOP SINK, S.P.D.
  - 19 ROOF ACCESS LADDER, SEE **24** A-9.7 **25** A-9.7
  - 20 MOTORIZED WINDOW SHADES, SEE **28** A-10.3 MTL WD
  - 21 TOILET PARTITION, SEE **17** A-10.3 **18** A-10.3
  - 22 4X8 WALL MOUNTED MARKERBOARD, SEE **34** A-10.3
  - 23 ELECTRICAL APPLIANCE, OFCI

**INTERIOR ELEVATION GENERAL NOTES**

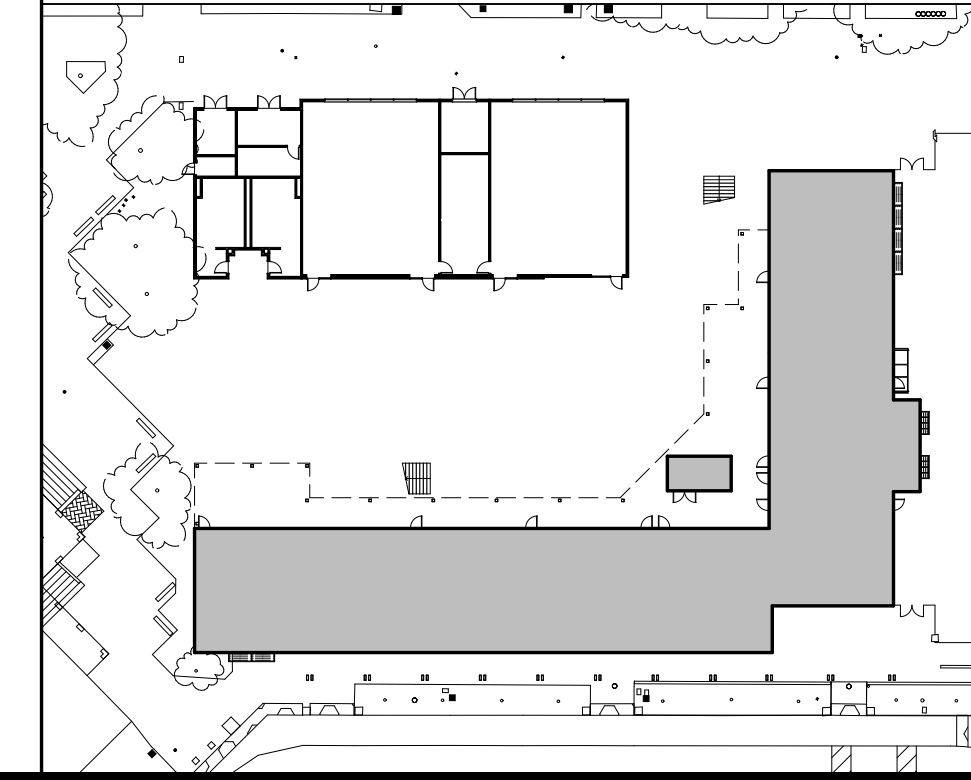
1. NOTES AND SYMBOLS ARE TO APPLY AT ALL AREAS OF SIMILAR GRAPHIC REPRESENTATION. SUCH INDICATIONS MAY BE LIMITED TO PROMOTE CLARITY OR AVOID REDUNDANCY. NO LIMITATION OF APPLICATION SHALL BE CONSTRUED WITHOUT SPECIFIC NOTATION OTHERWISE SHOWN.
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7. PROVIDE SOLID BLOCKING FOR CABINET, ACCESSORY, OR EQUIPMENT MOUNTING **1** A-10.3 **21** MTL FRMG A-10.3

**WALL FINISH CODES**

FOR OVERALL WALL AND BASE FINISHES, SEE FINISH PLANS. FOR MATERIAL INFORMATION, SEE FINISH SCHEDULE SEE SHEET A-8.3. FOR PAINT FINISHES SEE SEC. 09 9113 (EXTERIOR) & 09 9122 (INTERIOR). ALL GYP BD TO BE TYPE 'X'.

P1	PAINT
P2	CERAMIC WALL TILE <b>35</b> A-10.3
WT1	CERAMIC WALL TILE
WT2	
TAC1	TACK WALL <b>9</b> A-10.3
TAC2	
AP1	ACOUSTIC PANELS
MP1	METAL PERFORATED WALL PANELS
WP1	FRP PANEL
WP3	WALL FOAM PAD
PLY1	3/4" MDO FIRE RATED PLYWOOD

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
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**East Bay:**  
 55 Harrison Street, Suite 525, Oakland, CA 94607 (707) 576-0829

**JIM THEISS**  
 LICENSE # C22643  
 EXP JUNE 30, 2023  
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 SIGNED: JUNE 24, 2022

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**NEW CLASSROOM BUILDINGS**

850 2ND STREET BRENTWOOD, CA 94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

08/19/22 ADDENDUM 1

DSA APP NO. 01-119994

ARCH PROJECT NO. 1925.00

DRAWN BY: JDS

DRAWING SCALE: 1/4" = 1'-0"

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

JUNE 24, 2022

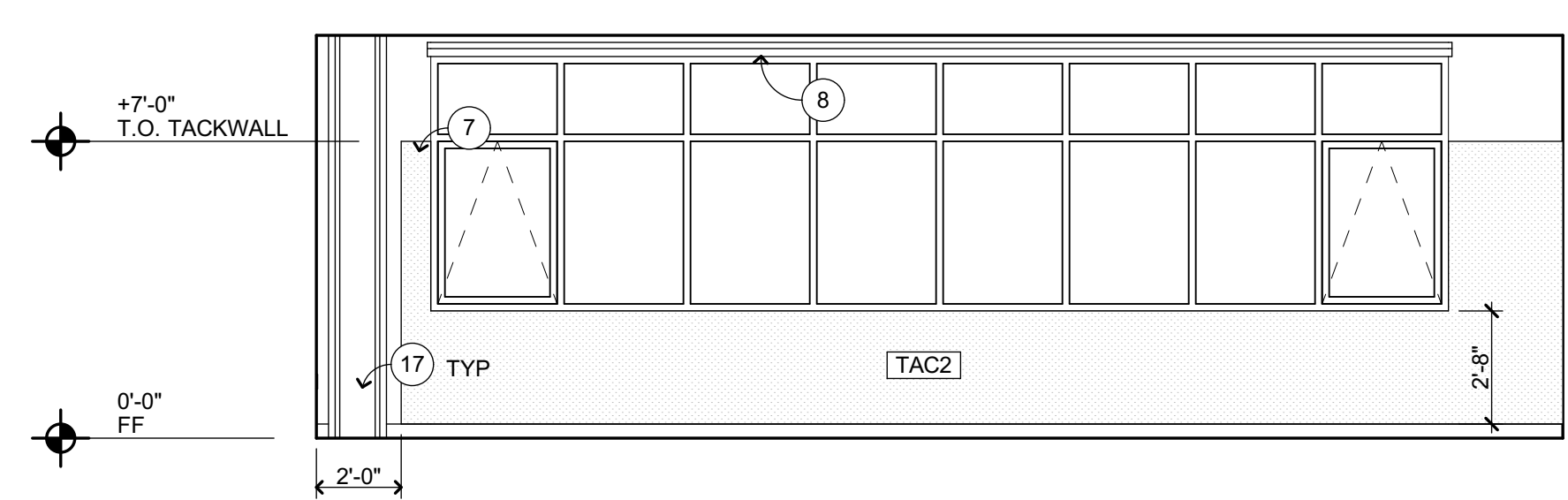
SHEET TITLE

**INTERIOR ELEVATIONS**

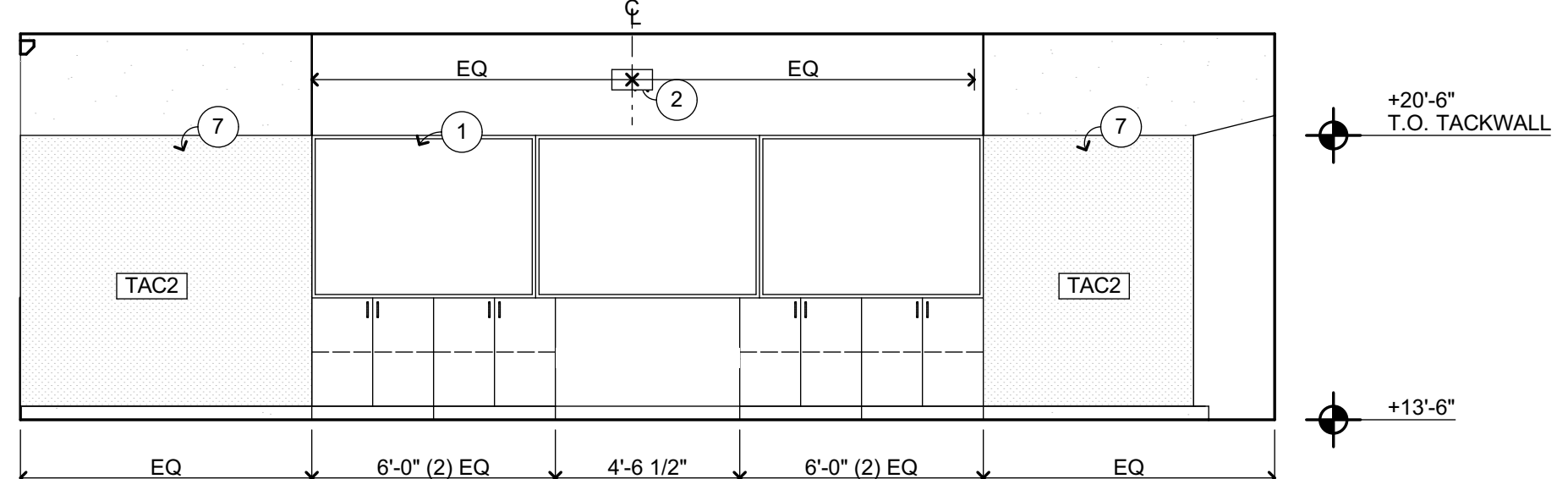
SHEET NUMBER

**A-A7.6**

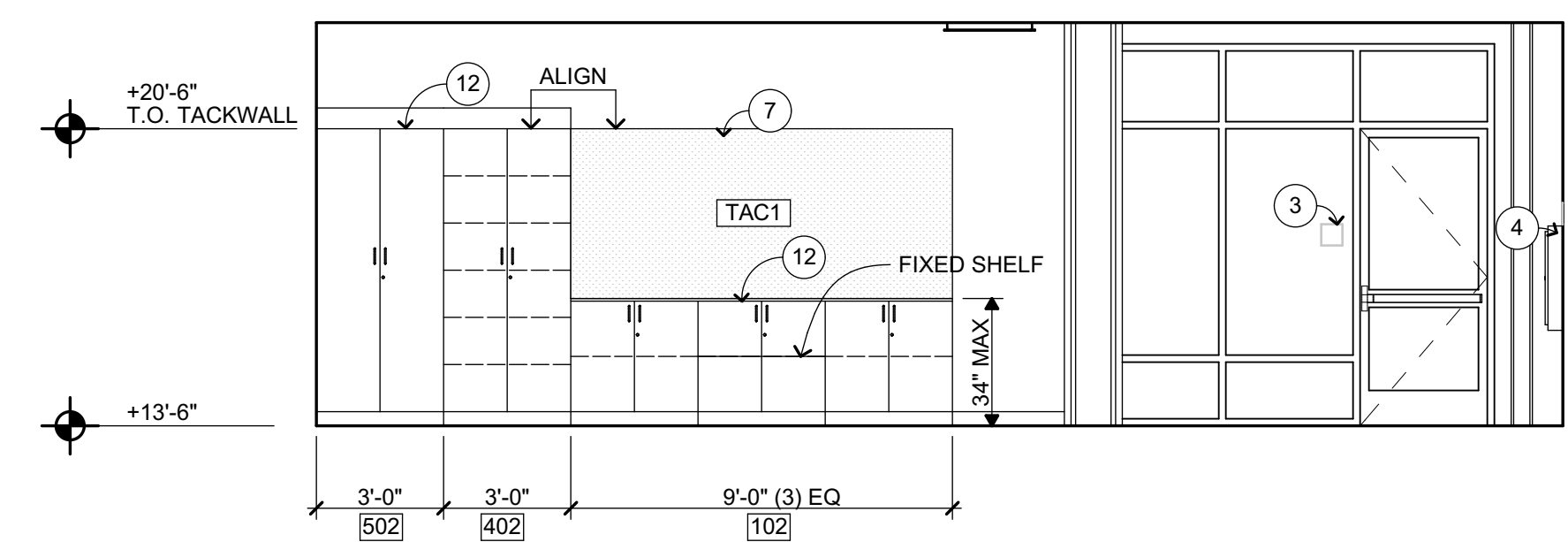
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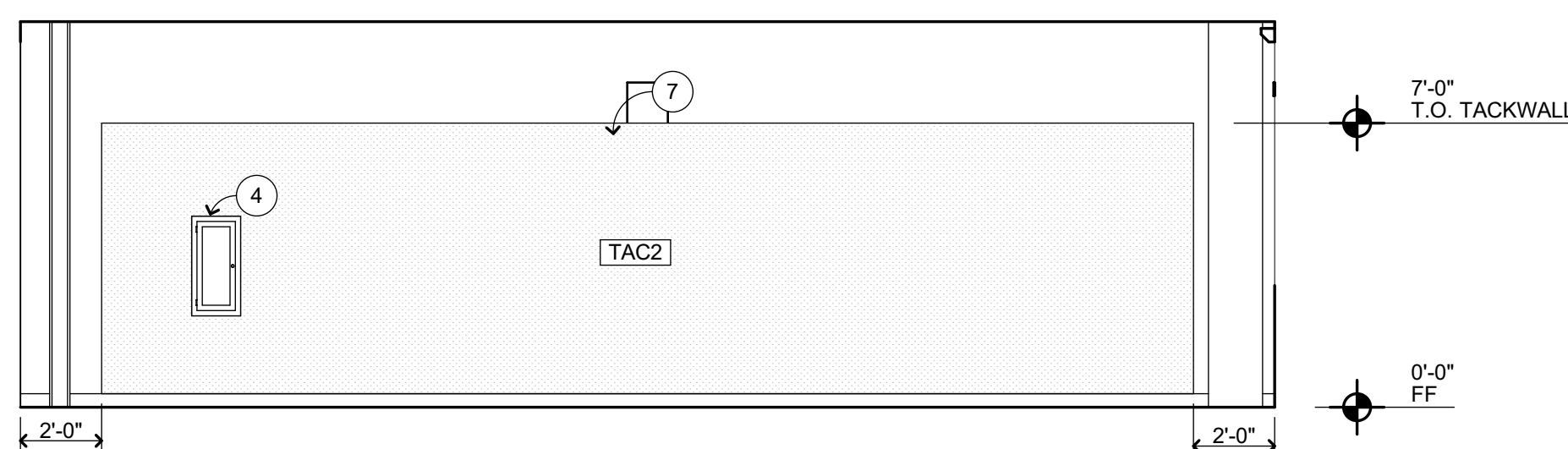
WEST



NORTH

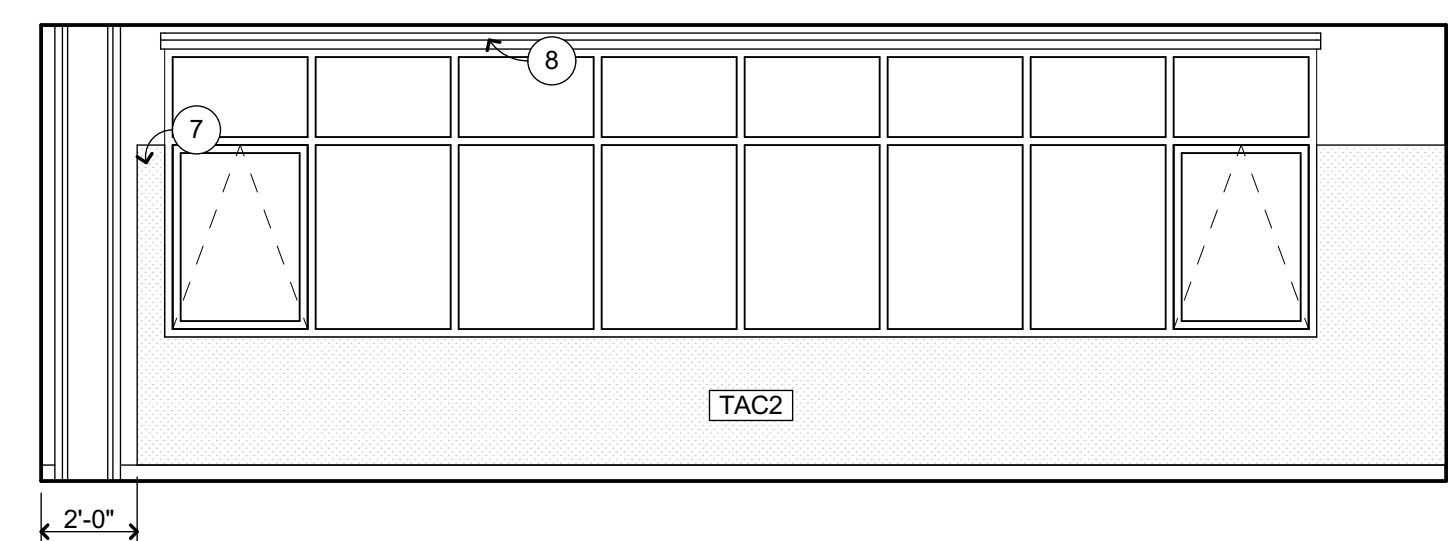


EAST

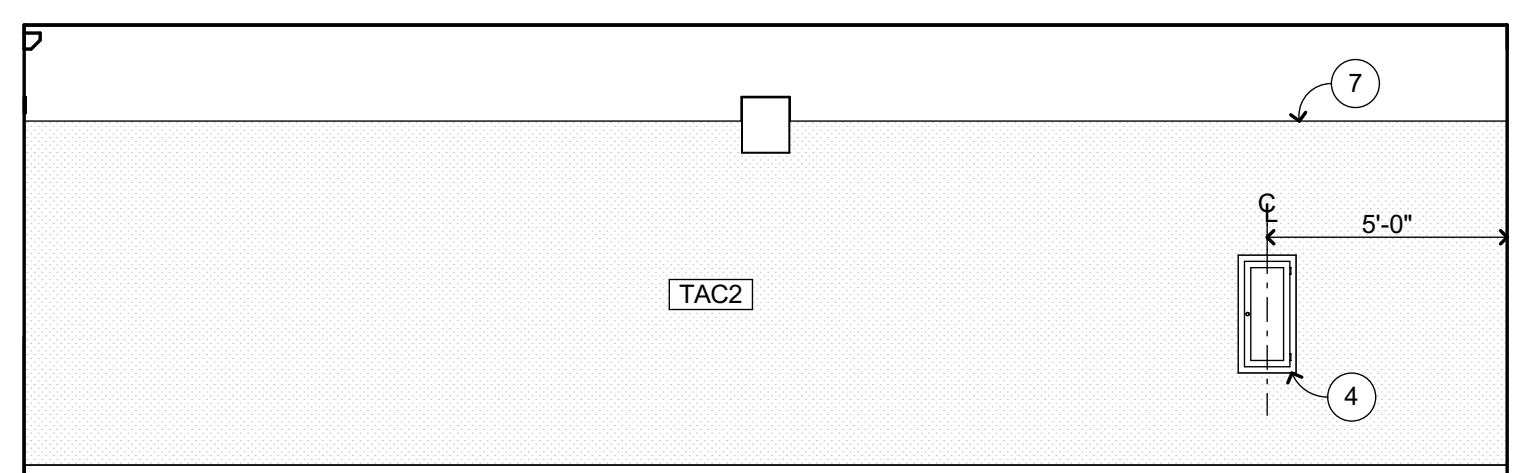


SOUTH

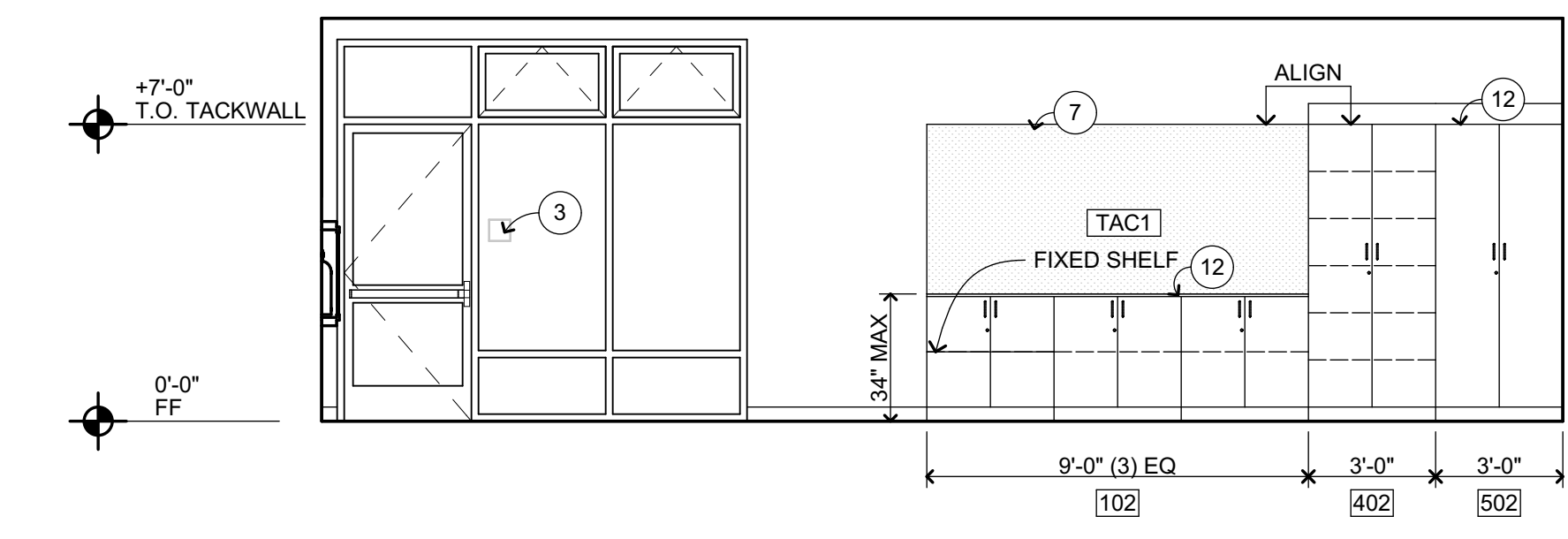
CLASSROOM A204  
1/4" = 1'-0"  
A-A2.4



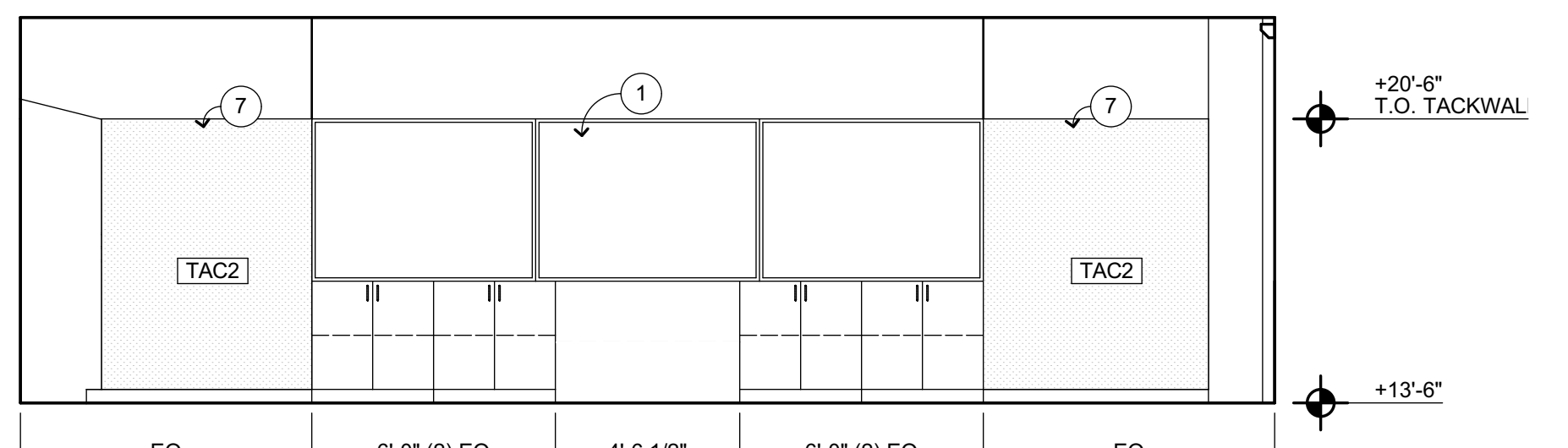
WEST



NORTH



EAST



SOUTH

CLASSROOM A205  
1/4" = 1'-0"  
A-A2.4

### INTERIOR ELEVATION KEYNOTES

NOT ALL KEYNOTES MAY APPLY TO THIS SHEET

- 1 MARKER BOARD CASEWORK
- 2 WALL MOUNTED SHORT THROW PROJECTOR, OFCI
- 3 SIGNAGE, SEE 10 A-8.1
- 4 SEMI-RECESSED FIRE EXTINGUISHER, SEE 23 A-9.3 SIM
- 5 SOLID FOLDING PARTITION W/ TACKWALL COVERING
- 6 FOAM WALL PADS
- 7 TACK-WALL, SEE FIN SCHED
- 8 MANUAL WINDOW SHADES, SEE 27 A-10.3
- 9 MECHANICAL ITEM, S.M.D.
- 10 EYEWASH STATION
- 11 FUME HOOD
- 12 CASEWORK, SEE 3 A-10.4
- 13 OPEN-SHELVING BOOKSHELVES
- 14 FREE STANDING STAINLESS STEEL SINKS
- 15 ELECTRICAL ITEM, S.E.D.
- 16 PLUMBING ITEM, S.P.D.
- 17 STRUCTURAL ITEM, S.S.D.
- 18 MOP SINK, S.P.D.
- 19 ROOF ACCESS LADDER, SEE 24 A-9.7 25 A-9.7
- 20 MOTORIZED WINDOW SHADES, SEE 28 A-10.3 MTL WD
- 21 TOILET PARTITION, SEE 17 A-10.3 18 A-10.3
- 22 4X8 WALL MOUNTED MARKERBOARD, SEE 34 A-10.3
- 23 ELECTRICAL APPLIANCE, OFCI

### INTERIOR ELEVATION GENERAL NOTES

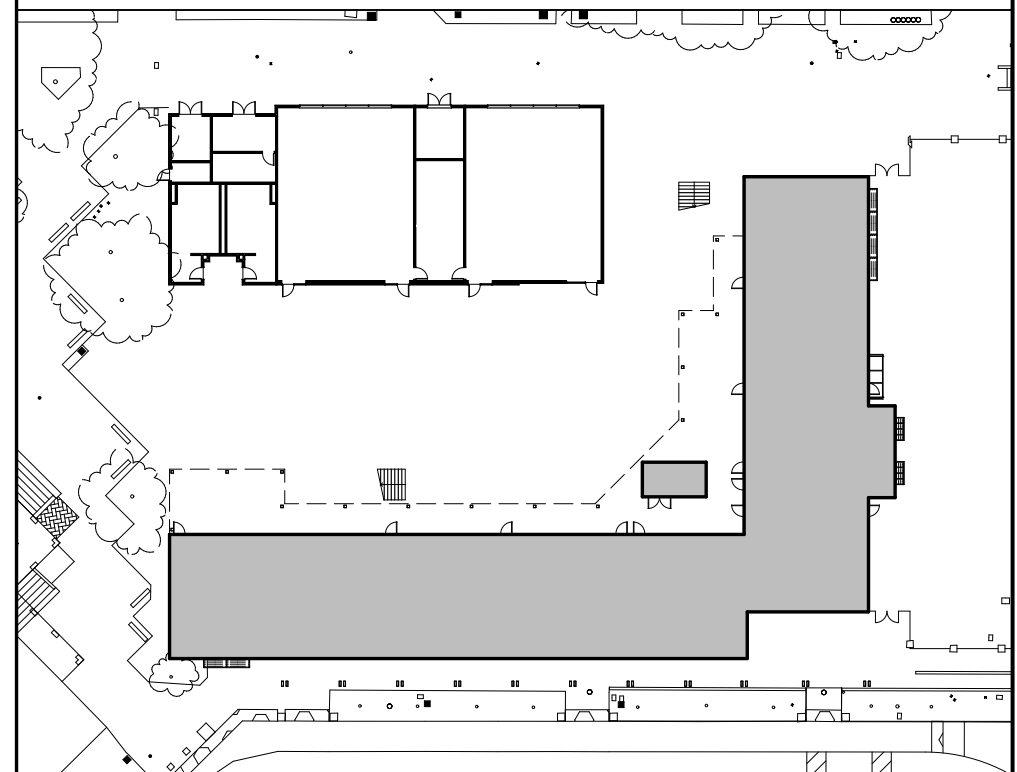
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7. PROVIDE SOLID BLOCKING FOR CABINET, ACCESSORY, OR EQUIPMENT MOUNTING. 1 A-10.3 21 MTL FRMG A-10.3

### WALL FINISH CODES

FOR OVERALL WALL AND BASE FINISHES, SEE FINISH PLANS. FOR MATERIAL INFORMATION, SEE FINISH SCHEDULE. SEE SHEET A-8.3 FOR PAINT FINISHES. SEE SEC. 09 9113 (EXTERIOR) & 09 9123 (INTERIOR). ALL GYP BD TO BE TYPE 'X'.

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- P2 CERAMIC WALL TILE 35 A-10.3
- WT1
- WT2
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- TAC2
- AP1 ACOUSTIC PANELS
- MP1 METAL PERFORATED WALL PANELS
- WP1 FRP PANEL
- WP3 WALL FOAM PAD
- PLY1 3/4" MDO FIRE RATED PLYWOOD

### KEY PLAN



QUATTROCCHI KWOK ARCHITECTS  
Main: 636 Fifth Street, Santa Rosa, CA 95404  
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(707) 576-0829



LIBERTY HIGH SCHOOL

NEW CLASSROOM BUILDINGS

850 2ND STREET  
BRENTWOOD, CA  
94513

LIBERTY UNION HIGH SCHOOL DISTRICT

	08/19/22	ADDENDUM 1

DSA APP NO. 01-119994  
ARCH PROJECT NO. 1925.00  
DRAWN BY: JDS  
DRAWING SCALE: 1/4" = 1'-0"  
PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

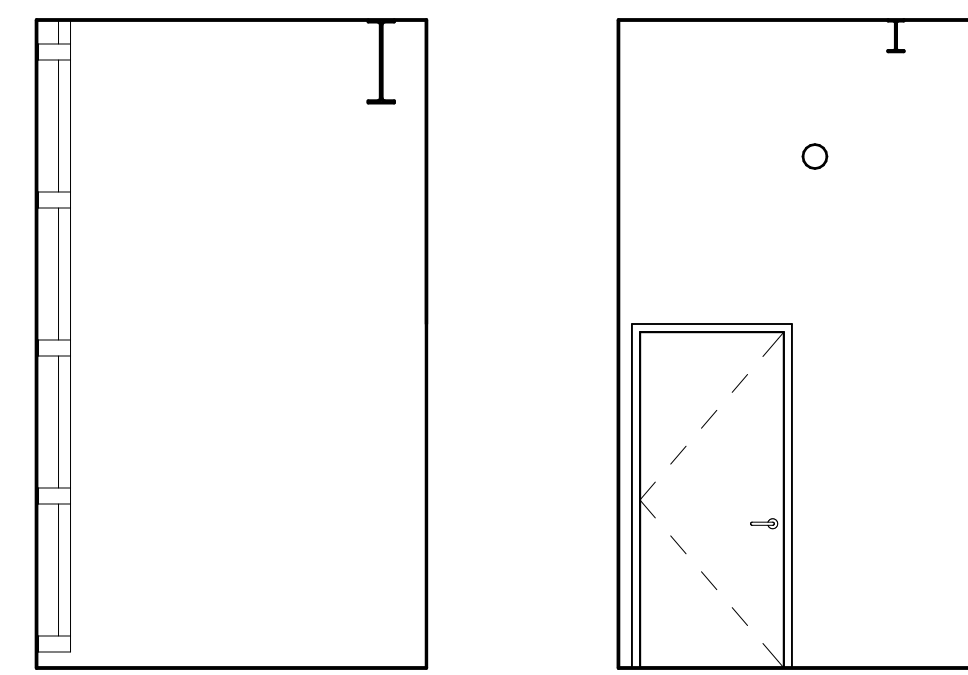
JUNE 24, 2022

SHEET TITLE

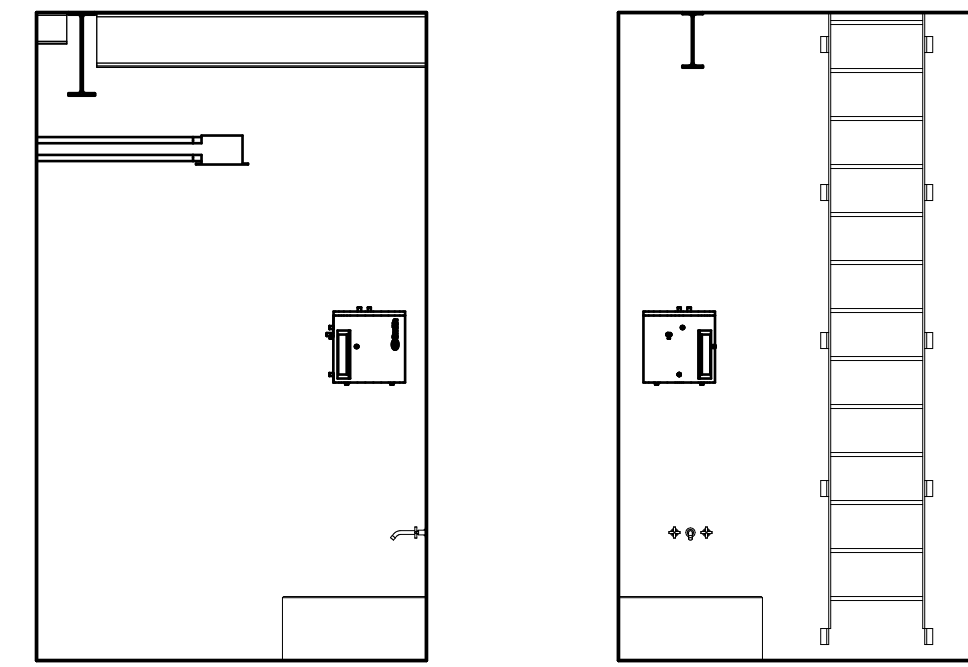
INTERIOR ELEVATIONS

SHEET NUMBER

A-A7.7

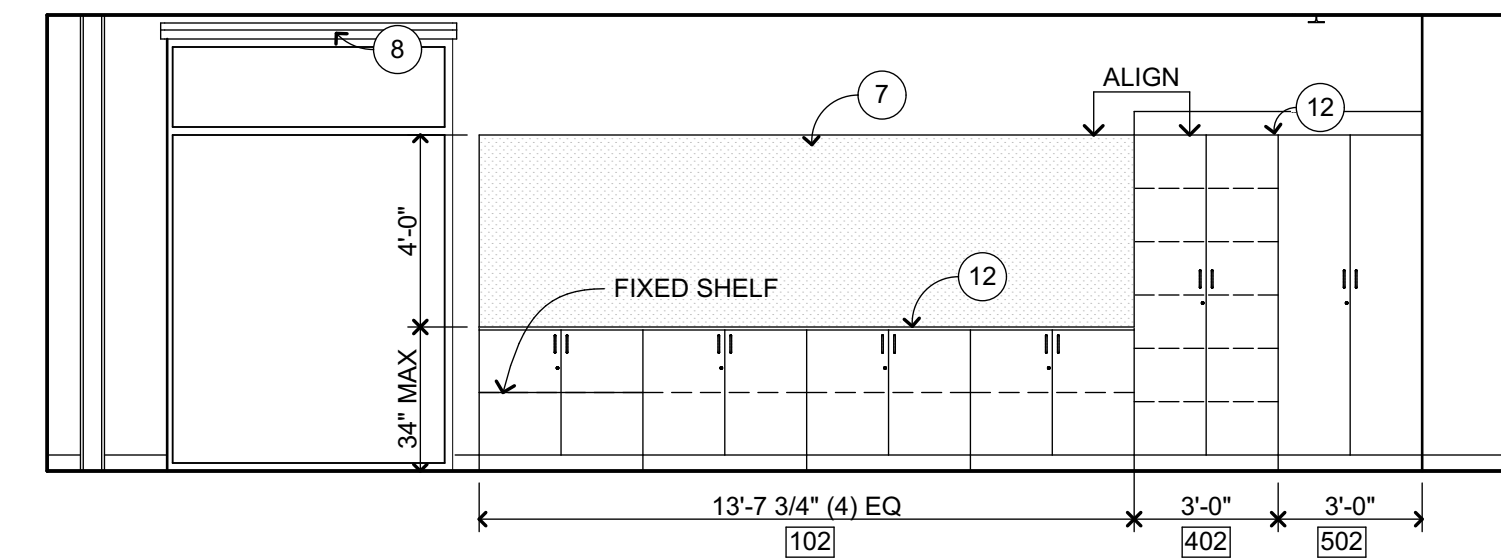


WEST NORTH

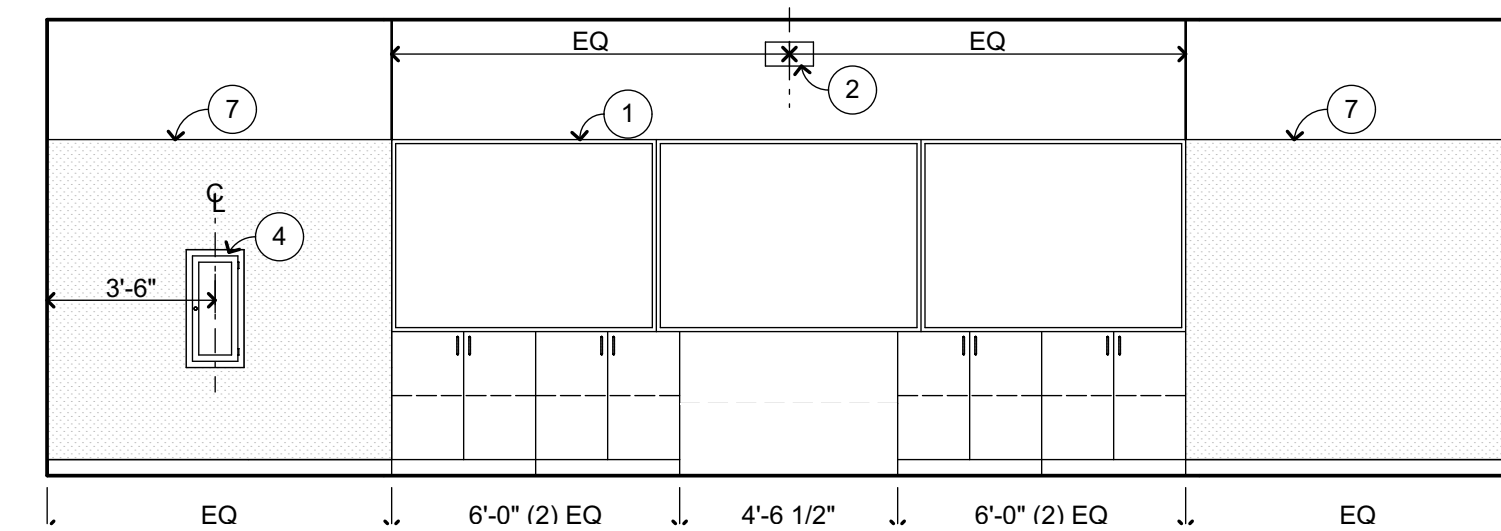


EAST SOUTH

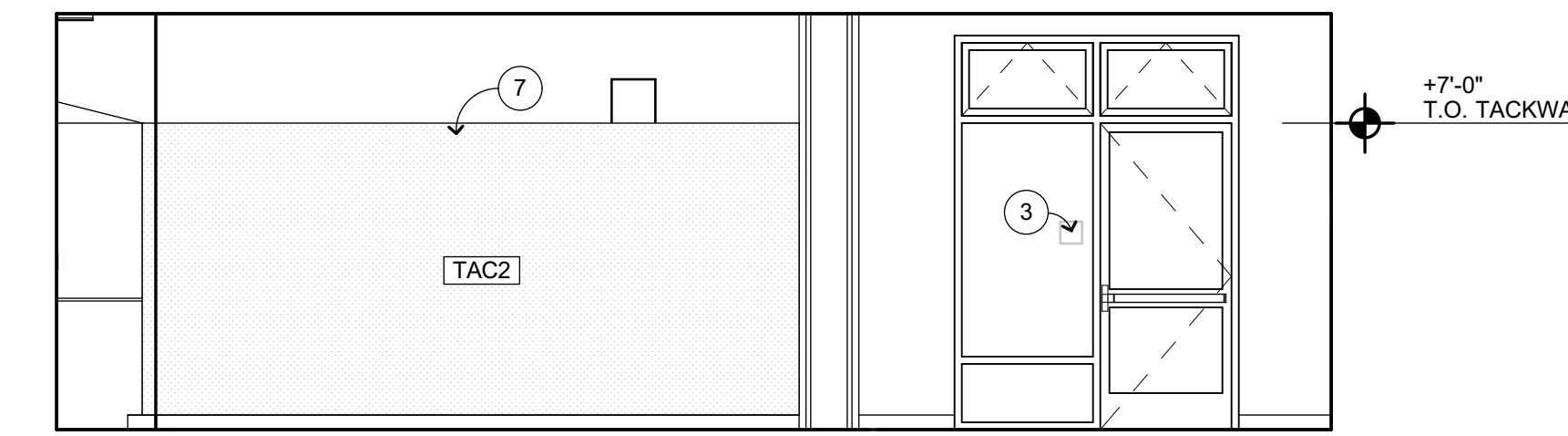
**CUSTODIAN A207**  
1/4" = 1'-0" A-A2.4



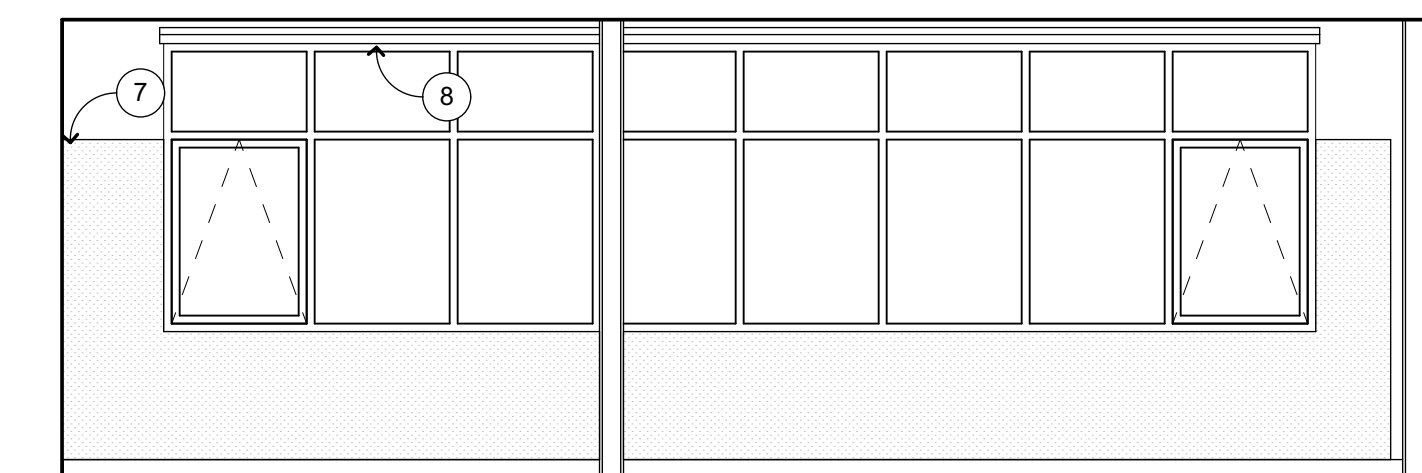
WEST



EAST

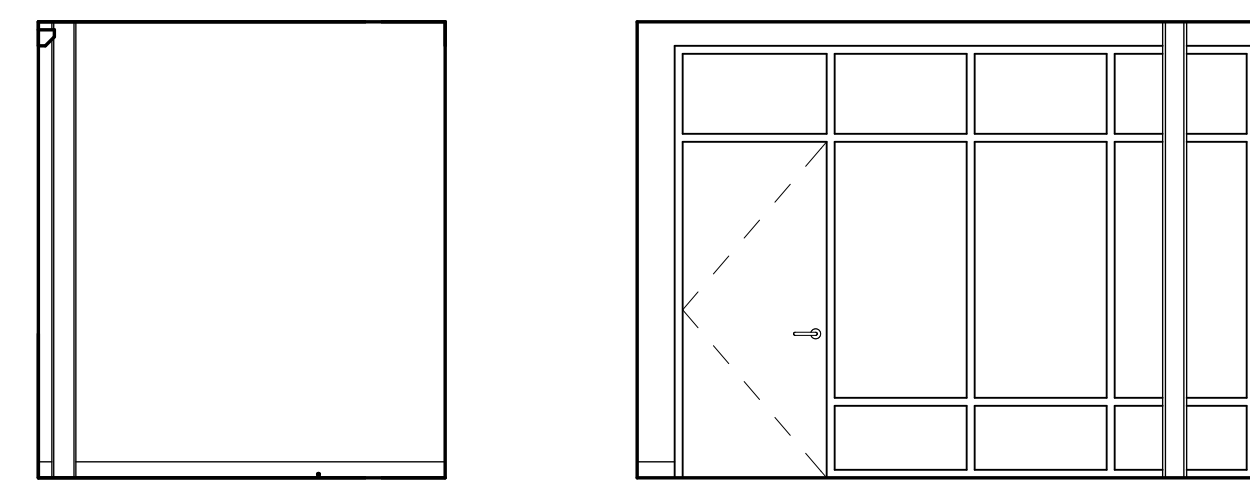


NORTH

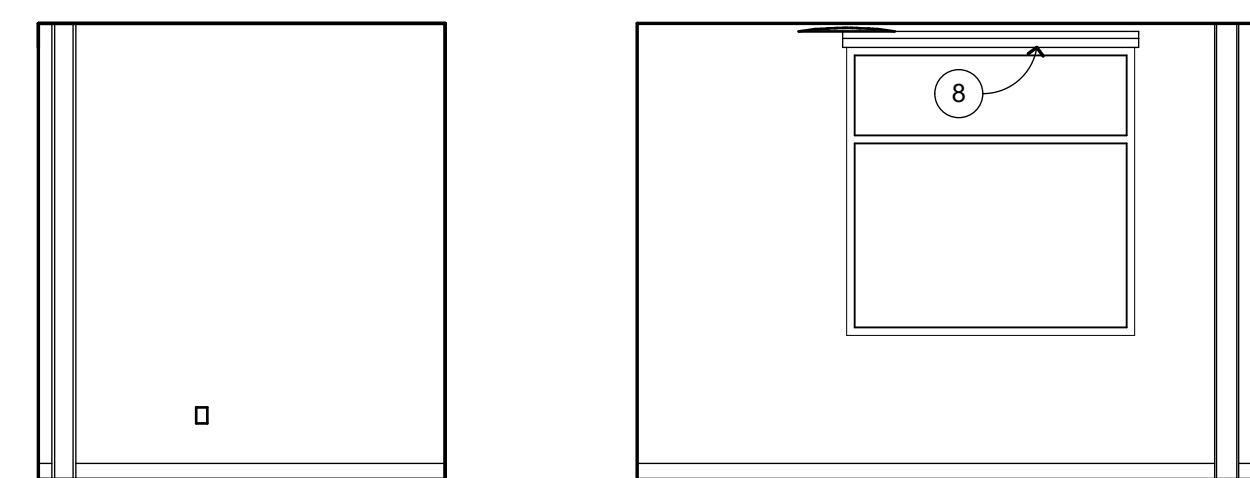


SOUTH

**CLASSROOM A206**  
1/4" = 1'-0" A-A2.4

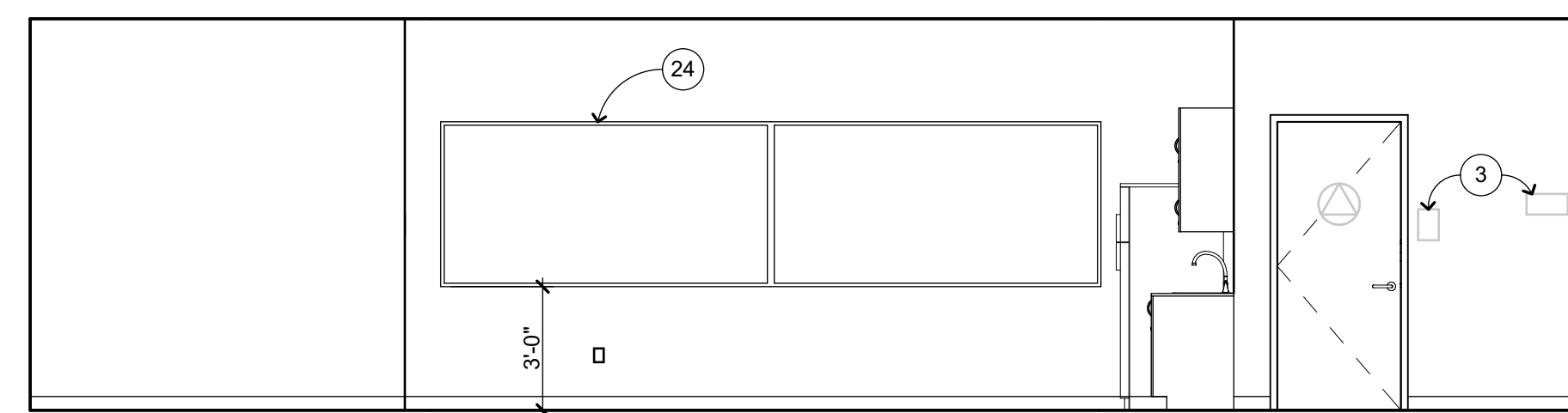


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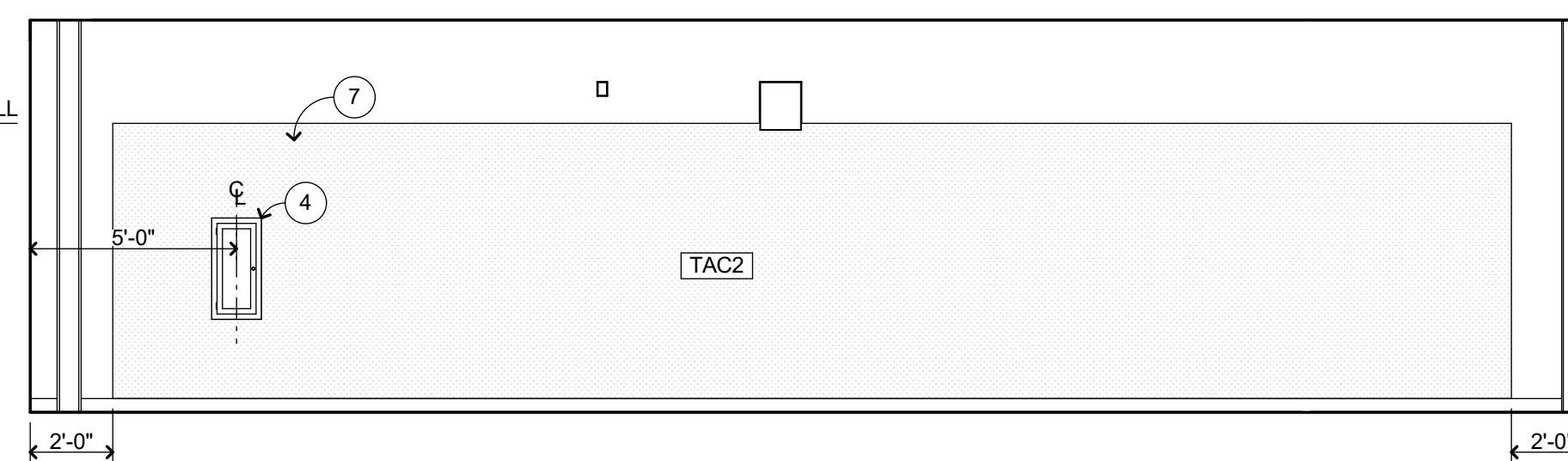


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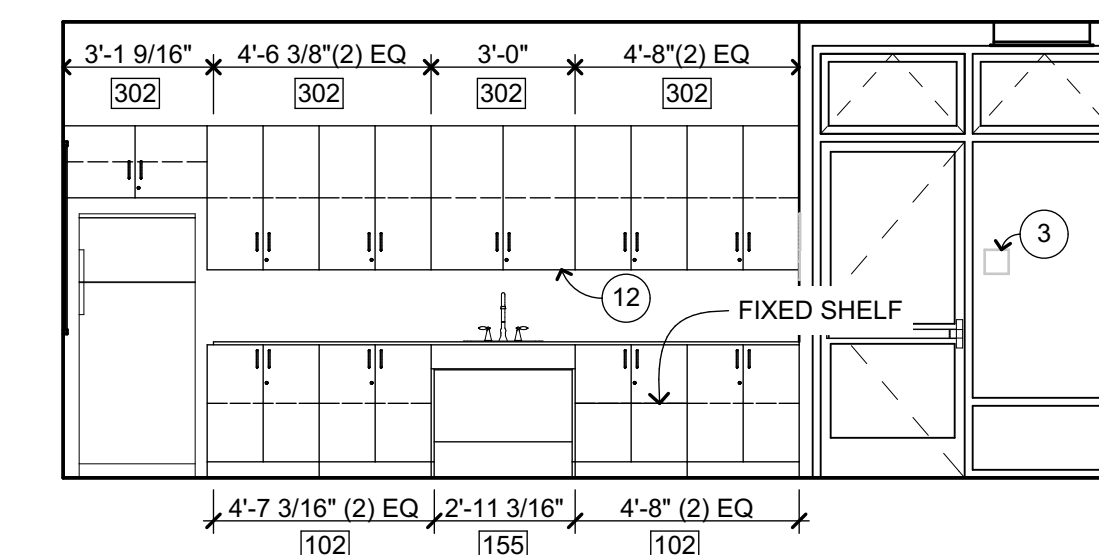
**FLEXIBLE OFFICE A208B**  
1/4" = 1'-0" A-A2.4



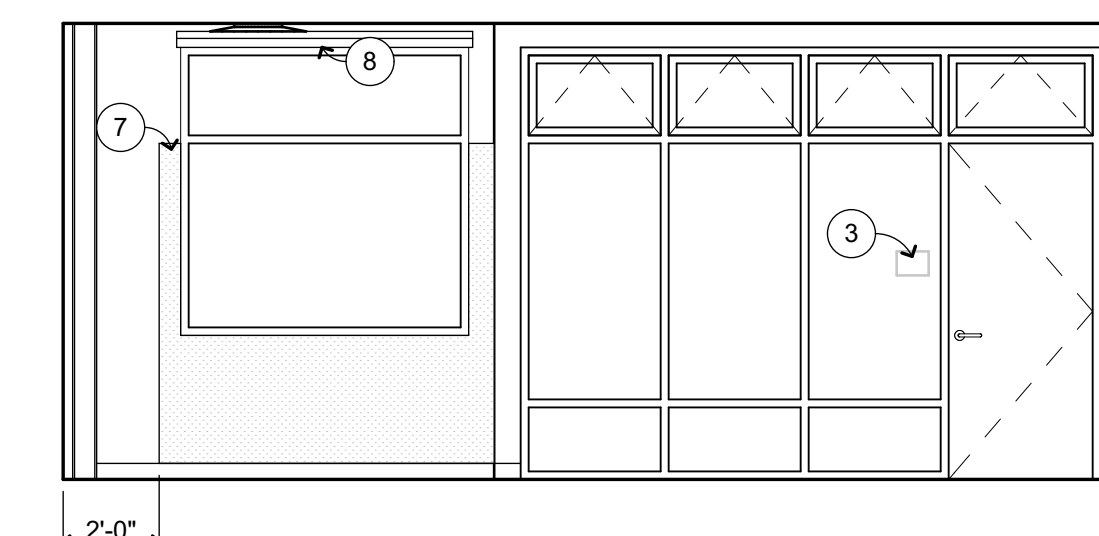
WEST



EAST



WEST



NORTH

**STAFF BREAK ROOM A208**  
1/4" = 1'-0" A-A2.4

**INTERIOR ELEVATION KEYNOTES**

NOT ALL KEYNOTES MAY APPLY TO THIS SHEET

- 1 MARKER BOARD CASEWORK
- 2 WALL MOUNTED SHORT THROW PROJECTOR, OFCI
- 3 SIGNAGE, SEE 10 A-8.1
- 4 SEMI-RECESSED FIRE EXTINGUISHER, SEE 23 A-9.3 SIM
- 5 SOLID FOLDING PARTITION W/ TACKWALL COVERING
- 6 FOAM WALL PADS
- 7 TACK-WALL, SEE FIN SCHED
- 8 MANUAL WINDOW SHADES, SEE 27 A-10.3
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- 10 EYEWASH STATION
- 11 FUME HOOD
- 12 CASEWORK, SEE 3 A-10.4
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- 14 FREE STANDING STAINLESS STEEL SINKS
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**INTERIOR ELEVATION GENERAL NOTES**

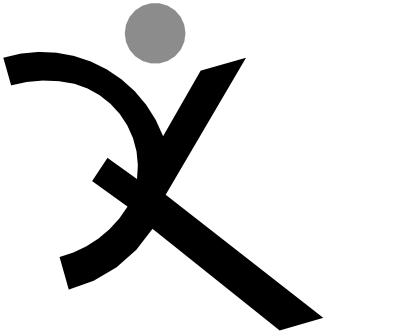
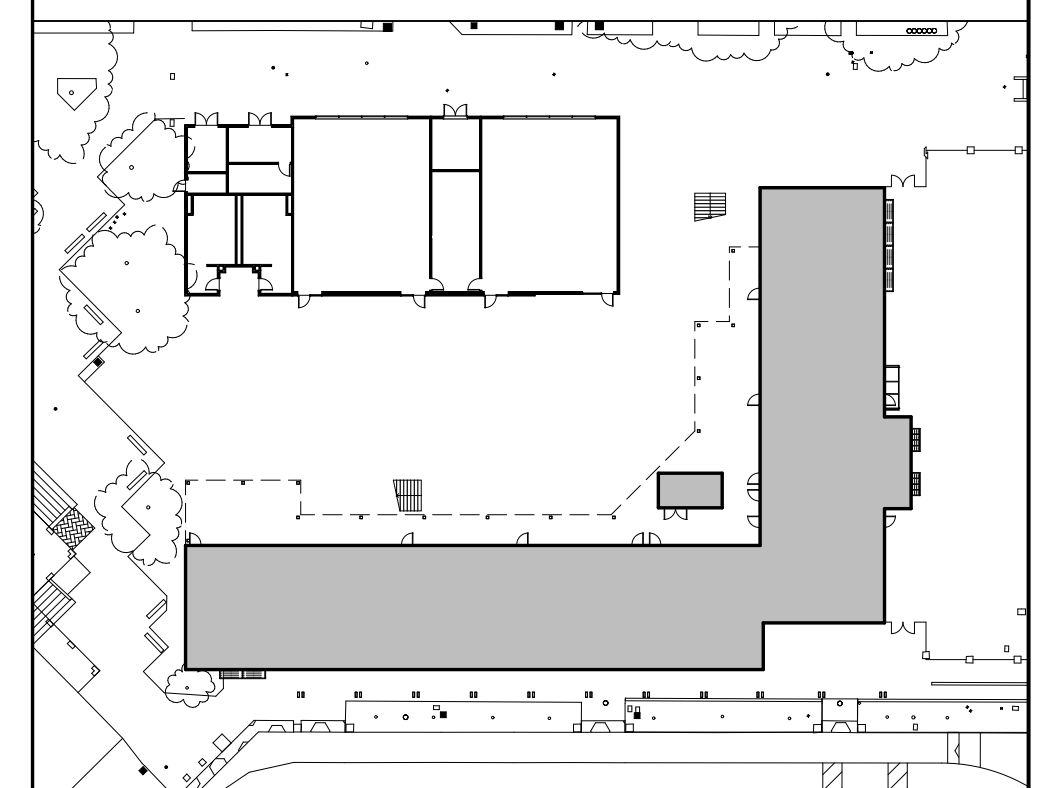
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**WALL FINISH CODES**

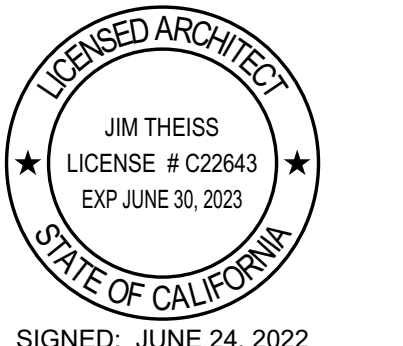
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**KEY PLAN**



QUATTROCCHI KWOK ARCHITECTS  
Main: 636 Fifth Street, Santa Rosa, CA 95404  
East Bay: 55 Harrison Street, Suite 525, Oakland, CA 94607  
(707) 576-0829



SIGNED: JUNE 24, 2022

LIBERTY HIGH SCHOOL

NEW CLASSROOM BUILDINGS

850 2ND STREET  
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LIBERTY UNION HIGH SCHOOL DISTRICT

08/19/22 ADDENDUM 1

DSA APP NO. 01-119994

ARCH PROJECT NO. 1925.00

DRAWN BY: JDS

DRAWING SCALE: 1/4" = 1'-0"

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

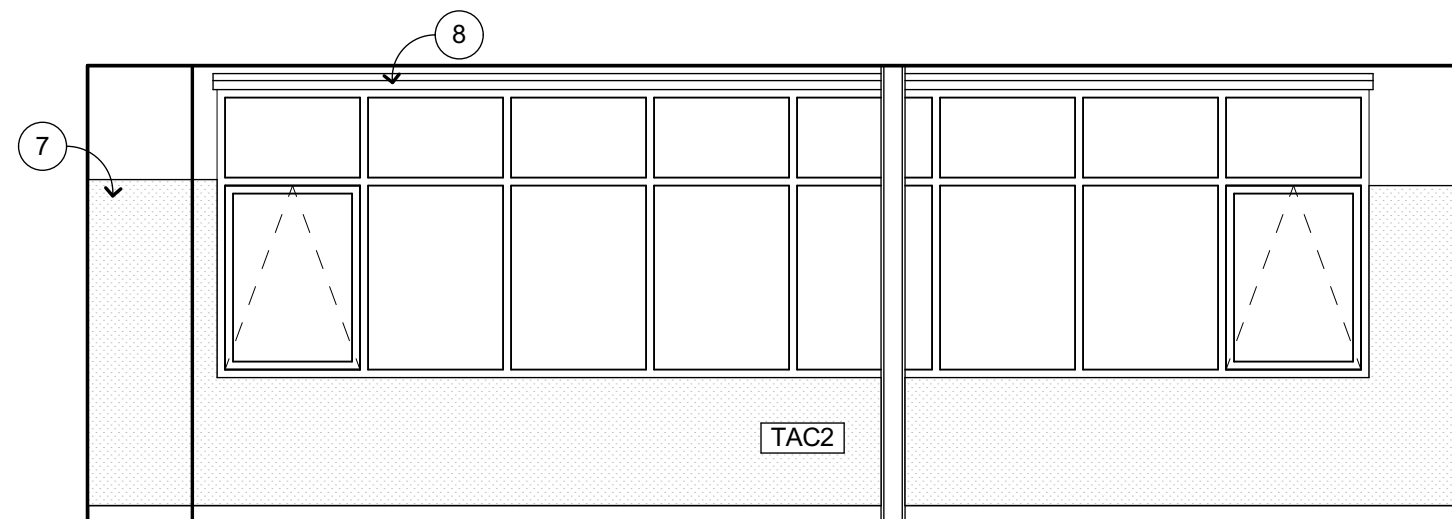
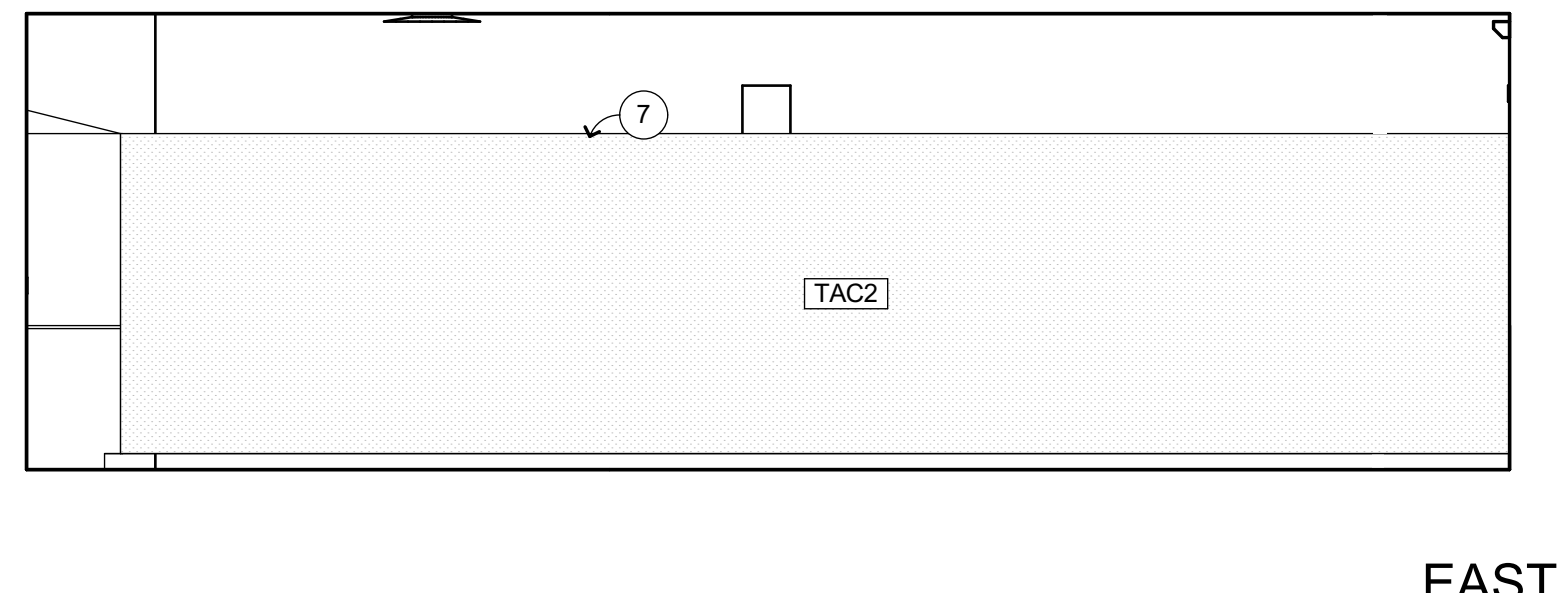
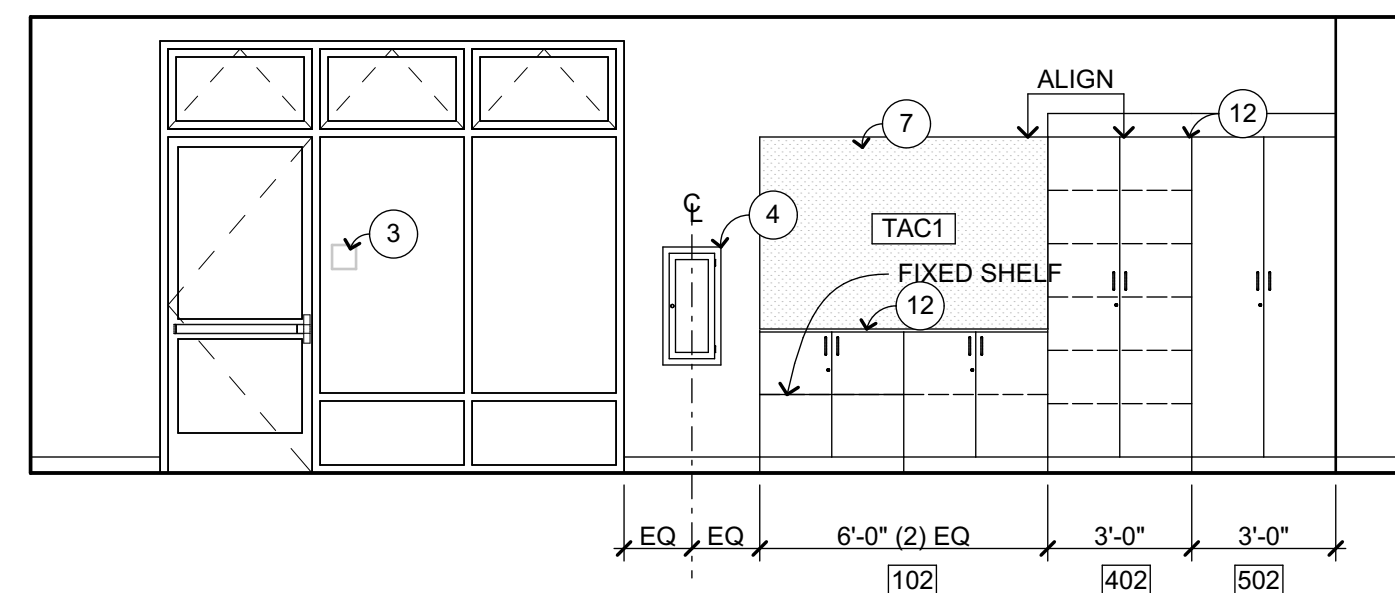
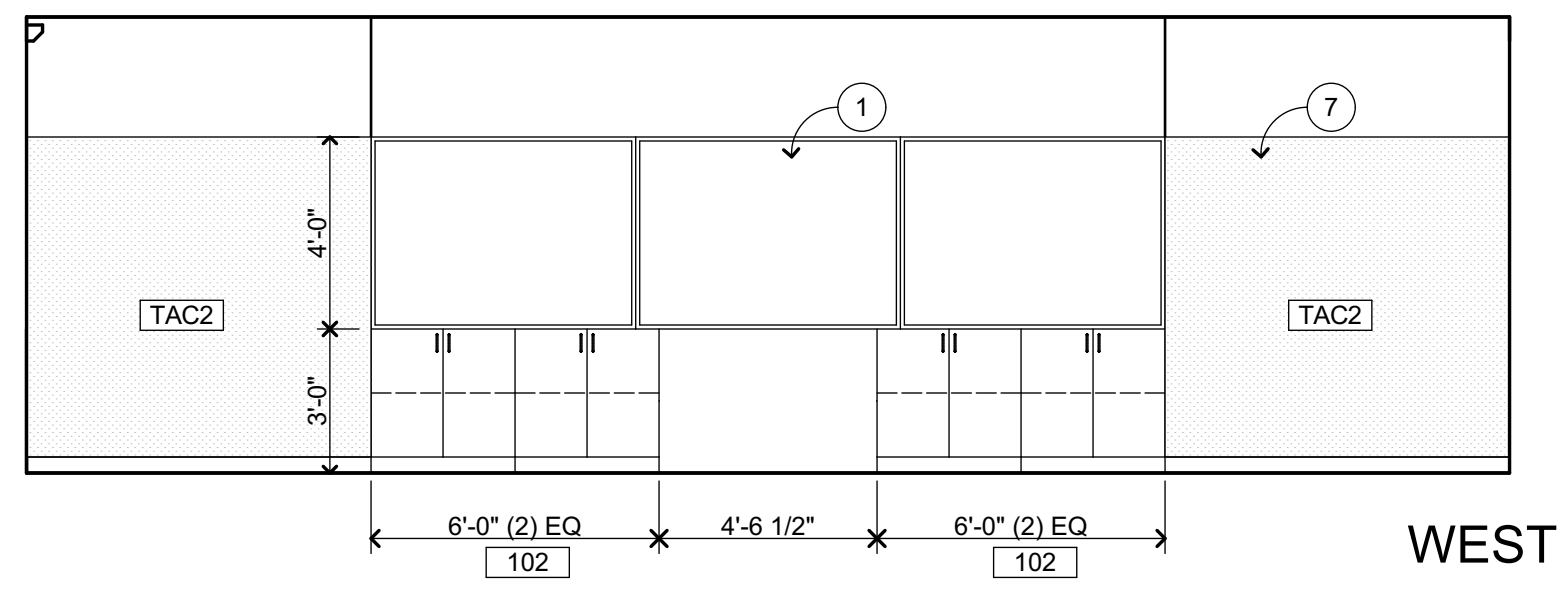
JUNE 24, 2022

SHEET TITLE

INTERIOR ELEVATIONS

SHEET NUMBER

**A-A7.8**



CLASSROOM **A209**  
1/4" = 1'-0" A-A2.4

**INTERIOR ELEVATION KEYNOTES**

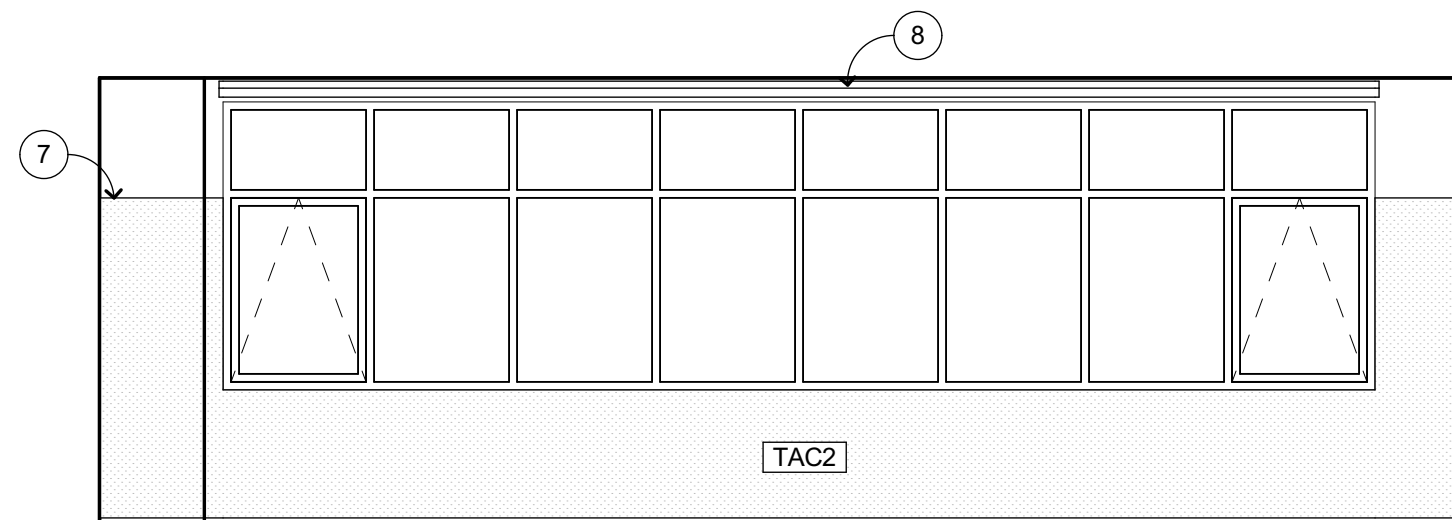
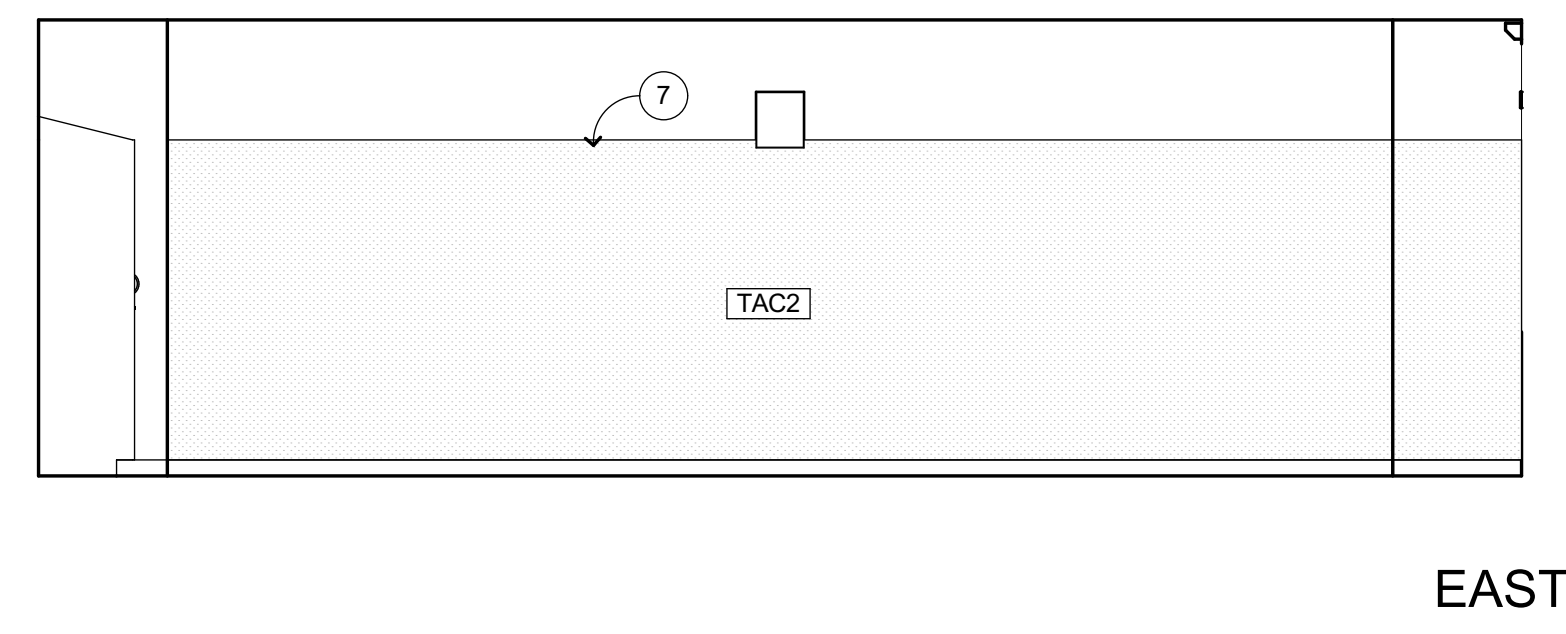
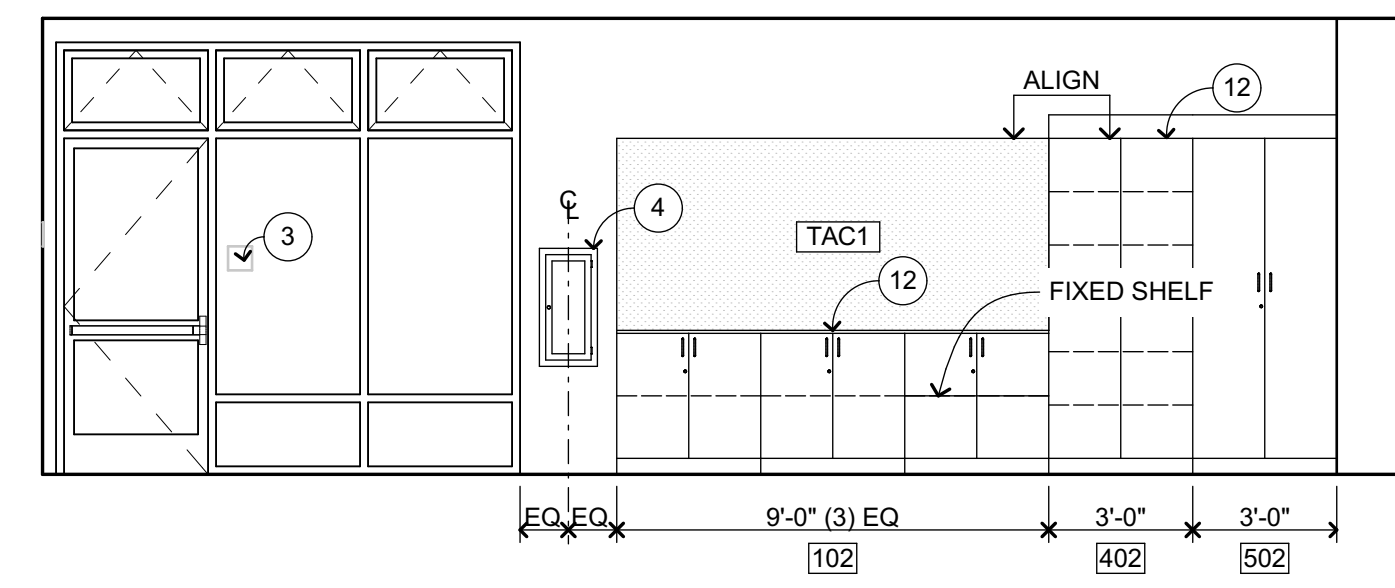
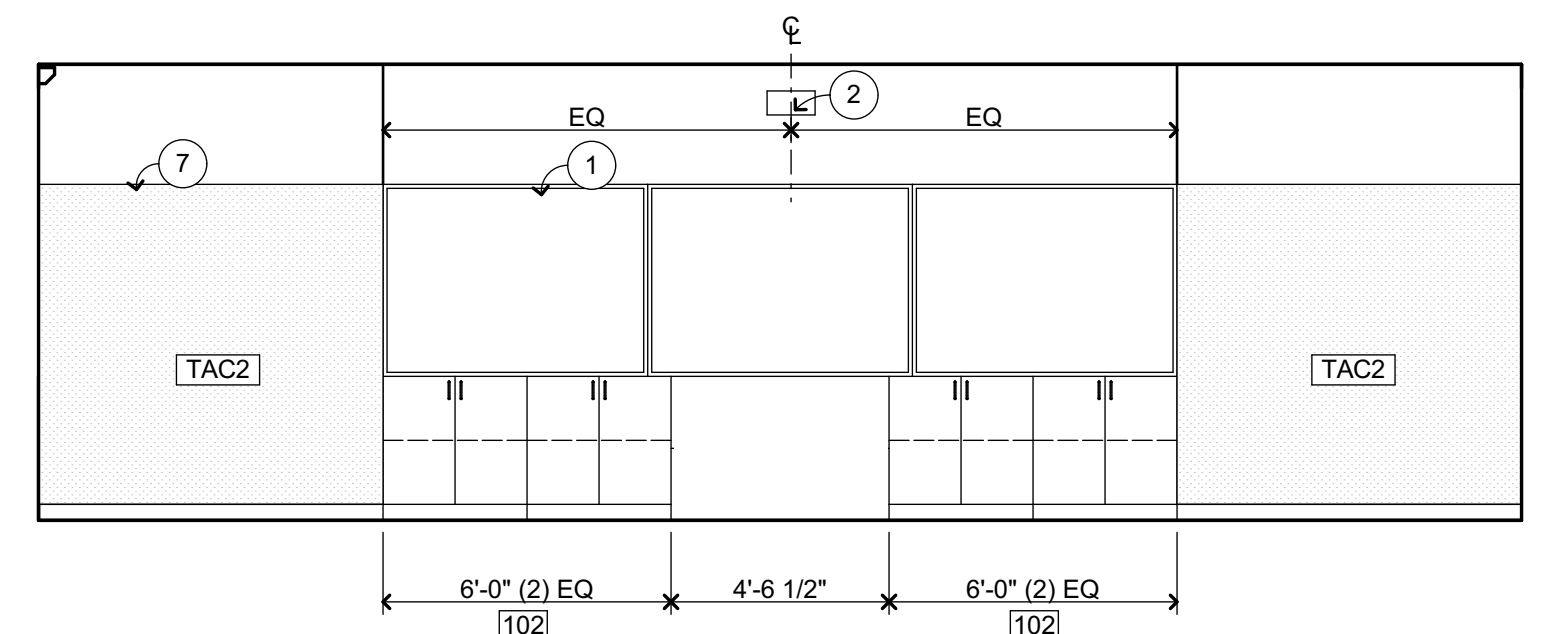
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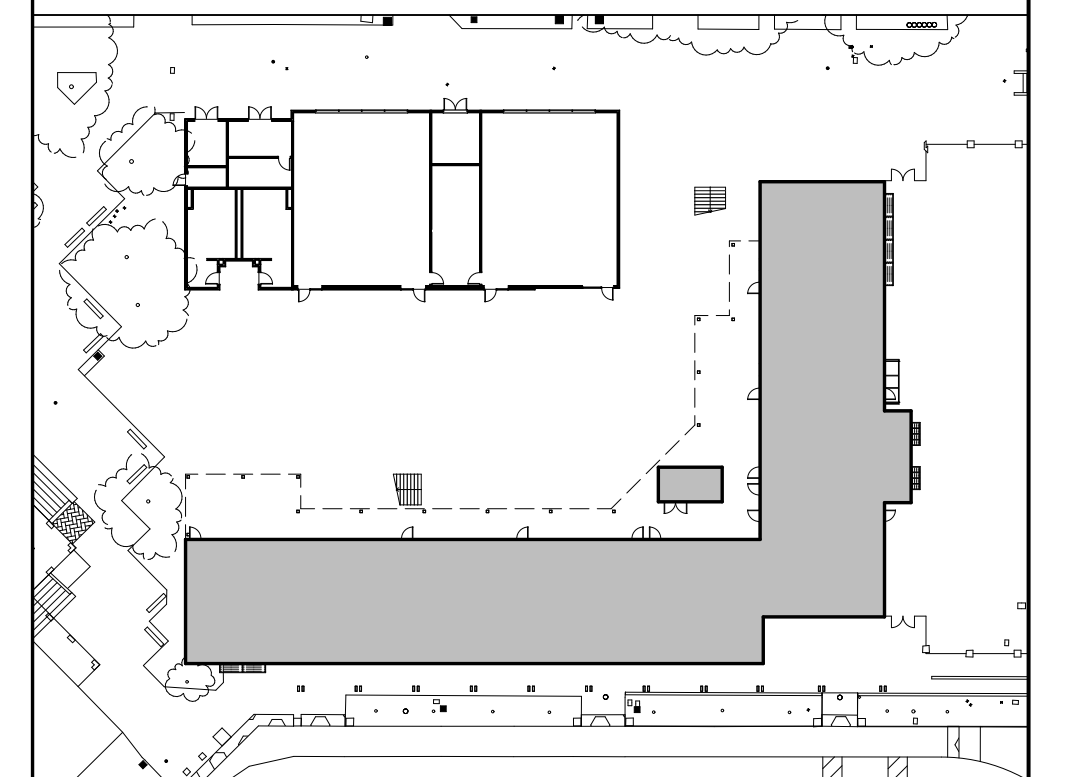
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  - WP1 FRP PANEL
  - WP3 WALL FOAM PAD
  - PLY1 3/4" MDO FIRE RATED PLYWOOD



CLASSROOM **A210**  
1/4" = 1'-0" A-A2.4

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
Main: 636 Fifth Street, Santa Rosa, CA 95404  
East Bay: 55 Harrison Street, Suite 525, Oakland, CA 94607 (707) 576-0829

LICENSED ARCHITECT  
JIM THEISS  
LICENSE # C22643  
EXP JUNE 30, 2023  
STATE OF CALIFORNIA  
SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

850 2ND STREET  
BRENTWOOD, CA  
94513

LIBERTY UNION HIGH SCHOOL DISTRICT

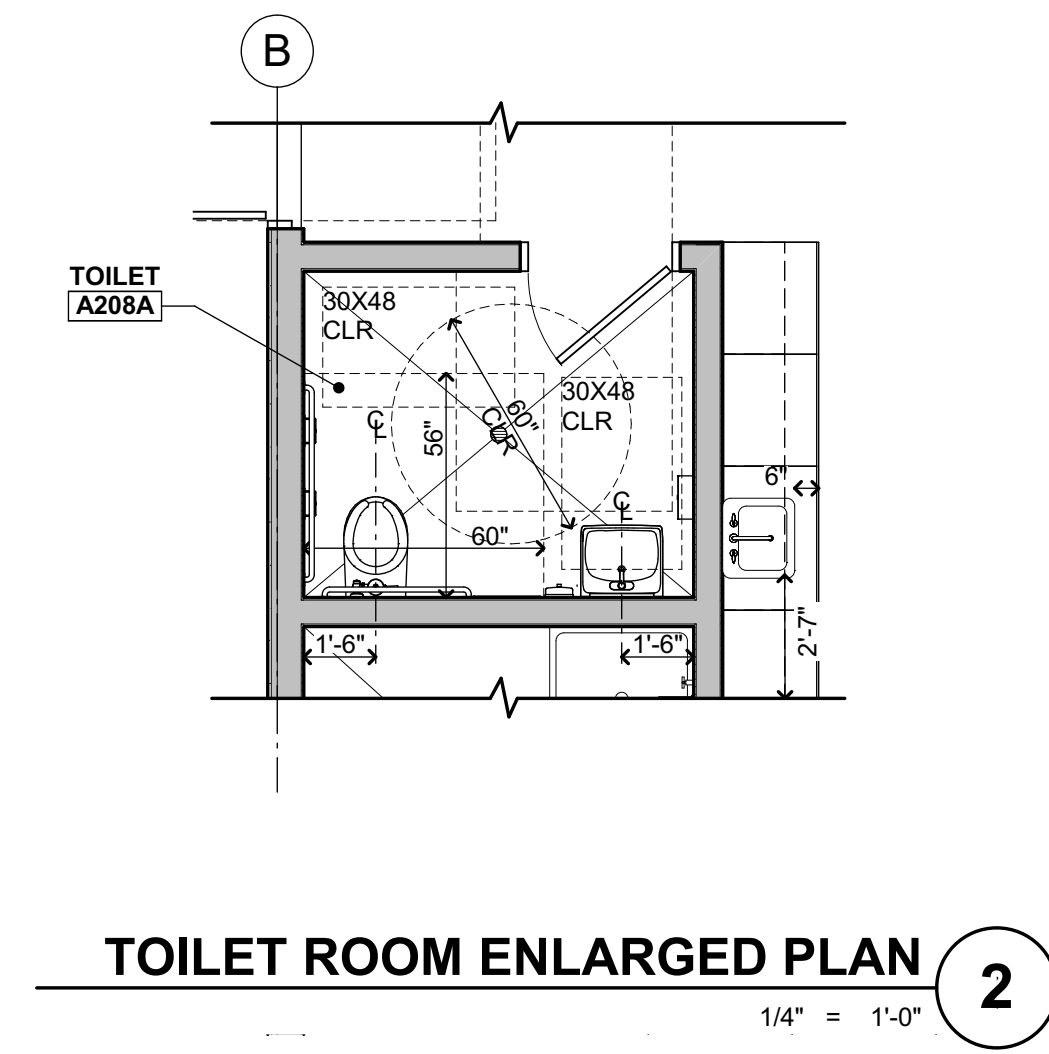
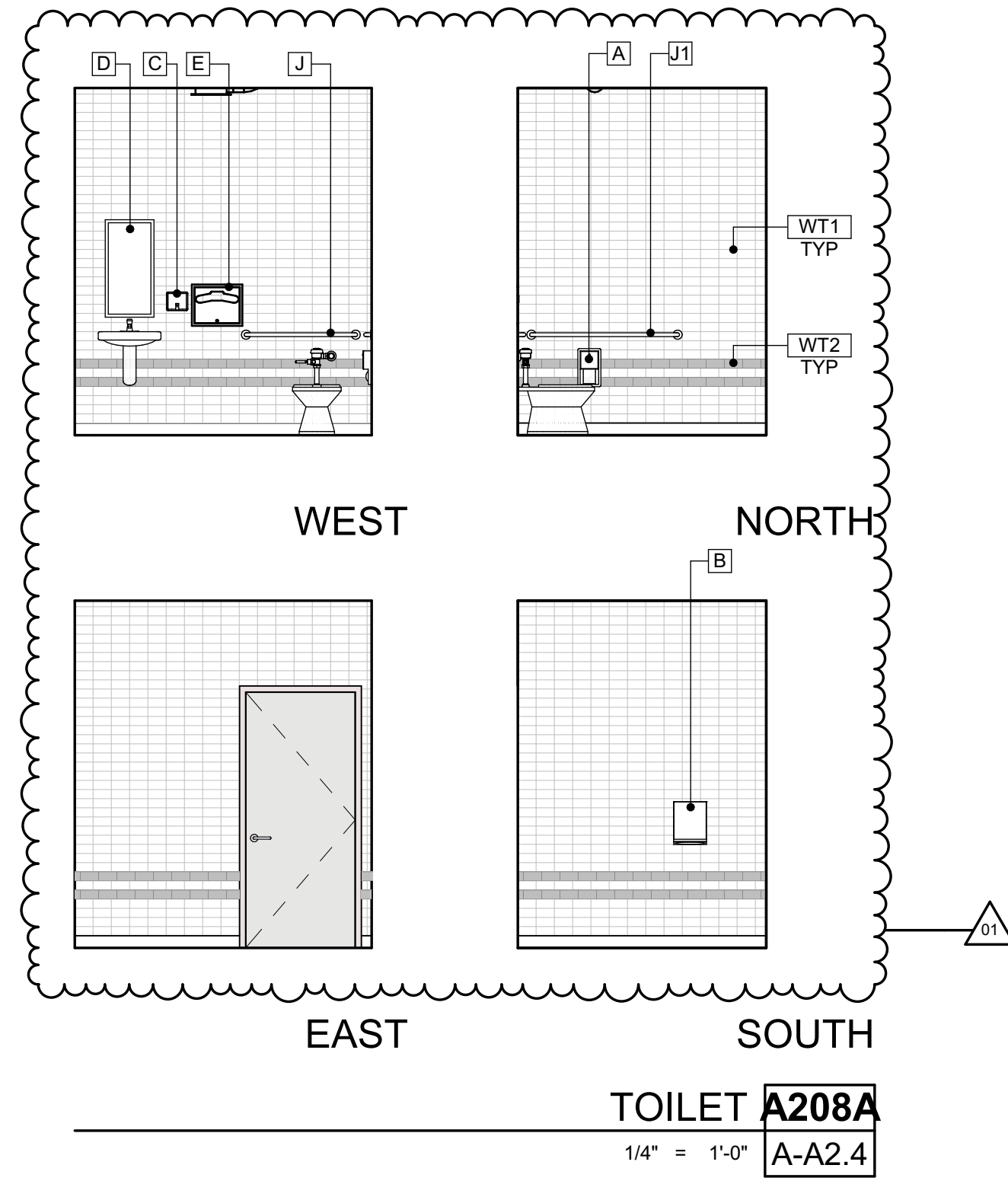
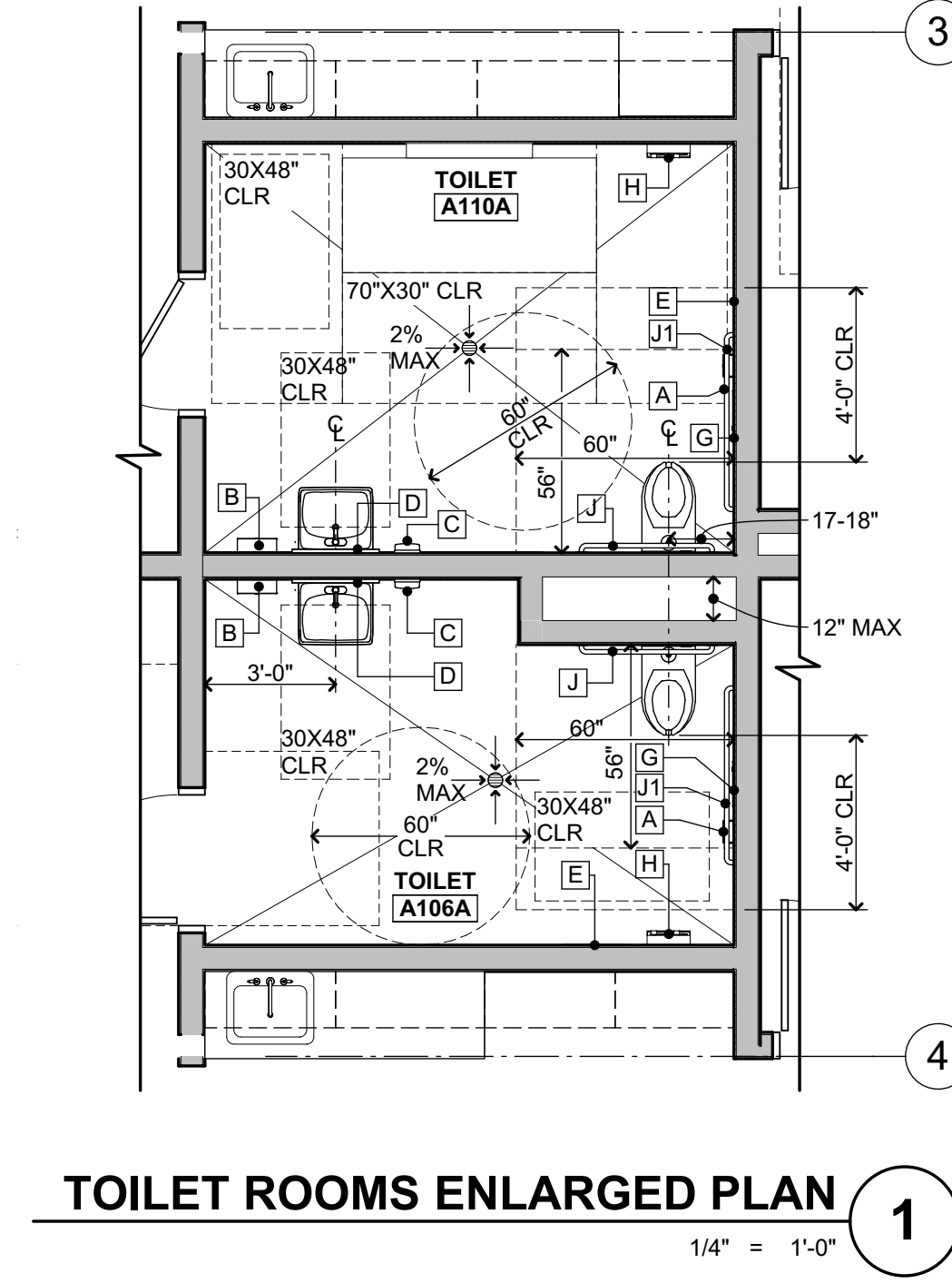
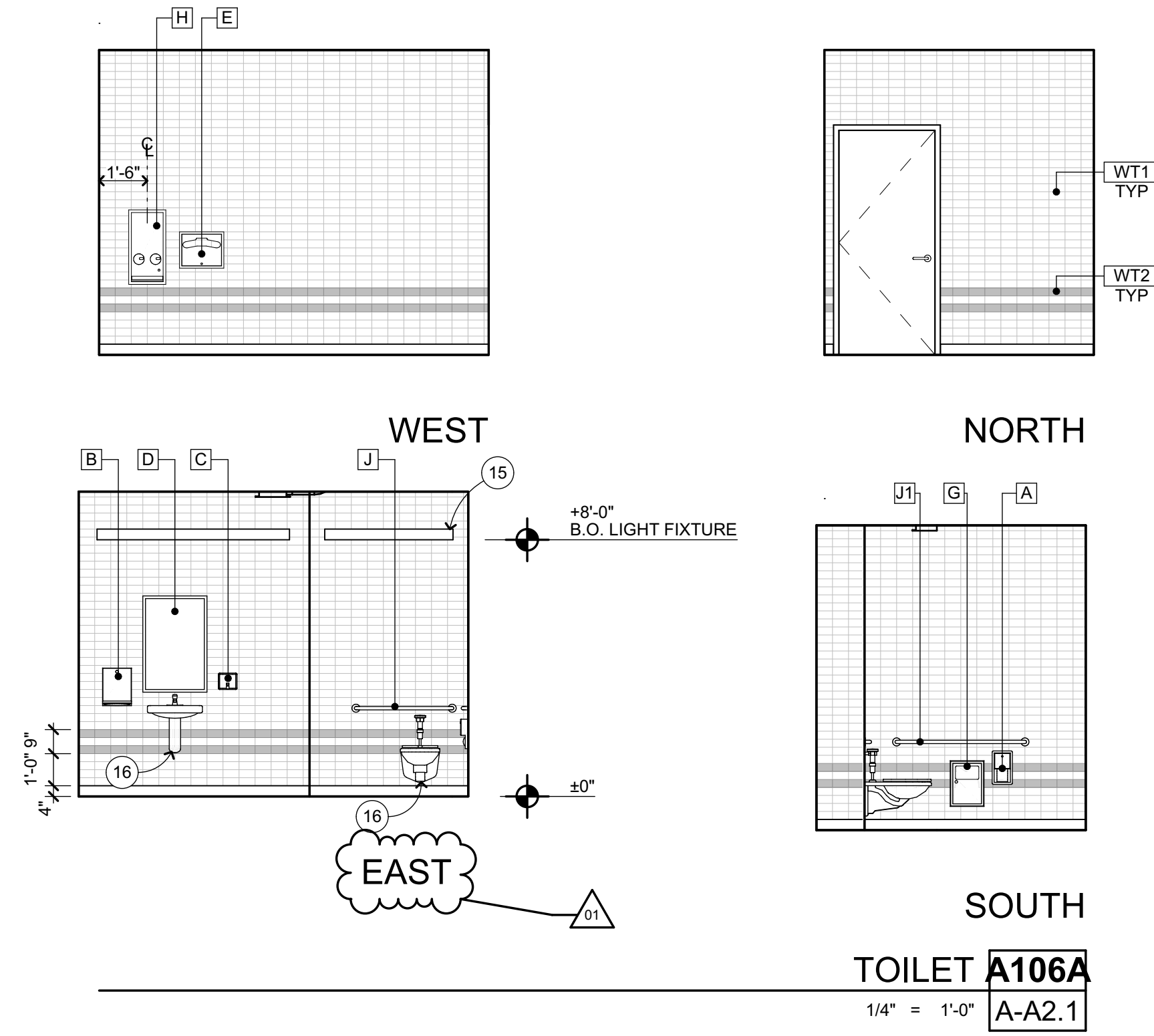
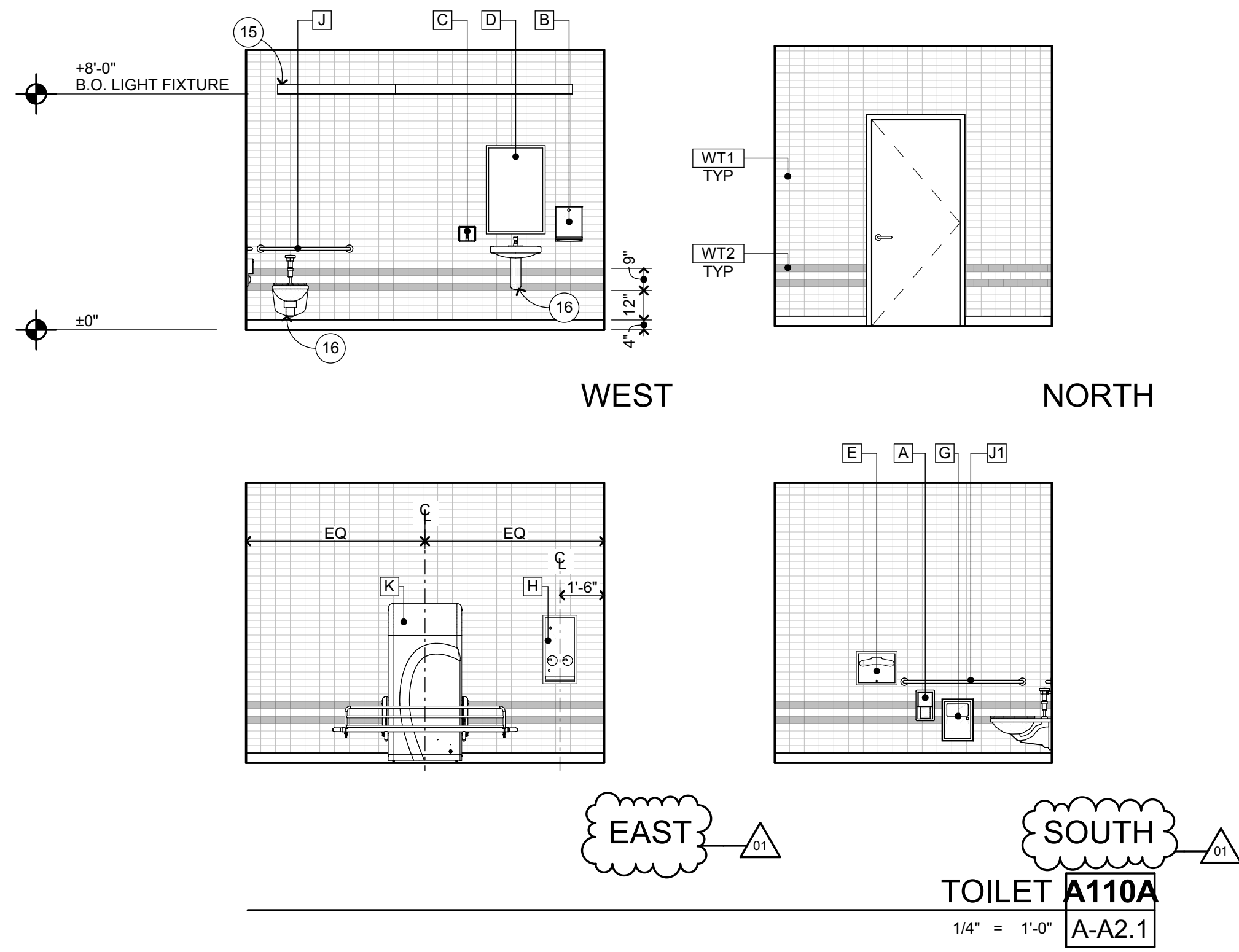
08/19/22	ADDENDUM 1

DSA APP NO. 01-119994  
ARCH PROJECT NO. 1925.00  
DRAWN BY: JDS  
DRAWING SCALE: 1/4" = 1'-0"  
PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS  
JUNE 24, 2022

INTERIOR ELEVATIONS

SHEET NUMBER  
**A-A7.9**



**INTERIOR ELEVATION KEYNOTES**

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  - 4X8 WALL MOUNTED MARKERBOARD, SEE 34 A-10.3
  - ELECTRICAL APPLIANCE, OFCI

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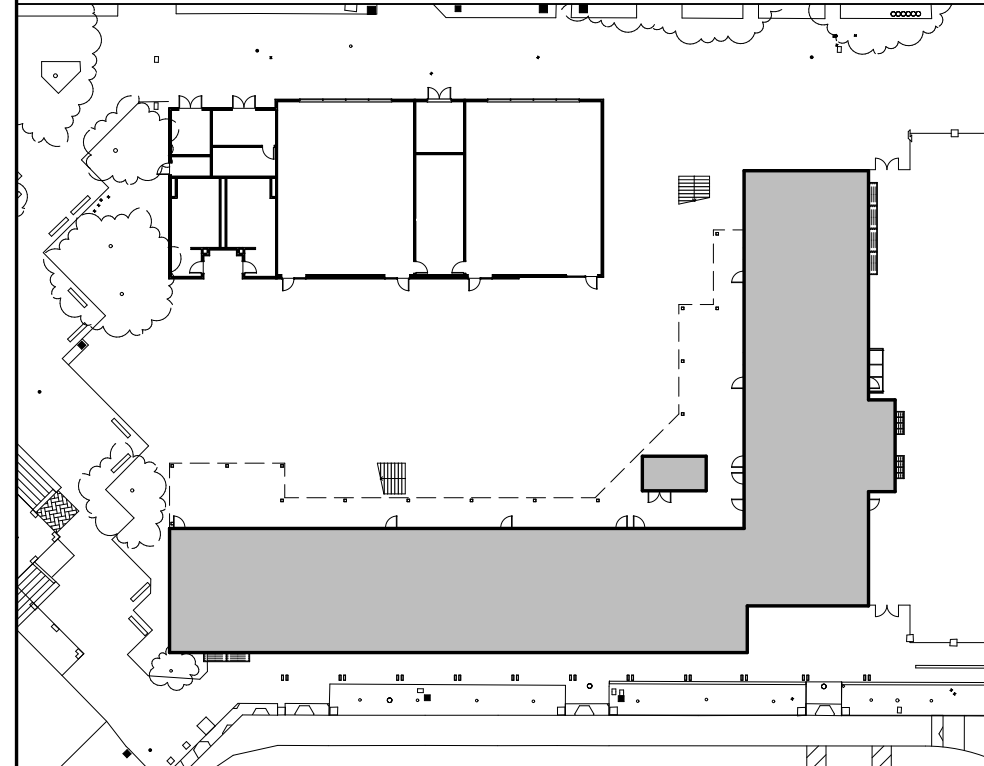
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  - PLY1 3/4" MDO FIRE RATED PLYWOOD

**TOILET ROOM ACCESSORY SCHEDULE**

- A TOILET PAPER DISPENSER, RECESSED (3" MAXIMUM PROJECTION)
- B PAPER TOWEL DISPENSER, RECESSED
- C SOAP DISPENSER, SURFACE MOUNTED
- D MIRROR (TYP), FOR ATTACHMENT SEE 12 WID A-10.3 22 MTL FRMG A-10.3
- E TOILET SEAT COVER DISPENSER, RECESSED
- F ELECTRIC HAND DRYER, SURFACE MOUNTED
- G SANITARY NAPKIN RECEPTACLE, RECESSED (5" MAXIMUM PROJECTION)
- H SANITARY NAPKIN DISPENSER, RECESSED (3" MAXIMUM PROJECTION)
- J 36" GRAB BAR, FOR ATTACHMENT SEE 6 WID A-10.3 28 MTL FRMG A-10.3
- J1 48" GRAB BAR, FOR ATTACHMENT SEE
- K ACCESSIBLE CHANGING TABLE

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
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**JIM THEISS LICENSE # C22843 EXP JUNE 30, 2023 STATE OF CALIFORNIA**  
SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

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08/19/22	ADDENDUM 1

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ARCH PROJECT NO. 1925.00  
DRAWN BY: JDS  
DRAWING SCALE: 1/4" = 1'-0"  
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**JUNE 24, 2022**

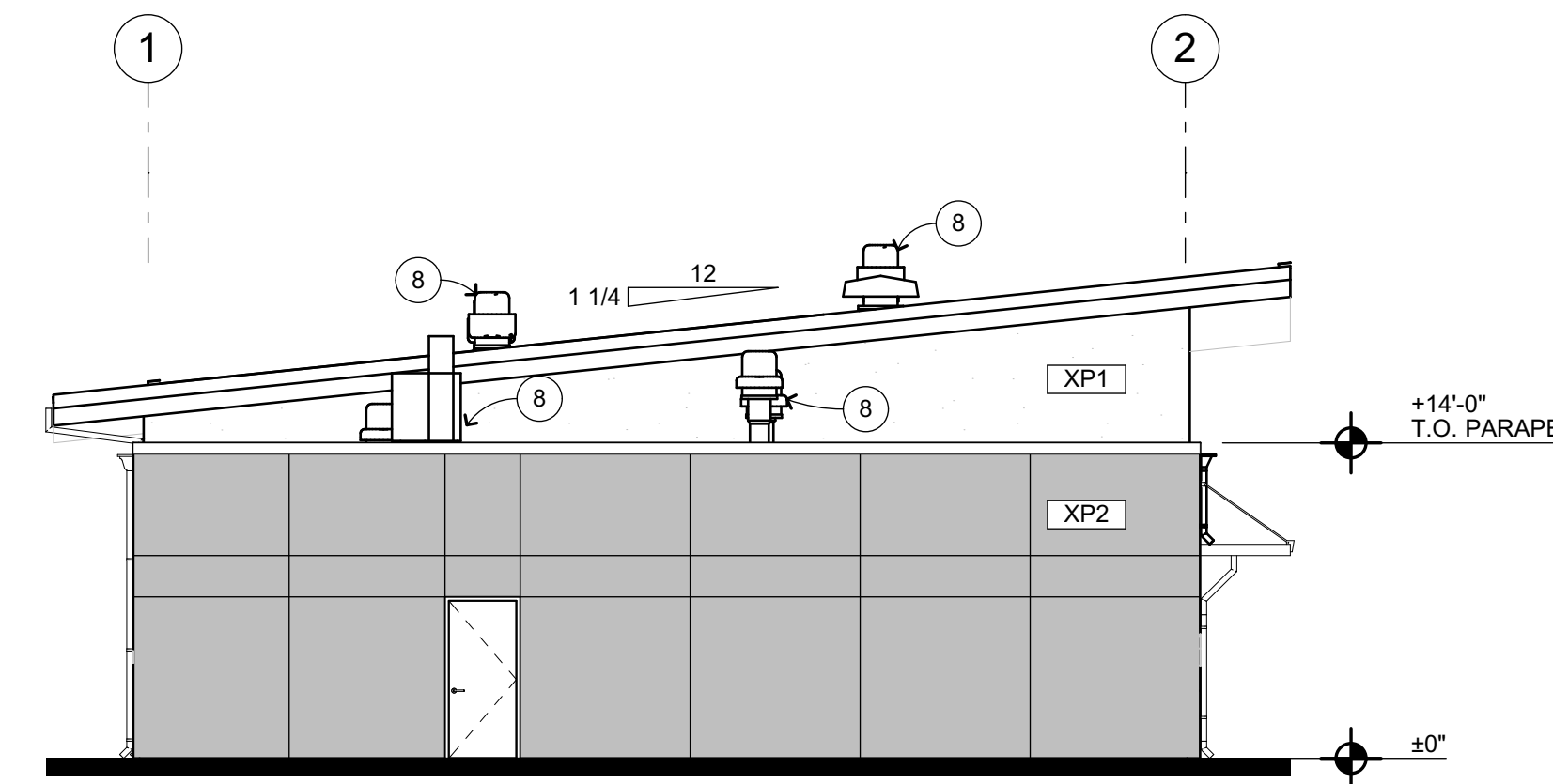
**BLDG A - RESTROOM PLANS AND INTERIOR ELEVATIONS**

SHEET NUMBER

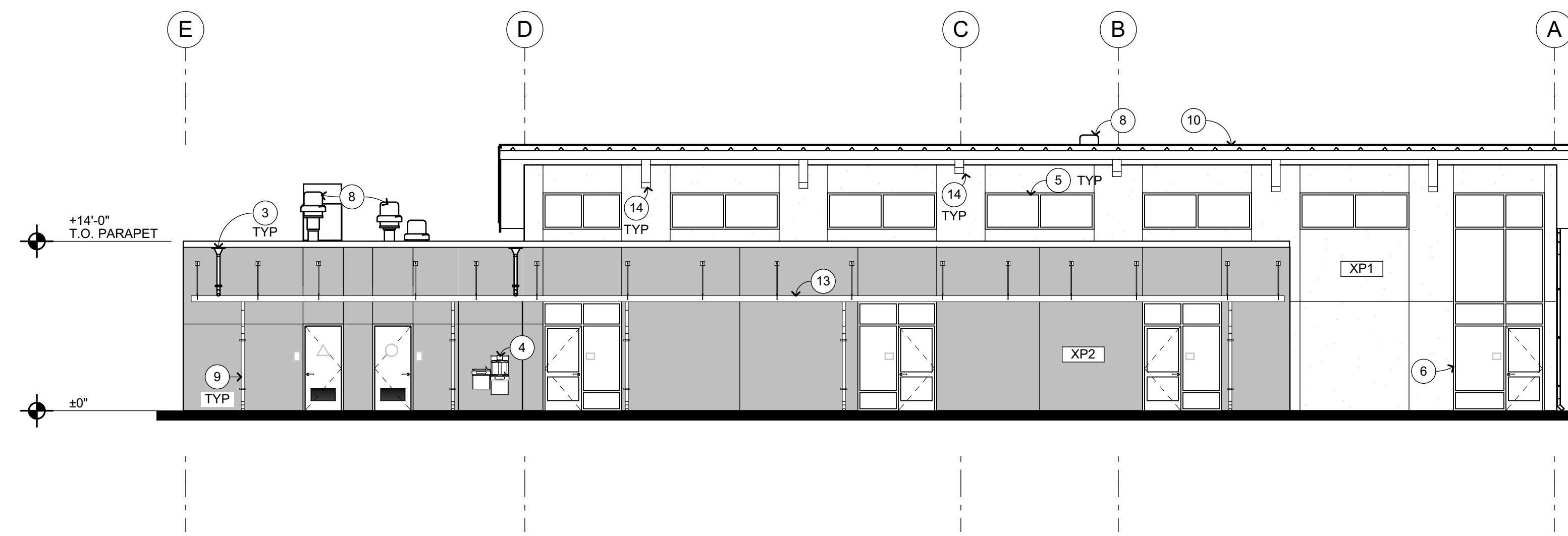
**A-A7.10**

P:\1925.00 - Liberty HS New Classrooms\_LUHSD\Drawings\05-CA\1925.00 Liberty HS Classroom\_BLDG A\plan\8\23\2022\9.33 AM

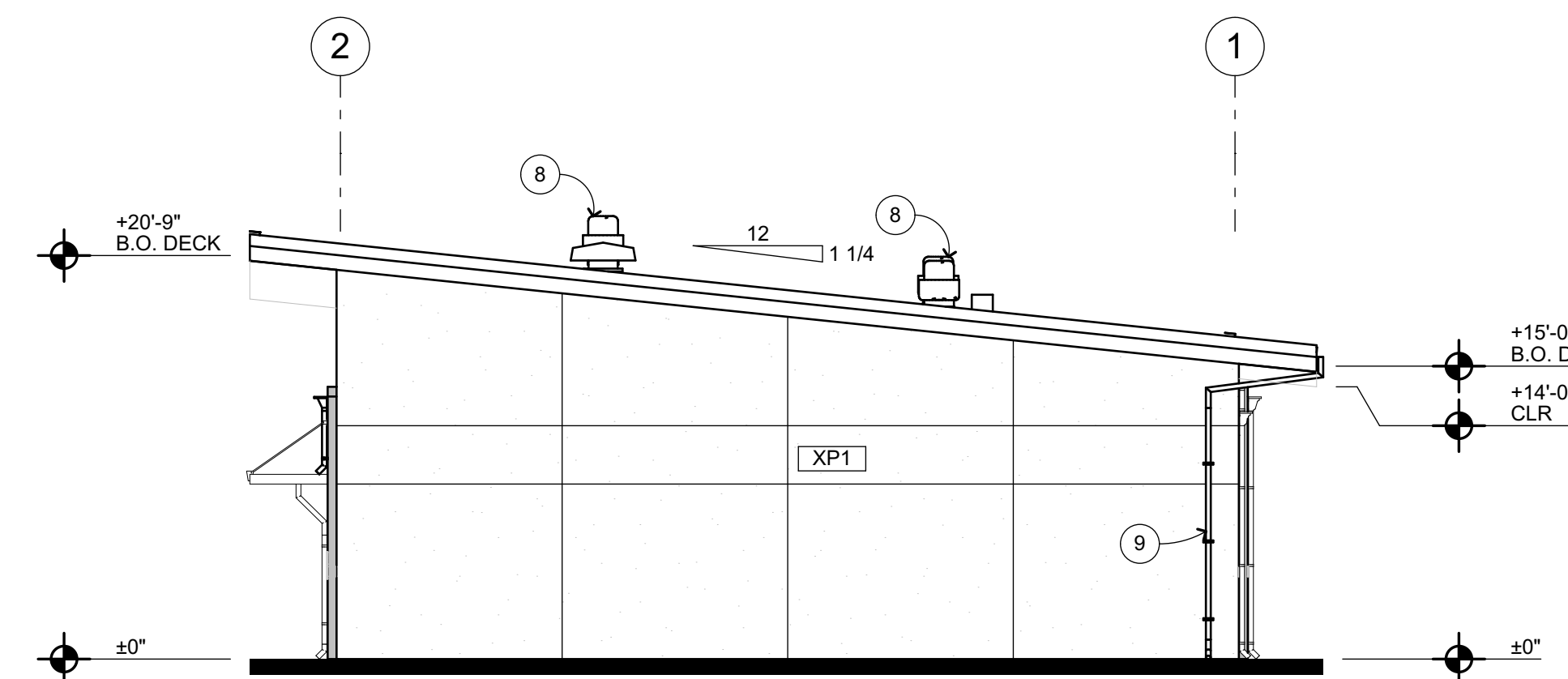




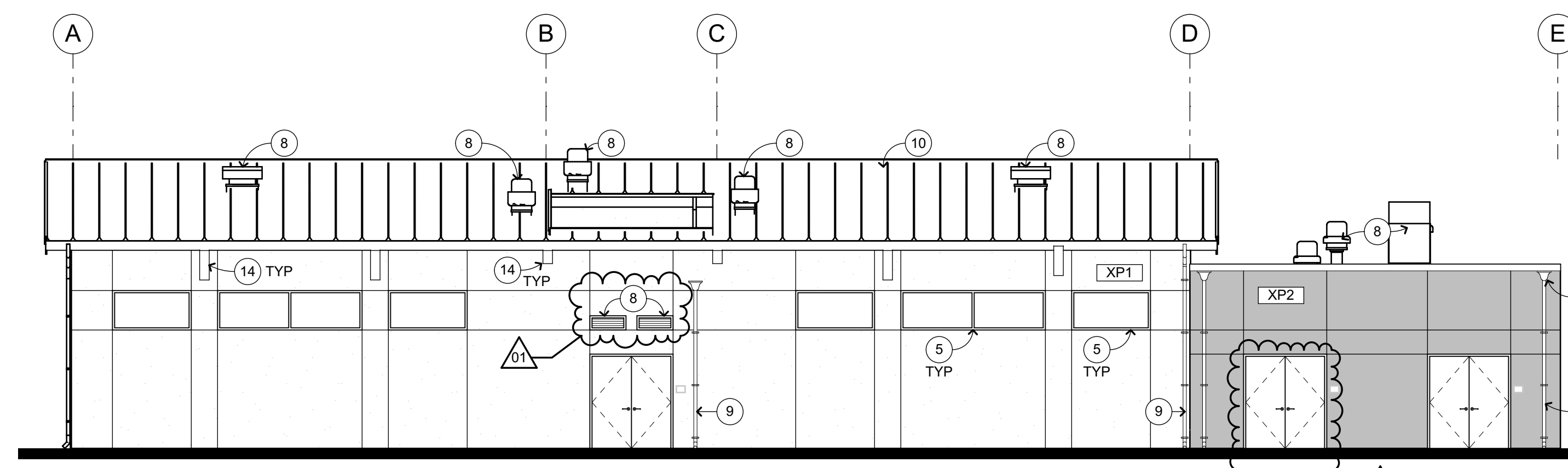
**NORTH ELEVATION** 1  
1/8" = 1'-0"



**WEST ELEVATION** 2  
1/8" = 1'-0"



**SOUTH ELEVATION** 3  
1/8" = 1'-0"



**EAST ELEVATION** 4  
1/8" = 1'-0"

**EXTERIOR ELEVATION KEYNOTES**

NOT ALL KEYNOTES MAY APPLY TO THIS SHEET

- 1 LIGHT FIXTURE, S.E.D.
- 2 SHADE STRUCTURE, SEE 22 A-9.4
- 3 SCUPPER W/ CONDUCTOR HEAD, SEE 11 A-9.5
- 4 ACCESSIBLE HI-LO DRINKING FOUNTAIN W/ BOTTLE FILLER, SEE 2 A-10.3
- 5 STOREFRONT WINDOWS, SEE A-8.2 FOR WINDOW SCHEDULE
- 6 CURTAIN WALL SYSTEM
- 7 STRUCTURAL PERFORATED METAL SIGNAGE
- 8 MECHANICAL ITEM, S.M.D.
- 9 RAIN WATER LEADER, SEE 4 A-9.8
- 10 STANDING SEAM MTL ROOF, SEE 24 A-9.6
- 11 STRUCTURAL COLUMN, S.S.D.
- 12 GUARDRAIL, SEE 10 A-A6.4
- 13 INTEGRATED RAIN CANOPY, SEE 2 A-9.7
- 14 STRUCTURAL BEAM, S.S.D.

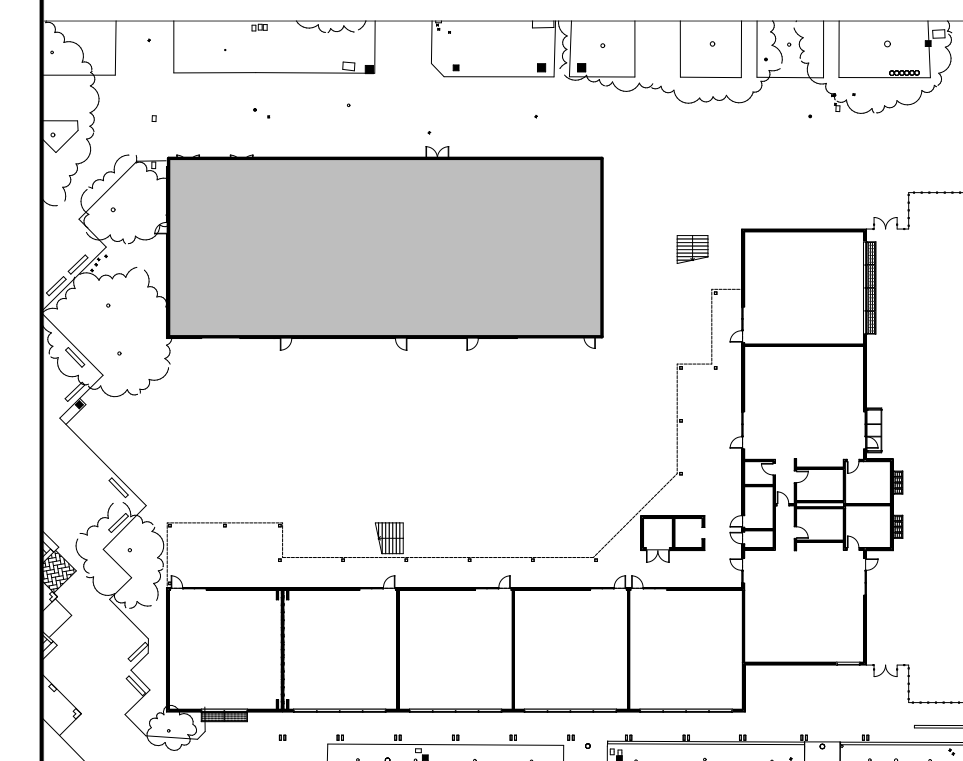
**EXTERIOR ELEVATION LEGEND**

SEE FINISH SCHEDULE ON SHEET A-8.3 FOR FINISH INFORMATION

XX1 XX1 REFERS TO EXTERIOR FINISH CODE SEE BELOW.

- PLASTER CONTROL JOINT, TYP
- XP1 CEMENT PLASTER 4 A-9.1
- XP2 CEMENT PLASTER; COLUMNS
- DM1 PERFORATED METAL PANELS

**KEY PLAN**



**QUATTROCCHI KWOK ARCHITECTS**  
Main: 636 Fifth Street, Santa Rosa, CA 95404  
East Bay: 55 Harrison Street, Suite 525, Oakland, CA 94607 (707) 576-0829

**LICENSED ARCHITECT**  
JIM THEISS  
LICENSE # C22843  
EXP JUNE 30, 2023  
STATE OF CALIFORNIA  
SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

850 2ND STREET  
BRENTWOOD, CA  
94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

08/19/22 ADDENDUM 1

DSA APP NO. 01-119994

ARCH PROJECT NO. 1925.00

DRAWN BY: HD

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

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

JUNE 24, 2022

SHEET TITLE

**BLDG B - EXTERIOR ELEVATIONS**

SHEET NUMBER

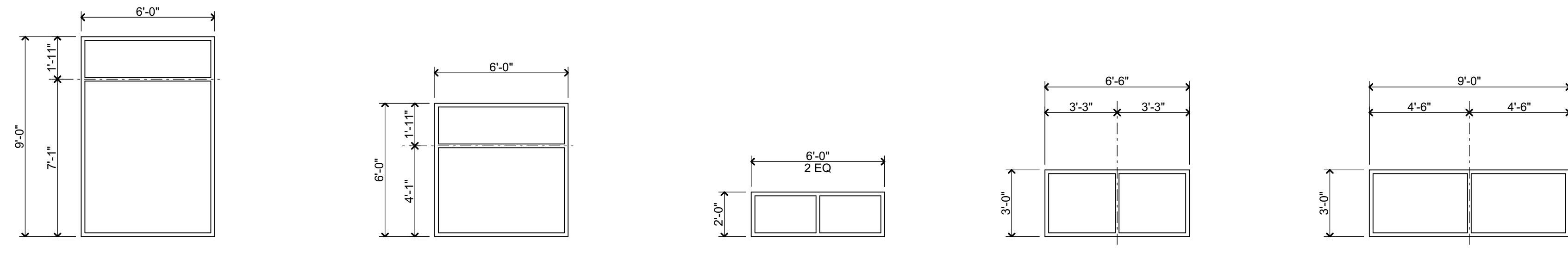
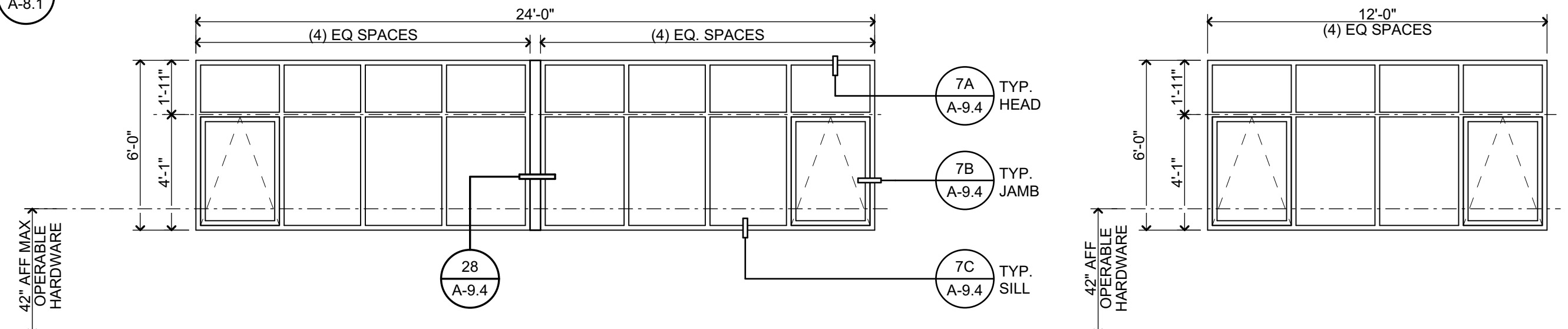
**A-B5.1**



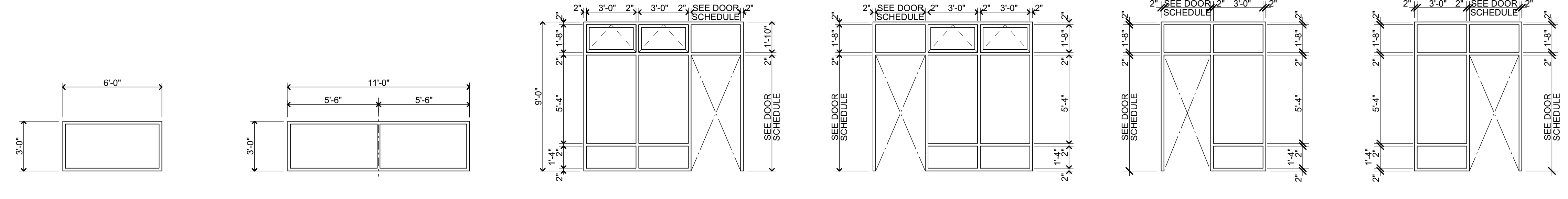
# ALUMINUM STOREFRONT TYPES

## ALL BUILDINGS

ALUMINUM FRAMING IS 2x6" TYP. U.N.O. ALL ALUMINUM STOREFRONTS AND CURTAINWALLS SHALL BE SUBMITTED AS A DEFERRED SUBMITAL. REFER TO SPEC SECTION 08 8000 FOR ADDITIONAL NOTES AND INFORMATION NOT INDICATED.

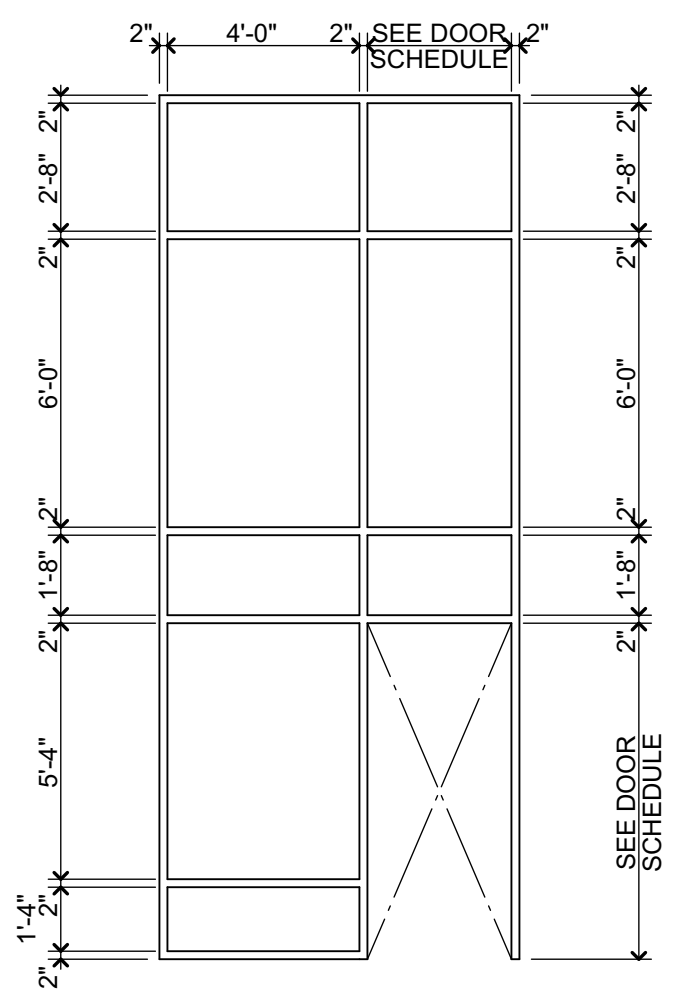


	SF01	SF02	SF03	SF04	SF05	SF06	SF07
TYPE	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT
GLAZING	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED
OPERATION	(2) AWNING SASHES	(2) AWNING SASHES	-	-	-	-	-
RATING	-	-	-	-	-	-	-
NOTES	IF LOCATED ON FIRST FLOOR, PROVIDE 4" OPENING REGULATOR AT AWNING SASHES	IF LOCATED ON FIRST FLOOR, PROVIDE 4" OPENING REGULATOR AT AWNING SASHES	-	-	-	-	-



	SF08	SF09	SF10	SF11	SF13	SF14
TYPE	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT
GLAZING	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED	DUAL GLAZED
OPERATION	-	-	(2) AWNING TRANSOM SASHES	(2) AWNING TRANSOM SASHES	-	-
RATING	-	-	-	-	-	-
NOTES	-	-	NO OPERABLE SASHES AT DOORS: A106B, A110A.	NO OPERABLE SASHES AT DOORS: A110B	-	-

# CURTAINWALL TYPES



	CW01
TYPE	ALUMINUM CURTAINWALL
GLAZING	DUAL GLAZED
OPERATION	-
RATING	-
NOTES	-

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LICENSED ARCHITECT  
JIM THEISS  
LICENSE # C22643  
EXP JUNE 30, 2023  
STATE OF CALIFORNIA  
SIGNED: JUNE 24, 2022

LIBERTY HIGH SCHOOL

NEW CLASSROOM BUILDINGS

850 2ND STREET BRENTWOOD, CA 94513

LIBERTY UNION HIGH SCHOOL DISTRICT

08/19/22	ADDENDUM 1

DSA APP NO. 01-119994  
ARCH PROJECT NO. 1925.00  
DRAWN BY: JDS  
DRAWING SCALE: NTS  
PTN: 61721-83 FILE NO: 7-H4  
CONSTRUCTION DOCUMENTS  
JUNE 24, 2022  
SHEET TITLE

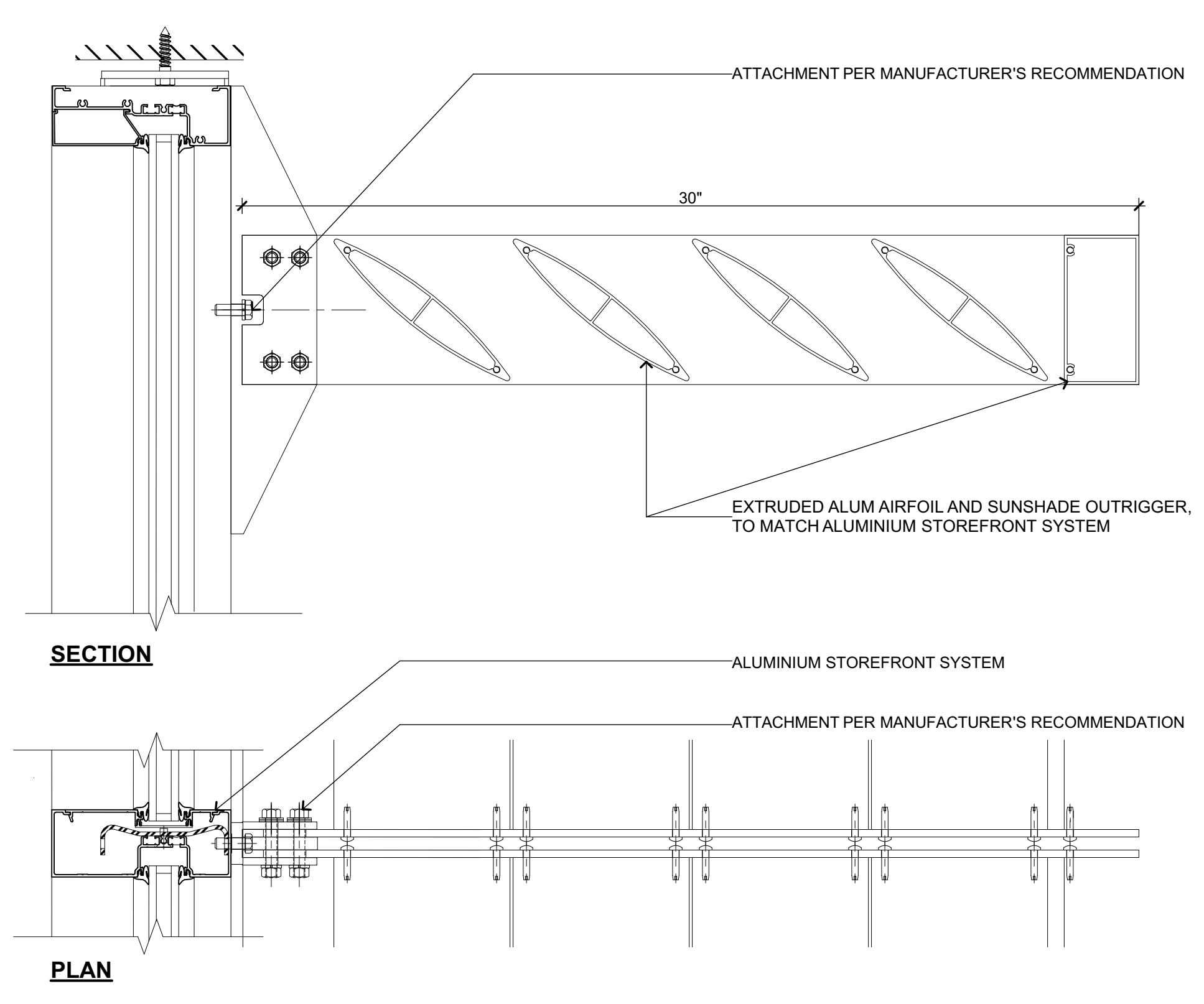
WINDOW SCHEDULE

SHEET NUMBER

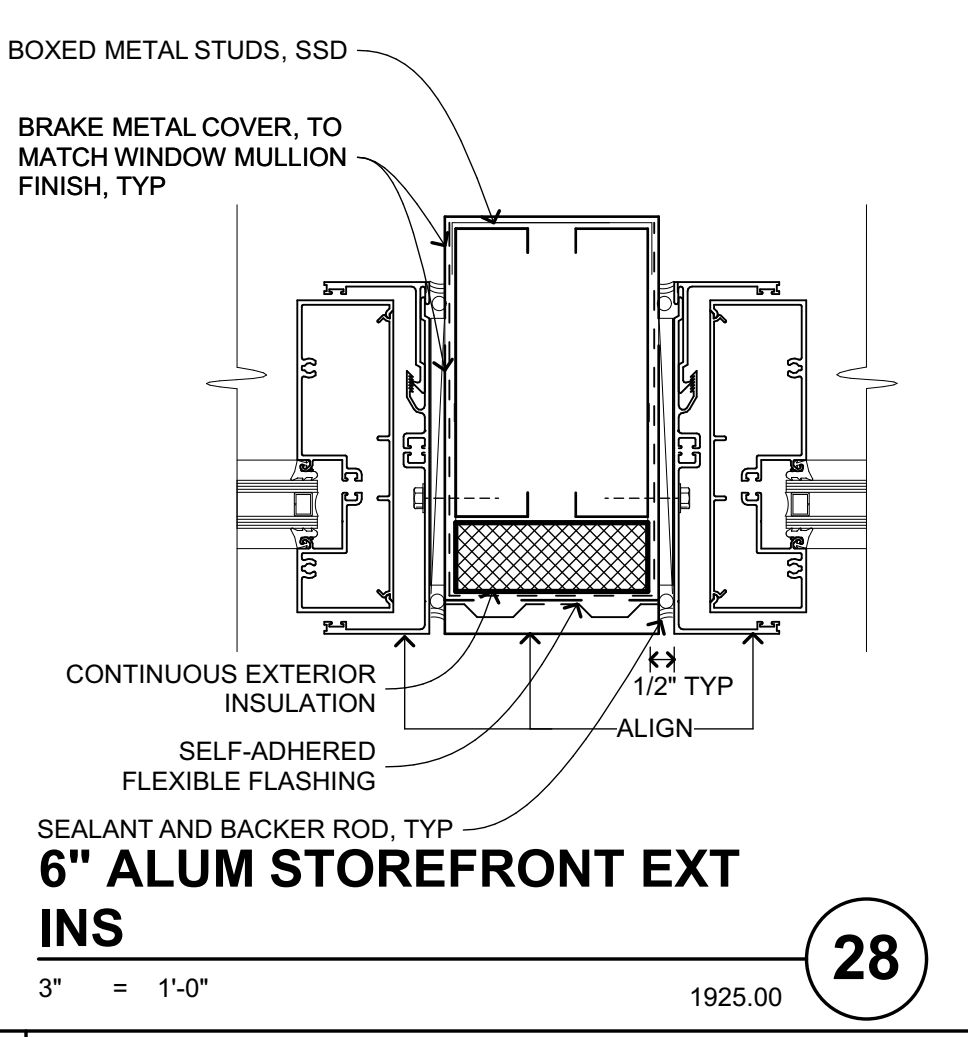
**A-8.2**

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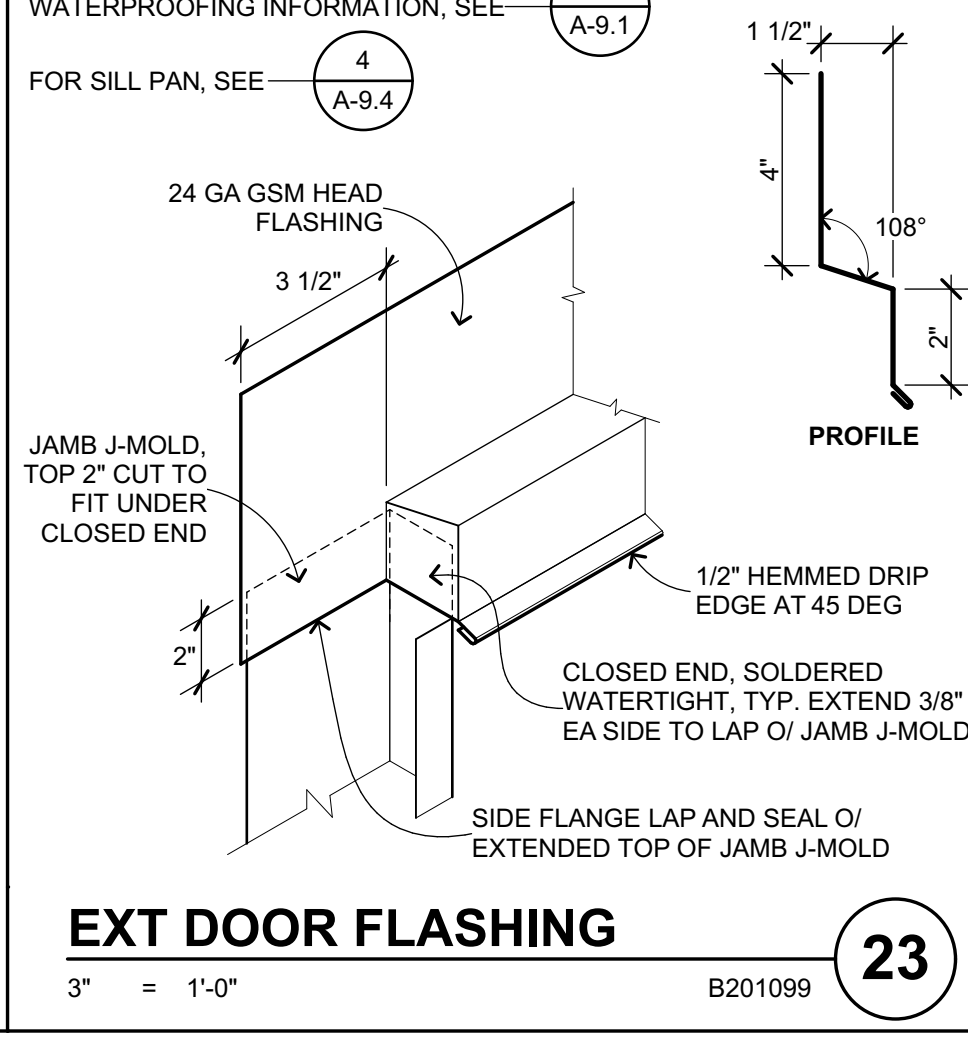
NOTE: ALUMINIUM STOREFRONT AND INTEGRATED SUNSHADE SYSTEM ARE FROM THE SAME MANUFACTURER AND TO BE A DEFERRED SUBMITTAL FOR APPROVAL.



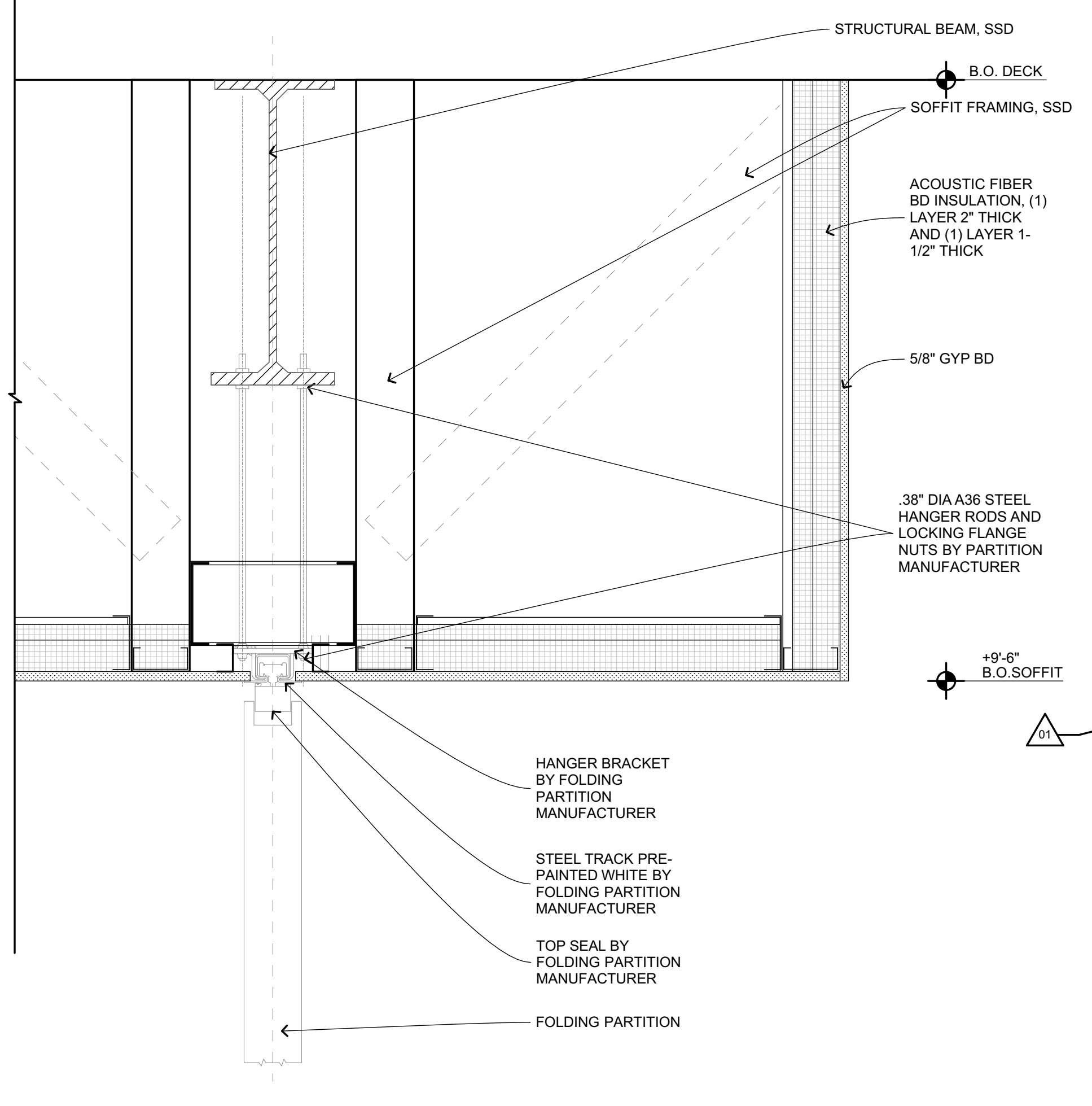
**STOREFRONT SUNSHADE**  
3" = 1'-0" 1925.00 22



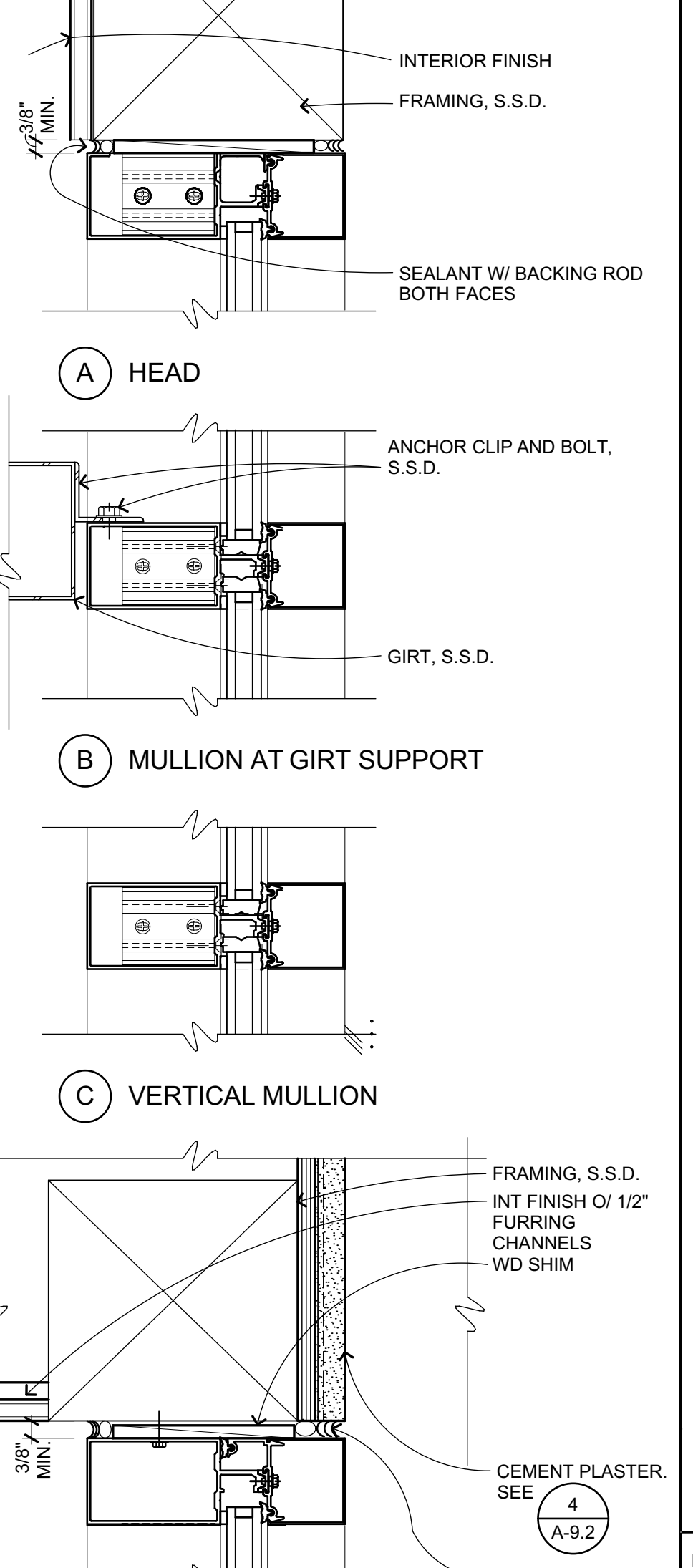
**6" ALUM STOREFRONT EXT INS**  
3" = 1'-0" 1925.00 28



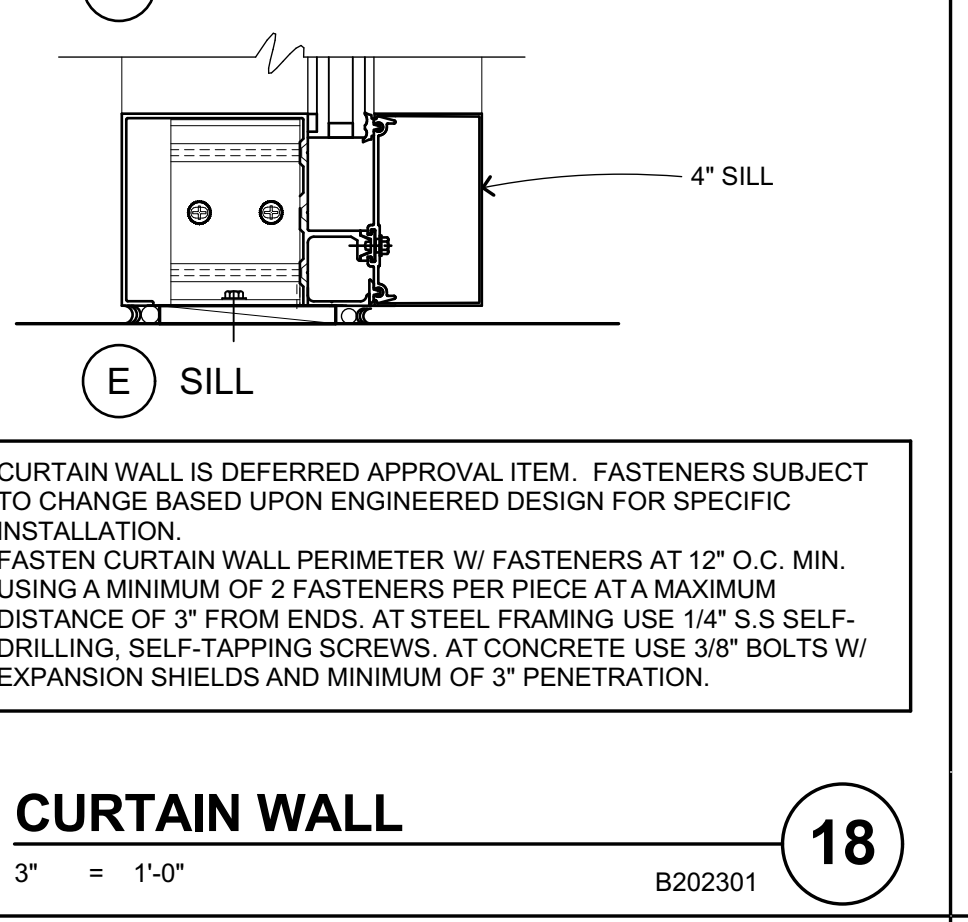
**EXT DOOR FLASHING**  
3" = 1'-0" B201099 23



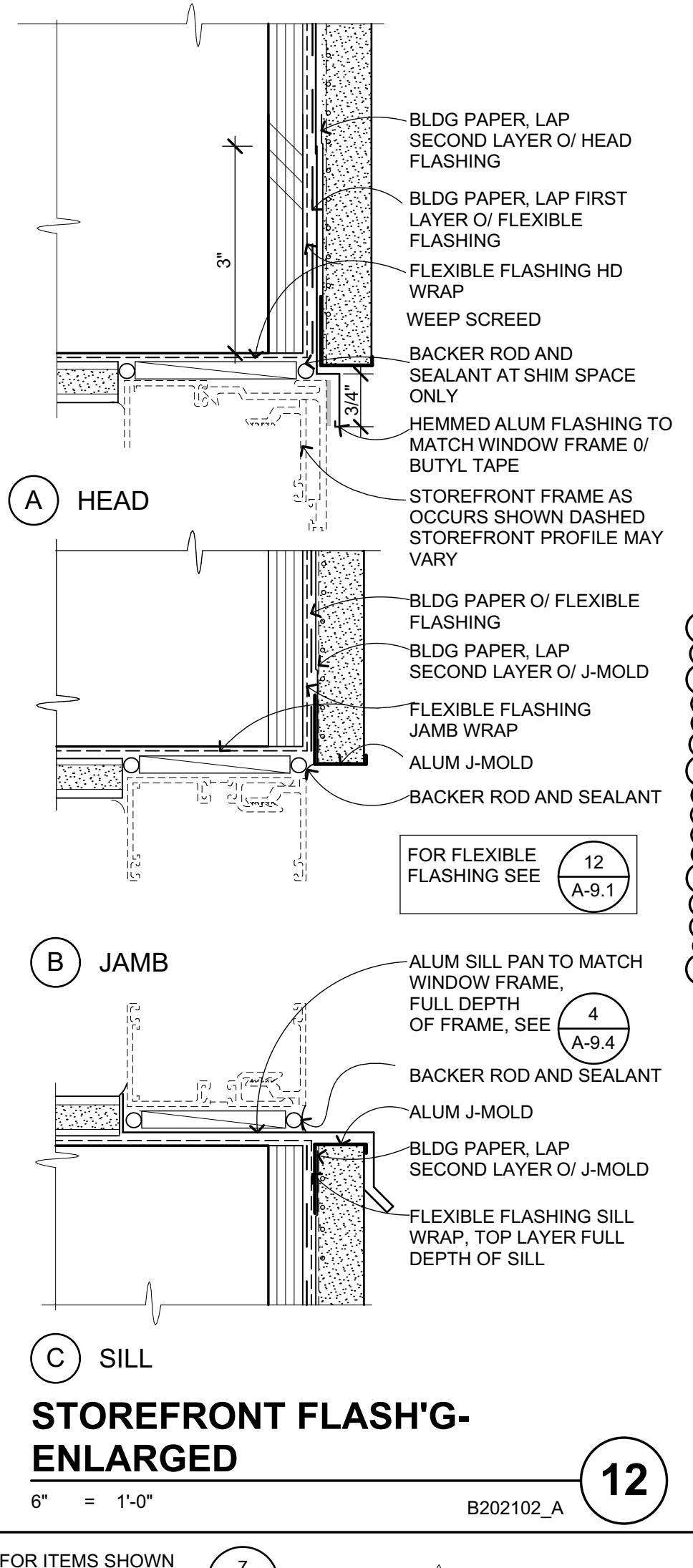
**FOLDING PARTITION HEAD**  
1 1/2" = 1'-0" 25



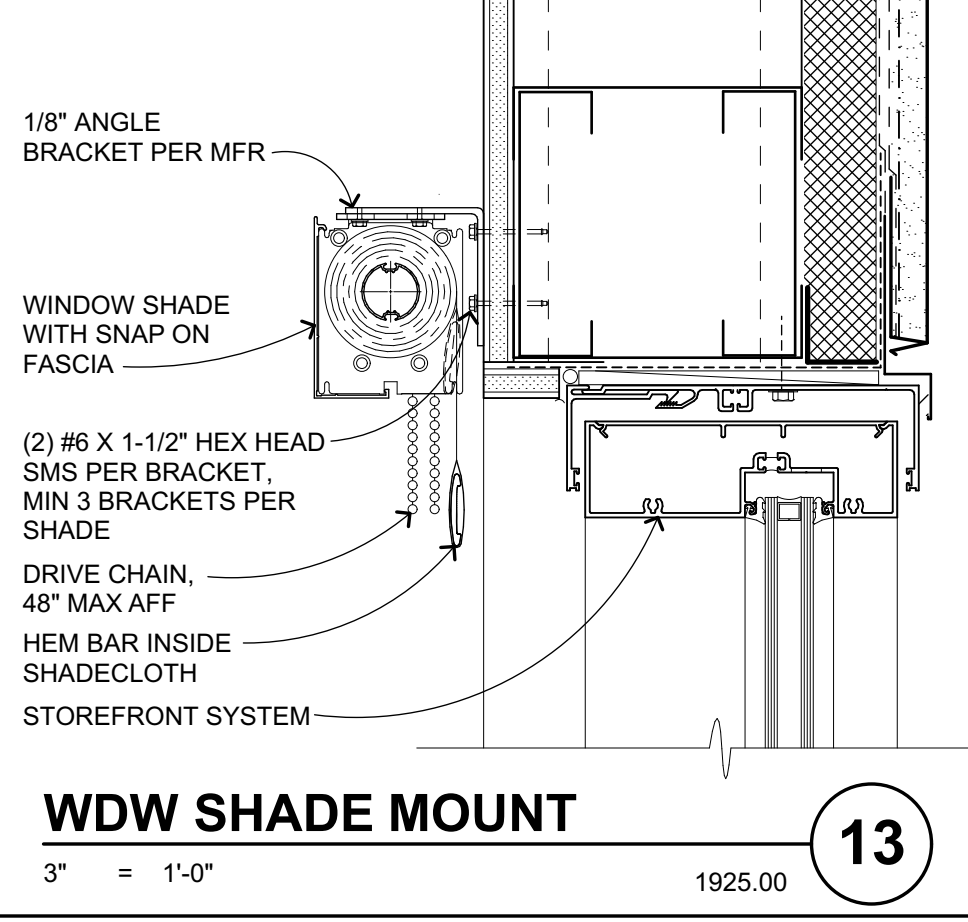
**STOREFRONT FLASH'G-ENLARGED**  
6" = 1'-0" B202102\_A 12



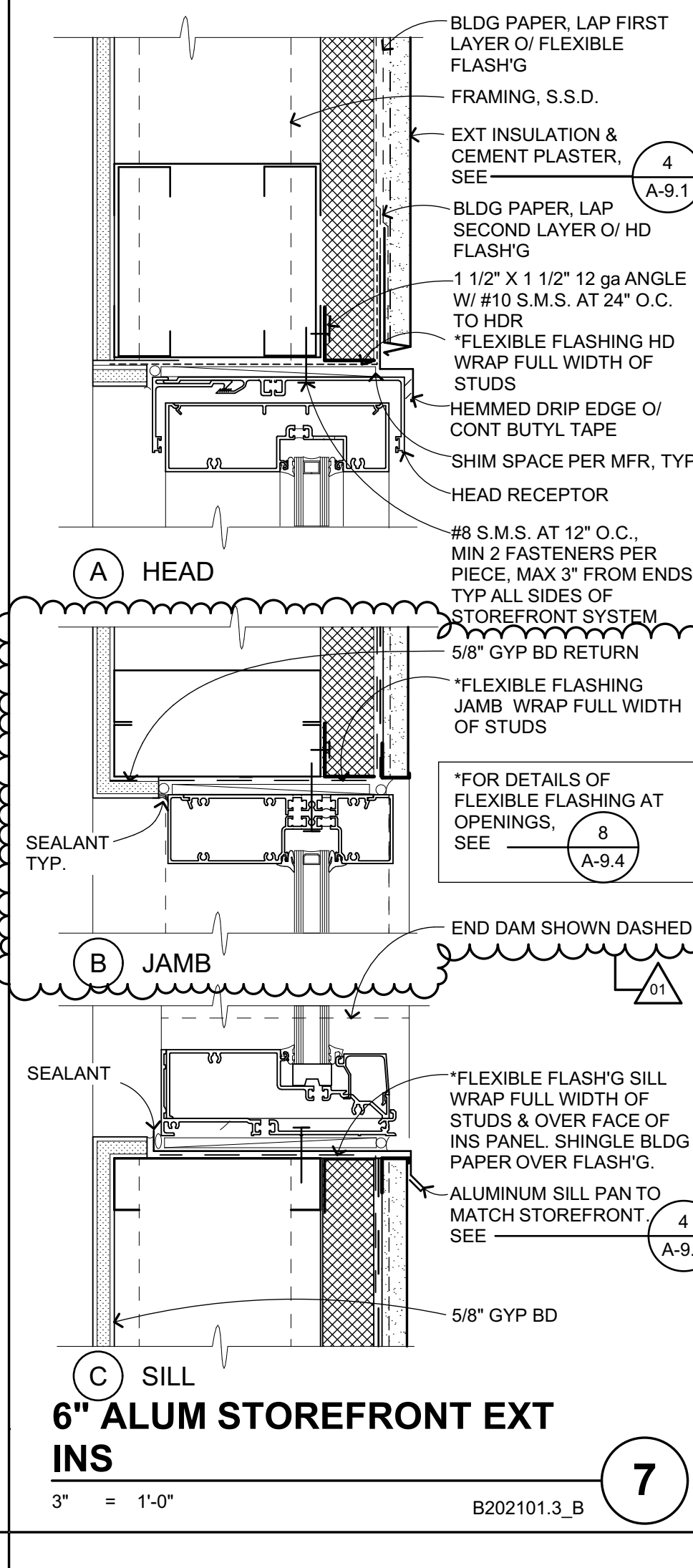
**CURTAIN WALL**  
3" = 1'-0" B202301 18



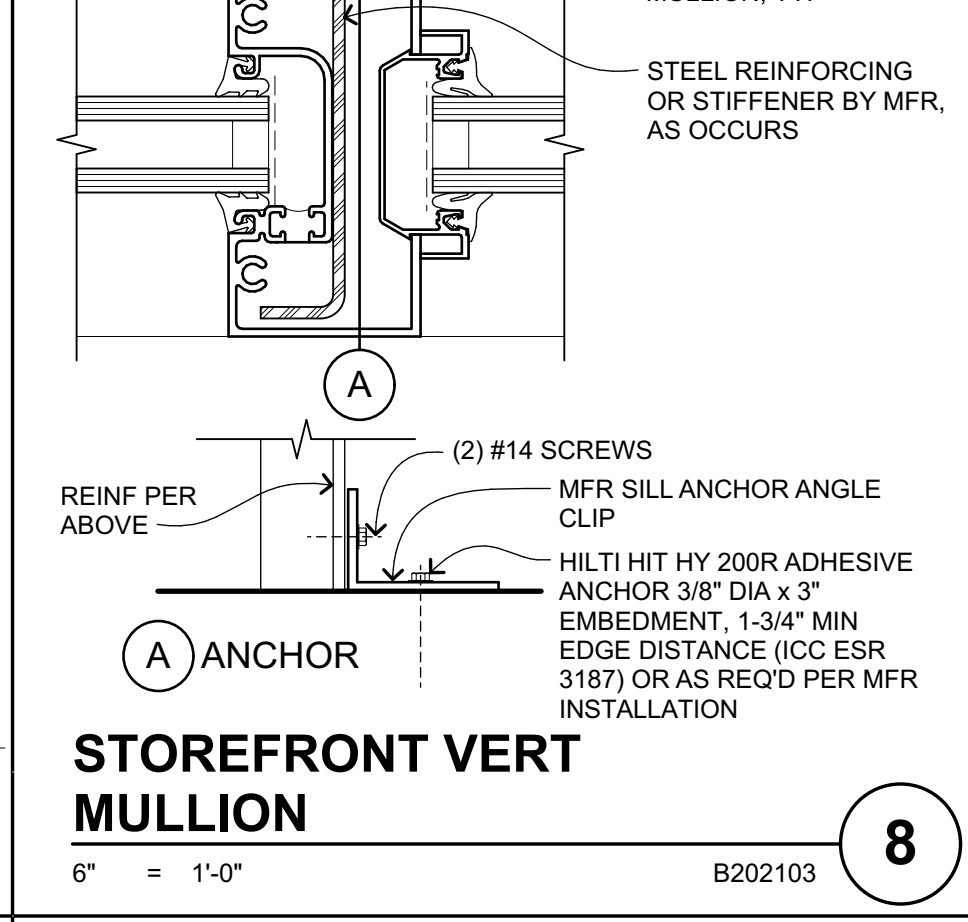
**STOREFRONT FLASH'G-ENLARGED**  
6" = 1'-0" B202102\_A 12



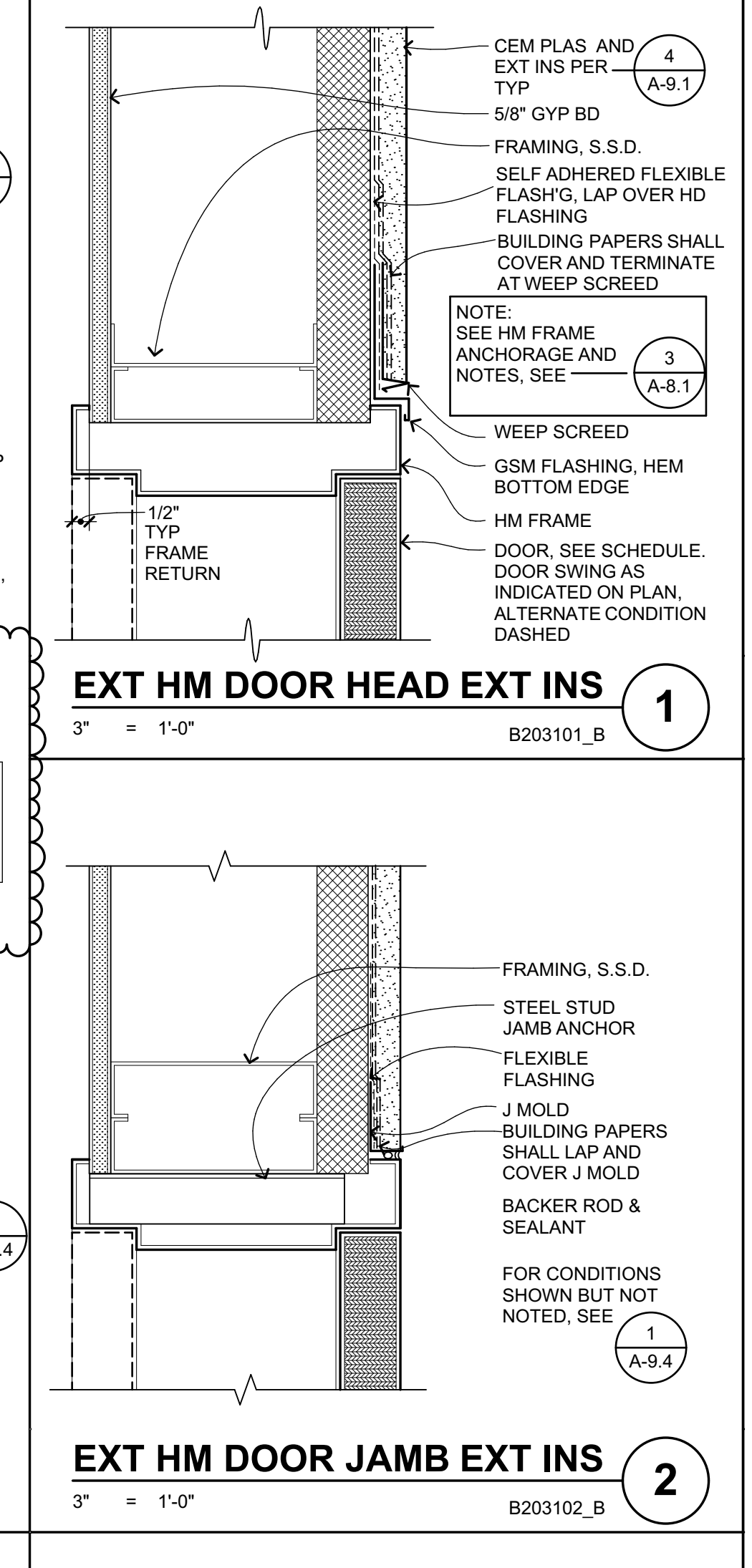
**WDW SHADE MOUNT**  
3" = 1'-0" 1925.00 13



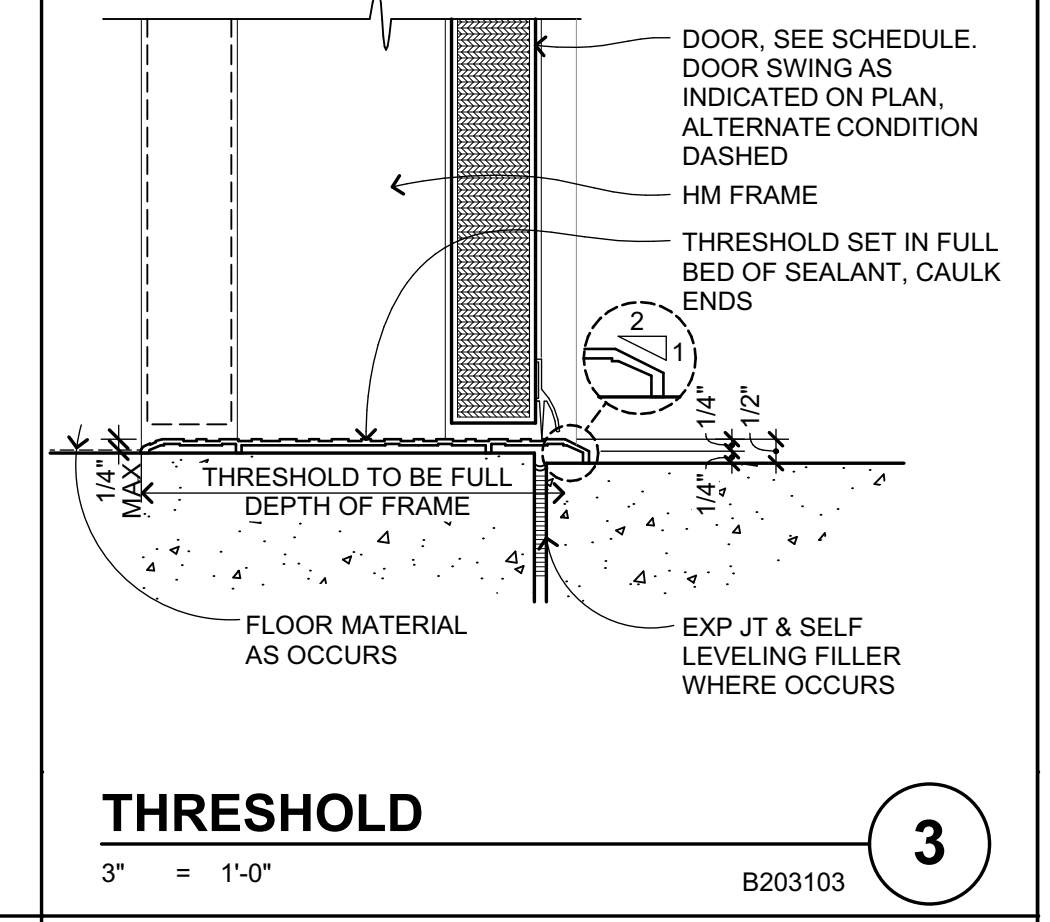
**6" ALUM STOREFRONT EXT INS**  
3" = 1'-0" B202101.3\_B 7



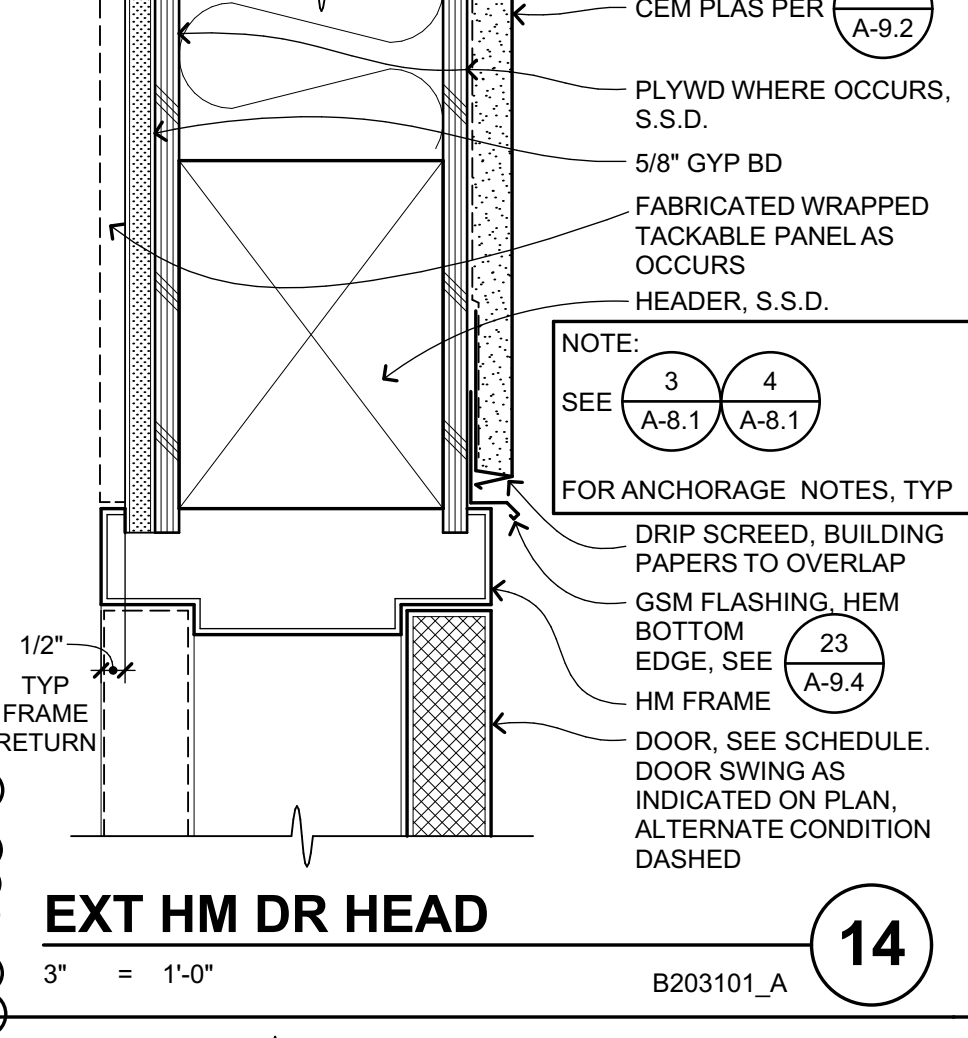
**STOREFRONT VERT MULLION**  
6" = 1'-0" B202103 8



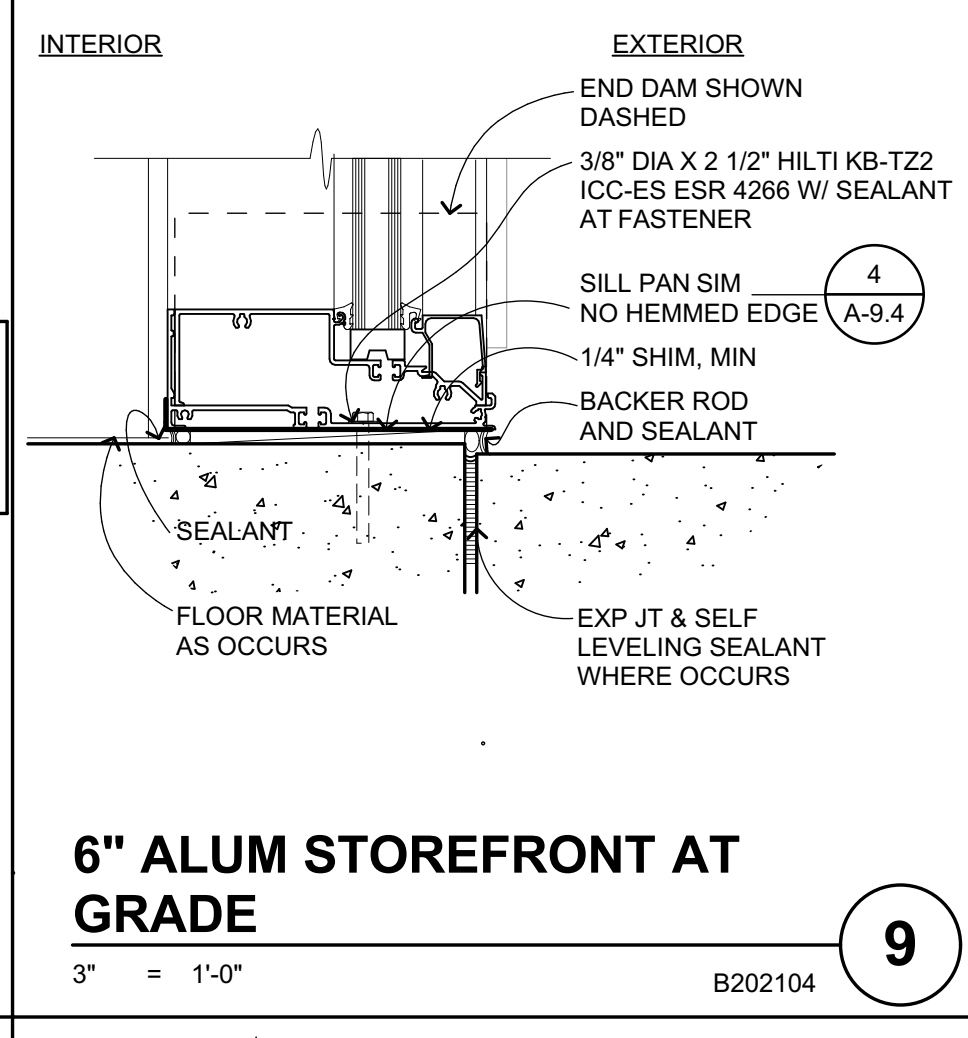
**EXT HM DOOR HEAD EXT INS**  
3" = 1'-0" B203101\_B 1



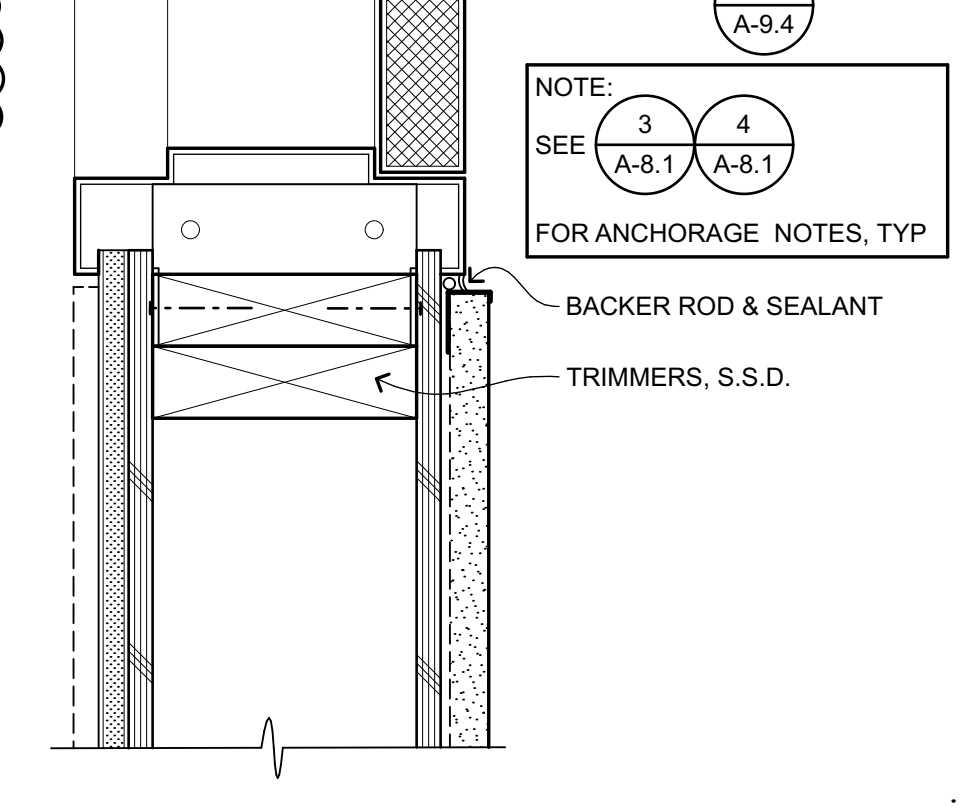
**THRESHOLD**  
3" = 1'-0" B203103 3



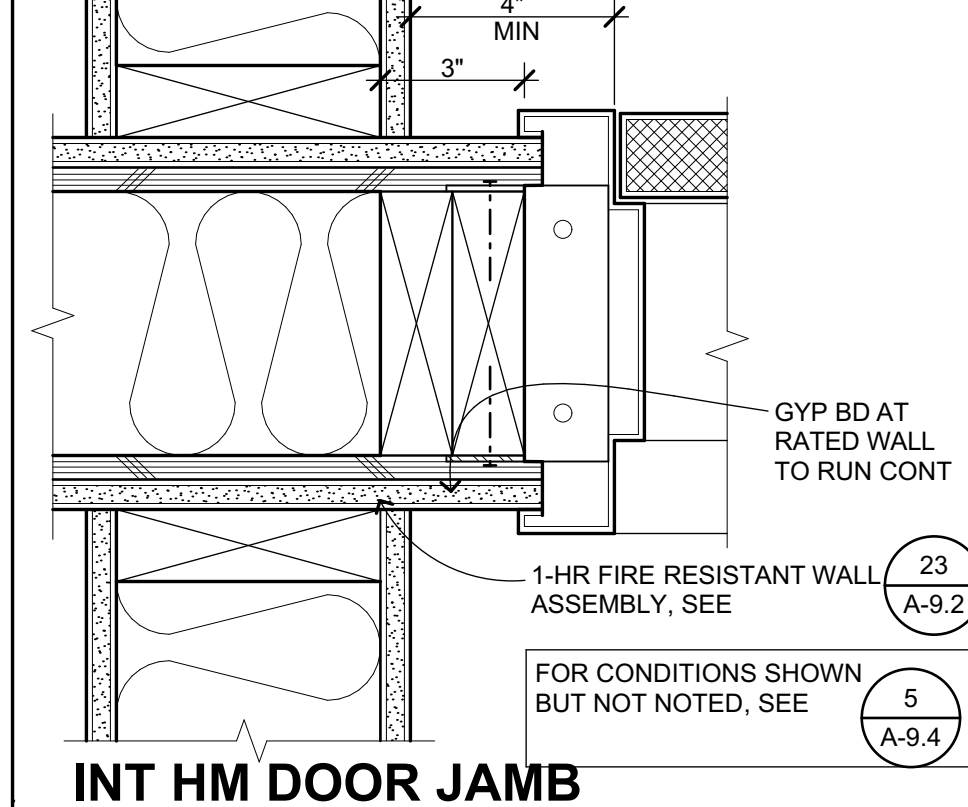
**EXT HM DR HEAD**  
3" = 1'-0" B203101\_A 14



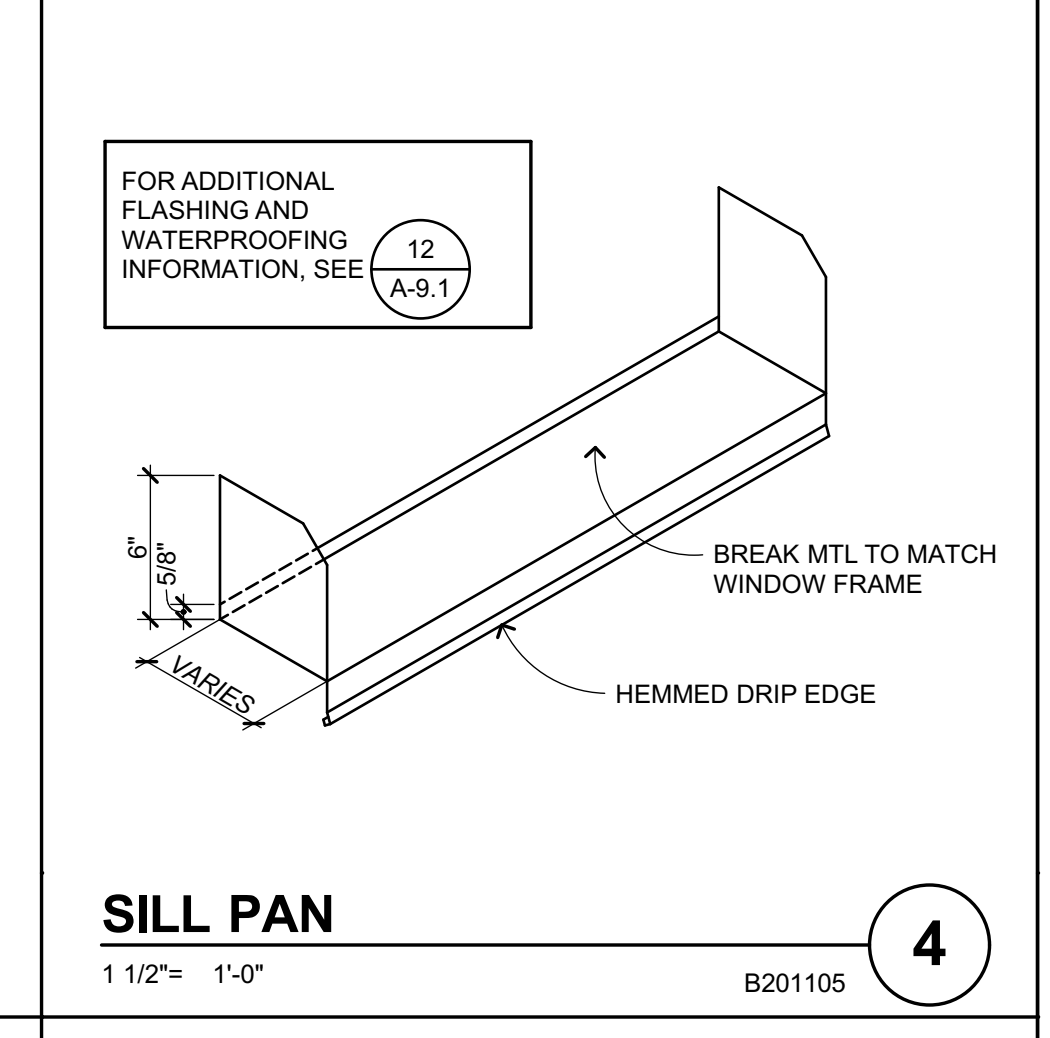
**6" ALUM STOREFRONT AT GRADE**  
3" = 1'-0" B202104 9



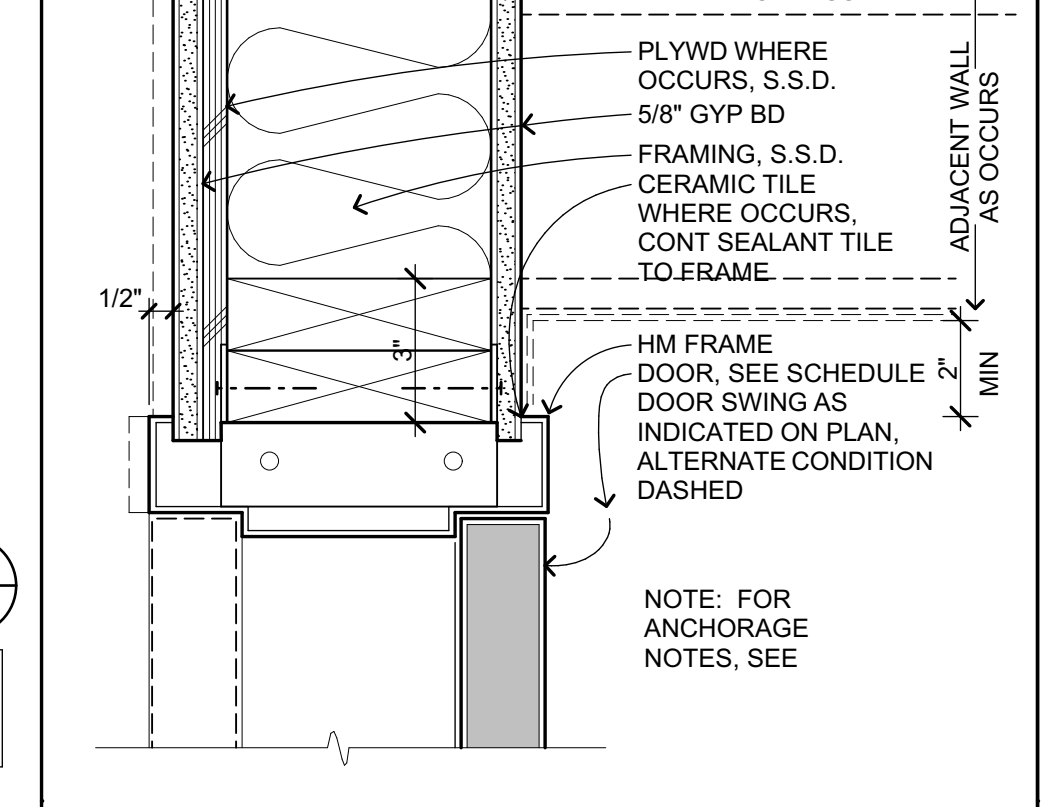
**EXT HM JAMB**  
3" = 1'-0" B203102\_A 15



**INT HM DOOR JAMB ADJACENT**  
3" = 1'-0" C102502A 10



**SILL PAN**  
1 1/2" = 1'-0" B201105 4



**INT HM HEAD/JAMB**  
3" = 1'-0" C102501 5

**QUATTROCCHI KWOK ARCHITECTS**  
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**ARCHITECT**  
JIM THEISS  
LICENSE # C22643  
EXP JUNE 30, 2023  
SIGNED: JUNE 24, 2022

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDINGS**

850 2ND STREET  
BRENTWOOD, CA  
94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

08/19/22	ADDENDUM 1

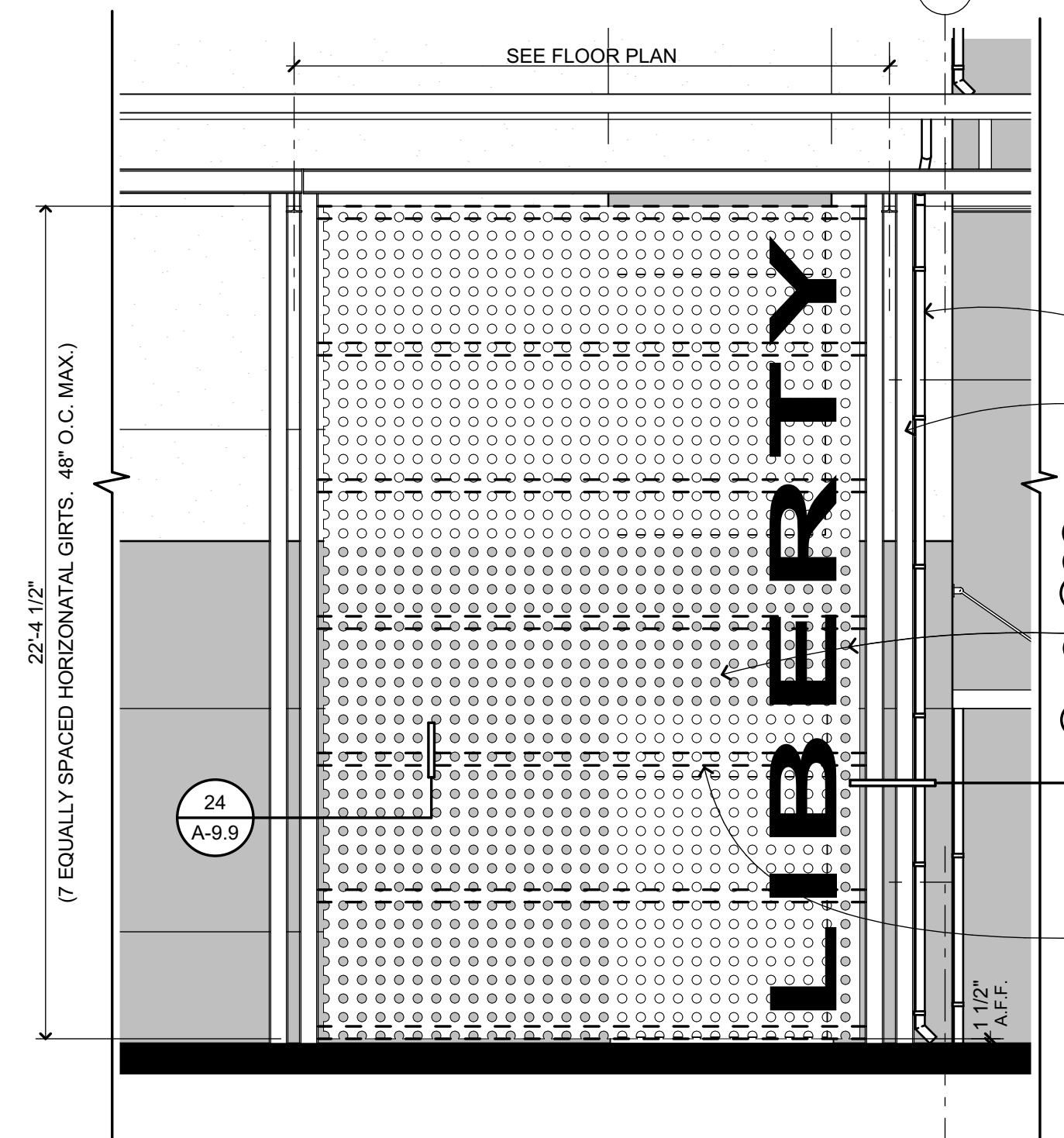
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ARCH PROJECT NO. 1925.00  
DRAWN BY: JDS  
DRAWING SCALE: AS NOTED  
PTN: 61721-83 FILE NO: 7-H4  
CONSTRUCTION DOCUMENTS  
JUNE 24, 2022  
SHEET TITLE

**OPENING DETAILS**

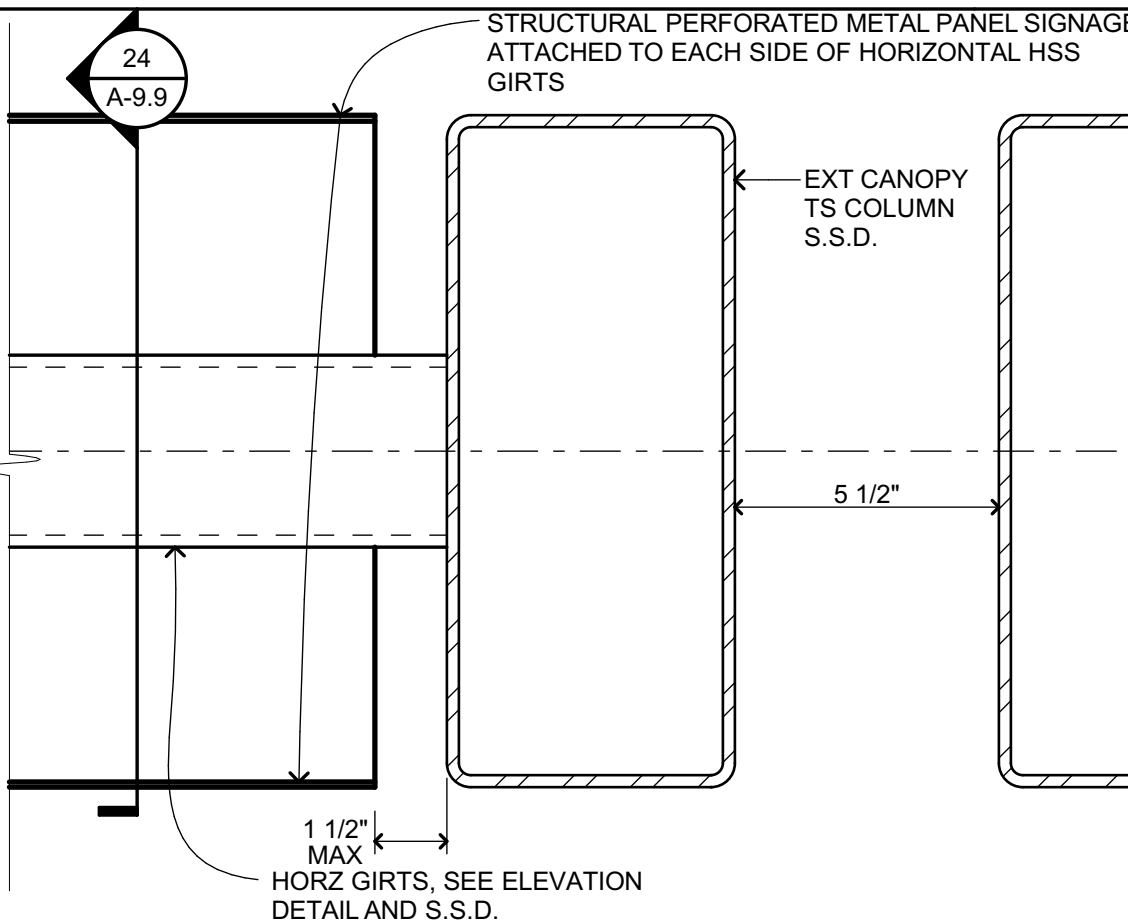
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**A-9.4**

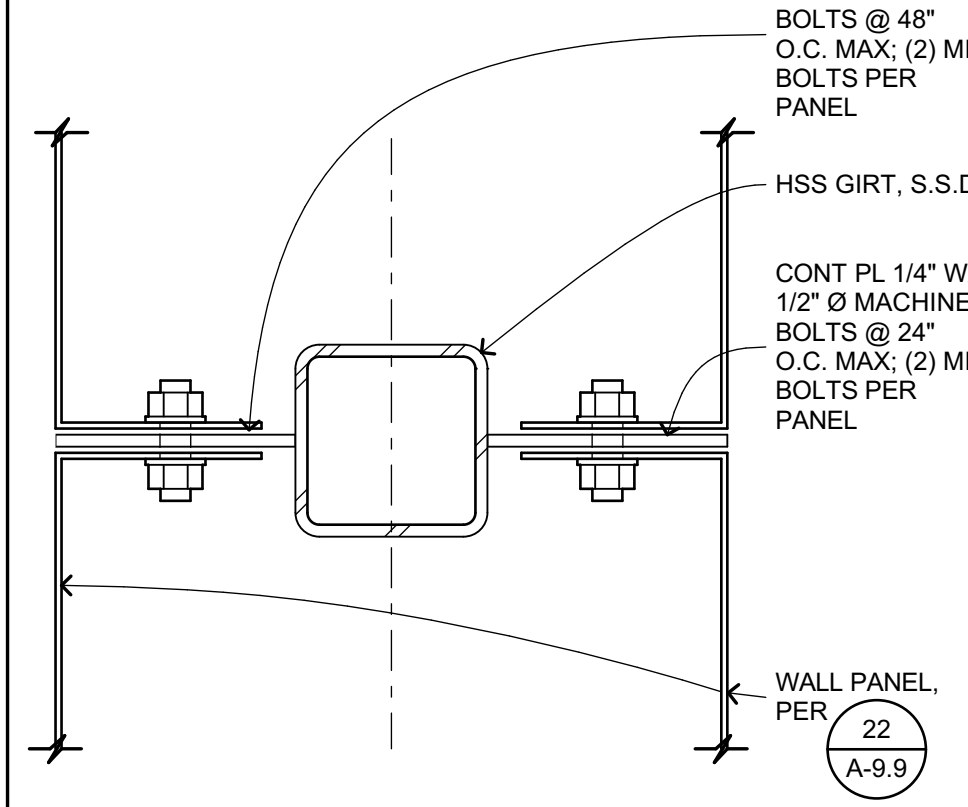
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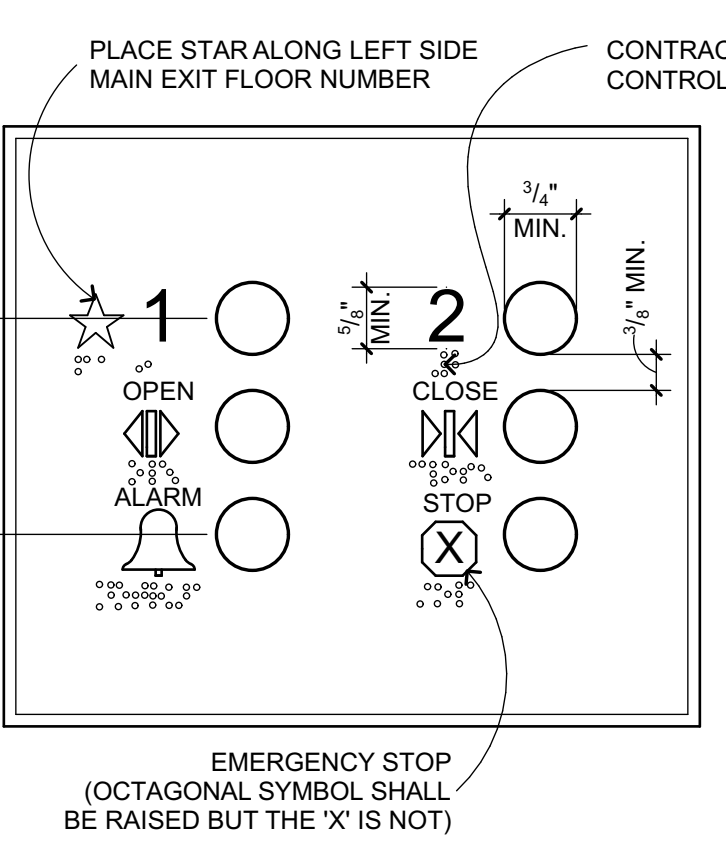
**PERFORATED METAL PANEL ELEVATION**  
1/4" = 1'-0"



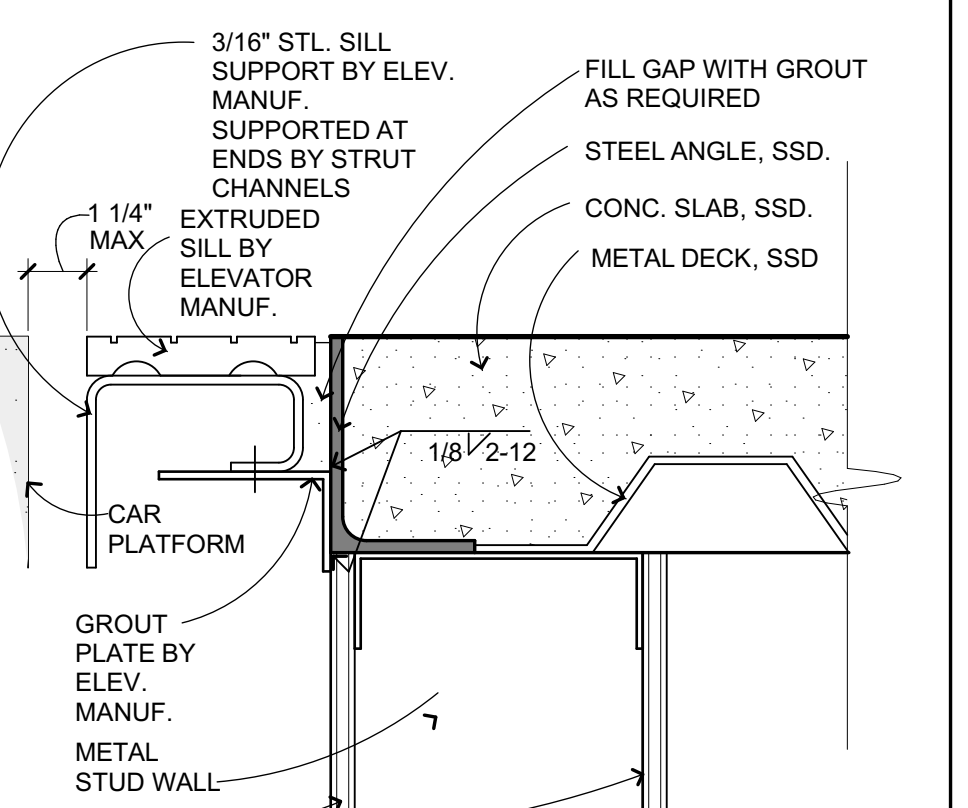
**PERFORATED METAL PANEL SECTION**  
3" = 1'-0"



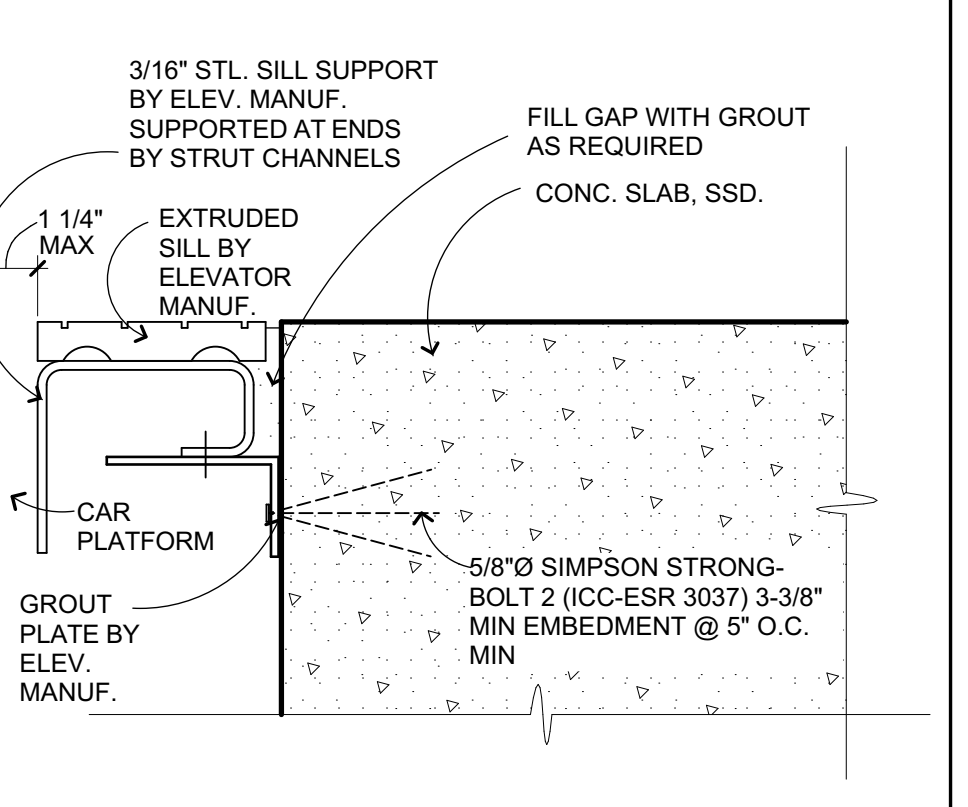
**PERF MTL PANEL ATTACHMENT**  
3" = 1'-0"



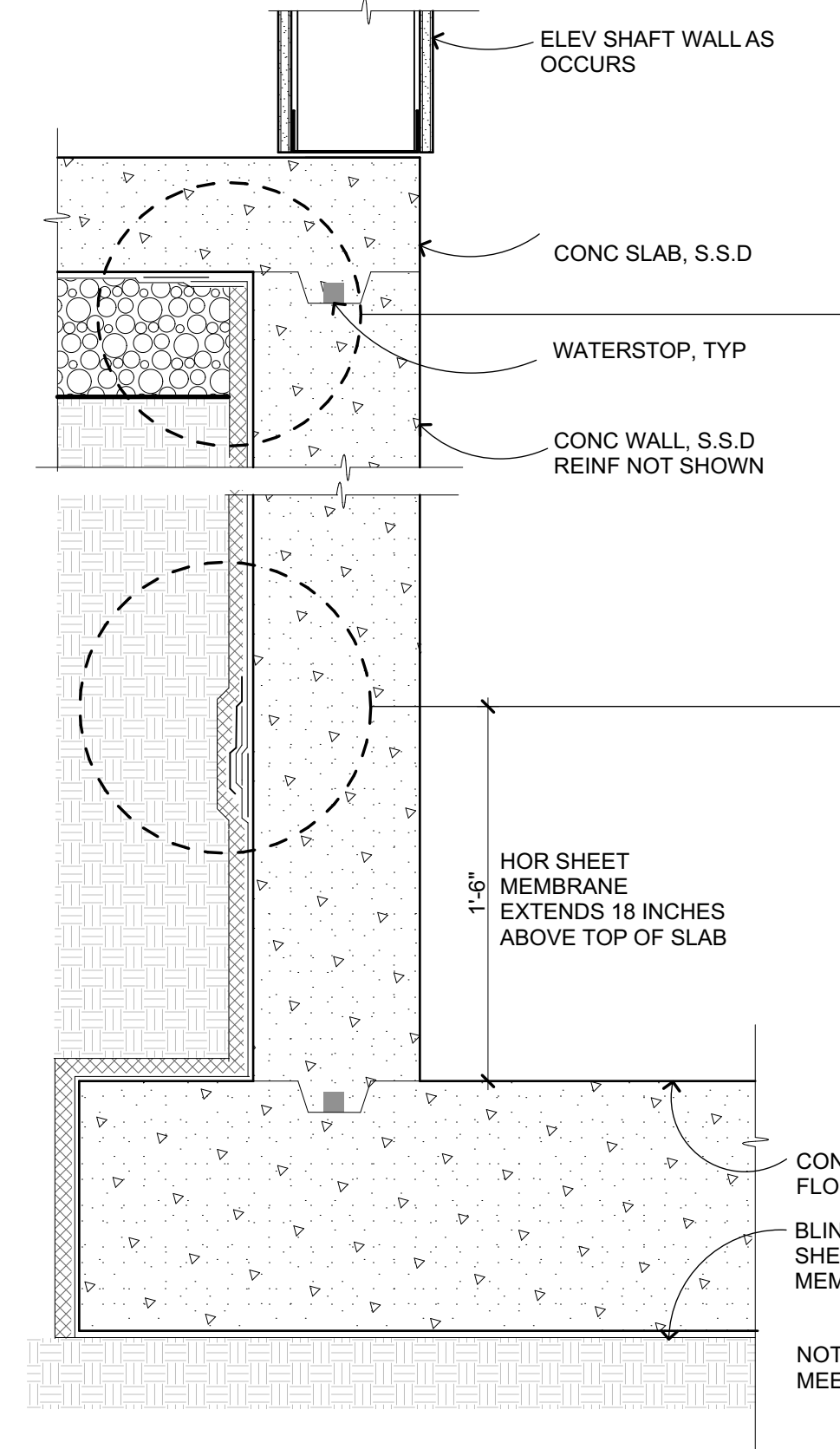
**ELEV CONTROL PANEL**  
6" = 1'-0"



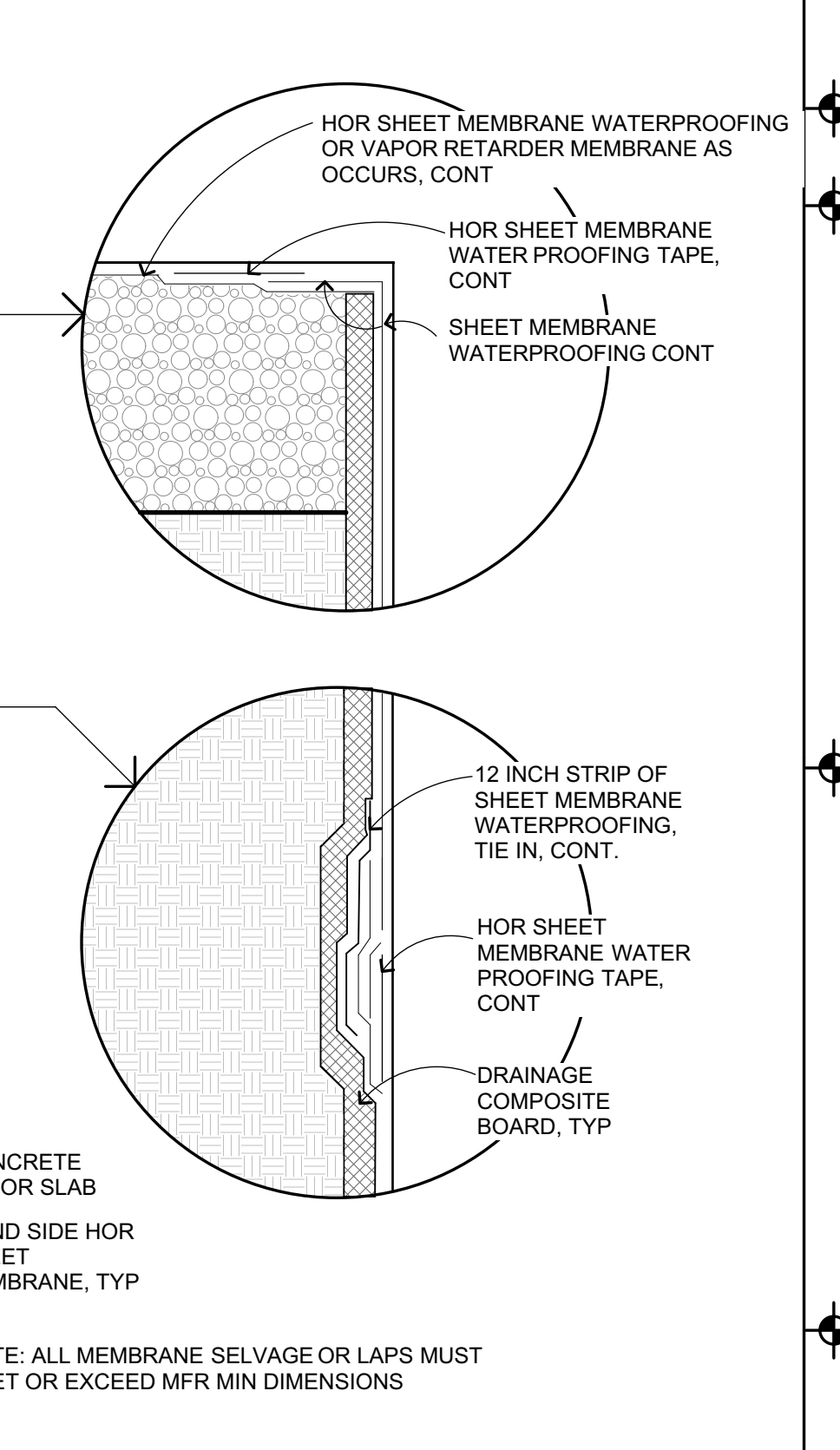
**ELEV SILL AT CONC/MTL DECK**  
3" = 1'-0"



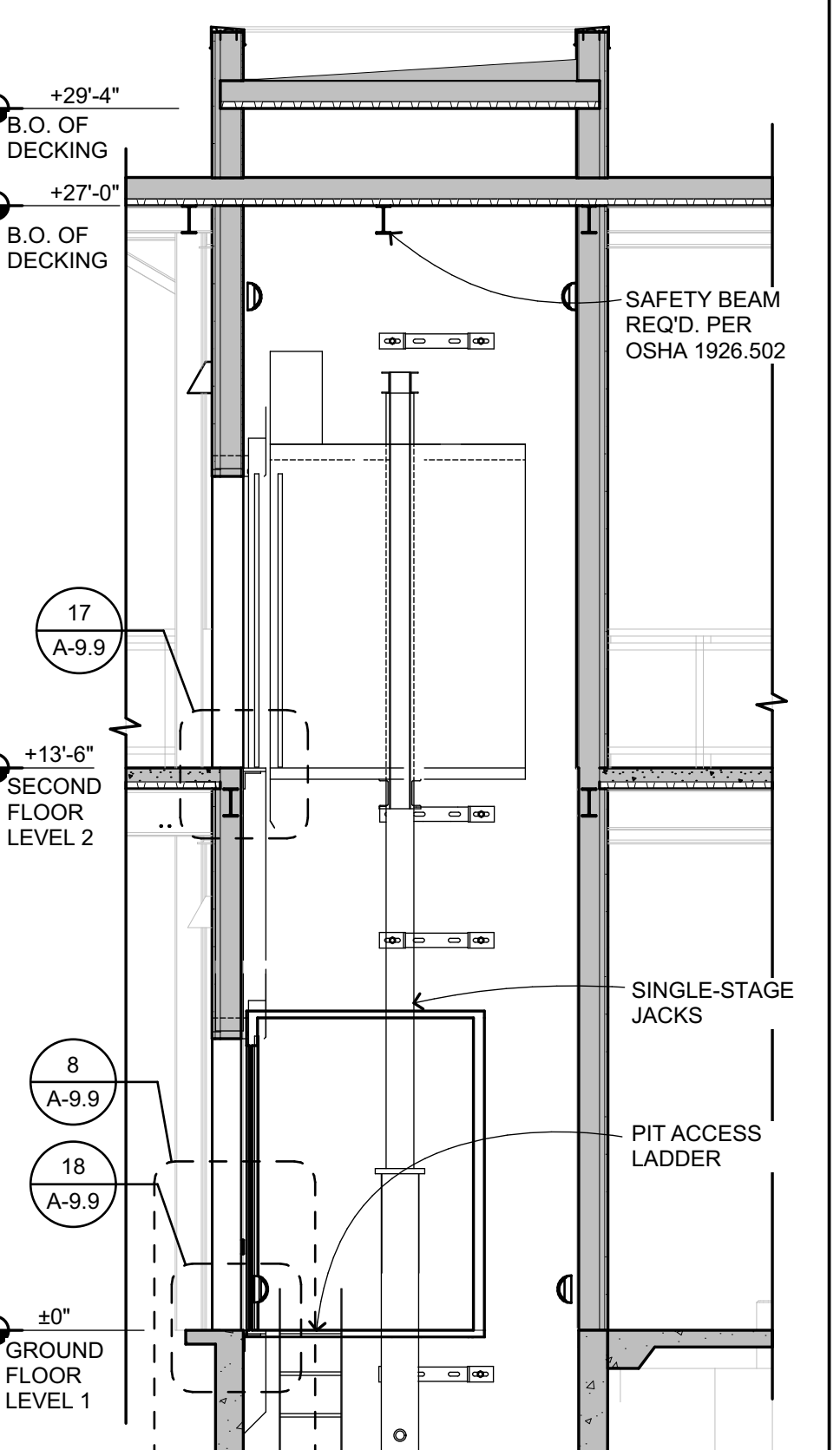
**ELEV SILL AT CONC SLAB**  
3" = 1'-0"



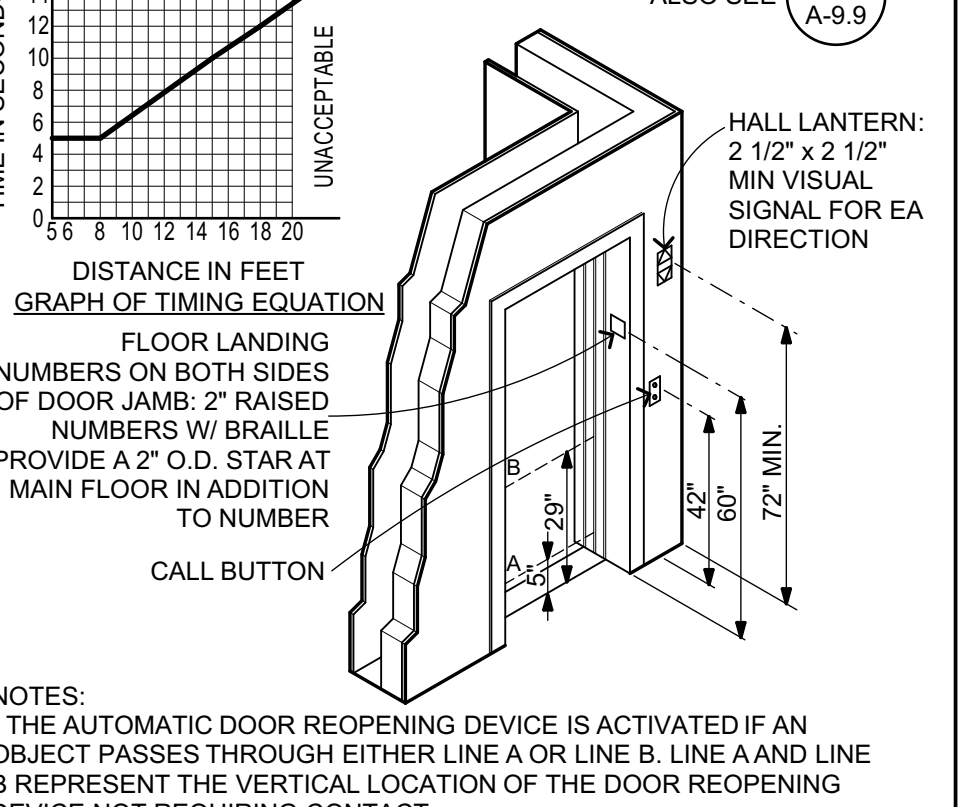
**ELEV PIT**  
1 1/2" = 1'-0"



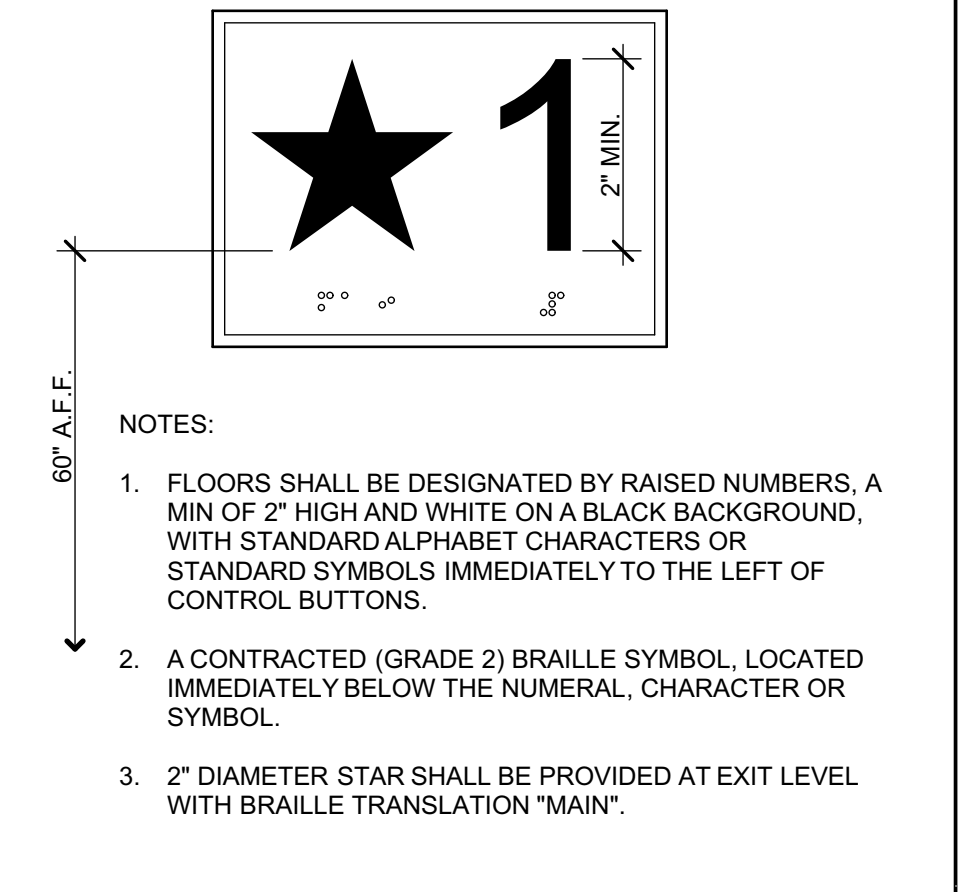
**ELEV TWO-WAY COMMUNICATION**  
3" = 1'-0"



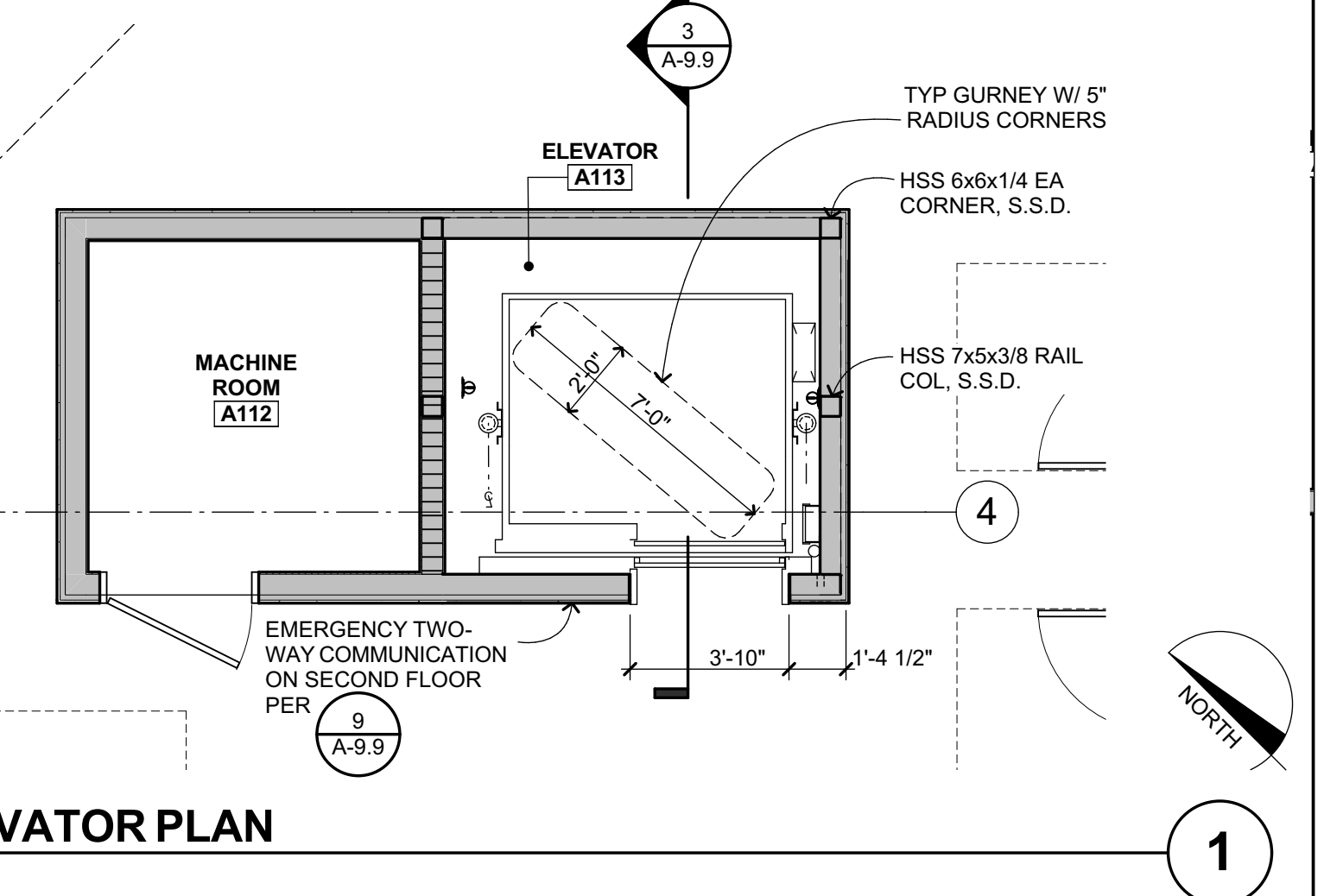
**ELEVATOR SECTION**  
1/4" = 1'-0"



**ELEVATOR ENTRY**  
1/4" = 1'-0"



**FLOOR DESIGNATION**  
6" = 1'-0"



**ENLARGED ELEVATOR PLAN**  
1/4" = 1'-0"

**QUATTROCCHI KWOK ARCHITECTS**  
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**LIBERTY HIGH SCHOOL**

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850 2ND STREET BRENTWOOD, CA 94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

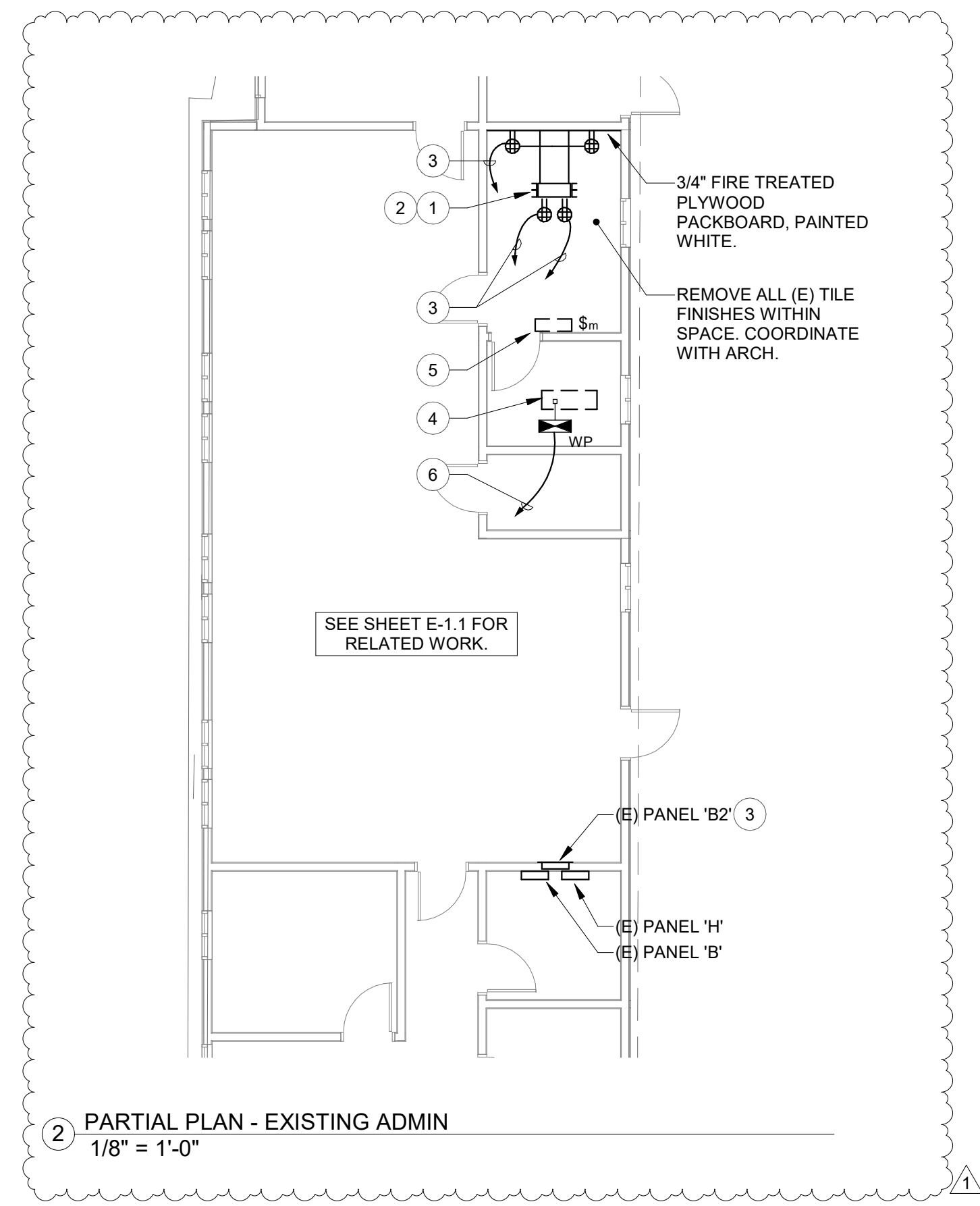
NO.	DATE	DESCRIPTION
08/19/22	ADDENDUM 1	

DSA APP NO. 01-119994  
ARCH PROJECT NO. 1925.00  
DRAWN BY: JDS  
DRAWING SCALE: AS SHOWN  
PTN: 61721-83 FILE NO: 7-H4  
CONSTRUCTION DOCUMENTS  
JUNE 24, 2022  
SHEET TITLE

**ELEVATOR, LIFT AND DETAILS**

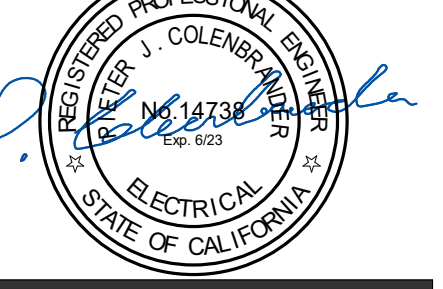
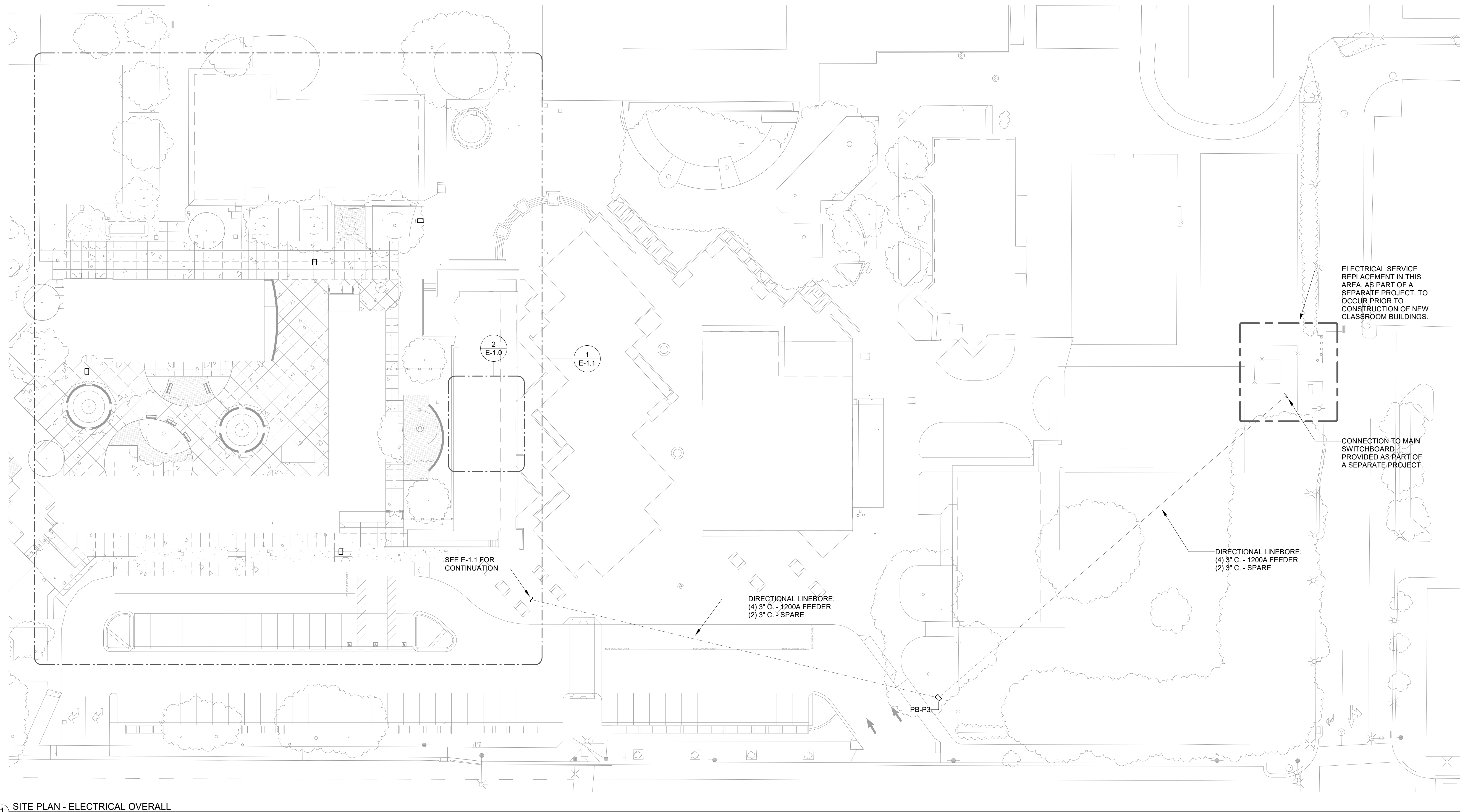
SHEET NUMBER  
**A-9.9**

P:\1925.00 - Liberty HS New Classrooms - LUHS\Drawings\05-CA\1925.00 Liberty HS Classroom\_BLDG A.pln.8/23/2022 9:34 AM



# SHEET NUMBERED NOTES

- 1 PROVIDE AND INSTALL A NEW 2-POST, 7H DATA RACK (CHATS WORTH 'UNIVERSAL RACK' OR EQUAL) AT THE NEW MDF LOCATION WITH 3' CABLE TRAY EXTENSION TO WALL. INSTALL ALL RACEWAY COMPONENTS PRIOR TO DISCONNECTION OF ANY EXISTING FIBER. COORDINATE WITH DISTRICT TO MITIGATE FIBER DOWN-TIME ON CAMPUS.
- 2 RACK SHALL BE EQUIPPED WITH NEW FIBER OPTIC TERMINATION EQUIPMENT, ALL INSTALLED PRIOR TO FIBER RELOCATION. COORDINATE INSTALLATION OF DISTRICT NETWORK EQUIPMENT (BY DISTRICT) PRIOR TO COMMENCING WORK.
- 3 PROVIDE AND INSTALL (2) #12 + (1) 12G, MC CABLING CONCEALED TO BRANCH PANEL SOURCES. CONNECT TO AVAILABLE SPARE 20A/1P CIRCUIT BREAKERS IN EXISTING PANEL.
- 4 RELOCATED HEAT PUMP UNIT, (PROVIDE 3/4" RACEWAY) FOR CONTROL WIRING TO INDOOR UNIT.
- 5 RELOCATED FAN COIL UNIT. CONNECT COMPLETE.
- 6 PROVIDE AND INSTALL (2) #10 + (1) 12G, IN 1/2" R.G.S. CONCEALED CONDUIT, TO BRANCH PANEL SOURCES. PROVIDE AND INSTALL NEW 20A/2P CIRCUIT BREAKER AT AVAILABLE SPACE IN EXISTING PANEL.



LIBERTY HIGH SCHOOL

NEW CLASSROOM BUILDING

850 2ND STREET  
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94513

LIBERTY UNION HIGH SCHOOL DISTRICT

8/18/22	BID ADDENDUM
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DSA APP NO. 01-119994

ARCH PROJECT NO. 1719.00

DRAWN BY: Author

DRAWING SCALE: AS NOTED

PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

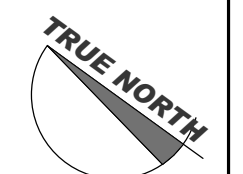
JUNE 24, 2022

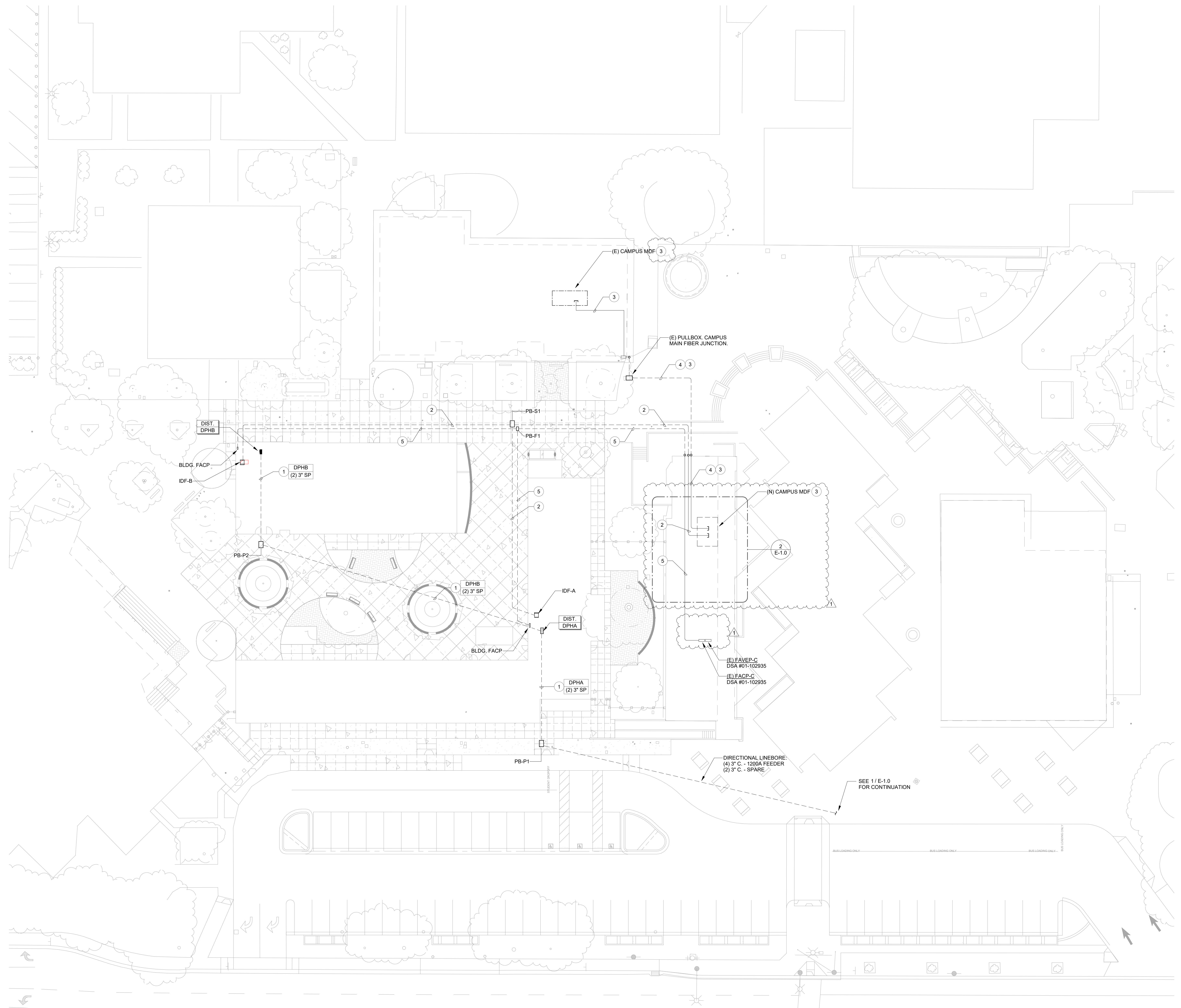
SHEET TITLE

SITE PLAN OVERALL ELECTRICAL

SHEET NUMBER

E-1.0





**SHEET NUMBERED NOTES**

- 1 PROVIDE AND INSTALL UNDERGROUND FEEDERS TO DISTRIBUTION AND BRANCH PANELS AS NOTED WITH ADJACENT TAG DESCRIPTION. SEE E-5.1 FOR FEEDER SIZING & 1/E-7.1 FOR TRENCHING DETAIL. CONDUIT TAG NOTED WITH "SP" SHALL BE SPARE C.O. FOR FUTURE USE.
- 2 PROVIDE AND INSTALL UNDERGROUND (OR CONCEALED WITHIN BUILDING) SIGNAL SYSTEMS AS FOLLOWS - SEE 1/E-7.1 FOR TRENCHING DETAIL:  
 (3) 3" C. - FIBER OPTIC (VOICE AND DATA) - SEE 2/E-5.4  
 (1) 2" C. - COPPER TELE BACKBONE - SEE 2/E-5.4  
 (1) 2" C. - EMS - STUB CONDUITS AT BACKBOARD  
 (1) 2" C. - SECURITY - STUB CONDUITS AT BACKBOARD  
 (2) 2" C. - SPARES - STUB CONDUITS AT BACKBOARD
- 3 THE EXISTING CAMPUS MDF IS TO BE RELOCATED TO THE ADMIN BUILDING. ALL EXISTING FIBER OPTIC CABLES TERMINATING AT THIS MDF, SHALL BE PULLED BACK VIA THE EXISTING CONDUIT ROUTE TO THE PULLBOX IDENTIFIED OUTSIDE THIS BUILDING. THE FIBERS SHALL THEN BE RE-ROUTED VIA A NEW CONDUIT SYSTEM ROUTED UNDERGROUND, THEN CONCEALED THROUGH THE EXISTING BUILDING, AND TERMINATED COMPLETE TO NEW MDF-EQUIPMENT. EXISTING FIBER COUNT: (20) 6-STRAND SM FIBER OPTIC.
- 4 PROVIDE AND INSTALL (4) 3" C. FOR RE-ROUTE FIBER CABLE AND (2) 3" CONDUITS FOR NEW OR FUTURE CABLEING.
- 5 PROVIDE AND INSTALL UNDERGROUND (OR CONCEALED WITHIN BUILDING) CONDUITS FOR FIRE ALARM: (2) 2" C.

PULLBOX SCHEDULE		
PULLBOX ID	SIZE	LABEL
PB-F1	N16	"FIRE ALARM"
PB-F1	N16	"FIRE ALARM"
PB-F1	N40	"POWER"
PB-F2	N40	"POWER"
PB-F3	N40	"POWER"
PB-S1	N40	"SIGNAL"

PULLBOXES SHALL BE IN GRADE CHRISTY (OR EQUAL), SIZED AS NOTED ON SCHEDULE. PULLBOX COVER SHALL BE LABELED AS IDENTIFIED ON SCHEDULE. WHERE LOCATED IN TRAFFIC AREAS, BOXES SHALL BE TRAFFIC RATED REINFORCED CONCRETE WITH STEEL FRAME AND STEEL COVER. WHERE LOCATED ELSEWHERE, BOXES SHALL BE REINFORCED CONCRETE AND COMPOSITE COVER. ALL PULLBOX LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECT.

**QUATTROCCHI KWOK ARCHITECTS**  
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 4340 REDWOOD HWY., SUITE 245  
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 (415) 492-0470 FAX (415) 479-9662

**LIBERTY HIGH SCHOOL**

**NEW CLASSROOM BUILDING**

850 2ND STREET  
 BRENTWOOD, CA  
 94513

**LIBERTY UNION HIGH SCHOOL DISTRICT**

8/18/22 BID ADDENDUM

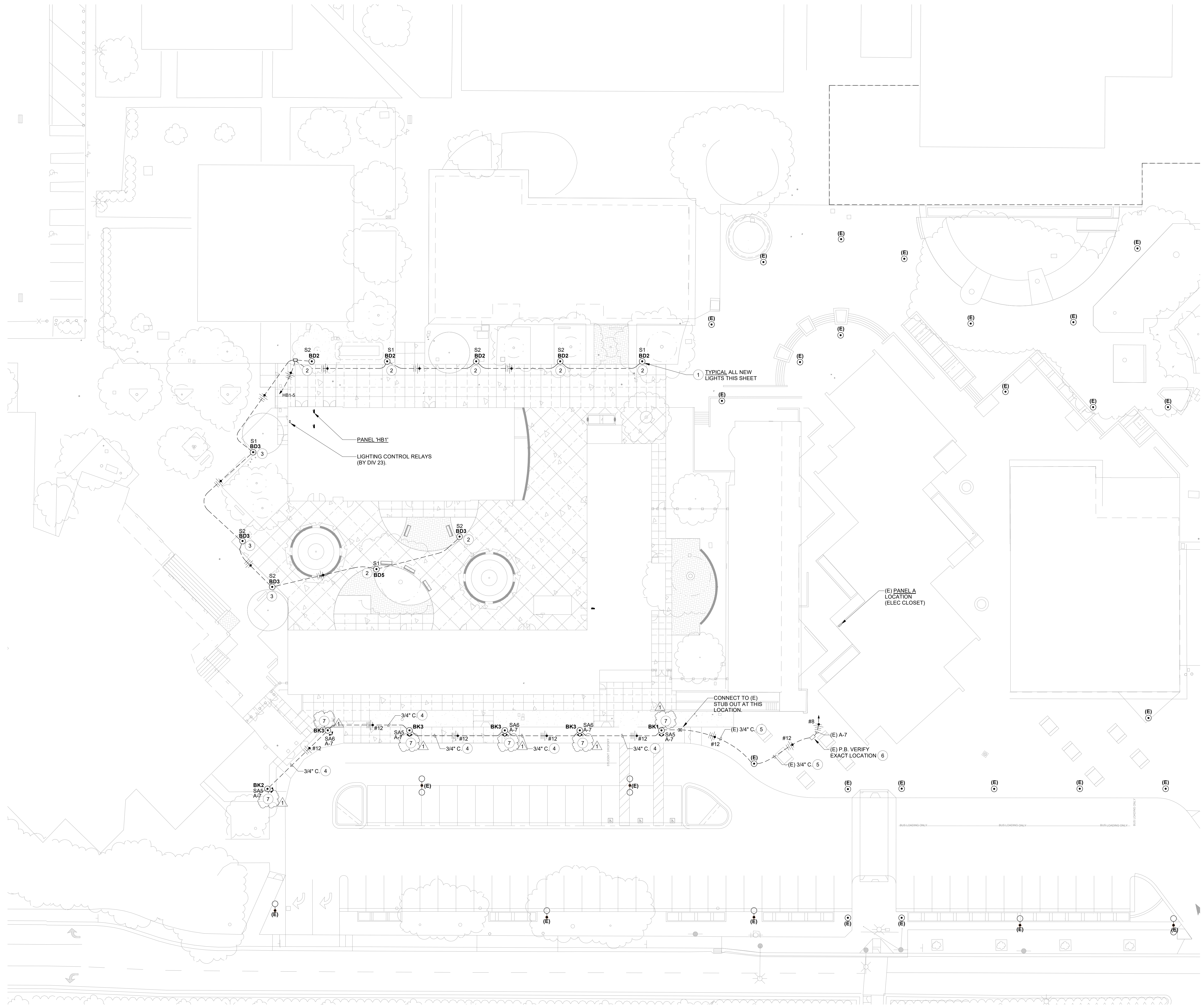
DSA APP NO. 01-119994  
 ARCH PROJECT NO. 1719.00  
 DRAWN BY: JK  
 DRAWING SCALE: AS NOTED  
 PTN: 61721-83 FILE NO: 7-H4  
 CONSTRUCTION DOCUMENTS  
 JUNE 24, 2022

**SITE PLAN ELECTRICAL**

**E-1.1**

1 SITE PLAN - ELECTRICAL  
 1" = 20'-0"

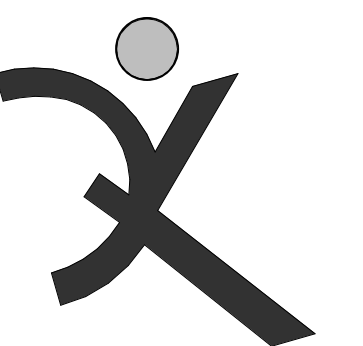




1 SITE PLAN - LIGHTING  
1" = 20'-0"

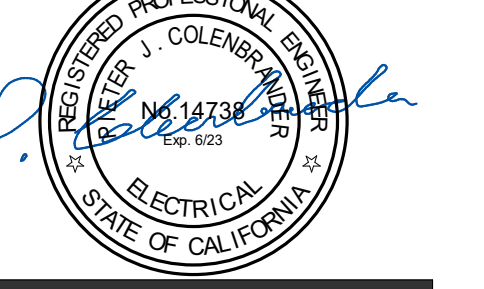
# SHEET NUMBERED NOTES

- 1 ROUTE HOME TO PANEL VIA RELAYS IN ELECTRIC ROOM. DIVISION 23 TO SUPPLY AND INSTALL THESE RELAYS FOR CONTROL OF EXTERIOR LIGHTING. SEE DIAGRAM 3/E-5.3.
- 2 SEE DETAIL 11/E-7.2
- 3 SEE DETAIL 12/E-7.2
- 4 INSTALL WIRING IN NEW CONDUIT.
- 5 INSTALL WIRING IN EXISTING CONDUIT.
- 6 CONNECT COMPLETE TO EXISTING BRANCH CIRCUIT IN EXISTING PULLBOX. UTILIZE WEATHERPROOF SPICE.
- 7 LUMINAIRE HEAD, POLE AND PLATE ARE OWNER FURNISHED. CONTRACTOR INSTALLED. CONCRETE BASE, J-BOLTS AND ASSOCIATED MATERIALS ARE CONTRACTOR FURNISHED. CONTRACTOR INSTALLED.



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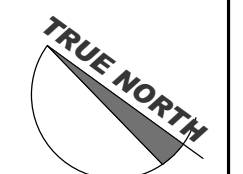
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SHEET TITLE

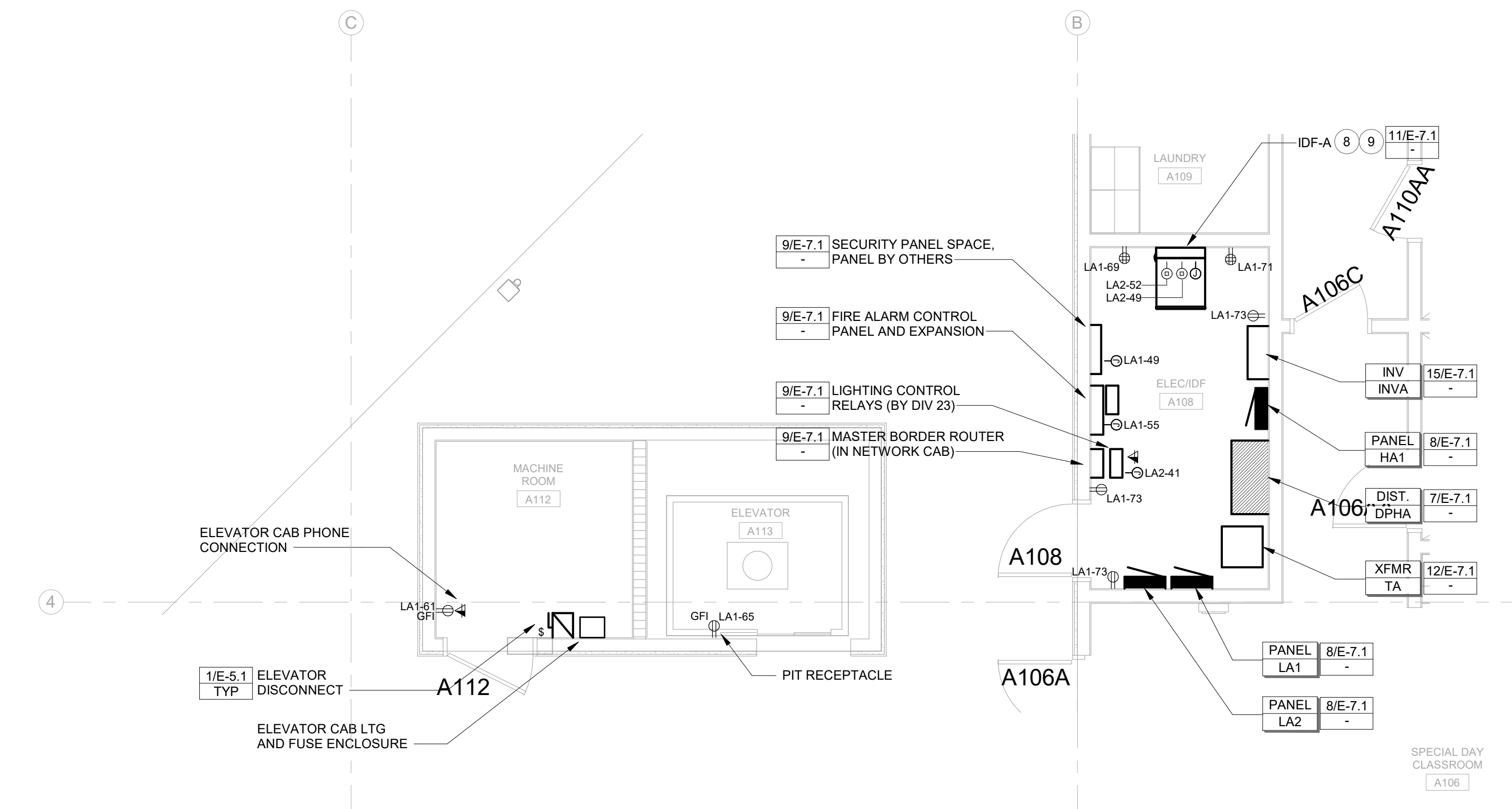
SITE PLAN LIGHTING

SHEET NUMBER

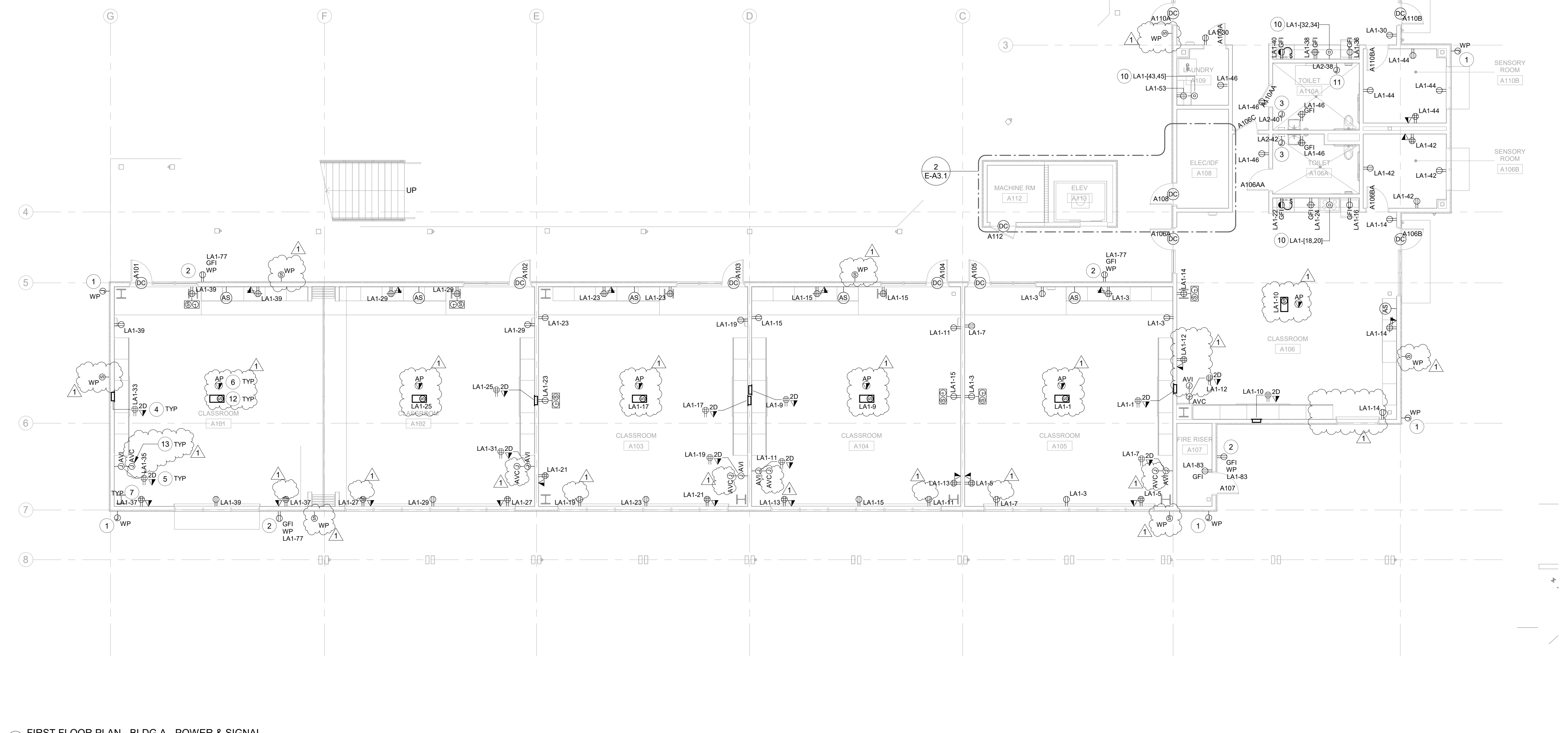
E-1.2







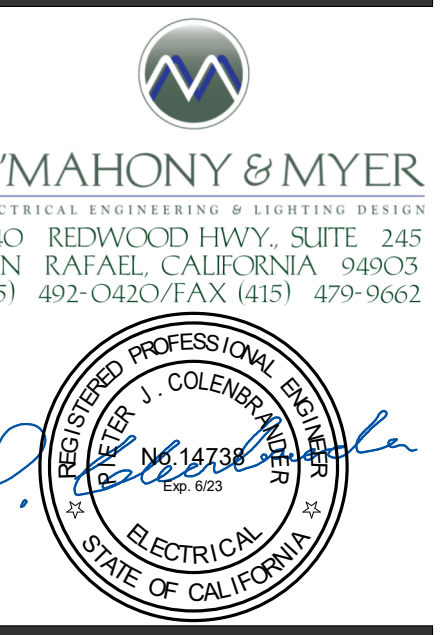
2 PARTIAL PLAN - BLDG A - ELEC/DF RM  
1/4" = 1'-0"



1 FIRST FLOOR PLAN - BLDG A - POWER & SIGNAL  
1/8" = 1'-0"

PROJECT NUMBERED NOTES

- 1 SECURITY CAMERA LOCATION. CAMERAS TO BE PROVIDED AND INSTALLED BY DISTRICT. PROVIDE 4" JUNCTION BOX AND 1" C. WITH CAT6A BACK TO IDF 'A'. VERIFY EXACT LOCATION AND HEIGHT REQUIREMENT WITH ARCHITECT PRIOR TO ROUGH-IN.
- 2 EXTERIOR RECEPTACLE, IN WEATHERPROOF FLUSH LOCKABLE ENCLOSURE. HUBBELL #4600RAC (OR EQUAL).
- 3 120V ELECTRIC HAND DRYER. MANUFACTURED BY WORLD DRYER. VERREDRI MODEL Q-973A. BRUSHED STAINLESS STEEL. S.A.D. FOR MOUNTING LOCATION.
- 4 LOCATION OF SHORT THROW PROJECTOR: PROVIDE 4-GANG HUBBELL AV BACKBOX #NSAV124M DOUBLE DUPLEX 120V OUTLET, DATA JACK, AND AV PASS THRU CABLING WHIPS, FOR CONNECTION TO SHORT THROW PROJECTOR ASSEMBLY. PROJECTOR AND MOUNT BY OTHERS. PROJECTOR WEIGHT IS LESS THAN 20LB.
- 5 LOCATION OF TEACHERS CONTROLS 'AVI': PROVIDE 4-GANG HUBBELL AV BACKBOX #NSAV124M WITH DOUBLE DUPLEX 120V OUTLET, DATA JACKS, AND AV INPUT PASS THRU CABLING (2) HDMI, (1) 3.5mm AUDIO), INSET INTO WALL. COORDINATE LOCATION WITH ARCHITECT CONTINUE 1-1/2" CONDUIT FROM AV INPUTS TO SHORT THROW PROJECTOR AV BOX LOCATION.
- 6 LOCATE DATA JACKS IN ACCESSIBLE CEILING FOR P.O.E. WIRELESS ACCESS POINT. PROVIDE AND INSTALL R45 SURFACE MOUNT BOX, LEVITON #41089-2WP (OR EQUAL). MOUNT TO 'IN-CEILING' BRACKET, LEVITON #44223-3BC (OR EQUAL). PROVIDE 6' OF COILED DATA CABLING SLACK.
- 7 TEACHER DESK LOCATION
- 8 WALL MOUNT, FLOOR SUPPORTED IDF CABINET
- 9 PROVIDE (2) DEDICATED 120V 30A L5-30R RECEPTACLES AND J BOX WITH #2AWG G. TO NEAREST BUILDING ELECTRODE. LOCATE EQUIPMENT WITHIN IDF CABINET (OR RACK)
- 10 SPECIAL EQUIPMENT - PROVIDE AND INSTALL (2) 8" x (1) 10" 0. IN 1" C. VERIFY EXACT RECEPTACLE NEMA TYPE REQUIRED, FOR DISTRICT PROVIDED EQUIPMENT.
- 11 LOCATE AT LIFT CHANGING TABLE. CONNECT COMPLETE. COORDINATE WITH VENDOR SHOP DRAWINGS PRIOR TO ROUGH-IN
- 12 PROVIDE AND INSTALL 'TOPCAT' ACCESS AUDIO SYSTEM WITH MEDIA CONNECTOR AND WIRELESS MICROPHONE. ALSO PROVIDE 1/2" C. TO PROJECTOR AND TERMINATE 3.5mm AUDIO CABLE COMPLETE.
- 13 PROVIDE AND INSTALL Pm+PLUS NM2048 CONTROLLER WITH COMPLETE CONNECTIONS TO TOPCAT AUDIO SYSTEM.



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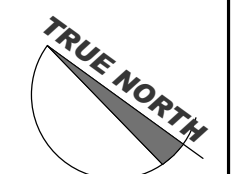
8/18/22 BID ADDENDUM

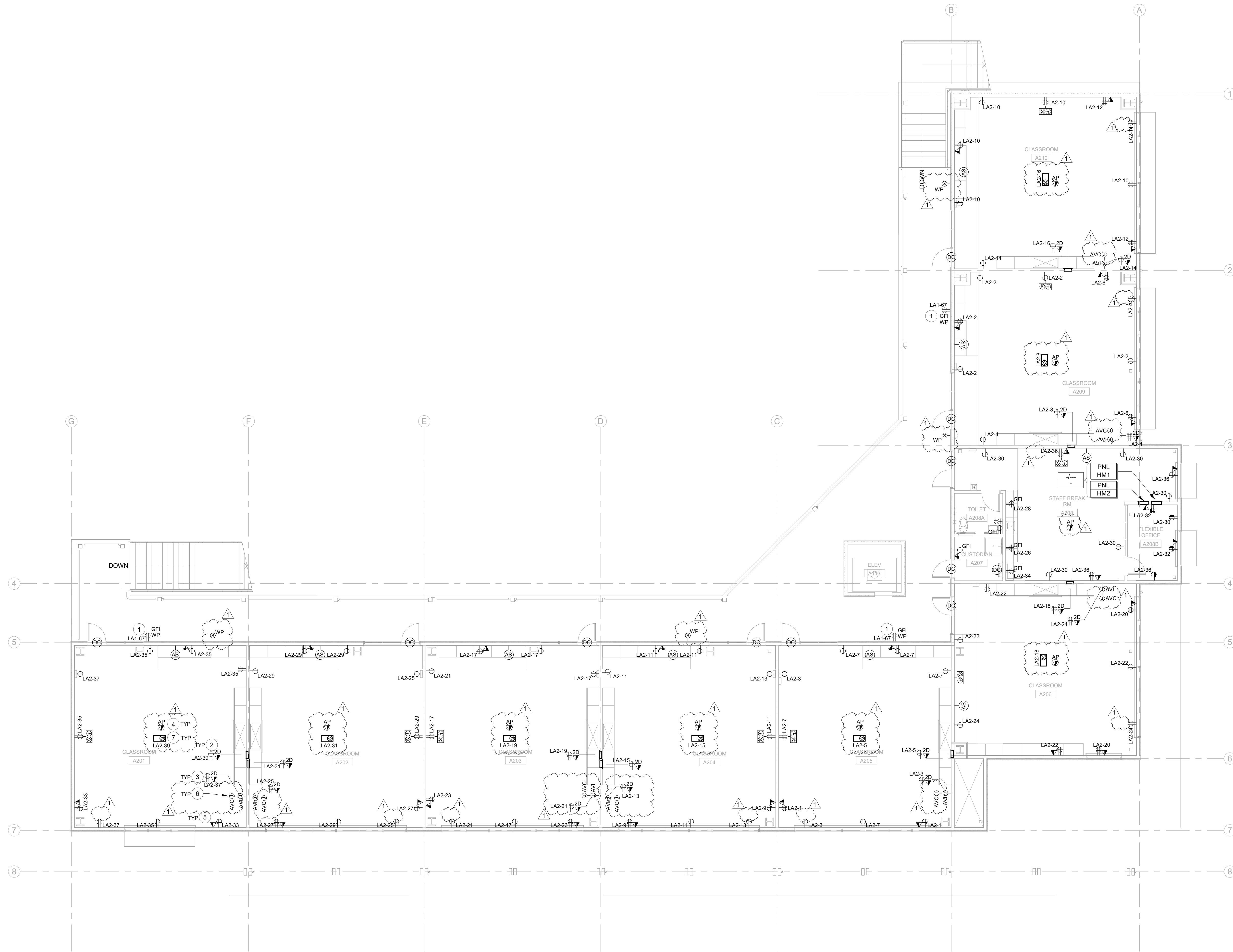
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FIRST FLOOR PLAN BLDG. A  
POWER & SIGNAL

SHEET NUMBER  
**E-A3.1**





1 SECOND FLOOR PLAN - BLDG A - POWER & SIGNAL  
1/8" = 1'-0"

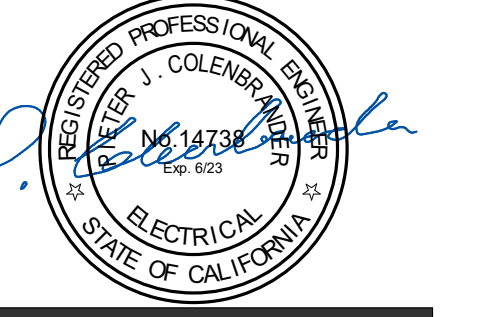
PROJECT NUMBERED NOTES

- 1 EXTERIOR RECEPTACLE, IN WEATHERPROOF FLUSH LOCKABLE ENCLOSURE, HUBBELL #4800RAC (OR EQUAL).
- 2 LOCATION OF SHORT THROW PROJECTOR: PROVIDE 4-GANG HUBBELL AV BACKBOX #NSAV124M DOUBLE DUPLEX 120V OUTLET, DATA JACK, AND AV PASS THRU CABLING WHIPS, FOR CONNECTION TO SHORT THROW PROJECTOR ASSEMBLY, PROJECTOR AND MOUNT BY OTHERS. PROJECTOR WEIGHT IS LESS THAN 20LB.
- 3 LOCATION OF TEACHERS CONTROLS "AVI": PROVIDE 4-GANG HUBBELL AV BACKBOX #NSAV124M WITH DOUBLE DUPLEX 120V OUTLET, DATA JACKS, AND AV INPUT PASS THRU CABLING (2) HDMI, (1) 3.5mm AUDIO), INSET INTO WALL. COORDINATE LOCATION WITH ARCHITECT. CONTINUE 1-1/2" CONDUIT FROM AV INPUTS TO SHORT THROW PROJECTOR AV BOX LOCATION.
- 4 LOCATE DATA JACKS IN ACCESSIBLE CEILING FOR P.O.E. WIRELESS ACCESS POINT. PROVIDE AND INSTALL R45 SURFACE MOUNT BOX, LEVITON #41089-ZWP (OR EQUAL), MOUNT TO "IN-CEILING" BRACKET, LEVITON #44223-CBC (OR EQUAL), PROVIDE 6' OF COILED DATA CABLING SLACK.
- 5 TEACHER DESK LOCATION
- 6 PROVIDE AND INSTALL PWS+PLUS NM2048 CONTROLLER WITH COMPLETE CONNECTIONS TO TOPCAT AUDIO SYSTEM.
- 7 PROVIDE AND INSTALL "TOPCAT" ACCESS AUDIO SYSTEM WITH MEDIA CONNECTOR AND WIRELESS MICROPHONE. ALSO PROVIDE 1/2" C. TO PROJECTOR AND TERMINATE 3.5mm AUDIO CABLE COMPLETE.



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**LIBERTY UNION HIGH SCHOOL DISTRICT**

8/18/22	BID ADDENDUM
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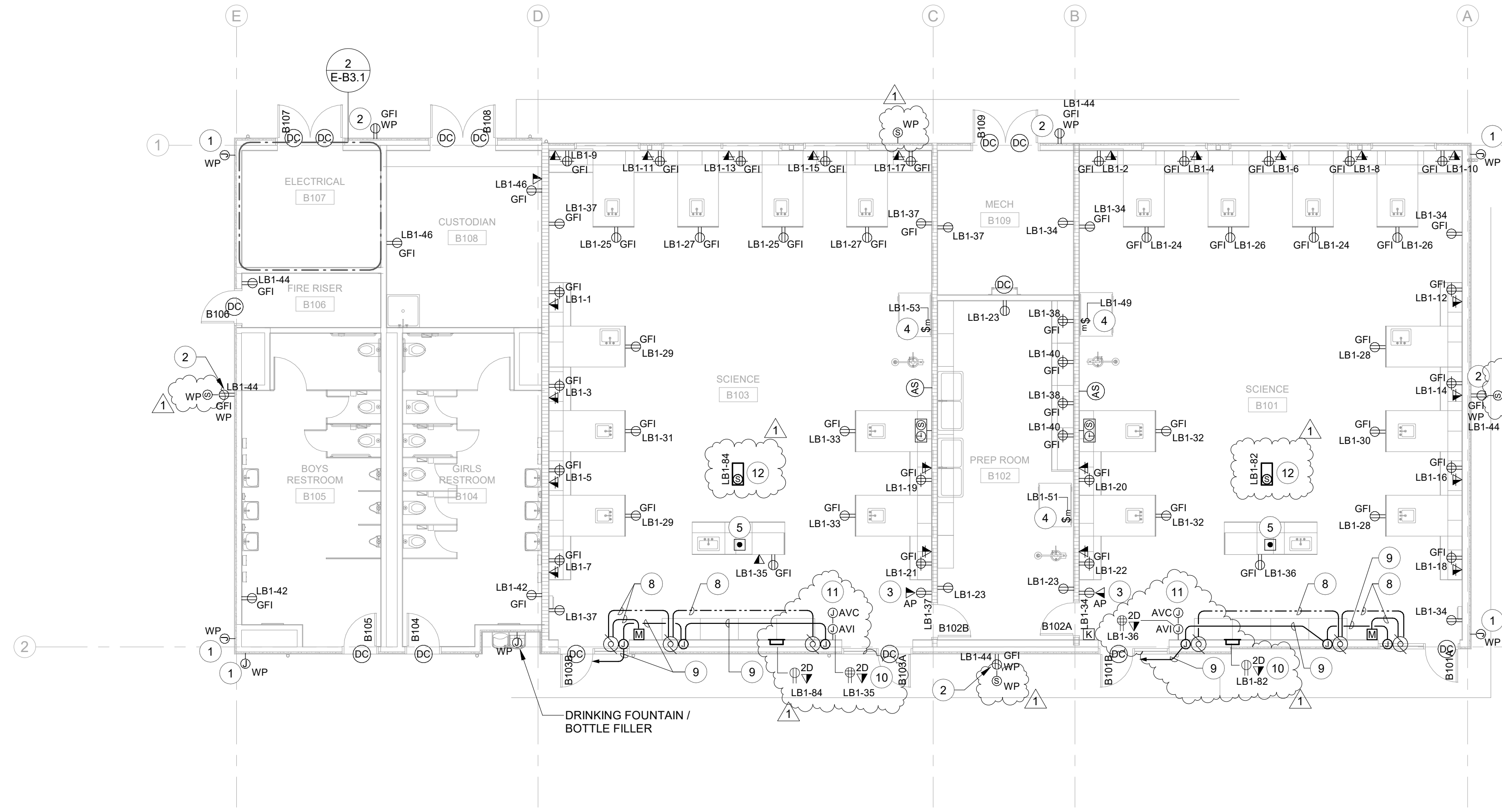
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DRAWN BY: Author  
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CONSTRUCTION DOCUMENTS

JUNE 24, 2022  
SHEET TITLE

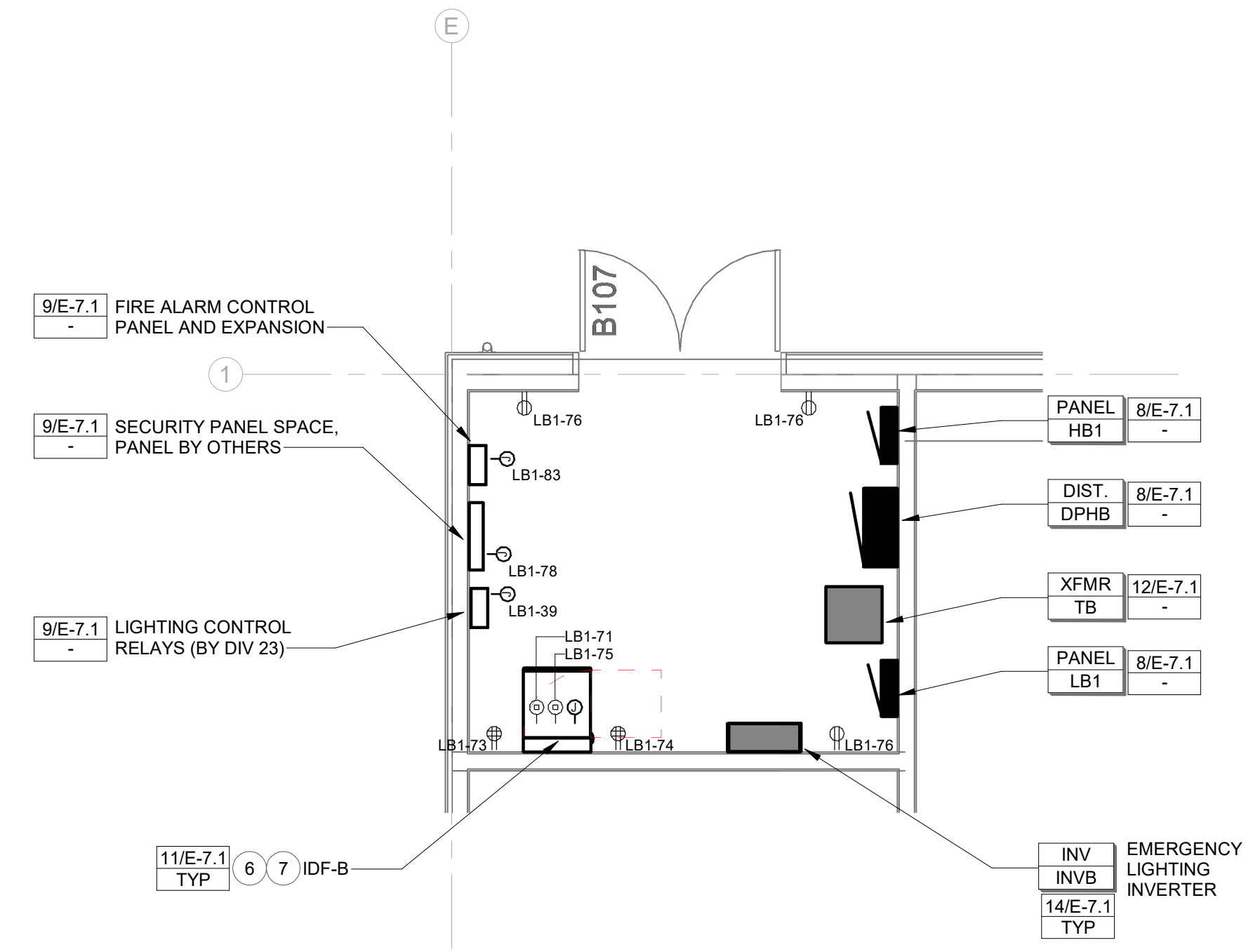
**SECOND FLOOR PLAN BLDG. A  
POWER &  
SIGNAL**

SHEET NUMBER  
**E-A3.2**





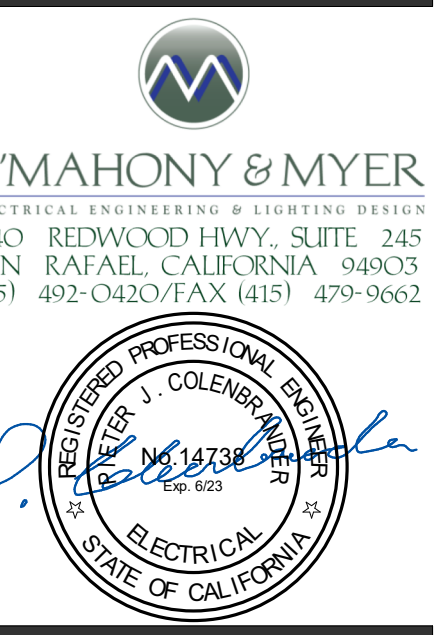
1 FLOOR PLAN - BLDG B - POWER & SIGNAL  
1/8" = 1'-0"



2 PARTIAL PLAN - BLDG B - ELEC/IDF RM  
1/4" = 1'-0"

PROJECT NUMBERED NOTES

- 1 WATTSTOPPER LMS-500 DAYLIGHT SENSOR AND LMS-482 MOUNTING BRACKET. SEE MOUNTING DETAIL 7/E-7.3. COORDINATE WITH ALL OTHER TRADES TO ASSURE SENSOR HAS UNOBSTRUCTED "VIEW" OUT WINDOW.
- 2 EXTERIOR RECEPTACLE, IN WEATHERPROOF FLUSH LOCKABLE ENCLOSURE, HUBBELL #4600RAC (OR EQUAL).
- 3 MOUNT WIRELESS ACCESS POINT AT 90°. PROVIDE CAT6A CABLING.
- 4 WATTSTOPPER LMS-500 DAYLIGHT SENSOR AND LMS-482 MOUNTING BRACKET. SEE MOUNTING DETAIL 6/E-7.3. COORDINATE WITH ALL OTHER TRADES TO ASSURE SENSOR HAS UNOBSTRUCTED "VIEW" OUT WINDOW.
- 5 PROVIDE AND INSTALL FLUSH MOUNTED, MAINTAINED CONTACT (PUSH/PULL ON/OFF), 120VAC, RED, GAS SHUT-OFF MUSHROOM SWITCH IN FACE OF TEACHER CASEWORK, JUST BELOW COUNTER LEVEL, (SQUARE D #R001KR9813 OR EQUAL, IN FLUSH 1-GANG BOX AND DEVICE PLATE), WITH 120V CIRCUIT WIRED TO GAS VALVE AT WALL. SEE PLUMBING PLANS FOR GAS VALVE LOCATION AND SPEC AT WALL BEHIND TEACHER DESK. PROVIDE ENGRAVED OR PERMANENT FLAT ADHESIVE PRE-PRINTED STICKER TO IDENTIFY "GAS VALVE SHUT-OFF" AND "PUSH OFF / PULL ON". LOSS OF POWER (SWITCH PUSHED) TO DE-ENERGIZE GAS VALVE.
- 6 WALL MOUNT, FLOOR SUPPORTED IDF CABINET.
- 7 PROVIDE (2) DEDICATED 120V, 30A, L5-30R RECEPTACLES AND J-BOX WITH #2AWG G. TO NEAREST BUILDING ELECTRODE. LOCATE EQUIPMENT WITHIN IDF CABINET (OR RACK).
- 8 PROVIDE AND INSTALL 3/4" RACEWAY FOR LOW VOLTAGE SHADE CABLING. CABLING BY VENDOR. COORDINATE WITH VENDOR SHOP DRAWINGS PRIOR TO ROUGH-IN.
- 9 PROVIDE AND INSTALL 120V BRANCH CIRCUIT FOR MOTORIZED SHADE SYSTEM.
- 10 LOCATION OF TEACHERS CONTROLS "AVI". PROVIDE 4-GANG HUBBELL AV BACKBOX #NS4V124M WITH DOUBLE DUPLEX 120V OUTLET, DATA JACKS, AND AV INPUT PASS THRU CABLING (2) HDMI, (1) 3.5mm AUDIO, INSET INTO WALL. COORDINATE LOCATION WITH ARCHITECT. CONTINUE 1-1/2" CONDUIT FROM AV INPUTS TO SHORT THROW PROJECTOR AV BOX LOCATION.
- 11 PROVIDE AND INSTALL PWSPLUS NM2048 CONTROLLER WITH COMPLETE CONNECTIONS TO TOPCAT AUDIO SYSTEM.
- 12 PROVIDE AND INSTALL "TOPCAT" ACCESS AUDIO SYSTEM WITH MEDIA CONNECTOR AND WIRELESS MICROPHONE. ALSO PROVIDE 1/2" C. TO PROJECTOR AND TERMINATE 3.5mm AUDIO CABLE COMPLETE.



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LIBERTY UNION HIGH SCHOOL DISTRICT

8/18/22	BID ADDENDUM
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PTN: 61721-83 FILE NO: 7-H4

CONSTRUCTION DOCUMENTS

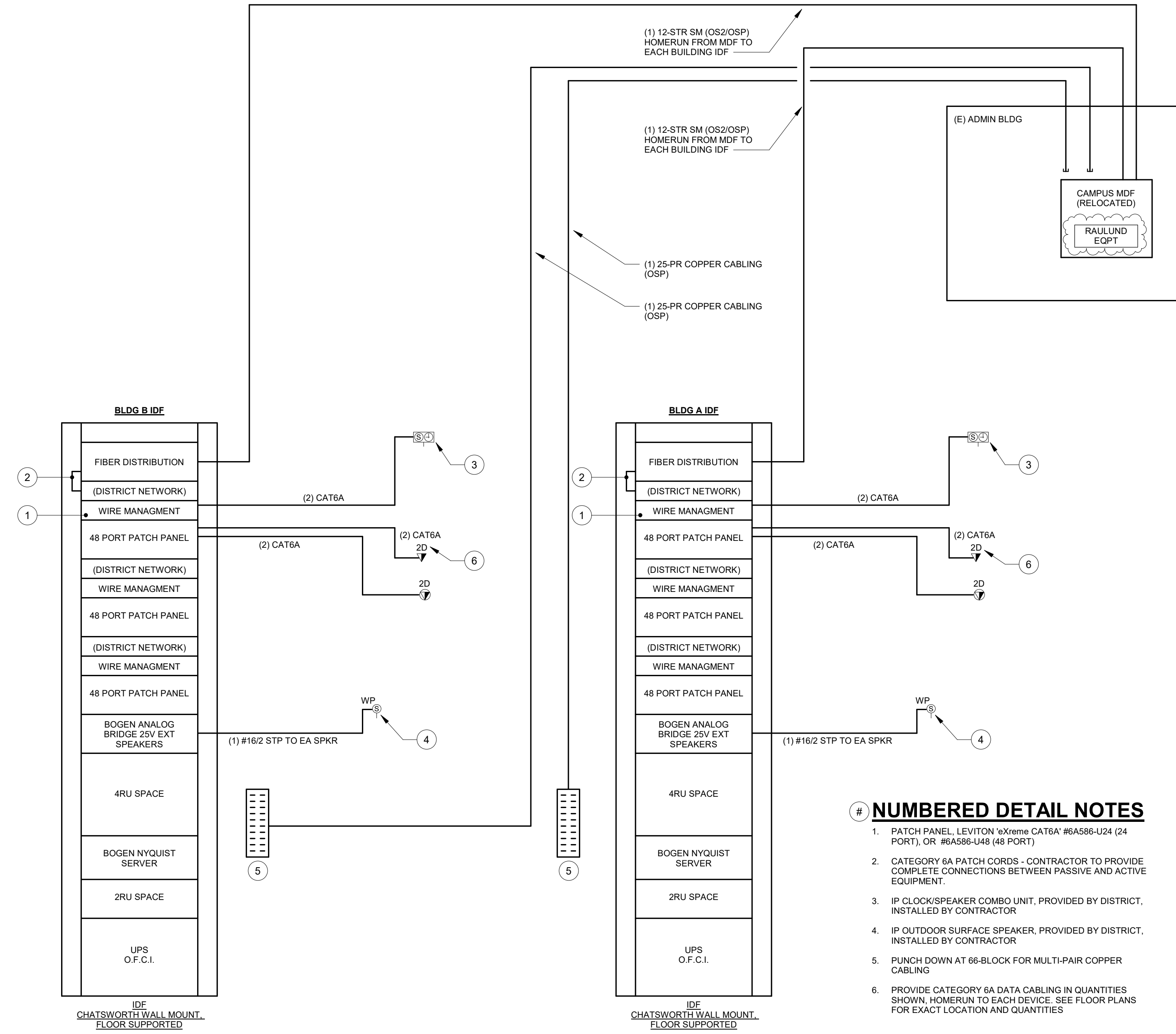
JUNE 24, 2022

SHEET TITLE

FLOOR PLAN  
BLDG. B POWER & SIGNAL

SHEET NUMBER

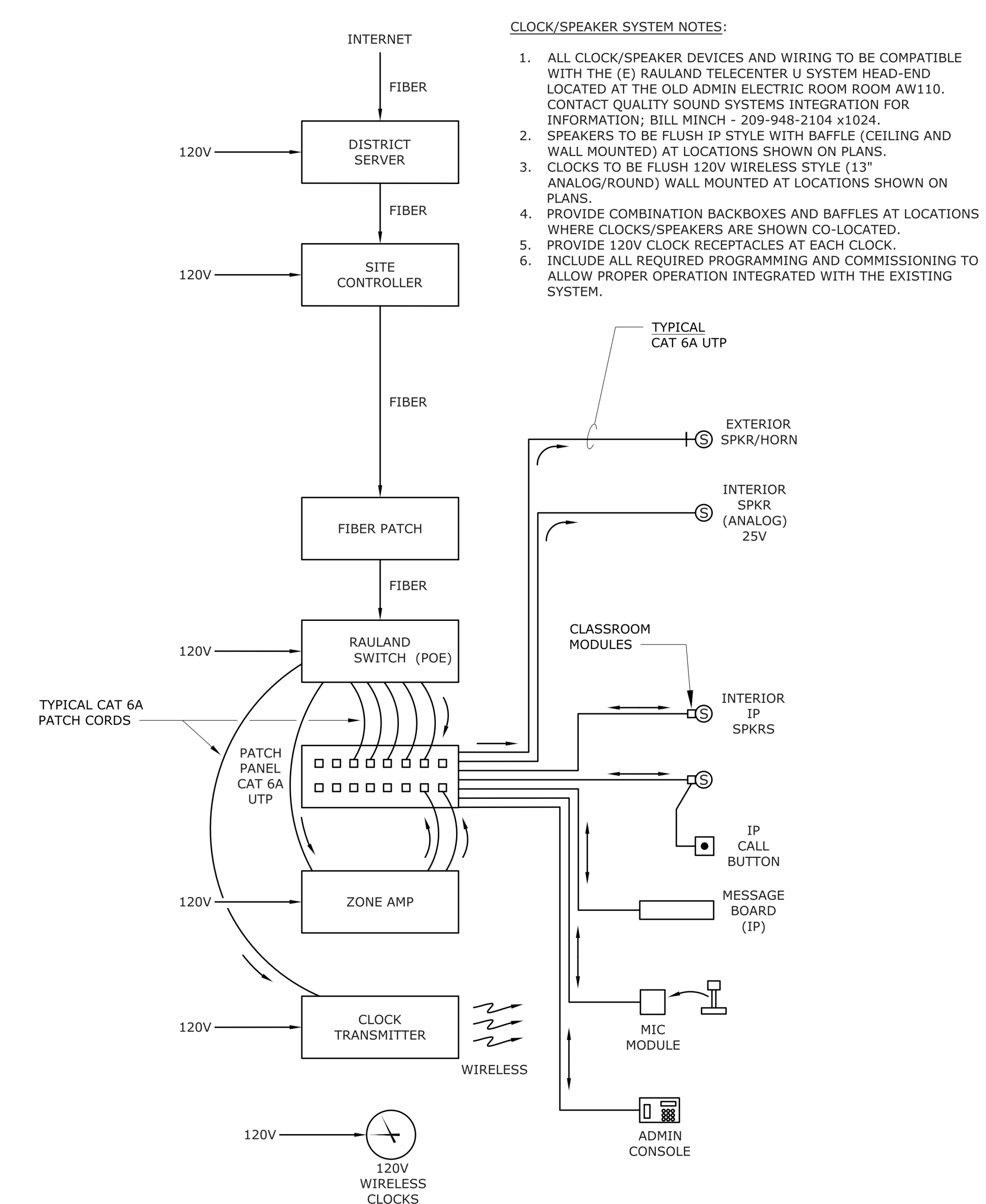
TRUE NORTH  
**E-B3.1**



**# NUMBERED DETAIL NOTES**

1. PATCH PANEL, LEVITON 4x4 CAT6A #6A586-U24 (24 PORT), OR #6A586-U48 (48 PORT)
2. CATEGORY 6A PATCH CORDS - CONTRACTOR TO PROVIDE COMPLETE CONNECTIONS BETWEEN PASSIVE AND ACTIVE EQUIPMENT.
3. IP CLOCK/SPEAKER COMBO UNIT, PROVIDED BY DISTRICT, INSTALLED BY CONTRACTOR.
4. IP OUTDOOR SURFACE SPEAKER, PROVIDED BY DISTRICT, INSTALLED BY CONTRACTOR.
5. PUNCH DOWN AT 66-BLOCK FOR MULTI-PAIR COPPER CABLING
6. PROVIDE CATEGORY 6A DATA CABLING IN QUANTITIES SHOWN, HOMERUN TO EACH DEVICE. SEE FLOOR PLANS FOR EXACT LOCATION AND QUANTITIES

2 SINGLE LINE DIAGRAM - DATA ELEVATION  
1:1



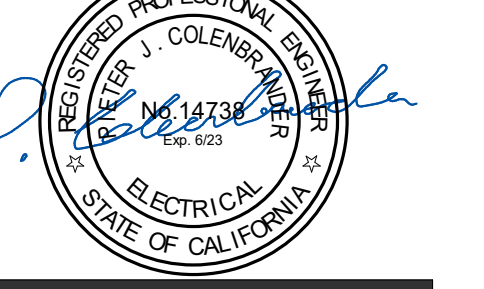
- CLOCK/SPEAKER SYSTEM NOTES:**
1. ALL CLOCK/SPEAKER DEVICES AND WIRING TO BE COMPATIBLE WITH THE (E) RAULAND TELECENTER U SYSTEM HEAD-END LOCATED AT THE OLD ADMIN ELECTRIC ROOM ROOM AW110. CONTACT QUALITY SOUND SYSTEMS INTEGRATION FOR INFORMATION; BILL MINCH - 209-948-2104 X1024.
  2. SPEAKERS TO BE FLUSH IP STYLE WITH BAFFLE (CEILING AND WALL MOUNTED) AT LOCATIONS SHOWN ON PLANS.
  3. CLOCKS TO BE FLUSH 120V WIRELESS STYLE (13" ANALOG/ROUND) WALL MOUNTED AT LOCATIONS SHOWN ON PLANS.
  4. PROVIDE COMBINATION BACKBOXES AND BAFFLES AT LOCATIONS WHERE CLOCKS/SPEAKERS ARE SHOWN CO-LOCATED.
  5. PROVIDE 120V CLOCK RECEPTACLES AT EACH CLOCK.
  6. INCLUDE ALL REQUIRED PROGRAMMING AND COMMISSIONING TO ALLOW PROPER OPERATION INTEGRATED WITH THE EXISTING SYSTEM.

1 SINGLE LINE DIAGRAM - CLOCK / SPEAKER CONNECTIONS  
1:1



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SHEET TITLE

**SINGLE LINE DIAGRAMS**

SHEET NUMBER

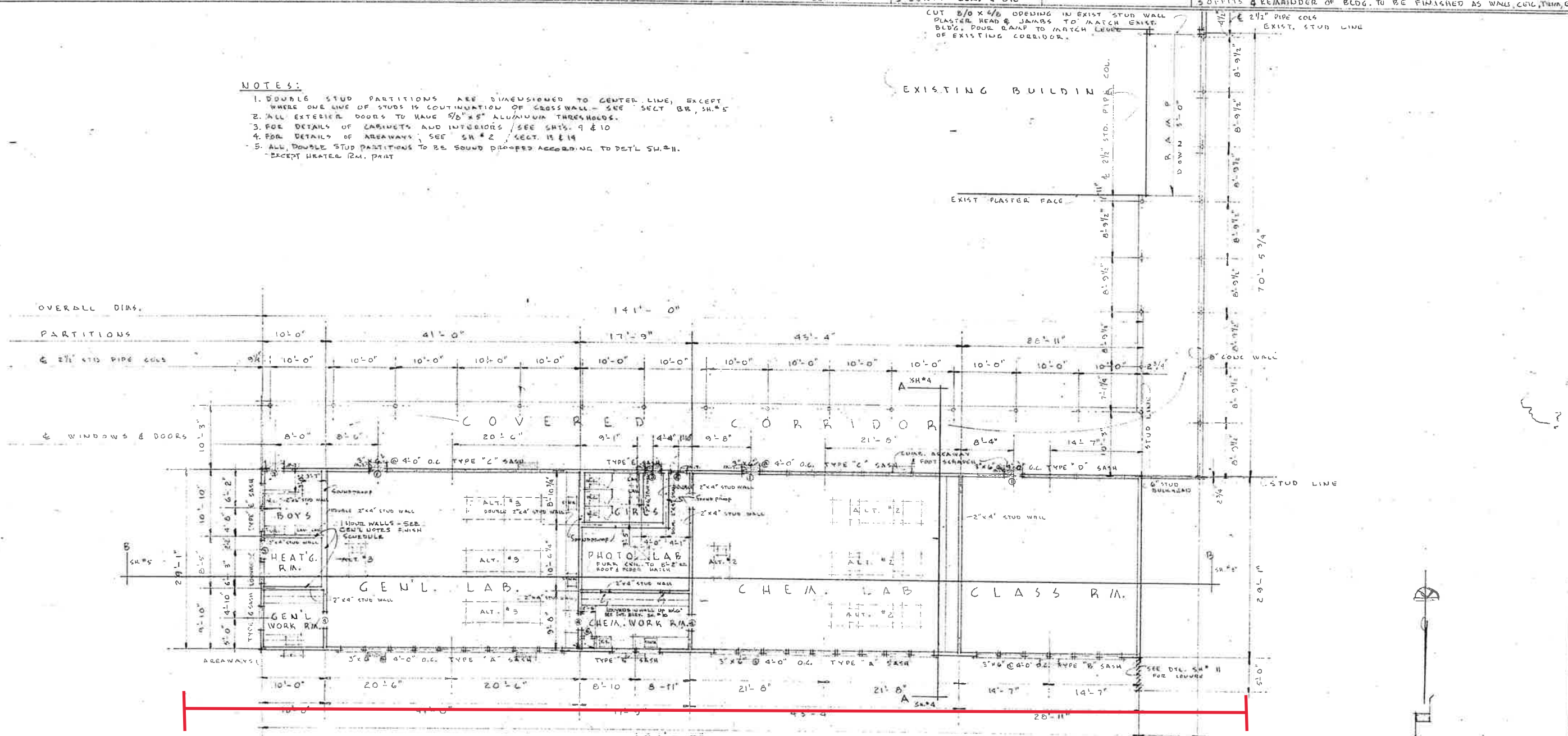
**E-5.4**

F I N I S H E D U L E

AREA	FLOOR	WALLS	CEILING	CABINETS	SASH & DOORS	TRIM	BASE	GEN'L.
CHEM. LAB.	1/8" G.P. ASPHALT TILE (UFF-TEK) WASH LEAD, 2 COATS WAX, BUFF	1/2" D.F. PLYWOOD - AD GRADE STAIN, SHELLAC, VARNISH	1/2" ACOUSTICAL TILE PERFORATED	D.F. & PINE STAIN, SHELLAC, VARNISH	D.F. & PINE STAIN, SHELLAC, VARNISH	DOUGLAS FIR STAIN, SHELLAC, VARNISH	RUBBER COVE BASE - 4" TOP SET	1/4" PLYBASE OVER ALL DIA. FLOORING RUN 1/2" PLYWOOD WALLS BEHIND ALL CABINETS.
GEN'L. LAB.	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.
CLASS ROOM	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.
CHEM. WORK ROOM	DO.	DO.	DO.	DO.	DO.	DO.	DO.	DO.
GEN'L. WORK ROOM	DO.	DO. (SMALL OVER M.L. & PLASTER)	DO.	DO.	DO.	DO.	DO.	SOUTH WALL 1/2" PLYWD OVER H.L. & PLASTER
PHOTO. LAB	DO.	DO.	DO.	DO.	DO.	DO.	DO.	1/2" PLYBASE OVER ALL DIA. FLOORING RUN 1/2" PLYWOOD WALLS BEHIND ALL CABINETS.
GIRLS TOILET	DO	KEEN-KOTE	KEEN-KOTE (M.L. & PLASTER)	NONE	DO.	DO.	DO.	DO.
BOYS TOILET	DO	DO (HEAVY WALL OVER M.L. & PLASTER)	DO.	NONE	DO.	DO.	DO.	NORTH WALL - KEEN-KOTE OVER H.L. & PLASTER
HEATING ROOM	CONCRETE STEEL TROWEL	3/4" MET. LATH & PLASTER (CEMENT PLASTER-STUCCO FILL.)	3/4" MET. LATH & PLASTER (CEMENT PLASTER-STUCCO FILL.)	NONE	DO	DO	CONC. CURB	NORTH & SOUTH WALLS 3/4" H.L. & PLASTER. WEST WALL - H.L. & PLASTER - 2x4 STUDS FILLED WITH GLASS WOOL BATTIS - 1/2" SH. ROCK.
COVERED CORRIDOR	CONCRETE BROOM FIN.	3/4" PLASTER 2 COATS CAL. STUCCO WASH	OPEN FRAMING SPRAY OR PAINT - 2 COATS	NONE	PAINT 3 COATS LEAD & OIL	PAINT 3 COATS - LEAD & OIL	NONE	ALL EXT. METAL TO BE PAINTED - 3 COATS LEAD & OIL SOFFITS & REMAINDER OF BLDG. TO BE FINISHED AS WALLS, CEIL., TRIM, ETC.

- NOTES:**
1. DOUBLE STUD PARTITIONS ARE DIMENSIONED TO CENTER LINE, EXCEPT WHERE ONE LINE OF STUDS IS CONTINUATION OF CROSS WALL - SEE SECT BR, SH.#5
  2. ALL EXTERIOR DOORS TO HAVE 3/8" x 5" ALUMINUM THRESHOLDS.
  3. FOR DETAILS OF CABINETS AND INTERIORS / SEE SH.# 9 & 10
  4. FOR DETAILS OF AREAWAYS, SEE SH.# 2 / SECT. 15 & 14
  5. ALL DOUBLE STUD PARTITIONS TO BE SOUND PROOFED ACCORDING TO DET'L SH.# 11 - EXCEPT HEATED RM. PART

CUT 8/0 X 4/8 OPENING IN EXIST STUD WALL  
PLASTER HEAD & JAMBS TO MATCH EXIST.  
BLDG. POUR RAMP TO MATCH LEV. OF  
EXISTING CORRIDOR.



'B' Building Inside (classroom, offices, etc.) 4,200 sq ft. (black mastic)

F L O O R P L A N  
SCALE 1/8" = 1'-0"

SHEET 8 OF 15  
 FLOOR PLAN SCIENCE WING FOR LIBERTY UNION HIGH SCHOOL & FIN. SCHED.  
 BRENTWOOD, CALIFORNIA  
 ARCHITECTS  
 YOUNG & LLOYD  
 1171 SOLANO AVE ALBANY, CAL  
 DES. DWG. CHD  
 20, FEB. 51  
 APPROVED BY: [Signature]  
 1951

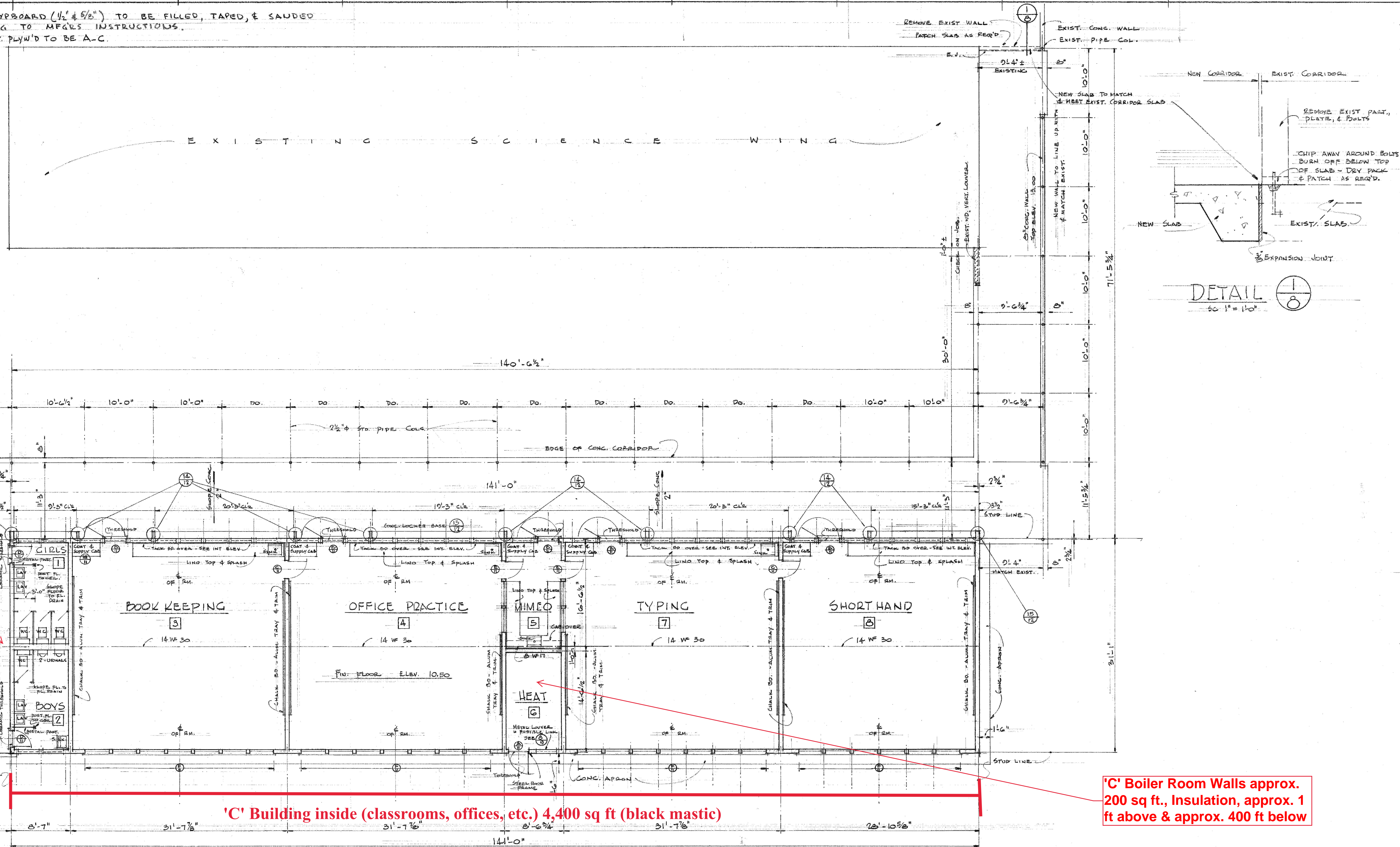
# FINISH SCHEDULE

ROOM	FLOOR	WALLS	WAINSCOT	CEILING	CABINETS	SASH	DOORS	TRIM	BASE	GENERAL
1 GIRLS	CEAMIC Mosaic 1 1/2" x 2 3/4" GREENS NATURAL CLAY - CUSHION EDGE - BLACK RANDOM FACTORY FINISH (COLOR TO BE SELECTED)	1/2" GYP. BOARD P.&L. SPEC. # 25	1/2" x 1/2" CERAMIC TILE 1/4" x 1/4" FIELD - STANDARD QUALITY CLEANED WITH CLEAN WATER	1/2" x 12" x 12" PERF. CANE FIBER ACOUSTIC TILE 3/8" FULL THICK ROCK WOOL BATTES OVER FACTORY FINISH (COLOR TO BE SELECTED)	8" METAL TOLLET PARTITIONS - 1 METAL SIGHT LINE PARTITION FACTORY FINISH (COLOR TO BE SELECTED)	2" TYPE G FRAME BRK ALUM. SASH SHIP COAT CLEAR LACQUER	PUSH SOLID CORE - BRACK FACE P.&L. SPEC. # 32	D.P. # PINE P.&L. SPEC. # 33	CERAMIC TILE FACTORY FINISH	* WALL PAPER, WATH, & SCRATCH COAT TO BE BY TILE CONTR. * WOOL BATTES TO BE 20" IF AVAILABLE - OTHERWISE 24" WIDE
2 BOYS	DO.	DO.	DO.	DO.	1" METAL TOLLET PARTITION & 1 METAL SIGHT LINE PARTITION FACTORY FINISH (COLOR TO BE SELECTED)	2" TYPE G FRAME BRK ALUM. SASH WITH ALUM. COVER PLATE SHIP COAT CLEAR LACQUER	DO.	DO.	DO.	
3 BOOK KEEPING	STD. ASPHALT TILE - GROUP "C" WASH & 2 COATS WAX	WEST WALL - 1/2" EXT. G. PLYW'D (D.P.) OTHER WALLS - 3/8" PLYW'D (D.P.) SPEC. # 1	NONE	DO.	COAT & SUPPLY CAB. - 22" BASE CABINET & SPLASH - ALL 3/8" D.P. PLYW'D & PINE SPEC. # 1	2" TYPE G ALUM. SASH SHIP COAT CLEAR LACQUER	DO.	D.P. # PINE SPEC. # 1	4" RUBBER BASE (SET ON) FACTORY FINISH	STRUCTURAL STL. BM. P.&L. SPEC. # 12
4 OFF. PRACTICE	DO.	WEST WALL - 1/2" EXT. G. PLYW'D OVER 3/8" OYR. DR. OTHER WALLS - 3/8" PLYW'D (D.P.) SPEC. # 1	NONE	DO.	COAT & SUPPLY CAB. - 22" BASE CABINET & SPLASH - ALL 3/8" D.P. PLYW'D & PINE SPEC. # 1	DO.	FLUSH SOLID CORE - BRACK FACE " WITH LIGHT	DO.	DO.	DO.
5 MIMEO	DO.	SOUTH WALL 3/8" PLYW'D NORTH WALL 3/8" PLYW'D OVER 3/8" GYP. BD. E. & W. WALLS 3/8" PLYW'D OVER 1/2" P. SPEC. # 1	NONE	DO.	COAT & SUPPLY CAB. - BASE CABINET & SPLASH - HANGING CAB. - ALL 3/8" D.P. PLYW'D & PINE SPEC. # 1	2" TYPE G ALUM. SASH. (FRAME BRK) SHIP COAT CLEAR LACQUER	FLUSH SOLID CORE - BRACK FACE WITH LIGHT	DO.	DO.	DO.
6 HEAT	CONCRETE STEEL TROWEL	E & W. WALLS 3/8" GYP. BD. OVER 1" DS. N. & S. WALLS 3/8" GYP. BD. P.&L. SPEC. # 21	NONE	3/4" GYPSUM BOARD Full Thick Green Wool BATTES OVER P.&L. SPEC. # 21	NONE	5" TYPE G ALUM. SASH 7" TYPE F " " WITH ALUM. COVER SHIP COAT CLEAR LACQUER	PUSH SOLID CORE - BRACK FACE NEED WOOD - PINE DOORS P.&L. SPEC. # 33	D.P. # PINE P.&L. SPEC. # 33	CONCRETE CURBS SACKED	* METAL LOUVER - METAL DR. FRAME - P.&L. SPEC. # 33 SHIP COAT RED LEAD - P.&L. SPEC. # 17
7 TYPING	STD. ASPHALT TILE - GROUP "C" WASH & 2 COATS WAX	EAST WALL - 3/8" PLYW'D OVER 3/8" GYP. BD. OTHER WALLS - 3/8" PLYW'D (D.P.) SPEC. # 1	NONE	1/2" x 12" x 12" PERF. CANE FIBER ACOUSTIC TILE 3/8" FULL THICK ROCK WOOL BATTES OVER FACTORY FINISH	COAT & SUPPLY CAB. - 22" BASE CAB. & SPLASH - ALL 3/8" D.P. PLYW'D & PINE SPEC. # 1	5" TYPE G ALUM. SASH 7" TYPE F " " WITH ALUM. COVER SHIP COAT CLEAR LACQUER	FLUSH SOLID CORE - BRACK FACE " " " WITH LIGHT	D.P. # PINE SPEC. # 1	4" RUBBER BASE (SET ON) FACTORY FINISH	* WOOL BATTES TO BE 20" IF AVAILABLE - OTHERWISE 24" WIDE STRUCTURAL STL. BM. - P.&L. SPEC. # 12
8 SHORTHAND	DO.	ALL WALLS - 3/8" PLYW'D (D.P.) SPEC. # 1	NONE	DO.	COAT & SUPPLY CAB. - 18" BASE CAB. & SPLASH - ALL 3/8" D.P. PLYW'D & PINE SPEC. # 1	7" TYPE G ALUM. SASH 8" TYPE F " " WITH ALUM. COVER SHIP COAT CLEAR LACQUER	DO.	DO.	DO.	DO.
EXTERIOR	CONCRETE (CORRIDORS & APRON) BROOM FINISH.	3/8" CEMENT PLASTER & CHECKER WIRE WASH COAT	NONE	1" SHIP LAP - EXPOSED - 2 x 4 JOIST & BMS. P.&L. SPEC. # 1	NONE	TYPE F G ALUM. SASH FRAME BRK SHIP COAT CLEAR LACQUER	DO.	1 1/2" x 3" 20W P.&L. SPEC. # 17	CONC. LOCKER BASE - SEE PLAN STEEL TROWEL	2 1/2" PIPE COLS. (TEST WD. LOUVER & SUNSHADE) P.&L. SPEC. # 2 P.&L. SPEC. # 1 ALL GRAVEL STOPS - FLASH - CUTTERS - BUL P.&L. SPEC. # 2

NOTE: ALL GYPSUM BOARD (1/2" & 5/8") TO BE FILLED, TAPED, & SAUDED ACCORDING TO MFG'S INSTRUCTIONS.  
ALL D.P. PLYW'D TO BE A-C.

- SPEC. # 1
- SAND THOROUGHLY
  - COAT 1/2 WHITE & 1/2 CLEAR FIRZITE
  - COAT WHITE SHELLAC
  - COAT GLOSS VARNISH
  - COAT SATIN VARNISH
- SAND OR STEEL  
NOOL BETWEEN  
EACH COAT

NOTE: (P.&L. SPEC #) REFERS TO MASTER SPECIFICATION NUMBERS AS FOUND IN PRATT & LAMBERT SPECIFICATION MANUAL 7th EDITION



'C' Men's & Women's bathroom, approx. 400 sq ft (sheetrock/joint compound)

'C' Building inside (classrooms, offices, etc.) 4,400 sq ft (black mastic)

'C' Boiler Room Walls approx. 200 sq ft., Insulation, approx. 1 ft above & approx. 400 ft below

FLOOR PLAN

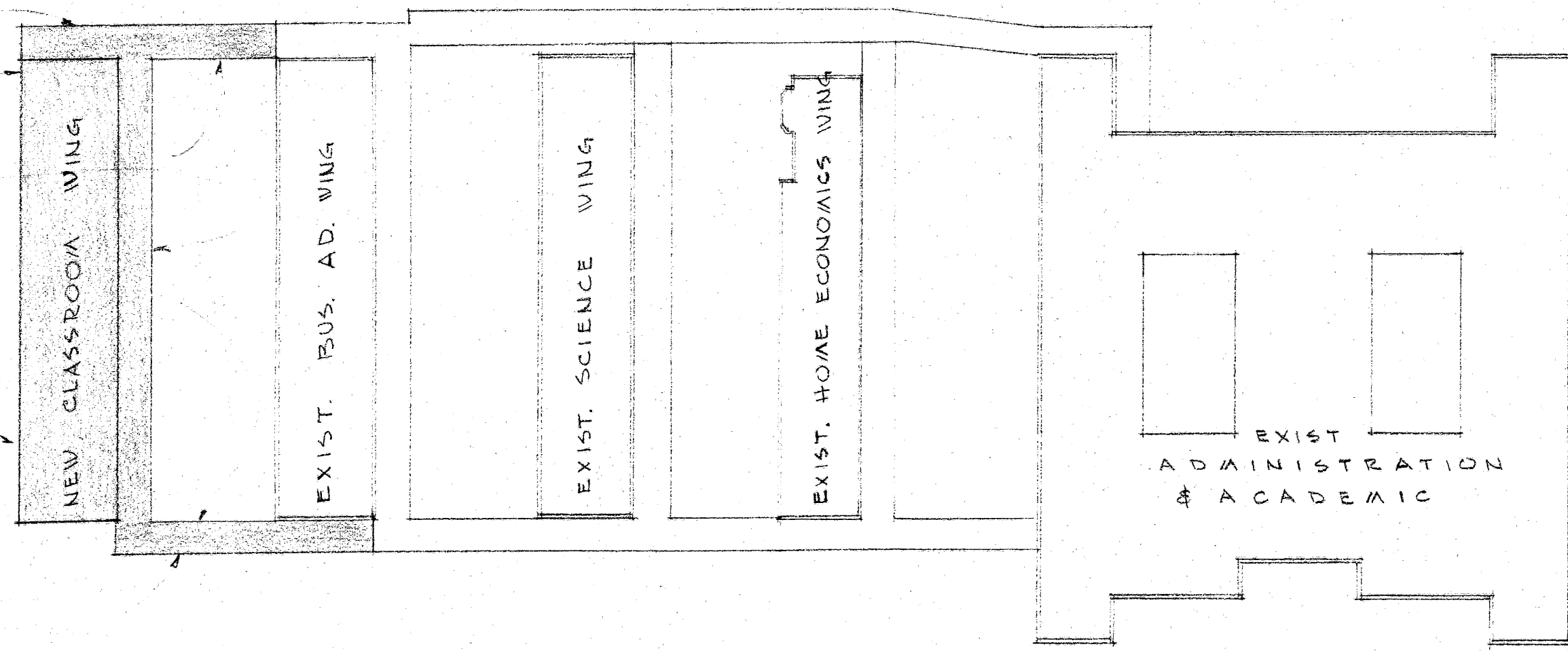
Scale: 1/8" = 1'-0"

DATE 8-21-53  
 DES. JEL  
 DRAW. JEL  
 CHECK. JEL  
 BY JEL & Lloyd  
 BUSINESS ADMINISTRATION YOUNG & LLOYD ARCHITECTS  
 WING-LIBERTY UNION H.S.  
 BRENTWOOD, CALIFORNIA. 1711 SOLANO AVE., ALBANY, CALIF.

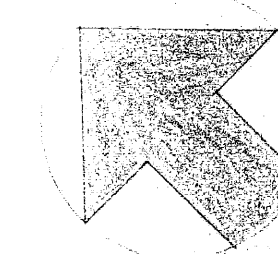
APPROVED OCT 2 - 1953  
 11286  
 SUPERVISOR OF ARCHITECTURE  
 STATE OF CALIFORNIA

FLOOR PLAN  
 8

FINISH GRADE AROUND BLDG TO BE 4" BELOW EDGE OF CORRIDOR SLAB & SLOPE AWAY FROM BLDG.



- MAPLE STREET -

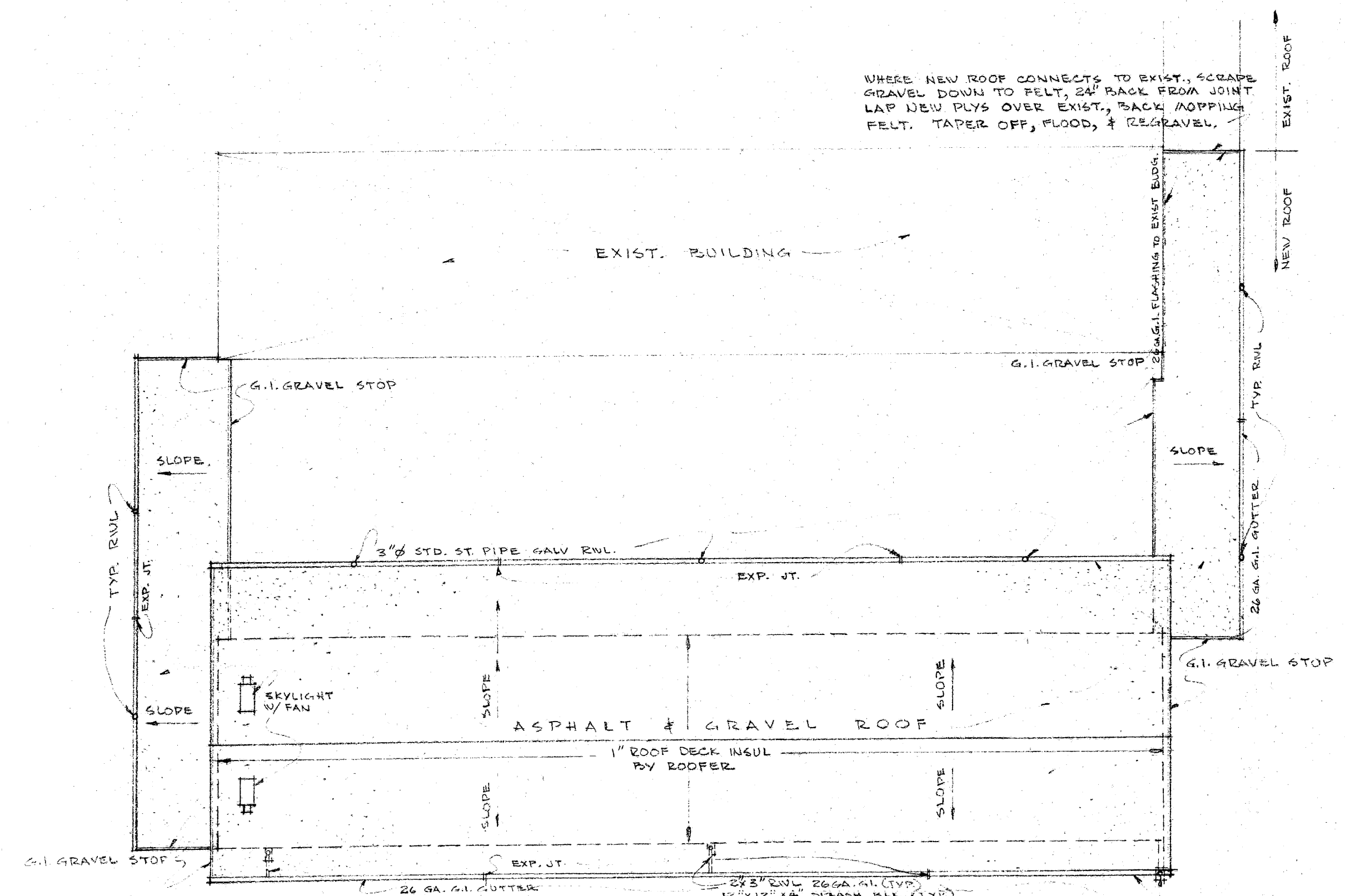


LEGEND

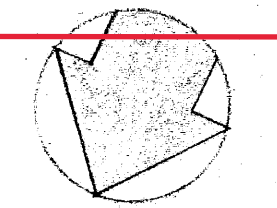
- EXIST. PERMANENT BLDG.
- NEW BUILDINGS THIS ADDITION

PLOT PLAN

- STATE HIGHWAY -



**'D' Building Roof 6,700 sq ft.**  
 ° ROOF PLAN ° SCALE 1/16"=1'-0"

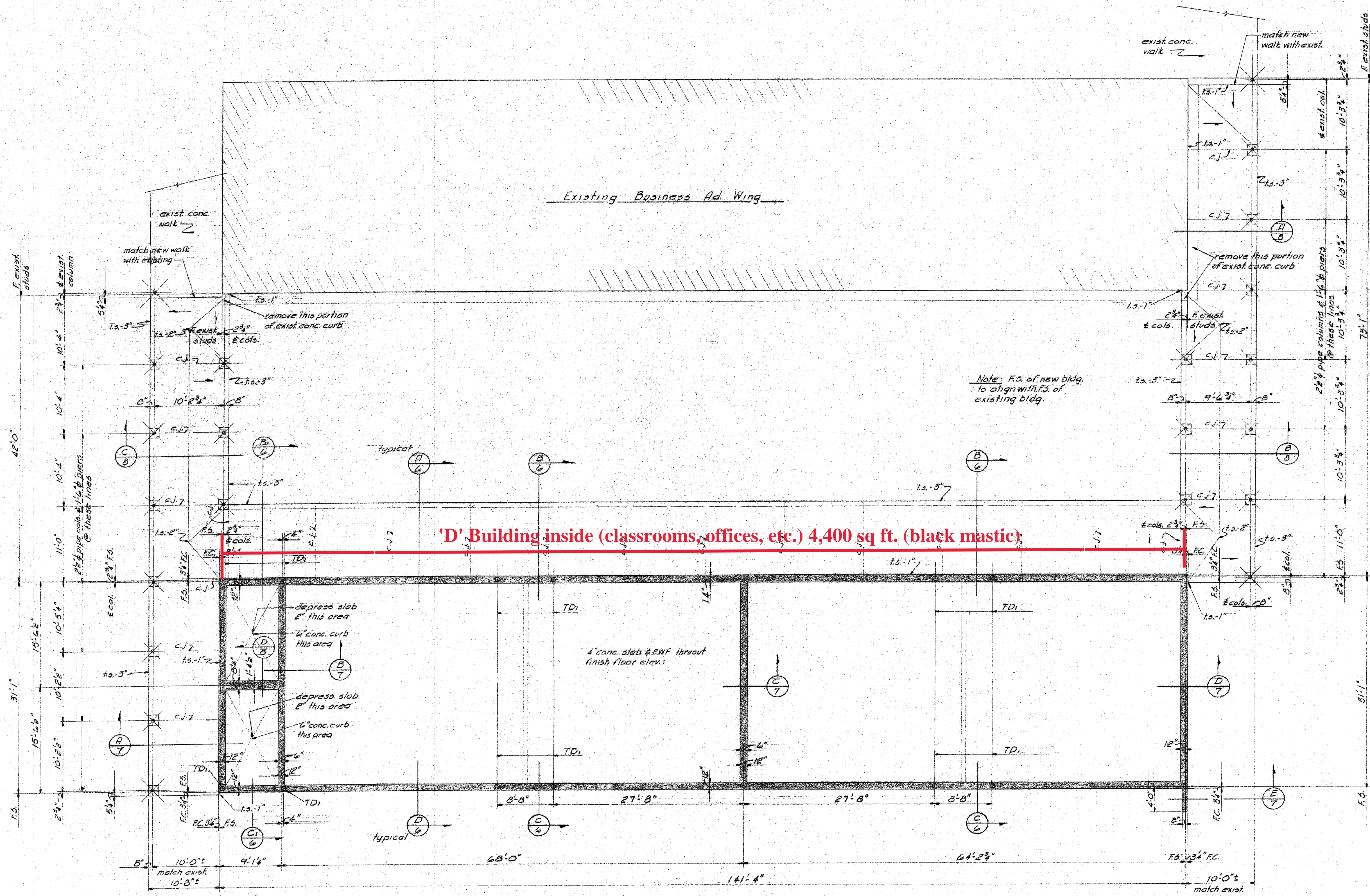


**ERNST & LLOYD**  
 ARCHITECTS  
 JOHN E. LLOYD, AIA  
 2132 N. EL DORADO, STOCKTON, CALIF. HO 6-6519

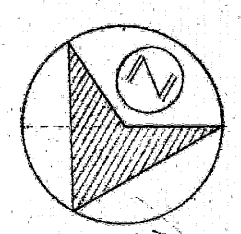
CLASSROOM WING FOR  
 LIBERTY UNION HIGH SCHOOL  
 LIBERTY UNION HIGH SCHOOL DISTRICT  
 SACRAMENTO, CALIF.

PLOT PLAN &  
 ROOF PLAN

SHEET NO. 1



Foundation Plan 3/4"=1'-0"



W.A. & W.D. BUEHLER  
STRUCTURAL ENGINEERS  
212 N. EL DORADO, STOCKTON, CALIF. 95210

APPROVED  
APPROVED  
APPROVED

ERNST & LLOYDS  
ARCHITECTS  
2122 N. EL DORADO, STOCKTON, CALIF. 95210

FOUNDATION PLAN  
CLASSROOM WING FOR  
LIBERTY UNION HIGH SCHOOL  
LIBERTY UNION HIGH SCHOOL DISTRICT  
B. BERT W. BERRY

SHEET NO. 4





## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

# ASBESTOS SURVEY REPORT

**850 2<sup>ND</sup> Street (B Building)  
Brentwood CA 94513**

**Received on August 26, 2022**

Report by:

Curtis Roberts Inspections  
3601 West Haack Court  
Elk Grove CA 95758  
Curtis Roberts SST 12-4974



## **Table of Contents**

### **1 Introduction**

### **2 Description of Building**

### **3 Summaries of Findings for Suspect Materials - Emailed**

### **4. Diagrams and Drawings - Faxed**

### **5. Regulatory Requirements**

### **Appendix: Definitions**



# Curtis Roberts Inspection

Site Surveillance Technician #12-4974

## 1. Executive Summary

Curtis Roberts Inspection was retained by **Liberty High School** to perform an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the planned renovation of a classroom (B) to determine the locations of accessible and to the extent feasible, inaccessible friable and non-friable asbestos containing building materials (ACBM). Friable materials are materials that can be reduced to powder with hand pressure such as fireproofing, sprayed-on acoustic ceilings, ceiling tile, pipe insulation, and other thermal systems insulation. All other materials such as floor tile, adhesives, plaster, stucco, and sheet rock mudding compounds are considered non-friable materials.

Because friable materials are more likely to release asbestos fibers into the air when disturbed than non-friable materials, friable materials are considered a greater health concern. Curtis Roberts Inspection performed an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the classroom (B) to identify ACBM. This report identifies the locations and asbestos content of friable and non-friable ACBM, provides assessment of the friable ACBM in relation to the material's hazard potential to building occupants and provides removal cost estimates.

Any identified suspect asbestos-containing materials will be summarized in Section 3. Materials testing positive for asbestos including material assessments, recommended response actions, and quantities are described in Section 4.

### DISCLAIMER

The information in this report or portions thereof may be required to be included in notifications to employees, contractors or other visitors to the building(s). This report is not intended to be used as a sole specification or work plan for any of the work suggested or recommended in this report.

This report is based upon conditions and practices observed at the property and Information made available to the surveyor. This report does not intend to identify all hazards or unsafe practices, nor to indicate that other hazards or unsafe practices do not exist at the premises.



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### Section 2

#### Description of slated renovation areas

**Number of Floors: 1**

Square Footage: Inside (Classrooms offices, etc.) +/- 4,200 sq. ft.+/- per unit, Roof +/- 6,300 sq ft.

Wood Frame  
Exterior Stucco  
Raised floor

**Exterior Roof construction components consist of:**

Tar

### Section 3 Summary of Findings for ACM -ASBESTOS INSPECTION-

3601 West Haack Court Elk Grove CA 95758 916-690-4884



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

I, **Curtis Roberts SST #12-4974** certify that the construction located at

### **850 – 2<sup>ND</sup> STREET (B), Brentwood CA 94513**

**(Building Address, Including Floor and Suite Number)**

has been inspected for asbestos containing material and complies with Title 8 Code of California Regulations, "Asbestos Survey Standards for Buildings to be Renovated or Demolished", as promulgated by California Department of Safety and Health (DOSH) and "Clean Air Act" (NESHAP) and OSHA, "Standards for Construction Workers" and found that;

#### **For General Construction:**

     1. The building or area being renovated has been tested by a licensed Site Surveillance Technician/Certified Asbestos Consultant and no asbestos containing materials regulated by the California State codes or standards were found.

  X   2. The building or area being renovated has been tested by a Site Surveillance Technician and is found to have asbestos containing more than 1% (flooring mastic). The asbestos containing material will be removed or encapsulated as required by the above codes and standards, and final clearance levels indicated compliance will be obtained before the area is reoccupied. Removal of flooring with black mastic (approx. 4,200 sq ft).

     3. The combined amount of regulated asbestos containing material is less than the 260 linear feet on pipes, 160 square feet on other facility components, or less than 35 cubic yards when removed from the facility components.

     4. The area being renovated or demolished is a single-family dwelling or a residential housing unit with four or less units. These units will not be used for commercial or public use.

#### **Structure information: (check all that apply)**

**A      The building is a single-family dwelling.**

**B      The building is residential housing consisting of 4 or fewer dwelling units.**

**C      The building is a commercial facility**

**D   x   The building is a K-12 school or Federal facility.**

Summary-

On 12/20/2019, 7/17/2021, 6/24/2022, 8/10/2022 I, (Curtis Roberts, SST 12-4974) conducted the inspection and bulk sampling at the above listed address.

Respectfully

Curtis Roberts SST

Respectfully,



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

Dominick Sager  
Senior Consultant

CAC #13-5082

CDPH #24356

NV #IM1131

Mycometer

MMA-0226-US | MMS-1258-US | BQS-0118-US

### B Building



### Inside B Classroom



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974



**Roof  
Ceiling Tiles**



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974



### 5. Regulatory Requirements

The following is a summary of the major asbestos notification and information requirements in 8 CCR 1529, 5203, 341.6-341.14 and the California Health & Safety Code. See the codes for the complete requirements. Note: Employers also have additional informational duties towards their employees under 8 CCR 1529, 1509 or 3203 (the Injury and Illness Prevention Program requirements for construction and general industry), 3204 (Access to Employee Exposure and Medical Records), as well as other Title 8 regulations.

#### Employers performing work subject to 8 CCR 1529:

- If less than 100 sq.ft. of asbestos-containing construction materials and therefore not subject to the asbestos registration rules, file a Report of Use with the Chief of DOSH (Cal/OSHA)
- Determine the location and quantity of asbestos-containing material (ACM) and/or presumed ACM (PACM) based on the criteria in 1529(k)(1); {ref. 1529(k)(3)(A)}
- If at a temporary worksite, notify the nearest Cal/OSHA District Enforcement Office 24 hours prior to work (ref. 1529(r) & 5203)
- Any incident resulting an employee exposure in excess of the PEL and/or excursion limit by reporting in writing to the Chief of DOSH within 15 days. (ref. 1529(r) & 5203)
- Through meetings or other methods, inform employees, building owner and other employers on site, prior to work, about the location and quantity of ACM and/or PACM, the nature of their work, requirements pertaining to regulated areas, as well as the means to prevent asbestos air contamination; and {ref. 1529(d)(1) & (k)(3)}
- Post a warning sign outside the regulated area that is understandable to employees working in and contiguous to the area {ref. 1529(e)(2) and (k)(7)}





## Curtis Roberts Inspection

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- As soon as possible, notify affected employees regarding the results of personal air monitoring {ref. 1529(f)(5)}
- Within 10 days of completing the work, regarding the location and quantity of remaining asbestos, as well as any final monitoring results {ref. 1529(k)(3)(C)}

See 8 CCR 1529 for the exact requirements. There are additional notification duties to the local air quality district or the U.S.EPA.

### **Employers performing work subject to 8 CCR Article 2.5 Registration- Asbestos-Related Work:**

- Send notices of temporary worksites to the nearest Cal/OSHA District Office 24 hours prior to the start of each job {ref. 341.9}
- Hold a pre-job safety meeting to discuss safety program and safe work practices with employees, their representatives, and the building owner or their representative (for work covered by asbestos registration) {ref. 341.11}
- Post a warning sign readable at 20 feet {ref. 341.10(a); see also 1529(e)(2) and (k)(7) for similar and additional requirements}
- Before the commencement of the work, provide a copy of the registration to the prime contractor and other employers at the site. Also, post a copy beside the Cal/OSHA poster. {ref. 341.10(b)}
- See 8 CCR, Article 2.5, for the exact requirements.

### **Building Owners:**

- Prior to beginning work, determine the location and quantity of ACM and/or PACM based on the criteria in 1529(k)(1); {ref. 1529(k)(2)(A)}
- Notify in writing or by personal communication the following or their authorized representatives: {ref. 1529(k)(2)(B)}
  - Prospective employers applying or bidding for work and all other employers with employees who will work in or adjacent to areas with such material
  - The building owner's employees working in or adjacent to these areas; and
  - Tenants who will occupy areas containing such material
  - If they are owners of public and commercial buildings constructed prior to 1979 and know that the building contains asbestos-containing construction materials, provide information to all occupants. For more details view the regulations of the Health & Safety Code, Division 20, Chapter 10.4 Asbestos Notification, 25915-25919.7 at [www.leginfo.ca.gov/calaw.html](http://www.leginfo.ca.gov/calaw.html) This code is enforced by city or county jurisdictions, not Cal/OSHA.
  - If a school district, are required by the U.S. EPA to have a management plan and surveys of where asbestos is known or presumed to be present. Contact the U.S. EPA Region 9 Asbestos Regional Coordinator for information.

### **All Employers:**

- Ascertain on a daily basis, the integrity of enclosures and or the effectiveness of other control methods used in regulated areas their employees are working adjacent to. {ref. 1529(d)(4)}



## Curtis Roberts Inspection

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- If they discover their employees are exposed to asbestos they must protect them by, for example, removal from the area or performing an initial exposure assessment. ref. 1529(k)(4)}
- If they discover ACM or PACM they must inform the building owner and other employers of employees working at the work site within 24 hours {ref. 1529(k)(4)}
- In cases when material they reasonably believe to be asbestos has not been rendered harmless, to stop work in affected areas. See section 25914.2(c) of the California Health and Safety Code for the exact requirements.

### General Contractors:

- Ascertain whether the asbestos contractor is in compliance with 8 CCR section 1529(d)(5) and require them to come into compliance when necessary

## Appendix A Definitions of Terms and Assessment Criteria

This survey report organizes information on each suspect ACBM identified in tables located in Section 4. This section defines the terms used to describe materials listed in Section 4.

**Material description** contains the description of the suspect homogeneous asbestos containing building material.

**Material Serial Number** is used to reference the material for reinspections, etc..

**Asbestos type and content** describes the type of asbestos and its percentage in the material.

**Asbestos Results** for positive materials are shown as a percentage. Samples having less than 1% asbestos are reported as containing "Trace" amounts of asbestos and samples with no detected asbestos are reported as "BLD" or below limit of detection.

**Sample number(s)** identifies a particular material sample obtained from a specific sample location. Sample numbers are used primarily for laboratory identification.

**Sample Location** identifies where the samples of this material were obtained.

**Material Category** categorizes each material as surfacing, TSI or miscellaneous.

*Surfacing Materials* - Asbestos containing materials that are sprayed-on, trowled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

*Thermal Systems Insulation (TSI)* - Asbestos containing materials applied to pipes, fittings, boilers, breaching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.



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*Miscellaneous Materials* - Asbestos containing materials applied to or a part of building components that are not classified as surfacing materials or thermal systems insulation.

**Quantity & Units** reports approximate total quantity per unit of measure for each material.

**Building(s) & Floor(s)** specifies where a material is located.

**Material Location** describes where the material is found throughout the building.

**Material Condition** identifies the material as Friable, Non-friable or Jacketed (for thermal systems insulation only) if asbestos is present.

*Friable* - An asbestos containing material that can be crumbled, pulverized or reduced to powder, when dry, by hand pressure, such as spray applied fireproofing on structural steel members, spray applied acoustical ceiling materials or damaged thermal systems insulation. Friable materials are of greatest concern due to their potential fiber release.

*Non-Friable* - An asbestos containing material where the asbestos is bound tightly in a matrix or sealed by a protective layer. Non-friable materials can become friable by being rendered to a crumbled, pulverized or powdered state, when dry, by crushing, sanding, sawing, shot-blasting, severe weathering or by other mechanically induced means. Common examples of non-friable materials are adhesives, floor tiles, transite and roofing materials.

*Jacketed* - An asbestos containing material applied to thermal systems insulation and "jacketed" with a protective outer layer such as canvas or metal to keep the material in good condition. Undamaged jacketed ACM is considered non-friable. If the jacketing is damaged, the material is considered friable.

**Damage Category** describes the type of damage, if any, to the material. The following damage categories are used: None, Physical, Air, and Water.

**Material Assessment** identifies the condition of the material in relation to physical and water damage, delamination of the material from its substrate, the extent of the damage and the potential for damage from building conditions, such as, accessibility by building occupants, influence of vibration, etc. The six standard assessment categories ranked by hazard potential, with the first being the lowest hazard are as follows: 1) Potential for Damage, 2) Potential for Significant Damage, 3) Damaged, 4) Damaged with Potential for Damage, 5) Damaged with Potential for Significant Damage, and 6) Significantly Damaged. Only friable materials are assessed under AHERA regulations. Non-friable materials, unless damaged, are not assessed and can be assumed to be in good condition.

*Damaged* - The damage or deterioration of the material results in inadequate cohesion or adhesion with crumbling, blistering, water stains, marring or otherwise abraded over less than one-tenth (1/10) of the surface if the damage is evenly distributed or one-fourth (1/4) if the damage is localized.

*Significant Damage* - The damage or deterioration of the material results in inadequate adhesion or cohesion and the damage is extensive and severe with one or more of the following characteristics: 1) Crumbling or blistering over at least one-tenth (1/10) of the surface if evenly distributed, one-fourth (1/4) if the damage is localized; 2) Areas of the material hanging from the surface, delaminated, or showing adhesive failure; 3) Water stains, gouges or marred.

**Recommended Response** suggests the appropriate options for controlling or maintaining ACM in a safe manner. There are four options used:

*Operations & Maintenance (O&M)* - A program designed to "manage" asbestos in-place. As long as asbestos containing materials remain in a building, an O&M program should be instituted to alert maintenance personnel, custodial workers and outside vendors of the existence and location of these materials and to set a policy for the maintenance of these materials. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Repair* - The restoration of damaged or deteriorated asbestos containing building materials to an intact condition. Once the intact condition is established, the material should be included in an O&M program. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Abate Due to Condition* - This material is significantly damaged and is unsafe in its current condition. The access to the area should be restricted to personnel equipped with appropriate personal protection. This material should be properly removed by a licensed contractor using workers trained in the safe removal of asbestos.



## Curtis Roberts Inspection

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*Abate Prior to Renovation* - This material should be properly removed prior to planned renovation activities by a licensed contractor using workers trained in the safe removal of asbestos. This recommendation is usually made only on survey reports prepared prior to planned renovation activities.

**Comments & Damage Description** contains any additional information and or specific details of material damage are noted here. **EPA Category** provides the appropriate material category as outlined in the NESHAPS regulation. The four options are friable, Category 1, Category 2, and needs determination.

Friable - Materials containing greater than 1% asbestos are always considered Regulated Asbestos Containing Materials (RACM) that require removal prior to building renovation or demolition activities that impact the material.

Category 1 - Materials that are bituminous non-friable and contain more than 1% asbestos that become RACM and require removal only when will be subject to grinding, cutting, sanding or abrading.

Category 2 - Materials that are non-friable and contain more than 1% asbestos that will have a high probability of being crumbled, pulverized or reduced to a powder by the demolition or renovation activity. These material usually become RACM and will require removal.

Needs Determination - Materials that the individual designing the abatement and demolition project needs to inspect and evaluate to determine the potential for the material to become RACM and/or evaluate the asbestos content for the composite and individual layers of the material. For sheet rock with mudding compounds only, the EPA allows using the composite sample result. If the composite result by Point Counting the sample is below 1% asbestos, the material is not RACM.

## Appendix B

### Bulk Sampling Protocol and Analytical Methods

Bulk samples of suspect asbestos containing building materials were obtained using standard industrial hygiene techniques including wetting friable materials to minimize fiber release. When necessary, our personnel wore half-face air purifying respirators equipped with high efficiency particulate (HEPA) filters while obtaining samples.

Our sampling strategy for suspect friable surfacing materials was based on the guidelines outlined in the EPA publication "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials," the procedures outlined in 40 CFR 763, Subpart E (ASHERA), and the standards of the Texas Department of Health presented in the Texas Asbestos Health Protection Rules. For non-friable suspect materials, ASHERA requires the building inspector to determine the appropriate number of samples to obtain and analyze. As required by the Texas Department of Health, a minimum of three samples were collected for each suspect material.

For each homogeneous material identified by visual inspection as suspect material, random samples are obtained. A bulk sample is randomly selected from each homogeneous material for first-round testing. If the sample is positive, the remaining samples are not analyzed; if the sample is negative, the other samples are submitted for study. Every sample must be reported negative if the material is to be considered non-asbestos containing.

The bulk samples were delivered to an independent laboratory that participates in the bulk sample proficiency analysis program conducted by the United States Environmental Protection Agency and is accredited by the National Voluntary Laboratory Program (NVLAP). The samples were analyzed using

3601 West Haack Court Elk Grove CA 95758 916-690-4884



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

Polarized Light Microscopy (PLM) with dispersion staining to estimate the percent of asbestos composition by volume. Samples with no observable asbestiform minerals are designated as Non-Detect (ND). Samples in which asbestiform minerals are observed, but exist in concentrations of less than one percent (<1%), are designated as present in Trace (TR) amounts; all other samples are designated as asbestos containing with the appropriate percent of asbestos noted.



**Curtis Roberts Inspection**

Site Surveillance Technician #12-4974

## **ASBESTOS SURVEY REPORT**

**850 2<sup>nd</sup> Street (C Building)  
Brentwood CA 94513**

**Received on August 26, 2022**

Report by:

Curtis Roberts Inspections  
3601 West Haack Court  
Elk Grove CA 95758  
Curtis Roberts SST 12-4974



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### **2 Description of Building**

### **3 Summaries of Findings for Suspect Materials - Emailed**

### **4. Diagrams and Drawings - Faxed**

### **5. Regulatory Requirements**

### **Appendix: Definitions**

#### **1. Executive Summary**



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

Curtis Roberts Inspection was retained by **Liberty High School** to perform an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the planned renovation of a classroom (C) to determine the locations of accessible and to the extent feasible, inaccessible friable and non-friable asbestos containing building materials (ACBM). Friable materials are materials that can be reduced to powder with hand pressure such as fireproofing, sprayed-on acoustic ceilings, ceiling tile, pipe insulation, and other thermal systems insulation. All other materials such as floor tile, adhesives, plaster, stucco, and sheet rock mudding compounds are considered non-friable materials.

Because friable materials are more likely to release asbestos fibers into the air when disturbed than non-friable materials, friable materials are considered a greater health concern. Curtis Roberts Inspection performed an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the classroom (C) to identify ACBM. This report identifies the locations and asbestos content of friable and non-friable ACBM, provides assessment of the friable ACBM in relation to the material's hazard potential to building occupants and provides removal cost estimates.

Any identified suspect asbestos-containing materials will be summarized in Section 3. Materials testing positive for asbestos including material assessments, recommended response actions, and quantities are described in Section 4.

### DISCLAIMER

The information in this report or portions thereof may be required to be included in notifications to employees, contractors or other visitors to the building(s). This report is not intended to be used as a sole specification or work plan for any of the work suggested or recommended in this report.

This report is based upon conditions and practices observed at the property and Information made available to the surveyor. This report does not intend to identify all hazards or unsafe practices, nor to indicate that other hazards or unsafe practices do not exist at the premises.





## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### Section 2

#### Description of slated renovation areas

**Number of Floors:** 1

Square Footage: +/- 4,400 sq. ft.+/- per unit inside (classes, office, etc.) and +/- 6,700 square feet for roof

Wood Frame  
Exterior Stucco  
Raised floor

**Exterior Roof construction components consist of:**

Tar

### Section 3 Summary of Findings for ACM -ASBESTOS INSPECTION-

I, Curtis Roberts SST #12-4974 certify that the construction located at

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## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### 850 – 2<sup>nd</sup> Street (C), Brentwood CA 94513

(Building Address, Including Floor and Suite Number)

has been inspected for asbestos containing material and complies with Title 8 Code of California Regulations, "Asbestos Survey Standards for Buildings to be Renovated or Demolished", as promulgated by California Department of Safety and Health (DOSH) and "Clean Air Act" (NESHAP) and OSHA, "Standards for Construction Workers" and found that;

#### For General Construction:

\_\_\_ 1. The building or area being renovated has been tested by a licensed Site Surveillance Technician/Certified Asbestos Consultant and no asbestos containing materials regulated by the California State codes or standards were found.

**X** 2. **The building or area being renovated has been tested by a Site Surveillance Technician and is found to have asbestos containing more than 1% (mastic flooring, boiler insulation), less than 1% (joint compound in sheetrock). The asbestos containing material will be removed or encapsulated as required by the above codes and standards, and final clearance levels indicated compliance will be obtained before the area is reoccupied. Removal of flooring with black mastic (approx. 4,400 sq ft), removal of boiler insulation (approx. 1 ft above ground and 400 ft below flooring, removal of boiler room walls (approx. 200 sq ft,) and removal of sheet rock in back bathrooms (approx. 400 sq ft).**

\_\_\_ 3. The combined amount of regulated asbestos containing material is less than the 260 linear feet on pipes, 160 square feet on other facility components, or less than 35 cubic yards when removed from the facility components.

\_\_\_ 4. The area being renovated or demolished is a single-family dwelling or a residential housing unit with four or less units. These units will not be used for commercial or public use.

#### Structure information: (check all that apply)

A \_\_\_ The building is a single-family dwelling.

B \_\_\_ The building is residential housing consisting of 4 or fewer dwelling units.

C \_\_\_ The building is a commercial facility

D **x** The building is a K-12 school or Federal facility.

Summary-

On 12/31/2019 6/24/2021, 7/17/2022, 8/10/2022 I, (Curtis Roberts, SST 12-4974) conducted the inspection and bulk sampling at the above listed address.

Respectfully

Curtis Roberts SST

Respectfully,



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

**Dominick Sager**  
**Senior Consultant**

CAC #13-5082

CDPH #24356

NV #IM1131

Mycometer

MMA-0226-US | MMS-1258-US | BQS-0118-US

### C Building





## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### Inside C Classroom



**ROOF**



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### 'C' BOILER ROOM



### BLACK MASTIC ON FLOORING





## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### 5. Regulatory Requirements

The following is a summary of the major asbestos notification and information requirements in 8 CCR 1529, 5203, 341.6-341.14 and the California Health & Safety Code. See the codes for the complete requirements. Note: Employers also have additional informational duties towards their employees under 8 CCR 1529, 1509 or 3203 (the Injury and Illness Prevention Program requirements for construction and general industry), 3204 (Access to Employee Exposure and Medical Records), as well as other Title 8 regulations.

#### Employers performing work subject to 8 CCR 1529:

- If less than 100 sq.ft. of asbestos-containing construction materials and therefore not subject to the asbestos registration rules, file a Report of Use with the Chief of DOSH (Cal/OSHA)
- Determine the location and quantity of asbestos-containing material (ACM) and/or presumed ACM (PACM) based on the criteria in 1529(k)(1); {ref. 1529(k)(3)(A)}
- If at a temporary worksite, notify the nearest Cal/OSHA District Enforcement Office 24 hours prior to work (ref. 1529(r) & 5203)
- Any incident resulting an employee exposure in excess of the PEL and/or excursion limit by reporting in writing to the Chief of DOSH within 15 days. (ref. 1529(r) & 5203)
- Through meetings or other methods, inform employees, building owner and other employers on site, prior to work, about the location and quantity of ACM and/or PACM, the nature of their work, requirements pertaining to regulated areas, as well as the means to prevent asbestos air contamination; and {ref. 1529(d)(1) & (k)(3)}
- Post a warning sign outside the regulated area that is understandable to employees working in and contiguous to the area {ref. 1529(e)(2) and (k)(7)}
- As soon as possible, notify affected employees regarding the results of personal air monitoring {ref. 1529(f)(5)}
- Within 10 days of completing the work, regarding the location and quantity of remaining asbestos, as well as any final monitoring results {ref. 1529(k)(3)(C)}

See 8 CCR 1529 for the exact requirements. There are additional notification duties to the local air quality district or the U.S.EPA.

#### Employers performing work subject to 8 CCR Article 2.5 Registration- Asbestos-Related Work:

- Send notices of temporary worksites to the nearest Cal/OSHA District Office 24 hours prior to the start of each job {ref. 341.9}
- Hold a pre-job safety meeting to discuss safety program and safe work practices with employees, their representatives, and the building owner or their representative (for work covered by asbestos registration) {ref. 341.11}
- Post a warning sign readable at 20 feet {ref. 341.10(a); see also 1529(e)(2) and (k)(7) for similar and additional requirements}
- Before the commencement of the work, provide a copy of the registration to the prime contractor and other employers at the site. Also, post a copy beside the Cal/OSHA poster. {ref. 341.10(b)}
- See 8 CCR, Article 2.5, for the exact requirements.



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### Building Owners:

- Prior to beginning work, determine the location and quantity of ACM and/or PACM based on the criteria in 1529(k)(1); {ref. 1529(k)(2)(A)}
- Notify in writing or by personal communication the following or their authorized representatives: {ref. 1529(k)(2)(B)}
  - Prospective employers applying or bidding for work and all other employers with employees who will work in or adjacent to areas with such material
  - The building owner's employees working in or adjacent to these areas; and
  - Tenants who will occupy areas containing such material
  - If they are owners of public and commercial buildings constructed prior to 1979 and know that the building contains asbestos-containing construction materials, provide information to all occupants. For more details view the regulations of the Health & Safety Code, Division 20, Chapter 10.4 Asbestos Notification, 25915-25919.7 at [www.leginfo.ca.gov/calaw.html](http://www.leginfo.ca.gov/calaw.html) This code is enforced by city or county jurisdictions, not Cal/OSHA.
  - If a school district, are required by the U.S. EPA to have a management plan and surveys of where asbestos is known or presumed to be present. Contact the U.S. EPA Region 9 Asbestos Regional Coordinator for information.

### All Employers:

- Ascertain on a daily basis, the integrity of enclosures and or the effectiveness of other control methods used in regulated areas their employees are working adjacent to. {ref. 1529(d)(4)}
- If they discover their employees are exposed to asbestos they must protect them by, for example, removal from the area or performing an initial exposure assessment. ref. 1529(k)(4)}
- If they discover ACM or PACM they must inform the building owner and other employers of employees working at the work site within 24 hours {ref. 1529(k)(4)}
- In cases when material they reasonably believe to be asbestos has not been rendered harmless, to stop work in affected areas. See section 25914.2(c) of the California Health and Safety Code for the exact requirements.

### General Contractors:

- Ascertain whether the asbestos contractor is in compliance with 8 CCR section 1529(d)(5) and require them to come into compliance when necessary



## Appendix A Definitions of Terms and Assessment Criteria

This survey report organizes information on each suspect ACBM identified in tables located in Section 4. This section defines the terms used to describe materials listed in Section 4.

**Material description** contains the description of the suspect homogeneous asbestos containing building material.

**Material Serial Number** is used to reference the material for reinspections, etc..

**Asbestos type and content** describes the type of asbestos and its percentage in the material.

**Asbestos Results** for positive materials are shown as a percentage. Samples having less than 1% asbestos are reported as containing "Trace" amounts of asbestos and samples with no detected asbestos are reported as "BLD" or below limit of detection.

**Sample number(s)** identifies a particular material sample obtained from a specific sample location. Sample numbers are used primarily for laboratory identification.

**Sample Location** identifies where the samples of this material were obtained.

**Material Category** categorizes each material as surfacing, TSI or miscellaneous.

*Surfacing Materials* - Asbestos containing materials that are sprayed-on, trowled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

*Thermal Systems Insulation (TSI)* - Asbestos containing materials applied to pipes, fittings, boilers, breaching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

*Miscellaneous Materials* - Asbestos containing materials applied to or a part of building components that are not classified as surfacing materials or thermal systems insulation.

**Quantity & Units** reports approximate total quantity per unit of measure for each material.

**Building(s) & Floor(s)** specifies where a material is located.

**Material Location** describes where the material is found throughout the building.

**Material Condition** identifies the material as Friable, Non-friable or Jacketed (for thermal systems insulation only) if asbestos is present.

*Friable* - An asbestos containing material that can be crumbled, pulverized or reduced to powder, when dry, by hand pressure, such as spray applied fireproofing on structural steel members, spray applied acoustical ceiling materials or damaged thermal systems insulation. Friable materials are of greatest concern due to their potential fiber release.

*Non-Friable* - An asbestos containing material where the asbestos is bound tightly in a matrix or sealed by a protective layer. Non-friable materials can become friable by being rendered to a crumbled, pulverized or powdered state, when dry, by crushing, sanding, sawing, shot-blasting, severe weathering or by other mechanically induced means. Common examples of non-friable materials are adhesives, floor tiles, transite and roofing materials.

*Jacketed* - An asbestos containing material applied to thermal systems insulation and "jacketed" with a protective outer layer such as canvas or metal to keep the material in good condition. Undamaged jacketed ACBM is considered non-friable. If the jacketing is damaged, the material is considered friable.

**Damage Category** describes the type of damage, if any, to the material. The following damage categories are used: None, Physical, Air, and Water.





## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

**Material Assessment** identifies the condition of the material in relation to physical and water damage, delamination of the material from its substrate, the extent of the damage and the potential for damage from building conditions, such as, accessibility by building occupants, influence of vibration, etc. The six standard assessment categories ranked by hazard potential, with the first being the lowest hazard are as follows: 1) Potential for Damage, 2) Potential for Significant Damage, 3) Damaged, 4) Damaged with Potential for Damage, 5) Damaged with Potential for Significant Damage, and 6) Significantly Damaged. Only friable materials are assessed under AHERA regulations. Non-friable materials, unless damaged, are not assessed and can be assumed to be in good condition.

*Damaged* - The damage or deterioration of the material results in inadequate cohesion or adhesion with crumbling, blistering, water stains, marring or otherwise abraded over less than one-tenth (1/10) of the surface if the damage is evenly distributed or one-fourth (1/4) if the damage is localized.

*Significant Damage* - The damage or deterioration of the material results in inadequate adhesion or cohesion and the damage is extensive and severe with one or more of the following characteristics: 1) Crumbling or blistering over at least one-tenth (1/10) of the surface if evenly distributed, one-fourth (1/4) if the damage is localized; 2) Areas of the material hanging from the surface, delaminated, or showing adhesive failure; 3) Water stains, gouges or marred.

**Recommended Response** suggests the appropriate options for controlling or maintaining ACBM in a safe manner. There are four options used:

*Operations & Maintenance (O&M)* - A program designed to "manage" asbestos in-place. As long as asbestos containing materials remain in a building, an O&M program should be instituted to alert maintenance personnel, custodial workers and outside vendors of the existence and location of these materials and to set a policy for the maintenance of these materials. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Repair* - The restoration of damaged or deteriorated asbestos containing building materials to an intact condition. Once the intact condition is established, the material should be included in an O&M program. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Abate Due to Condition* - This material is significantly damaged and is unsafe in its current condition. The access to the area should be restricted to personnel equipped with appropriate personal protection. This material should be properly removed by a licensed contractor using workers trained in the safe removal of asbestos.

*Abate Prior to Renovation* - This material should be properly removed prior to planned renovation activities by a licensed contractor using workers trained in the safe removal of asbestos. This recommendation is usually made only on survey reports prepared prior to planned renovation activities.

**Comments & Damage Description** contains any additional information and or specific details of material damage are noted here. **EPA Category** provides the appropriate material category as outlined in the NESHAPS regulation. The four options are friable, Category 1, Category 2, and needs determination.

Friable - Materials containing greater than 1% asbestos are always considered Regulated Asbestos Containing Materials (RACM) that require removal prior to building renovation or demolition activities that impact the material.

Category 1 - Materials that are bituminous non-friable and contain more than 1% asbestos that become RACM and require removal only when will be subject to grinding, cutting, sanding or abrading.

Category 2 - Materials that are non-friable and contain more than 1% asbestos that will have a high probability of being crumbled, pulverized or reduced to a powder by the demolition or renovation activity. These material usually become RACM and will require removal.

Needs Determination - Materials that the individual designing the abatement and demolition project needs to inspect and evaluate to determine the potential for the material to become RACM and/or evaluate the asbestos content for the composite and individual layers of the material. For sheet rock with mudding compounds only, the EPA allows using the composite sample result. If the composite result by Point Counting the sample is below 1% asbestos, the material is not RACM.



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### Appendix B Bulk Sampling Protocol and Analytical Methods

Bulk samples of suspect asbestos containing building materials were obtained using standard industrial hygiene techniques including wetting friable materials to minimize fiber release. When necessary, our personnel wore half-face air purifying respirators equipped with high efficiency particulate (HEPA) filters while obtaining samples.

Our sampling strategy for suspect friable surfacing materials was based on the guidelines outlined in the EPA publication "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials," the procedures outlined in 40 CFR 763, Subpart E (ASHERA), and the standards of the Texas Department of Health presented in the Texas Asbestos Health Protection Rules. For non-friable suspect materials, ASHERA requires the building inspector to determine the appropriate number of samples to obtain and analyze. As required by the Texas Department of Health, a minimum of three samples were collected for each suspect material.

For each homogeneous material identified by visual inspection as suspect material, random samples are obtained. A bulk sample is randomly selected from each homogeneous material for first-round testing. If the sample is positive, the remaining samples are not analyzed; if the sample is negative, the other samples are submitted for study. Every sample must be reported negative if the material is to be considered non-asbestos containing.

The bulk samples were delivered to an independent laboratory that participates in the bulk sample proficiency analysis program conducted by the United States Environmental Protection Agency and is accredited by the National Voluntary Laboratory Program (NVLAP). The samples were analyzed using Polarized Light Microscopy (PLM) with dispersion staining to estimate the percent of asbestos composition by volume. Samples with no observable asbestiform minerals are designated as Non-Detect (ND). Samples in which asbestiform minerals are observed, but exist in concentrations of less than one percent (<1%), are designated as present in Trace (TR) amounts; all other samples are designated as asbestos containing with the appropriate percent of asbestos noted.



**Curtis Roberts Inspection**

Site Surveillance Technician #12-4974

## **ASBESTOS SURVEY REPORT**

**850 – 2<sup>nd</sup> Street (D Building)  
Brentwood CA 94513**

**Received on August 26, 2022**

Report by:

Curtis Roberts Inspections  
3601 West Haack Court  
Elk Grove CA 95758  
Curtis Roberts SST 12-4974



## **Table of Contents**

### **1 Introduction**

### **2 Description of Building**

### **3 Summaries of Findings for Suspect Materials - Emailed**

### **4. Diagrams and Drawings - Faxed**

### **5. Regulatory Requirements**

### **Appendix: Definitions**



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### 1. Executive Summary

Curtis Roberts Inspection was retained by **Liberty High School** to perform an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the planned renovation of a classroom (D) to determine the locations of accessible and to the extent feasible, inaccessible friable and non-friable asbestos containing building materials (ACBM). Friable materials are materials that can be reduced to powder with hand pressure such as fireproofing, sprayed-on acoustic ceilings, ceiling tile, pipe insulation, and other thermal systems insulation. All other materials such as floor tile, adhesives, plaster, stucco, and sheet rock mudding compounds are considered non-friable materials.

Because friable materials are more likely to release asbestos fibers into the air when disturbed than non-friable materials, friable materials are considered a greater health concern. Curtis Roberts Inspection performed an Asbestos Hazard Emergency Response Act (AHERA) style asbestos survey of the classroom (D) to identify ACBM. This report identifies the locations and asbestos content of friable and non-friable ACBM, provides assessment of the friable ACBM in relation to the material's hazard potential to building occupants and provides removal cost estimates.

Any identified suspect asbestos-containing materials will be summarized in Section 3. Materials testing positive for asbestos including material assessments, recommended response actions, and quantities are described in Section 4.

#### DISCLAIMER

The information in this report or portions thereof may be required to be included in notifications to employees, contractors or other visitors to the building(s). This report is not intended to be used as a sole specification or work plan for any of the work suggested or recommended in this report.

This report is based upon conditions and practices observed at the property and Information made available to the surveyor. This report does not intend to identify all hazards or unsafe practices, nor to indicate that other hazards or unsafe practices do not exist at the premises.



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

### Section 2

#### Description of slated renovation areas

**Number of Floors: 1**

Square Footage: Roof +/- 6,700 sq. ft. +/- per unit & Inside (Classroom, Offices, etc) +/- 4,400 sq. ft.

Wood Frame  
Exterior Stucco  
Raised floor

**Exterior Roof construction components consist of:**

Tar

### Section 3 Summary of Findings for ACM -ASBESTOS INSPECTION-

3601 West Haack Court Elk Grove CA 95758 916-690-4884



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

I, **Curtis Roberts SST #12-4974** certify that the construction located at

**850 – 2<sup>nd</sup> street (D), Brentwood CA 94513**

**(Building Address, Including Floor and Suite Number)**

has been inspected for asbestos containing material and complies with Title 8 Code of California Regulations, "Asbestos Survey Standards for Buildings to be Renovated or Demolished", as promulgated by California Department of Safety and Health (DOSH) and "Clean Air Act" (NESHAP) and OSHA, "Standards for Construction Workers" and found that;

### **For General Construction:**

     1. The building or area being renovated has been tested by a licensed Site Surveillance Technician/Certified Asbestos Consultant and no asbestos containing materials regulated by the California State codes or standards were found.

  X   2. The building or area being renovated has been tested by a Site Surveillance Technician and is found to have asbestos containing more than 1% (roof material, flooring mastic). The asbestos containing material will be removed or encapsulated as required by the above codes and standards, and final clearance levels indicated compliance will be obtained before the area is reoccupied. Removal of Roofing materials (approx. 6,700 sq ft.) and removal of flooring with black mastic (approx. 4,400 sq ft).

     3. The combined amount of regulated asbestos containing material is less than the 260 linear feet on pipes, 160 square feet on other facility components, or less than 35 cubic yards when removed from the facility components.

     4. The area being renovated or demolished is a single-family dwelling or a residential housing unit with four or less units. These units will not be used for commercial or public use.

### **Structure information: (check all that apply)**

**A    The building is a single-family dwelling.**

**B    The building is residential housing consisting of 4 or fewer dwelling units.**

**C    The building is a commercial facility**

**D   x   The building is a K-12 school or Federal facility.**

Summary-

On 12/31/2019, 7/17/2021, 6/24/2022, I, (Curtis Roberts, SST 12-4974) conducted the inspection and bulk sampling at the above listed address.

Respectfully

Curtis Roberts SST

Respectfully,



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

Dominick Sager  
Senior Consultant

CAC #13-5082

CDPH #24356

NV #IM1131

Mycometer

MMA-0226-US | MMS-1258-US | BQS-0118-US

### D Building



### Inside D Classroom





## Curtis Roberts Inspection

Site Surveillance Technician #12-4974



**Roof  
Ceiling Tiles**



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974



### 5. Regulatory Requirements

The following is a summary of the major asbestos notification and information requirements in 8 CCR 1529, 5203, 341.6-341.14 and the California Health & Safety Code. See the codes for the complete requirements. Note: Employers also have additional informational duties towards their employees under 8 CCR 1529, 1509 or 3203 (the Injury and Illness Prevention Program requirements for construction and general industry), 3204 (Access to Employee Exposure and Medical Records), as well as other Title 8 regulations.

#### Employers performing work subject to 8 CCR 1529:

- If less than 100 sq.ft. of asbestos-containing construction materials and therefore not subject to the asbestos registration rules, file a Report of Use with the Chief of DOSH (Cal/OSHA)
- Determine the location and quantity of asbestos-containing material (ACM) and/or presumed ACM (PACM) based on the criteria in 1529(k)(1); {ref. 1529(k)(3)(A)}
- If at a temporary worksite, notify the nearest Cal/OSHA District Enforcement Office 24 hours prior to work (ref. 1529(r) & 5203)
- Any incident resulting an employee exposure in excess of the PEL and/or excursion limit by reporting in writing to the Chief of DOSH within 15 days. (ref. 1529(r) & 5203)
- Through meetings or other methods, inform employees, building owner and other employers on site, prior to work, about the location and quantity of ACM and/or PACM, the nature of their work, requirements pertaining to regulated areas, as well as the means to prevent asbestos air contamination; and {ref. 1529(d)(1) & (k)(3)}
- Post a warning sign outside the regulated area that is understandable to employees working in and contiguous to the area {ref. 1529(e)(2) and (k)(7)}
- As soon as possible, notify affected employees regarding the results of personal air monitoring {ref. 1529(f)(5)}



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

- Within 10 days of completing the work, regarding the location and quantity of remaining asbestos, as well as any final monitoring results {ref. 1529(k)(3)(C)}

See 8 CCR 1529 for the exact requirements. There are additional notification duties to the local air quality district or the U.S.EPA.

### **Employers performing work subject to 8 CCR Article 2.5 Registration- Asbestos-Related Work:**

- Send notices of temporary worksites to the nearest Cal/OSHA District Office 24 hours prior to the start of each job {ref. 341.9}
- Hold a pre-job safety meeting to discuss safety program and safe work practices with employees, their representatives, and the building owner or their representative (for work covered by asbestos registration) {ref. 341.11}
- Post a warning sign readable at 20 feet {ref. 341.10(a); see also 1529(e)(2) and (k)(7) for similar and additional requirements}
- Before the commencement of the work, provide a copy of the registration to the prime contractor and other employers at the site. Also, post a copy beside the Cal/OSHA poster. {ref. 341.10(b)}
- See 8 CCR, Article 2.5, for the exact requirements.

### **Building Owners:**

- Prior to beginning work, determine the location and quantity of ACM and/or PACM based on the criteria in 1529(k)(1); {ref. 1529(k)(2)(A)}
- Notify in writing or by personal communication the following or their authorized representatives: {ref. 1529(k)(2)(B)}
  - Prospective employers applying or bidding for work and all other employers with employees who will work in or adjacent to areas with such material
  - The building owner's employees working in or adjacent to these areas; and
  - Tenants who will occupy areas containing such material
  - If they are owners of public and commercial buildings constructed prior to 1979 and know that the building contains asbestos-containing construction materials, provide information to all occupants. For more details view the regulations of the Health & Safety Code, Division 20, Chapter 10.4 Asbestos Notification, 25915-25919.7 at [www.leginfo.ca.gov/calaw.html](http://www.leginfo.ca.gov/calaw.html) This code is enforced by city or county jurisdictions, not Cal/OSHA.
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### **All Employers:**

- Ascertain on a daily basis, the integrity of enclosures and or the effectiveness of other control methods used in regulated areas their employees are working adjacent to. {ref. 1529(d)(4)}
- If they discover their employees are exposed to asbestos they must protect them by, for example, removal from the area or performing an initial exposure



## Curtis Roberts Inspection

Site Surveillance Technician #12-4974

- assessment. ref. 1529(k)(4)}
- If they discover ACM or PACM they must inform the building owner and other employers of employees working at the work site within 24 hours {ref. 1529(k)(4)}
- In cases when material they reasonably believe to be asbestos has not been rendered harmless, to stop work in affected areas. See section 25914.2(c) of the California Health and Safety Code for the exact requirements.

### General Contractors:

- Ascertain whether the asbestos contractor is in compliance with 8 CCR section 1529(d)(5) and require them to come into compliance when necessary

## Appendix A Definitions of Terms and Assessment Criteria

This survey report organizes information on each suspect ACBM identified in tables located in Section 4. This section defines the terms used to describe materials listed in Section 4.

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**Sample Location** identifies where the samples of this material were obtained.

**Material Category** categorizes each material as surfacing, TSI or miscellaneous.

*Surfacing Materials* - Asbestos containing materials that are sprayed-on, trowled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

*Thermal Systems Insulation (TSI)* - Asbestos containing materials applied to pipes, fittings, boilers, breaching, tanks, ducts or other interior structural components to prevent heat loss or gain or water condensation.

*Miscellaneous Materials* - Asbestos containing materials applied to or a part of building components that are not classified as surfacing materials or thermal systems insulation.



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**Quantity & Units** reports approximate total quantity per unit of measure for each material.

**Building(s) & Floor(s)** specifies where a material is located.

**Material Location** describes where the material is found throughout the building.

**Material Condition** identifies the material as Friable, Non-friable or Jacketed (for thermal systems insulation only) if asbestos is present.

*Friable* - An asbestos containing material that can be crumbled, pulverized or reduced to powder, when dry, by hand pressure, such as spray applied fireproofing on structural steel members, spray applied acoustical ceiling materials or damaged thermal systems insulation. Friable materials are of greatest concern due to their potential fiber release.

*Non-Friable* - An asbestos containing material where the asbestos is bound tightly in a matrix or sealed by a protective layer. Non-friable materials can become friable by being rendered to a crumbled, pulverized or powdered state, when dry, by crushing, sanding, sawing, shot-blasting, severe weathering or by other mechanically induced means. Common examples of non-friable materials are adhesives, floor tiles, transite and roofing materials.

*Jacketed* - An asbestos containing material applied to thermal systems insulation and "jacketed" with a protective outer layer such as canvas or metal to keep the material in good condition. Undamaged jacketed ACBM is considered non-friable. If the jacketing is damaged, the material is considered friable.

**Damage Category** describes the type of damage, if any, to the material. The following damage categories are used: None, Physical, Air, and Water.

**Material Assessment** identifies the condition of the material in relation to physical and water damage, delamination of the material from its substrate, the extent of the damage and the potential for damage from building conditions, such as, accessibility by building occupants, influence of vibration, etc. The six standard assessment categories ranked by hazard potential, with the first being the lowest hazard are as follows: 1) Potential for Damage, 2) Potential for Significant Damage, 3) Damaged, 4) Damaged with Potential for Damage, 5) Damaged with Potential for Significant Damage, and 6) Significantly Damaged. Only friable materials are assessed under AHERA regulations. Non-friable materials, unless damaged, are not assessed and can be assumed to be in good condition.

*Damaged* - The damage or deterioration of the material results in inadequate cohesion or adhesion with crumbling, blistering, water stains, marring or otherwise abraded over less than one-tenth (1/10) of the surface if the damage is evenly distributed or one-fourth (1/4) if the damage is localized.

*Significant Damage* - The damage or deterioration of the material results in inadequate adhesion or cohesion and the damage is extensive and severe with one or more of the following characteristics: 1) Crumbling or blistering over at least one-tenth (1/10) of the surface if evenly distributed, one-fourth (1/4) if the damage is localized; 2) Areas of the material hanging from the surface, delaminated, or showing adhesive failure; 3) Water stains, gouges or marred.

**Recommended Response** suggests the appropriate options for controlling or maintaining ACBM in a safe manner. There are four options used:

*Operations & Maintenance (O&M)* - A program designed to "manage" asbestos in-place. As long as asbestos containing materials remain in a building, an O&M program should be instituted to alert maintenance personnel, custodial workers and outside vendors of the existence and location of these materials and to set a policy for the maintenance of these materials. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Repair* - The restoration of damaged or deteriorated asbestos containing building materials to an intact condition. Once the intact condition is established, the material should be included in an O&M program. The material is usually only required to be removed if it is significantly damaged, prior to demolition of the building or if it will be disturbed by renovation activities.

*Abate Due to Condition* - This material is significantly damaged and is unsafe in its current condition. The access to the area should be restricted to personnel equipped with appropriate personal protection. This material should be properly removed by a licensed contractor using workers trained in the safe removal of asbestos.

*Abate Prior to Renovation* - This material should be properly removed prior to planned renovation activities by a licensed contractor using workers trained in the safe removal of asbestos. This recommendation is usually made only on survey reports



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prepared prior to planned renovation activities.

**Comments & Damage Description** contains any additional information and or specific details of material damage are noted here. **EPA Category** provides the appropriate material category as outlined in the NESHAPS regulation. The four options are friable, Category 1, Category 2, and needs determination.

Friable - Materials containing greater than 1% asbestos are always considered Regulated Asbestos Containing Materials (RACM) that require removal prior to building renovation or demolition activities that impact the material.

Category 1 - Materials that are bituminous non-friable and contain more than 1% asbestos that become RACM and require removal only when will be subject to grinding, cutting, sanding or abrading.

Category 2 - Materials that are non-friable and contain more than 1% asbestos that will have a high probability of being crumbled, pulverized or reduced to a powder by the demolition or renovation activity. These material usually become RACM and will require removal.

Needs Determination - Materials that the individual designing the abatement and demolition project needs to inspect and evaluate to determine the potential for the material to become RACM and/or evaluate the asbestos content for the composite and individual layers of the material. For sheet rock with mudding compounds only, the EPA allows using the composite sample result. If the composite result by Point Counting the sample is below 1% asbestos, the material is not RACM.

## Appendix B Bulk Sampling Protocol and Analytical Methods

Bulk samples of suspect asbestos containing building materials were obtained using standard industrial hygiene techniques including wetting friable materials to minimize fiber release. When necessary, our personnel wore half-face air purifying respirators equipped with high efficiency particulate (HEPA) filters while obtaining samples.

Our sampling strategy for suspect friable surfacing materials was based on the guidelines outlined in the EPA publication "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials," the procedures outlined in 40 CFR 763, Subpart E (AHERA), and the standards of the Texas Department of Health presented in the Texas Asbestos Health Protection Rules. For non-friable suspect materials, AHERA requires the building inspector to determine the appropriate number of samples to obtain and analyze. As required by the Texas Department of Health, a minimum of three samples were collected for each suspect material.

For each homogeneous material identified by visual inspection as suspect material, random samples are obtained. A bulk sample is randomly selected from each homogeneous material for first-round testing. If the sample is positive, the remaining samples are not analyzed; if the sample is negative, the other samples are submitted for study. Every sample must be reported negative if the material is to be considered non-asbestos containing.

The bulk samples were delivered to an independent laboratory that participates in the bulk sample proficiency analysis program conducted by the United States Environmental Protection Agency and is accredited by the National Voluntary Laboratory Program (NVLAP). The samples were analyzed using Polarized Light Microscopy (PLM) with dispersion staining to estimate the percent of asbestos composition



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by volume. Samples with no observable asbestiform minerals are designated as Non-Detect (ND). Samples in which asbestiform minerals are observed, but exist in concentrations of less than one percent (<1%), are designated as present in Trace (TR) amounts; all other samples are designated as asbestos containing with the appropriate percent of asbestos noted.

July 21, 2021 (Samples Taken)

**Name: Liberty High School 'B' Building**

**Address: 20 Oak Street**

**City State Zip: Brentwood CA 94513**

**RE:   Lead Test  
      20 Oak Street  
      Brentwood CA 94513**



Dear Paul Melloni:

Lead Inspector, Curtis Roberts was requested to take lead samples at the school identified above.

**The results of the final lead samples collected indicate that elevated concentrations of lead were present in the areas that were tested.**



## GENERAL SITE INFORMATION

The property is located at 20 Oak Street, Brentwood, CA. It is a high school. The building is being demolished in the near future. The customer requested lead testing due to property being built prior to 1978. (Windows )



Storage Door.



## Yellow Post



## FINAL SAMPLING

CDPH defines lead based paint at  $>50.0$  ( $>.5$  %) by weights on building. EPA is now proposing to lower the DLCL from 40 micrograms of per square feet ( $\mu\text{g}/\text{ft}^2$ ) and  $250 \mu\text{g}/\text{ft}^2$  to  $10 \mu\text{g}/\text{ft}^2$  and  $100 \mu\text{g}/\text{ft}^2$  for floors and window sills, respectively.

EPA's Lead Renovation, Repair and Painting (RRP) Rule requires that firms performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities and pre-schools built before 1978 be certified by EPA (or an EPA-authorized state), use certified renovators who are trained by EPA-approved training providers and follow lead-safe work practices.

Following are areas that are above threshold in Lead results:

- 1) Exterior Windows – Approximately 76 windows ( 3 ½ ft by 2 ½ feet).
- 2) Exterior Storage Door – Standard Size
- 3) Exterior Yellow Posts – Approximately 6 (3ft tall by 3 inches in diameter)

Paint chip samples were collected from school. The samples were sent to Microtest Lab, 3110 Gold Canal Drive #A, Rancho Cordova.

The following table summarizes the lead samples. Red is above threshold.

Sample #	Sample Location	Volume	Lead Concentration
1) 7/27/21	#B Exterior Siding	1-2 inch	<0.20%
2) 7/27/21	#B Exterior Window	1-2 inch	1.57%
3) 7/27/21	#B Storage Door - Exterior	1-2 inch	2.34%
4) 7/27/21	#B Interior Siding	1-2 inch	<0.01%
5) 7/27/21	#B Interior Trim	1-2 inch	<0.01%
6) 7/27/21	Front Yellow Post	1-2 inch	3.21%

The lead chip samples taken indicated lead concentrations were above CDPH definition of lead based paint for Building #B.

## **LIMITATIONS**

The conclusions and results contained herein are based solely on the information presented in this report. The sampling, testing, and observations described in the report represent conditions only at the specified times and locations. Additional information or contamination that was hidden, undiscovered, inaccessible, or are not a part of the findings presented herein, would result in the modification of the conclusions and recommendations made herein. The sampling methods, techniques and scope of services were not comprehensive or to be considered all-inclusive.

The scope of services did not include the inspection for any other hazardous or controlled substances. IH, Curtis Roberts is not responsible for the accuracy of information provided by others or for conditions or consequences arising from relevant facts that were withheld, concealed, undiscovered or not fully disclosed. IH, Curtis Roberts is not a law firm and, therefore, makes no representations regarding any potential liability of any person or entity for site conditions. Additionally, IH, Curtis Roberts is not qualified to present medical advice. If any present or future health issues are in question, it is recommended that the findings in this report be presented to a qualified medical professional for evaluation.

If you should have any questions or would like to discuss the contents of this report, please do not hesitate to contact me at any time at (916) 690-4884.

Respectfully submitted,  
**Lead Inspector ID 23369**  
**Industrial Hygienist**

**Curtis Roberts**