



Lucia Mar Unified School District

Mesa Middle School Field Restroom ADDENDUM No. 2

Project Tracking Number: 68759-132 DSA Filing Number: 40-39 DSA Application Number: 03-125727

TO: All Plan Holders and Bidders

FROM: RRM Design Group
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DATE: June 17, 2026

This addendum is hereby made a part of the contract documents to the same extent as though it were originally included therein.

Bidders are required to acknowledge receipt of this addendum in the space provided in the proposal.

Bidders are hereby notified of the following:

TABLE OF CONTENTS

A.	Contract Document Revisions	Page	3
B.	Specification Clarifications and Revisions	Page	3
C.	Plan Clarifications and Revisions	Page	3
D.	Questions from Contractors	Page	4
E.	District Special Instructions	Page	6
F.	Attachments	Page	6

A. CONTRACT DOCUMENT REVISIONS

1. None for addendum #2. See addendum #1.

B. SPECIFICATIONS CLARIFICATIONS AND REVISIONS

1. **Section 27 1300 – Intercommunication Systems**

- A. Replaced in its entirety.

C. PLAN CLARIFICATIONS AND REVISIONS

1. **Sheet A-111**

- A. Removal of CO sensors to coordinate with E203.

2. **Sheet A-201 & A-202**

- A. Addition of lighting wall sconce.
B. Keynote **26 5000.C** added.

3. **Sheet E-001**

- A. Revised sheet index and power legend clarification.
B. Keynote **26 5000.C** added.

4. **Sheet E-002**

- A. IDF Cabinet model was updated.

5. **Sheet E-003**

- A. Revised single line diagram
B. Revised single line diagram notes and single line diagram reference notes.
C. Revised ground ID C
D. Revised typical arc flash signage.

6. **Sheet E-004**

- A. Revised A1/A1E, A2, and S1 on Luminaire schedule.
B. Revised exterior lighting control diagram.

7. **Sheet E005**

- A. Detail 1 was updated.

8. **Sheet E006**

- A. Detail 5 was updated.

9. **Sheet E-100**

- A. Revised keynote.

10. **Sheet E-200**

- A. Revised irrigation controller.
- B. Revised reference notes 5 & 6.
- C. Communication ground bar added.

11. Sheet E-201

- A. Revised to Exterior lights, addition of fixture S1 in multiple locations.
- B. Revised reference note 9.

12. Sheet E-204

- A. New sheet for roof plan.

13. Sheet E-300

- A. Revised Fire Alarm Symbols legend for heat detector.

14. Sheet E-500-E-501

- A. Updated T24 for exterior lights.
- B. Updated T24 for interior lights.

D. RESPONSES TO CONTRACTOR QUESTIONS

1. Please confirm if an ERRCS study is required per Note 13 on G-002.

- A. Per CFC 510.1 Exception 4, One-story buildings not exceeding 12,000 square feet (1115 m²) with no below-ground area(s) do not require emergency responder communications enhancement system (ERCES).

2. Please confirm if access hatches will need to be provided at rooms 303 and 304 for heat detectors above the ceiling.

- A. Yes, access hatches will be required for heat detectors in rooms 303 and 304.

3. Sheet E003 notes that existing panels 130 and 140 are to be removed along with their associated feeders. Please advise where these panels are located so that we can determine feeder lengths.

- A. Panel 130 & 140 have already been demolished per previous work. Single line diagram has been updated to exclude these panelboards.

4. Detail 2 on E004 and the lighting plan on E201 both show circuit K-2 powering the exterior wall pack and K-12 powering the Wattstopper Zone controller. Please confirm the location of Panel, K.

- A. Circuit information for controller has been updated.

5. Detail 5 on E006 calls for 3/4" fire rated plywood backboard to span the width of the room but interior elevation 1N on A-51 calls for the wall covering to be Vinyl tackable Paneling. Please confirm what is desired above the upper cabinets.

- A. 3/4" fire-rated plywood is not required.

6. **Detail, 5 on E006 calls for the data cabinet to be 7" max to the top of the cabinet but it scales out to 9' 5" on elevation 1N of A-511 . Please confirm it is acceptable to install at this height.**
 - A. Yes, the IDF cabinet shall be installed as shown on 1N/A-511
7. **Note 9 on sheet E401 calls for a ground bar to be installed at the wall mounted data cabinet. Please confirm the location of this ground bar. Does it mount above the upper cabinets with the data cabinet?**
 - A. Please mount ground bar into the utility room. This has been added to the plans for clarification.
8. **Sheet L101 shows an irrigation controller near the heat pumps but Sheet E200 doesn't indicate power for the controller. Please confirm what power is required for the irrigation controller.**
 - A. Please refer to updated addendum 02 plans. Circuit for irrigation controller has been added.
9. **Sheet E200 shows a symbol for "LINV" (Typ. of 2) in Room 306 with a callout for a 604 fused disconnect switch but no circuit is designated for this in Panel P230. Please confirm what this symbol represents and if any power is required.**
 - A. Please note, lighting inverter has been deleted from the project. Emergency fixtures shall be provided with battery backup.
10. **The receptacle symbols indicated on Sheet E200 appear to be standard duplex receptacles in the classrooms per the power Legend on E001. General note G under the "Power Plan notes" states all non-locking type receptacles in common areas shall be tamper resistant. Please confirm if receptacles are to be tamper resistant.**
 - A. Receptacles shall be tampered resistance as required per CEC 406.12.
11. **Note 4 on E200 calls for a 1" conduit from each future camera location back to the IDF cabinet. Can this be a conduit stub above accessible ceiling space with future cabling sharing the same j-hook pathway as the other low voltage data cabling in these rooms?**
 - A. Yes, this can be a 1" conduit stub into accessible ceiling space and open wire within the accessible ceiling space.
12. **No electrical roof plan is provided but Sheet A-121 indicates a solar ready area above the SPED classroom. Are any conduit provisions required for this area?**
 - A. Yes, (2) 1" conduits will be required. Please refer to added roof plan E204.
13. **Lighting plan E201 calls for 2x2 fixture type A1 in the classrooms but the fixture schedule doesn't include a type A1. Only AIB and 41G. Please confirm fixture designations.**
 - A. Lighting plan has been updated. 2x4 Fixtures are required. Refer to updated addendum 02 plans.

14. Lighting plan E201 indicates 3-way switches in each classroom but the details on E004 indicate Wattstopper room controllers with LV2D switches. Please confirm if the 3-way switches in the classrooms are to be Wattstopper LMSW-104 switches.

A. Yes, 3-way switches in the classroom shall be LV Wattstopper switches.

15. Please confirm the exit tight symbols on E201 are type X1 EM and that they are to be connected to the unswitched lighting circuit in each room.

A. Yes, Exit signs shall be X1 EM and shall be connected to the unswitched lighting circuit.

16. Please confirm if the Type S1 fixture on E201 requires an emergency battery pack.

A. S1 type of fixtures shall be provide with battery backup. Please refer to updated lighting plans.

17. Please confirm what is required by Note 9 on E201 regarding the acoustical ceiling tiles.

A. Please disregard note 9. Fixtures have been updated to be 2'x4' troffers.

18. Sheet A-111 indicates Carbon Monoxide detectors in the ceiling at each classroom but the fire alarm plan on E203 doesn't indicate any CO devices. Please confirm if these are required and if they need to be monitored by the fire alarm system.

A. Sheet A-111 has been updated to match E203, omitting CO devices.

19. Note 1 on E300 states "All fire alarm wiring shall, be installed in conduit, 1" minimum." But specification section 28 3100-2.01.F.1 .c & g state that fire alarm cabling above accessible ceilings can be installed "open-wired" on J-hooks and that the minimum conduit size is 3/4". Please confirm wiring methods for fire alarm cabling.

A. Fire alarm wiring shall be installed in 1" conduit as specified on construction plans.

20. The specification sections 27 1300 - 2.05 and 2.06 which designate CAT cable and Fiber do not match the schedule on page E002, for both dry and wet applications. Please clarify what shall be used?

A. Fiber on plans shall be utilized. See updated spec section.

E. DISTRICT SPECIAL INSTRUCTIONS

2. None for addendum #2. See addendum #1.

F. ATTACHMENTS

- Specification Sections
 - 27 1300

- Sheets
 - A-111
 - A-201
 - A-202
 - E-001
 - E-002
 - E-003
 - E-004
 - E-005
 - E-006
 - E-100
 - E-200
 - E-201
 - E-204
 - E-300
 - E-500
 - E-501

SECTION 27 1300
INTERCOMMUNICATION SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section Includes:
 - 1. Telecommunications Cabling at the new or remodeled buildings for the project. Backbone and horizontal cabling comprised of copper and fiber cabling, and support systems are covered under this document.
 - 2. The Horizontal (workstation) Cabling System shall consist of a minimum of two (2) 4-pair Unshielded Twisted Pair (UTP) Copper Cables to each work area outlet unless otherwise noted for specific locations. The cables shall be installed from the Work Area Outlet to the Telecommunications Room (TR) located on the same floor, and routed to the appropriate rack serving that area and terminated as specified in this document.
 - 3. All cables and related terminations, support and grounding hardware shall be furnished, installed, wired, tested, labeled, and documented by the Telecommunications contractor as detailed in this document.
 - 4. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities of telecommunications outlets, typical installation details, cable routing and outlet types will be provided as an attachment to this document. If the bid documents are in conflict, this specification shall take precedence. The successful vendor shall meet or exceed all requirements for the cable system described in this document.

1.03 REGULATORY REFERENCES

- A. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the local Electrical Code and present manufacturing standards.
- B. All materials shall be UL Listed and shall be marked as such. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- C. All modular jacks, patch cords, consolidation point, and patch cords performance shall be verified (not just tested) by a third party to be category 6 or 6A component and channel compliant, as applicable to the component being installed.

- D. The cabling system described in this is derived from the recommendations made in recognized telecommunications industry standards. The following documents are incorporated by reference:
1. ANSI/TIA/EIA - 568-C.0, Generic Telecommunications Cabling for Customer Premises
 2. ANSI/TIA/EIA - 568-C.1, Commercial Building Telecommunications Cabling Standard.
 3. ANSI/TIA/EIA - 568-C.2, Balanced Twisted Pair Cabling Components, Addendum 1 –
 4. ANSI/TIA/EIA - 568-C.3, Optical Fiber Cabling Components
 5. ANSI/TIA/EIA – 569-A, Commercial Building Standard for Telecommunications Pathways and Spaces, February, 1998.
 6. ANSI/TIA/EIA – 606-A, Administration Standard for Telecommunications Infrastructure of Commercial Buildings, February, 2002.
 7. ANSI/TIA/EIA – 607-A, Commercial Building Grounding and Bonding Requirements for Telecommunications, August, 1994.
 8. ANSI/ TIA/EIA – 758, Customer-Owned Outside Plant Telecommunications Cabling Standard, April 1999.
 9. BICSI - TDMM, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual (TDMM) – 10th Edition, 2003.
 10. National Fire Protection Agency (NFPA – 70), National Electrical Code (NEC) –2019.
- E. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.
- F. This document does not replace any code, either partially or wholly. The contractor must be aware of local codes that may impact this project.

1.04 APPROVED CONTRACTOR

- A. The Telecommunications Contractor must be a Certified Installer for the products and/or system being supplied. A copy of certification documents must be submitted with the quote in order for such quote to be valid. The Telecommunications contractor is responsible for workmanship and installation practices in accordance with said certification. At least (1) for every (3) members of the copper installation and termination crew must be certified to a Technician Level of training by the product manufacturer or BICSI. At least (1) for every (5) members of the optical fiber installation and termination crew must be certified by the product manufacturer or other approved organizations in Optical Fiber installation and termination practices.

1.05 WORK INCLUDED

- A. The work included under this specification consists of furnishing all labor, equipment, materials, and supplies and performing all operations necessary to complete the installation of this structured cabling system in compliance with the specifications and drawings. The Telecommunications contractor will provide and install all of the required material to form a complete system.
- B. The work shall include, but not be limited to the following:

1. Furnish and install a complete telecommunications wiring infrastructure as described on the plans and in these specifications.
2. Furnish, install, and terminate all UTP and Optical Fiber cable.
3. Furnish and install all wall plates, jacks, patch panels, and patch cords.
4. Furnish and install all required cabinets and/or racks as required and as indicated.
5. Furnish any other material required to form a complete system.
6. Perform link testing (100% of horizontal and/or backbone links) and certification of all components.
7. Furnish test results of all cabling to the owner on disk and paper format, listed by each closet, then by workstation ID.
8. Adhere and comply with all requirements of the product certification programs.
9. Provide owner training and documentation. (Testing documentation and As-built drawings).

1.06 SUBMITTALS

- A. Submit in accordance with Section 26 0500, COMMON WORK RESULTS FOR ELECTRICAL.
- B. Under the provisions of this request for proposal, prior to the start of work the telecommunications contractor shall:
 1. Submit copies of the certification of the company and names of staff that will be performing the installation and termination of the installation to provide proof of compliance of this spec.
 2. Submit proof from manufacturer of contractor's good standing in manufacturer's program.
 3. Submit appropriate cut sheets and samples for all products, hardware and cabling with highlighted or otherwise denoted specific products to be used. If product cut-sheets are submitted without specific products highlighted the engineer shall return submittal immediately with "Revise and Resubmit" response.
- C. Work shall not proceed without the Owner's approval of the submitted items.
- D. The telecommunications contractor shall receive approval from the Owners on all substitutions of material. No substituted materials shall be installed except by written approval from the Owner.

1.07 QUALITY ASSURANCE

- A. The telecommunications contractor shall staff the project with qualified personnel. All products shall be new and in good condition.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Delivery and receipt of products shall be at the site described in the Scope Section.

- B. Cable shall be stored according to manufacturer's recommendations as a minimum. In addition, cable must be stored in a location protected from vandalism and weather. If cable is stored outside, it must be covered with opaque plastic or canvas with provision for ventilation to prevent condensation and for protection from weather. If air temperature at cable storage location will be below 40 degrees F., the cable shall be moved to a heated (50 degrees F. minimum) location. If necessary, cable shall be stored off site at the contractor's expense.
- C. If the telecommunications contractor wishes to have a trailer on site for storage of materials, arrangements shall be made with the Owner.

1.09 DRAWINGS

- A. It shall be understood that the electrical details and drawings provided with the specification package are diagrammatic. They are included to show the intent of the specifications and to aid the telecommunications contractor in bidding the job. The telecommunications contractor shall make allowance in the bid proposal to cover whatever work is required to comply with the intent of the plans and specifications.
- B. The telecommunications contractor shall verify all dimensions at the site and be responsible for their accuracy.
- C. Prior to submitting the bid, the telecommunications contractor shall call the attention of the Engineer to any materials or apparatus the telecommunications contractor believes to be inadequate and to any necessary items of work omitted.

PART 2 - PRODUCTS

2.01 EQUIVALENT PRODUCTS

- A. The Owner and engineer have selected specific products that achieve the desired level of performance and preference. The project has been designed around said products. Proposed substitutions must demonstrate equivalent performance in all areas to the satisfaction of the Owner and must be submitted for review at least 10 days prior to bid. The Owner shall not be required to entertain substitutions submitted after bid.

2.02 WORK AREA OUTLETS

- A. Work area cables shall each be terminated at their designated work area location in the connector types described in the subsections below. Included are modular telecommunication jacks. These connector assemblies shall snap into a faceplate.
- B. The Telecommunications Outlet Assembly shall accommodate:
 - 1. A minimum of four (4) modular jacks.
 - 2. Each modular jack shall match in color and category performance the incoming cable plant to each jack location. (i.e. – if incoming cable plant is a BLUE, Category 6 cable, the modular jack shall match Category 6 performance and shall also be BLUE in color).

3. Additional accommodations for specific locations as noted in the plans for optical fiber and/or additional copper cables as necessary.
 4. A blank filler will be installed when extra ports are not used.
 5. All modular jacks shall have their circuit number on the faceplate identifier strip.
 6. Multiple jacks that are identified in close proximity on the drawings (but not separated by a physical barrier) may be combined in a single assembly. The telecommunications contractor shall be responsible for determining the optimum compliant configuration based on the products proposed.
 7. The same orientation and positioning of jacks and connectors shall be utilized throughout the installation. Prior to installation, the telecommunications contractor shall submit the proposed configuration for each outlet assembly for review by the Owner.
 8. The modular jack shall incorporate printed label strip on the dust cap module for identifying the outlet. Printed labels shall be permanent and compliant with ANSI/TIA/EIA-606-A standard specifications. Labels shall be printed using a printer such as a Brady hand held printer. Hand printed labels shall not be accepted.
- C. Faceplates: The faceplates shall:
1. Be as appropriate to fit the modular jack used.
 2. Be UL listed and CSA certified.
 3. Be constructed of type 302 stainless steel (except where noted otherwise).
 4. Shall match the faceplate color used for other utilities in the building or match the color of the raceway if installed in surface raceway.
 5. Be compliant with the above requirements along with the following when incorporating optical fiber:
 - a. Be a low profile assembly,
 - b. Incorporate a mechanism for storage of cable and fiber slack needed for termination,
 - c. Position the fiber optic couplings to face downward or at a downward angle to prevent contamination and,
 - d. Incorporate a shroud that protects the optical couplings from impact damage.
 6. Be available as single-gang or dual-gang.
 7. Provide easy access for adds, moves, and changes by front removal of jack modules.
 8. Possess recessed designation windows to facilitate labeling and identification.
 9. Include a clear plastic cover to protect labels in the designation window.
 10. Have mounting screws located under recessed designation windows.
 11. Comply with ANSI/TIA/EIA-606-A work area labeling standard.
 12. Allow for the UTP modules to be inverted in place for termination purposes.
 13. Be manufactured by an ISO 9001 registered company.
- D. Voice / Data Jacks
1. Voice/Data jacks, also known as telecommunications jacks, shall be 8-position modular jacks and shall be Category 6 or 6A performance (as matching the installed cable plant) as defined by the references in this document including ANSI/TIA/EIA-568-C.2. All pair combinations must be considered, with the worst-case measurement being the basis for compliance. Modular jack performance shall be third-party verified by a nationally recognized independent testing laboratory.
 2. The modular jack shall use dual reactance modular contact array.
 3. The modular jack shall be both component, link and channel compliant to category specifications in ANSI/TIA/EIA-568-C.

4. The modular jack's performance shall be third-party verified to ANSI/TIA/EIA-568-C Category 6 or Category 6A specifications (as appropriate to match the installed cable plant).
5. The modular jack shall have low emission IDC contacts.
6. The modular jack shall use standard termination practice using 110 impact tool or manufacturer approved tool using trained technician.
7. The modular jack shall be backwards compatible to Category 3, 5, 5e, and 6.
8. The modular jack shall be center tuned to category 6 or category 6A test specifications (as appropriate to match the installed cable plant).
9. Dust covers shall be used on each termination.

2.03 MODULAR PATCH PANELS

- A. The Modular Patch Panels shall:
 1. Meet category 6A component compliance and be verified by a third-party nationally recognized independent testing laboratory.
 2. Use low emission IDC contacts.
 3. Use dual reactance technology to enhance the signal-to-noise ratio.
 4. Require standard termination practices using a 110 impact tool or manufacturer approved termination tool.
 5. Use a single piece IDC housing designed to accept larger Category 6A conductors.
 6. Support both T568B and T568A wiring.
 7. Include easy to follow wiring labels.
 8. Include label fields.
 9. Allow for the use of icons.
 10. Include full length metal rear cable management.
 11. Be available in standard or high density. Installation shall prefer standard density.
 12. Be backward compatible to category 3, 5, 5e, and 6.
 13. Be center tuned to category 6A test specifications.
 14. Design Make:
 - a. Leviton 49255-H24, 24-port patch panel suitable for Category 6A applications.

2.04 RACKS

- A. All racks and wire management shall be of one manufacturer or designed specifically to work together. The equipment rack shall provide vertical cable management and support for the patch cords at the front of the rack and wire management, support, and protection for the horizontal cables inside the legs of the rack. Waterfall cable management shall be provided at the top of the rack for patch cords and for horizontal cables entering the rack channels for protection and to maintain proper bend radius and cable support. Wire management shall also be mounted above each patch panel and/or piece of equipment on the rack. The rack shall include mounting brackets for cable tray ladder rack to mount to the top of the rack. Velcro cable ties shall be provided inside the rack channels to support the horizontal cable. Rack shall be black in color to match the patch panels and cable management.
- B. Wall Mounted Rack

1. Wall mounted rack shall be one of two types of cabinets with requirements as listed below.
2. Large – surface mounted, enclosed cabinet with tinted front glass, such that I.T. equipment is mounted parallel with finished floor. This type of rack shall be used only where the installed location is normally unoccupied by students, or as noted on plans. Large wall mounted rack shall:
 - a. Provide the necessary strain relief, bend radius and cable routing for proper installation of high performance cross connect products, meeting all specifications of ANSI/TIA/EIA-568-C.
 - b. Have top cable trough to route patch and distribution cables between racks.
 - c. Have EIA hole pattern on front and rear.
 - d. Rack height shall be specified as 36” or 4.0 ft/1.22 m (22 rack units).
 - e. Be available with a 6.5” (165 mm) or 14” (356 mm) channel depth.
 - f. Be available with hook and loop straps for securing cables inside the vertical U-channels.
 - g. Be available with vertical cable management rings for cord routing organization and strain relief.
 - h. Be available with vertical U-channels to protect and conceal distribution cables.
 - i. Provide floor and ceiling access for cable management and distribution.
 - j. Have wall mount braces with locator posts for easy wall mounting.
 - k. Have side access points that allow for access to manage/install distribution cables in the vertical channels.
 - l. Be available in standard color of black.
 - m. Be available with double-hinge for easy access to rear of equipment and incoming cable plant.
 - n. Be manufactured by an ISO 9001 registered company.
 - o. Be installed with additional accessories as follows:
 - 1) Ground bus kit for equipment and enclosure bonding.
 - 2) Thermostatically controlled fan kit with integral filter.
 - p. Approved manufacturers of large wall mounted racks are: Chatsworth Cube-IT with tinted front glass.
3. Small – surface mounted, enclosed cabinet with minimal depth from finished wall, such that I.T. equipment is mounted perpendicular with finished floor. This type of rack shall be used only where installed location is normally occupied by staff or students, or as noted on plans. Small wall mounted rack shall:
 - a. Provide the necessary strain relief, bend radius and cable routing for proper installation of high performance cross connect products, meeting all specifications of ANSI/TIA/EIA-568-C.
 - b. Have top cable trough to route patch and distribution cables between racks.
 - c. Have EIA hole pattern on top and bottom, including door mounting, if applicable.
 - d. Cabinet height shall be specified as 42”, which shall contain (5) rack units for equipment and (4) rack units for patch panel space.
 - e. Be available with a 6.5” (165 mm) or 14” (356 mm) channel depth.
 - f. Be available with hook and loop straps for securing cables inside the vertical U-channels.
 - g. Be available with cable management rings for cord routing organization and strain relief.
 - h. Provide floor and ceiling access for cable management and distribution.
 - i. Have wall mount braces with locator posts for easy wall mounting.

- j. Have side access points that allow for access to manage/install distribution cables in the vertical channels.
- k. Be available in standard color of black.
- l. Be manufactured by an ISO 9001 registered company.
- m. Be installed with additional accessories as follows:
 - 1) Ground bus kit for equipment and enclosure bonding.
 - 2) Thermostatically controlled fan kit with integral filter.
- n. Approved manufacturers of small wall mounted racks are: Hubbell RE-BOX "RE4X" unless otherwise noted.

2.05 HORIZONTAL DISTRIBUTION CABLE

- A. All horizontal data station cable and voice cable shall terminate on modular patch panels (copper or fiber), 110 cross-connecting blocks (copper), or patch/splice cabinets (fiber) in their respective Telecommunications Room or Equipment Room as specified on the drawings.
- B. 100 OHM Category 6 UNSHIELDED TWISTED PAIR CABLE (UTP)
 - 1. Physical Characteristics:
 - a. The diameter of the insulated conductor shall be .023 in. maximum.
 - b. The outer jacket of the overall cable shall be BLUE in color.
 - c. Shall consist of (4) twisted pairs.
 - d. Shall be suitable for the environment in which they are to be installed.
 - e. The color coding of pairs shall be in accordance with T-568B:

Pair 1	Pair 2	Pair 3	Pair 4
W-BL; BL	W-O; O	W-G; G	W-BR; BR
 - f. The overall diameter of the cable shall be 0.230" nominal.
 - g. The ultimate breaking strength measured in accordance with ASTM D 4565 shall be 400 N minimum.
 - h. Cable shall withstand a bend radius of 1" at -20 degrees Celsius without jacket or insulation cracking.
 - i. Cable shall be third party verified to meet ANSI/TIA/EIA-568-C.2.
 - 2. Transmission Characteristics:
 - a. DC resistance of any conductor shall not exceed 9.38 Ohms per 100m max. at 20°C. Measured in accordance with ASTM D 4566.
 - b. The mutual capacitance of any pair at 1 kHz for 100m of cable shall not exceed 4.4 Nf.
 - c. DC resistance unbalance between any two conductors of any pair shall not exceed 3% when measured at or corrected to 20°C in accordance with ASTM D 4566.
 - d. The capacitance unbalance to ground at 1 kHz of any pair shall not exceed 330 pF per 100m.
 - 3. Cable shall be Berk-Tek LANmark-1000 UTP or approved equal.
 - 4. Cable installed underground/below slab in conduit shall be Berk-Tek LANmark-1000 OSP (wet location) or approved equal.
- C. 100 OHM Category 6A UNSHIELDED TWISTED PAIR CABLE (UTP)
 - 1. Physical Characteristics:
 - a. The diameter of the insulated conductor shall be .023 in. maximum.
 - b. The outer jacket of the overall cable shall be WHITE in color.

- c. Shall consist of (4) twisted pairs.
 - d. Shall be suitable for the environment in which they are to be installed.
 - e. The color coding of pairs shall be in accordance with T-568B:
Pair 1 Pair 2 Pair 3 Pair 4
W-BL; BL W-O; O W-G; G W-BR; BR
 - f. The overall diameter of the cable shall be 0.320" nominal.
 - g. The ultimate breaking strength measured in accordance with ASTM D 4565 shall be 400 N minimum.
 - h. Cable shall withstand a bend radius of 1.2" at -20 degrees Celsius without jacket or insulation cracking.
 - i. Cable shall be third party verified to meet ANSI/TIA/EIA-568-C.2.
2. Transmission Characteristics:
- a. DC resistance of any conductor shall not exceed 9.38 Ohms per 100m max. at 20°C. Measured in accordance with ASTM D 4566.
 - b. The mutual capacitance of any pair at 1 kHz for 100m of cable shall not exceed 5.1 Nf.
 - c. DC resistance unbalance between any two conductors of any pair shall not exceed 3% when measured at or corrected to 20°C in accordance with ASTM D 4566.
 - d. The capacitance unbalance to ground at 1 kHz of any pair shall not exceed 330 pF per 100m.
3. Cable shall be Berk-Tek LANmark-10G2 UTP or approved equal.
4. Cable installed underground/below slab in conduit shall be Berk-Tek LANmark RDT I/O series category 6A (wet location) or approved equal.

2.06 FIBER OPTIC CABLE

- A. Indoor/outdoor optical fiber non-conductive loose tube HYBRID CABLE with both laser enhanced multimode and singlemode fiber strands.
- 1. Each singlemode fiber must adhere strictly to Section 2.7.C.
 - 2. Each multimode fiber must adhere strictly to Section 2.7.B.
 - 3. Physical Characteristics (in addition to those outlined below):
 - a. Overall jacket of the HYBRID style cable shall be Aqua.
 - b. Fiber used for fire alarm system shall have an overall jacket that is RED.
- B. SINGLEMODE FIBER: Indoor/Outdoor Optical Fiber Non-Conductive Plenum (OFNP) Loose Tube with Laser Enhanced 9/125 Optical Fibers
- 1. Each Singlemode Fiber shall be:
 - a. Graded-index optical fiber wave-guide with nominal 9/125um-core/cladding diameter, OS2 or better industry rating.
 - b. The fiber shall comply with the latest revision of ANSI/EIA/TIA-4920000.
 - c. Attenuation shall be measured in accordance with ANSI/EIA/TIA-455-46, 53 or 61.
 - d. Information transmission capacity shall be measured in accordance with the latest revision of ANSI/EIA/TIA-455—204.
 - e. The measurements shall be performed at 23 degrees C +/- 5 degrees.
 - f. Maximum attenuation dB/Km @ 1310/1550 nm: 0.4/0.3.
 - g. Optical Fiber shall be laser optimized and guarantee Gigabit Ethernet distances of >5000m for 1310nm and 10 Gigabit Ethernet distances of >5000m for 1310nm.

2. Physical Characteristics:
 - a. Shall be suitable for use in both outdoor and indoor applications without the use of a transition at the building entrance.
 - b. Shall be suitable for use in risers, plenums and horizontal applications.
 - c. Shall have a dry water blocking system for cable core and buffer tubes.
 - d. Shall be available with a fiber strand count range from 6 to 72.
 - e. Shall have a 3.0 mm sub-unit diameter.
 - f. Shall have and be marked with an UL-OFNP and OFN FT6 Flame Rating.
 - g. Shall comply with the requirements of ICEA S-83-596 & ANSI/ICEA S-87-640.
 - h. Strength members shall be dielectric and may be either fiberglass or aramid yarn.
 - i. Suitable for underground or aboveground conduits.
 - j. Loose Tube fibers shall be color coded in accordance with EIA / TIA 598 with an overall dark blue jacket.
 - k. Shall have a ripcord for overall jacket.
 - l. Suitable for operation between -40° to +75° C.
 - m. Shall be UV resistant.
 - n. Shall be of an all dielectric design.
 - o. Shall have a maximum installation tension of 300 lbs for cables without dielectric strength member and 600 lbs for cables with dielectric strength members.
3. Design Make:
 - a. Berk-Tek “Adventum” OS2 optical fiber cable (Singlemode-AB) with 9/125 micron fiber or approved equal

2.07 FIBER OPTIC CONNECTORS

- A. LC Fiber Optic Connectors:
 1. Each LC fiber optical connector shall be factory terminated onto a factory cut and polished “Pig-Tail” in preparation for field termination by fusion splice only. Mechanical field terminations or gel-matched connector types will not be permitted.
 2. Each LC Fiber Connector shall:
 - a. Be a pre-polished fiber connector with a fiber stub or field-polish fiber connector.
 - b. Be available in single mode and multimode versions.
 - c. Have a domed zirconia ferrule.
 - d. Be a PC polish type connector.
 - e. Accept a nominal fiber diameter of 125 micrometers.
 - f. Have a typical insertion loss of 0.1 dB for multimode and 0.1 dB for single mode.
 - g. Have repairable tips.
 - h. Have an insertion loss change of less than 0.2 dB after 500 reconnects.
 - i. Be stable over an operating range of -40C to +75 degrees C.
 3. Design Make:
 - a. Leviton LC Fiber Optic Connectors on pre-terminated pig-tails or approved equal.
 - b. Fiber optic pigtails shall be fusion spliced only in submitted and approved fiber optic splice trays and enclosures.

2.08 FIBER OPTIC SPLICE ENCLOSURES

- A. All incoming fiber optic cable shall be fusion spliced to pre-terminated and polished “pig-tails” as noted above. This fusion splice shall be mechanically protected using a splice enclosure with modular fiber patching bulk-heads. Each fiber optic splice enclosure shall be mounted inside a physically secure cabinet, or mounted to a free-standing rack inside an IT designated area on premises. Each fiber optic splice enclosure shall:
1. Be able to use interchangeable bulk-heads for both single-mode and multi-mode patching.
 2. Be able to hold one or more 12-strand splice trays
 3. Splice trays shall be:
 - a. Capable of handling maximum of 12 fiber splices per tray, including heat-shrink.
 - b. Capable of being stacked for using in multi-tray installations
 4. Contain integral strain-relief for installed fiber plant.
 5. Be installed with all un-used positions in fiber bulk-heads populated with dust-caps.
 6. Be manufactured by an ISO 9001 registered company
 7. Design Make:
 - a. Installations with 12 or fewer strands shall use Corning “SPH-01P”
 - b. Installations with more than 12 strands shall use Leviton OPT-X 1000i series

2.09 PATCH CORDS

- A. The contractor shall provide factory terminated and tested UTP and optical fiber patch cords and equipment cords for the complete cabling system. The UTP patch cables shall meet the requirements of ANSI/TIA/EIA-568-B for patch cord testing.
- B. Copper (UTP) patch cords shall:
1. Use 8-position connector with impedance matched contacts and designed using dual reactance.
 2. Be constructed of 100 ohm, 4 pair stranded conductor, unshielded twisted pair copper per the requirements of the ANSI/TIA/EIA-568-B.2 and ANSI/TIA/EIA-568-B.2-1 standard.
 3. Meet TIA category 6 or 6A (corresponding to the matching cable plant) component specifications in ANSI/TIA/EIA-568-B.2-1
 4. 100% factory tested to meet category 6 or 6A corresponding to the matching cable plant performance.
 5. ETL or any other nationally recognized 3rd party verification
 6. Be center tuned to category 6A performance specifications by using paired bi-level contact array.
 7. Be capable of universal T568A or T568B wiring schemes.
 8. Modular connector shall maintain the paired construction of the cable to facilitate minimum untwisting of the wires.
 9. Have a performance marking indelibly labeled on the jacket (by the manufacturer).
 10. Have the ability to accept color-coded labels and icons to comply with ANSI/TIA/EIA-606-A labeling specifications.
 11. Have “snagless” protection for the locking tab to prevent snagging and to protect locking tab in tight locations and provide bend relief.
 12. Be provided and installed in colors that match installed cable plant.
 - a. Cables with Category 6 performance shall be BLUE.

- b. Cables with Category 6A performance shall be WHITE.
 - 13. Be available in 3 foot, 5 foot, 7 foot, 9 foot, and 15 foot standard lengths.
 - 14. Be backwards compatible to Category 3, 5 and 5e.
 - 15. Be manufactured by an ISO 9001 registered company.
- C. Optical Fiber patch cords shall:
- 1. Contain two (2) multi-mode or single mode optical fibers, corresponding with the matching installed cable plant.
 - 2. Use multi-mode, graded-index fibers with a 50 micron core or use single mode fibers with a 9 micron core, corresponding with installed cable plant.
 - 3. Be capable of transmission at both 850 nm and 1300 nm wavelengths for multi-mode and 1310 nm and 1550 nm for single-mode.
 - 4. Include listing of actual loss of patchcord when packaged.
 - 5. Be manufactured in standard lengths of 1 m (3.27 ft), 2 m (6.56 ft), 3 m (9.84 ft), 4 m (13.11 ft), 7 m (22.95 ft), and 10 m (32.79 ft), and special ordered in any other lengths.
 - 6. Be manufactured by an ISO 9001 registered company.

2.10 GROUNDING AND BONDING

- A. The facility shall be equipped with a Telecommunications Bonding Backbone (TBB). This backbone shall be used to ground all telecommunications cable shields, equipment, racks, cabinets, raceways, and other associated hardware that has the potential to act as a current carrying conductor. The TBB shall be installed independent of the building's electrical and building ground and shall be designed in accordance with the recommendations contained in the ANSI/TIA/EIA-607 Telecommunications Bonding and Grounding Standard.
- B. The main entrance facility/equipment room in each building shall be equipped with a telecommunications main grounding bus bar (TMGB). Each telecommunications room shall be provided with a telecommunications ground bus bar (TGB). The TMGB shall be connected to the building electrical entrance grounding facility. The intent of this system is to provide a grounding system that is equal in potential to the building electrical ground system. Therefore, ground loop current potential is minimized between telecommunications equipment and the electrical system to which it is attached.
- C. All racks, metallic backboards, cable sheaths, metallic strength members, splice cases, cable trays, ungrounded conduits, etc. entering or residing in the TR or ER shall be grounded to the respective TGB or TMGB using a minimum #6 AWG stranded copper bonding conductor and compression connectors.
- D. All wires used for telecommunications grounding purposes shall be identified with a green insulation. Non-insulated wires shall be identified at each termination point with a wrap of green tape. All cables and bus bars shall be identified and labeled in accordance with the System Documentation Section of this specification.

2.11 FIRESTOP

- A. A firestop system is comprised of the item or items penetrating the fire rated structure, the opening in the structure and the materials and assembly of the materials used to seal the penetrated structure. Firestop systems comprise an effective block for fire, smoke, heat, vapor and pressurized water stream.
- B. All penetrations through fire-rated building structures (walls and floors) shall be sealed with an appropriate firestop system. This requirement applies to through penetrations (complete penetration) and membrane penetrations (through one side of a hollow fire rated structure). Any penetrating item i.e., riser slots and sleeves, cables, conduit, cable tray, and raceways, etc. shall be properly firestopped.
- C. Firestop systems shall be UL Classified to ASTM E814 (UL 1479) and shall be approved by a qualified Professional Engineer (PE), licensed (actual or reciprocal) in the state where the work is to be performed. A drawing showing the proposed firestop system, stamped/embossed by the PE shall be provided to the Owner's Technical Representative prior to installing the firestop system(s).

PART 3 - EXECUTION

3.01 WORK AREA OUTLETS

- A. Cables shall be coiled in the in-wall or surface-mount boxes if adequate space is present to house the cable coil without exceeding the manufacturer's bend radius. In hollow wall installations where box-eliminators are used, excess wire can be stored in the wall. No more than 12" of UTP and 12" of fiber slack shall be stored in an in-wall box, modular furniture raceway, or insulated walls. Excess slack shall be loosely coiled and stored in the ceiling above each drop location when there is not enough space present in the outlet box to store slack cable.
- B. Cables shall be dressed and terminated in accordance with the recommendations made in the ANSI/TIA/EIA-568-C.0 document, manufacturer's recommendations and best industry practices.
- C. Pair untwist at the termination shall not exceed 12 mm (one-half inch).
- D. Bend radius of the horizontal cable shall not be less than 4 times the outside diameter of the UTP cable.
- E. The cable jacket shall be maintained to within 25mm (one inch) of the termination point.
- F. Data jacks, unless otherwise noted in drawings, shall be located in the bottom position(s) of each faceplate. Data jacks in horizontally oriented faceplates shall occupy the right-most position(s).
- G. Voice jacks shall occupy the top position(s) on the faceplate. Voice jacks in horizontally oriented faceplates shall occupy the left-most position(s).

3.02 HORIZONTAL DISTRIBUTION CABLE INSTALLATION

- A. Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
- B. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in any conduit.
- C. Cable raceways shall not be filled greater than the ANSI/TIA/EIA-569-A maximum fill for the particular raceway type or 40%.
- D. Cables shall be installed in continuous lengths from origin to destination (no splices) except for transition points, or consolidation points.
- E. Where transition points, or consolidation points are allowed, they shall be located in accessible locations and housed in an enclosure intended and suitable for the purpose.
- F. The cable's minimum bend radius and maximum pulling tension shall not be exceeded.
- G. If a J-hook or trapeze system is used to support cable bundles all horizontal cables shall be supported at a maximum of 48 to 60 inch (1.2 to 1.5 meter) intervals. At no point shall cable(s) rest on acoustic ceiling grids or panels.
- H. Horizontal distribution cables shall be bundled in groups of no more than 50 cables. Cable bundle quantities in excess of 50 cables may cause deformation of the bottom cables within the bundle and degrade cable performance.
- I. Cable shall be installed above fire-sprinkler systems and shall not be attached to the system or any ancillary equipment or hardware. The cable system and support hardware shall be installed so that it does not obscure any valves, fire alarm conduit, boxes, or other control devices.
- J. Cables shall not be attached to ceiling grid or lighting fixture wires. Where support for horizontal cable is required, the contractor shall install appropriate carriers to support the cabling.
- K. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
- L. Cables shall be identified by a self-adhesive label in accordance with the System Documentation Section of this specification and ANSI/TIA/EIA-606-A. The cable label shall be applied to the cable behind the faceplate on a section of cable that can be accessed by removing the cover plate.
- M. Unshielded twisted pair cable shall be installed so that there are no bends smaller than four times the cable outside diameter at any point in the run and at the termination field.
- N. Pulling tension on 4-pair UTP cables shall not exceed 25-lbf for a four-pair UTP cable.
- O. Cables installed underground or below slab shall be suitable for use in wet locations and outdoors in duct or conduit. If wet location cable is exposed in the building after exiting the

wet area, it must transition to an appropriate category dry cable within 50 feet (15m) of exiting conduit.

3.03 HORIZONTAL COPPER TERMINATION AND INSTALLATION

- A. Cables shall be dressed and terminated in accordance with the recommendations made in the ANSI/TIA/EIA-568-C standard, manufacturer's recommendations and best industry practices.
- B. Pair untwist at the termination shall not exceed 13 mm (0.5 inch).
- C. Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.
- D. Cables shall be neatly bundled and dressed to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.
- E. The cable jacket shall be maintained as close as possible (within 25mm – 1 inch) to the termination point.
- F. Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view shall not be acceptable.

3.04 OPTICAL FIBER TERMINATION HARDWARE

- A. Fiber slack shall be neatly coiled within the fiber splice tray or enclosure. No slack loops shall be allowed external to the fiber panel.
- B. Each cable shall be individually attached to the respective splice enclosure by mechanical means. The cables strength member shall be securely attached the cable strain relief bracket in the enclosure.
- C. Each fiber bundle shall be stripped upon entering the splice tray and the individual fibers routed in the splice tray.
- D. Each cable shall be clearly labeled at the entrance to the splice enclosure. Cables labeled within the bundle shall not be acceptable.
- E. A maximum of 12 strands of fiber shall be spliced in each tray.
- F. All spare strands shall be installed into spare splice trays.
- G. All terminated strands shall be accounted on patch-panel labels which follow District labelling standards.
- H. All un-used fiber positions in fiber termination bulk-head (also known as adapter plate) shall be populated with manufacturer provided dust caps.

3.05 BACKBONE CABLE INSTALLATION

- A. Backbone cables shall be installed separately from horizontal distribution cables
- B. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in any conduit.
- C. Where cables are housed in conduits, the backbone and horizontal cables shall be installed in separate conduits
- D. Where backbone cables are installed in an air return plenum, riser rated cable shall be installed in metallic conduit.
- E. Where backbone cables and distribution cables are installed in a cable tray or wireway, backbone cables shall be installed first and bundled separately from the horizontal distribution cables.
- F. All backbone cables shall be securely fastened to the sidewall of the TR on each floor.
- G. Backbone cables spanning more than three floors shall be securely attached at the top of the cable run with a wire mesh grip and on alternating floors or as required by local codes.
- H. Vertical runs of cable shall be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable.
- I. Large bundles of cables and/or heavy cables shall be attached using metal clamps and/or metal banding to support the cables.

3.06 RACKS

- A. Racks shall be securely attached to the concrete floor using a minimum 3/8" hardware or as required by local codes.
- B. Racks shall be placed with a minimum of 36-inch clearance from the walls on all sides of the rack. When mounted in a row, maintain a minimum of 36 inches from the wall behind and in front of the row of racks and from the wall at each end of the row.
- C. All racks shall be grounded to the telecommunications ground bus bar in accordance with Section 3.8 of this document.
- D. Rack mount screws not used for installing patch panels and other hardware shall be bagged and left with the rack upon completion of the installation.
- E. Wall mounted termination block fields shall be mounted on 4' x 8' x .75" void free plywood. The plywood shall be mounted vertically 12" above the finished floor. The plywood shall be painted with two coats of white fire retardant paint.
- F. Wall mounted termination block fields shall be installed with the lowest edge of the mounting frame 18" from the finished floor.

3.07 FIRESTOP SYSTEM

- A. All firestop systems shall be installed in accordance with the manufacturer's recommendations and shall be completely installed and available for inspection by the local inspection authorities prior to cable system acceptance.

3.08 GROUNDING SYSTEM

- A. The TBB shall be designed and/or approved by a qualified PE, licensed in the state that the work is to be performed. The TBB shall adhere to the recommendations of the ANSI/TIA/EIA-607 standard, and shall be installed in accordance with best industry practice.
- B. Installation and termination of the main bonding conductor to the building service entrance ground shall be performed by a licensed electrical contractor.

3.09 IDENTIFICATION AND LABELING

- A. The contractor shall provide and install a complete labeling system for the intercommunications installation in accordance with ANSI/TIA/EIA-606A, and identified using the following methodology:
 - 1. FACEPLATES (Workstation Outlets): Faceplates in work areas shall be labeled consecutively starting at "1" and incrementing moving in a clockwise motion around each room. Index "1" in each room shall begin at the occupant entrance to the room and shall increment at each occurrence of a new/different faceplate in a clockwise and outermost-to-innermost pattern (spiraling inward). In this manner, labeling of wall outlets will be done first, and floor-boxes will be labeled next.
 - a. The following special configuration prefixes shall be used in front of the nameplate index and port position:
 - 1) Wireless Access Points: shall have additional "WAP" prefix to the index assigned by method 1 above. (Example: WAP2A and WAP2B may share a 2-port biscuit)
 - 2) IP enabled speakers: shall have additional "SPK" prefix to the index assigned by method 1 above. (Example: SPK3A)
 - 3) IP enabled cameras: shall have additional "CAM" prefix to the index assigned by method 1 above. (Example: CAM1A)
 - b. Labeling within each faceplate (or biscuit): Each modular jack shall be identified by a letter to index the individual port within any faceplate, starting at the letter "A". Each port shall be indexed starting in the upper-left and incrementing right-to-left first and then top-to-bottom.
 - 2. RACK EQUIPMENT: Intermediate Distribution Frames (IDF) and Main Distribution Frames (MDF) shall be labeled according to their District-wide recognized room name at the time of installation. The IDF or MDF shall be labelled according to the following naming template:
 - a. Small telecom cabinet shall be of the format: "TIC" <ROOM NAME> (Example: TIC901B is a small IDF cabinet in room 901B).
 - b. Large telecom cabinet or IDF rack shall be of the format: "IDF" <ROOM NAME> (Example: "IDF1205" for a free-standing 2-post rack in room 1205)

- c. MDF room equipment shall be of the format: "MDF" <ROOM NAME> (Example: "MDF-LIB01" for the main distribution frame in room LIB01)
 - d. During construction, a room name may not correspond to the District recognized room name, therefore Contractor shall seek approval from District IT for recognized room names prior to start of labeling.
 - e. If more than one rack within the IDF or MDF is installed, contractor shall seek special instructions on naming conventions.
- B. The labeling system shall clearly identify all components of the system: racks, cables, panels and outlets. The labeling system shall designate the cables origin and destination within the system. Racks and patch panels shall be labeled to identify the location within the cable system infrastructure. All labeling information shall be recorded on the as-built drawings and all test documents shall reflect the appropriate labeling scheme. Labeling shall follow the guidelines of ANSI/TIA/EIA-606-A.
- C. Outside Plant cables passing through a pull box or vault shall have a cable label that is water and mud proof.
- D. All label printing will be machine generated by Ortronics LabelMo, or similar software, using indelible ink ribbons or cartridges. Self-laminating labels will be used on cable jackets, appropriately sized to the OD of the cable, and placed within view at the termination point on each end. Outlet, patch panel and wiring block labels shall be installed on, or in, the space provided on the device.

3.10 FIBER OPTIC DATA CHANNEL

- A. All fiber optic strands within a fiber optic cable shall be installed so as to complete an end-to-end, full-duplex data channel, known as the cable plant. The cable plant shall only be connected at each end to active optical networking equipment/electronics via one patch cable at each end of the installed cable plant. Cable plant shall not be "cross-patched" from one fiber pair to another, even at a specified fiber bulk-head, without explicit approval from Engineer and Owner.
- B. Data throughput shall only be limited by the characteristics of the cable or the capability of the active electronics equipment attached. Cable shall not be limited by channel disturbances, such as kinks, breaks, tears, lossy splices, mating optical patches, etc.
- C. Where plans or specifications call for additions or modifications to an existing fiber channel, Contractor shall only complete the addition or modification using approved fiber optic cable fusion splices, in submitted and approved termination enclosures.

3.11 HORIZONTAL COPPER DATA CHANNEL

- A. All 4-pair, 8-position copper data cables (Category cabling) shall be installed as a complete end-to-end, full duplex ethernet channel, known as the cable plant. The cable plant shall only be connected at each end to active networking equipment/electronics via one patch cable at each

end of the installed cable plant. Cable plant shall not be “cross-patched” from one ethernet cable to another without explicit approval from Engineer and Owner.

- B. Data throughput shall only be limited by the characteristics of the cable or the capability of the active electronics equipment attached. Cable shall not be limited by channel disturbances, such as kinks, breaks, tears, additional patch cables, additional punch-downs, etc.
- C. Where plans or specifications call for additions or modifications to an existing data channel, Contractor shall only complete the addition or modification using approved fiber optic cable fusion splices, in submitted and approved termination enclosures.

3.12 TESTING AND ACCEPTANCE

A. General

- 1. All cables and termination hardware shall be 100% tested for defects in installation and to verify cabling system performance under installed conditions according to the requirements of ANSI/TIA/EIA-568-B. All pairs of each installed cable shall be verified prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks shall be repaired or replaced in order to ensure 100% useable conductors in all cables installed.
- 2. All cables shall be tested in accordance with this document, the ANSI/TIA/EIA standards, the Certification Program Information Manual provided by the product manufacturer and best industry practice. If any of these are in conflict, the Contractor shall bring any discrepancies to the attention of the project team for clarification and resolution.

B. Copper Link Testing

- 1. All twisted-pair copper cable links shall be tested for continuity, pair reversals, shorts, opens and performance as indicated below. Additional testing is required to verify Category performance.
- 2. Horizontal cabling shall be tested using a Level III test unit for category 6 and category 6A performance compliance, corresponding with the installed cable type.
- 3. The basic tests required are:
 - a. Wire Map
 - b. Length
 - c. Attenuation
 - d. NEXT (Near end crosstalk)
 - e. Return Loss
 - f. ELFEXT Loss
 - g. Propagation Delay
 - h. Delay skew
 - i. PSNEXT (Power sum near-end crosstalk loss)
 - j. PSELFEXT (Power sum equal level far-end crosstalk loss)
- 4. Continuity - Each pair of each installed cable shall be tested using a test unit that shows opens, shorts, polarity and pair-reversals, crossed pairs and split pairs. Shielded/screened cables shall be tested with a device that verifies shield continuity in addition to the above stated tests. The test shall be recorded as pass/fail as indicated by the test unit in

accordance with the manufacturers’ recommended procedures, and referenced to the appropriate cable identification number and circuit or pair number. Any faults in the wiring shall be corrected and the cable re-tested prior to final acceptance.

5. Length - Each installed cable link shall be tested for installed length using a TDR type device. The cables shall be tested from patch panel to patch panel, block to block, patch panel to outlet or block to outlet as appropriate. The cable length shall conform to the maximum distances set forth in the ANSI/TIA/EIA-568-C Standard. Cable lengths shall be recorded, referencing the cable identification number and circuit or pair number. For multi-pair cables, the shortest pair length shall be recorded as the length for the cable.
6. Category 6 Performance Shall meet the link requirements outlined below for a 90-meter, 4-connector permanent link.

Frequency (MHz)	Maximum Insertion Loss (dB)	Minimum NEXT (dB)	Minimum PSNEXT (dB)	Minimum ELFEXT (dB)	Minimum PSELFEXT (dB)	Minimum Return Loss (dB)
1.0	2.1	69.0	64.0	65.3	62.3	21.0
4.0	4.0	67.0	62.5	53.2	50.2	21.0
10.0	6.3	60.6	46.0	45.3	42.3	21.0
20.0	9.0	55.6	51.0	39.2	36.2	21.0
31.25	11.3	52.4	47.7	35.4	32.4	19.1
62.5	16.4	47.4	42.6	29.3	26.3	16.1
100.0	21.2	43.9	39.1	25.3	22.3	14.0
155.0	26.6	40.7	35.8	21.4	18.4	12.1
200.0	31.5	38.8	33.9	19.2	16.2	11.0
250.0	36.0	37.1	32.4	17.3	14.3	10.0

7. Category 6A performance shall meet the link requirements outlined below for a 90-meter, 4-connector permanent link.

Frequency (MHz)	Maximum Insertion Loss (dB)	Minimum NEXT (dB)	Minimum PSNEXT (dB)	Minimum ELFEXT (dB)	Minimum PSELFEXT (dB)	Minimum Return Loss (dB)
1.0	2.1	74.3	72.3	-	-	20.0
4.0	3.8	65.3	63.3	-	-	23.0
10.0	5.9	59.3	57.3	-	-	25.0
16.0	7.5	56.2	54.2	-	-	25.0
20.0	8.4	54.8	52.8	-	-	25.0
31.25	10.5	51.9	49.0	-	-	23.6
62.5	15.0	47.4	45.4	-	-	21.5
100.0	19.1	44.3	42.3	-	-	20.1
250.0	31.1	38.3	36.3	-	-	17.3
350.0	37.2	36.1	34.1	-	-	16.3
400.0	40.1	35.3	33.3	-	-	15.9
500.0	45.3	33.8	31.8	-	-	15.2

NOTE: For ELFEXT and PSELFEXT, follow TIA guidelines for Cat6A.

C. Fiber Testing

1. All fiber testing shall be performed on all fibers in the completed end-to-end system. Testing shall consist of an end-to-end power meter test performed per EIA/TIA-455-53A. The system loss measurements shall be provided at 850 and/or 1300 nanometers for multimode fibers and 1310 and/or 1550 nanometers for single mode fibers. These tests also include continuity checking of each fiber.
2. Backbone multimode fiber cabling shall be tested at both 850 nm and 1300 nm (or 1310 and 1550 nm for singlemode) in both directions.
3. Test set-up and performance shall be conducted in accordance with ANSI/EIA/TIA-526-14 Standard, Method B.
4. Where links are combined to complete a circuit between devices, the Contractor shall test each link from end to end to ensure the performance of the system. **ONLY LINK TEST IS REQUIRED.** The contractor can optionally install patch cords to complete the circuit and then test the entire channel. The test method shall be the same used for the test described above. The values for calculating loss shall be those defined in the ANSI/TIA/EIA Standard.
5. Attenuation testing shall be performed with an approved hand held tester from an industry recognized test equipment manufacturer.

3.13 SYSTEM INTEGRATION AND TESTING

- A. Contractor shall provide to client representative, at contract notice to proceed, a list of all devices and/or locations where equipment is noted on plans as “District” or “Owner” provided. Contractor shall be responsible for coordinating the receipt and safe handling of each piece of equipment until installation is complete.
- B. Equipment provided by the client shall be handled and installed by the Contractor, this may include network switches, Wireless Access Points, Power-Over-Ethernet injectors, security

cameras, etc. All equipment shall be installed by the Contractor in their respective locations as shown on the plans.

- C. Upon complete install of the equipment, Contractor shall provide and install appropriate patching of equipment to network infrastructure (Cat 6, Cat 6A, fiber-optic cable, etc.) as necessary to deliver a fully functional network solution.

3.14 SYSTEM DOCUMENTATION

- A. Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Engineer for approval. Documentation shall include the items detailed in the sub-sections below.
- B. Documentation shall be submitted within ten (10) working days of the completion of each testing phase (e.g. subsystem, cable type, area, floor, etc.). This is inclusive of all test result and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 working days of the completion of each testing phase. At the request of the Engineer, the telecommunications contractor shall provide copies of the original test results.
- C. The Engineer may request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.

3.15 TEST RESULTS

- A. Test documentation shall be provided on disk within three weeks after the completion of the project. The disk shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, an annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment. The test documentation shall be compatible with common, license-free computer software such as Adobe Acrobat (PDF), or with Microsoft Excel or Word.
- B. The field test equipment shall meet the requirements of ANSI/TIA/EIA-568-C including applicable TSB's and amendments. The appropriate Level III tester shall be used to verify Category 6 cabling systems.
- C. Printouts generated for each cable by the wire (or fiber) test instrument shall be submitted as part of the documentation package. The telecommunications contractor must furnish this

information in electronic form CD-ROM). If needed, provide manufacturers software require to read the test results.

- D. When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.

PART 4 - WARRANTY AND SERVICES

4.01 WARRANTY

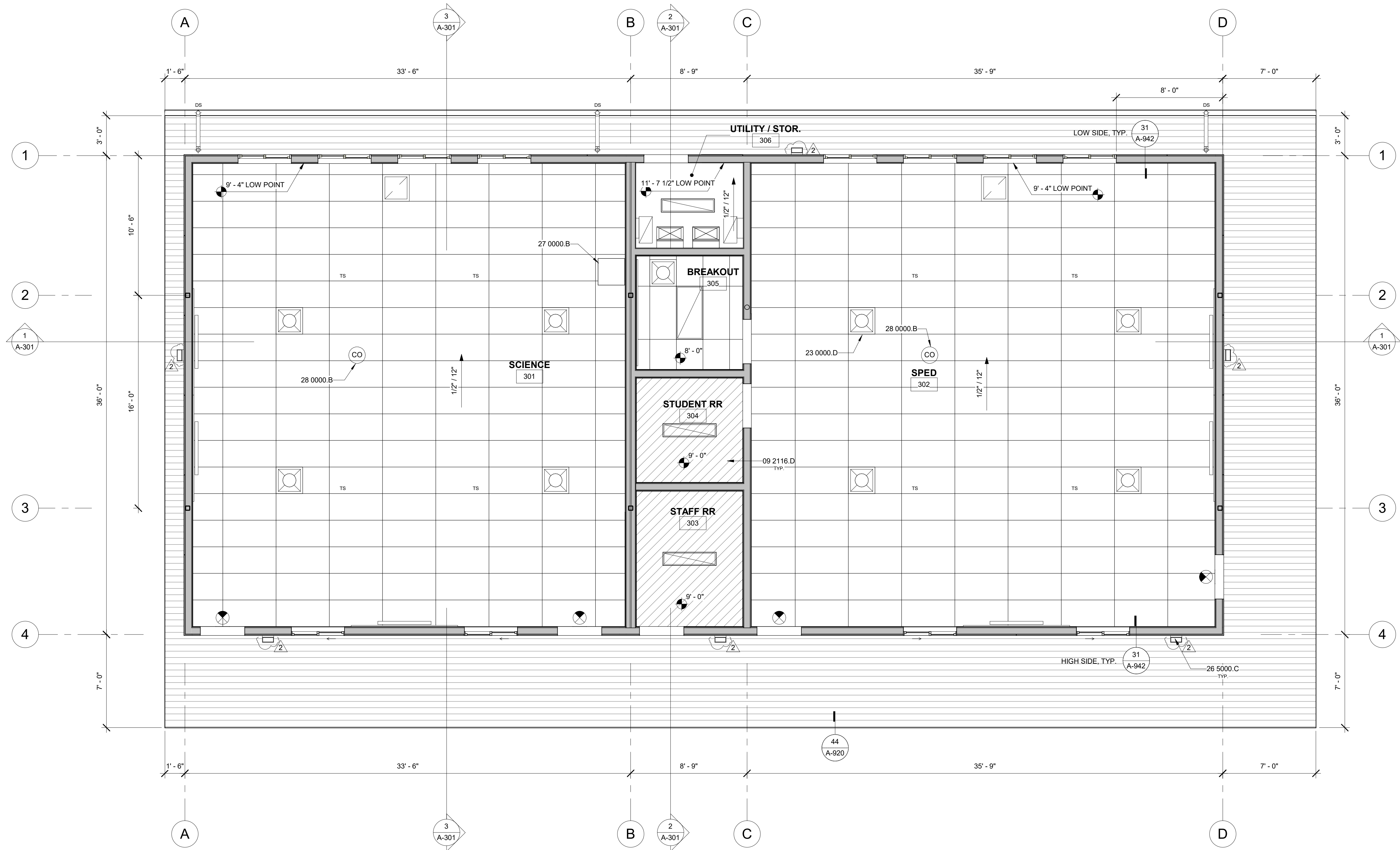
- A. The manufacturer shall provide the warranty directly to the end-user.
- B. An Extended Product Warranty shall be provided which warrants functionality of all components used in the system for a minimum of 20 years from the date of registration. The Extended Product Warranty shall warrant the installed horizontal and/or backbone copper, and both the horizontal and the backbone optical fiber portions of the cabling system.
- C. The Application Assurance Warranty shall cover the failure of the wiring system to support the applications that are designed for the link/channel specifications of ANSI/TIA/EIA-568-C.0. These applications include, but are not limited to, 10BASE-T, 100BASE-T, 1000BASE-T, 155Mb/sATM, and 1Gb/s ATM.
- D. The contractor shall provide a warranty on the physical installation.

4.02 FINAL ACCEPTANCE AND SYSTEM CERTIFICATION

- A. Completion of the installation, in-progress and final inspections, receipt of the test and as-built documentation, and successful performance of the cabling system for a two-week period will constitute acceptance of the system. Upon successful completion of the installation and subsequent inspection, the end user shall be provided with a numbered certificate, from the product manufacturer, registering the installation.

END OF SECTION

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1 REFLECTED CEILING PLAN
A-201 | A-111 SCALE: 1/4" = 1'-0"

KEYNOTES

09 2116.D	GYPSUM BOARD DROP CEILING.
23 0000.D	MECHANICAL REGISTER
26 5000.C	EXTERIOR WALL SCONCE. REFER TO ELECTRICAL
27 0000.B	WALL MOUNTED IDF CABINET. REFER TO ELECTRICAL
28 0000.B	CARBON MONOXIDE DETECTOR

LEGEND

	CEILING HEIGHT (SEE PLAN FOR ACTUAL HEIGHTS)		ILLUMINATED EXIT SIGN. ARROW INDICATES DIRECTIONAL CHEVRON REFER TO INTERIOR ELEVATIONS AND RCP FOR MOUNTING LOCATION
	INTERIOR - MOISTURE RESISTANT GYPSUM BOARD CEILING REFER TO 33/S-501 FOR CEILING FRAMING DETAILS		MECHANICAL REGISTERS. REFER TO MECHANICAL PLANS
	INTERIOR - ACOUSTICAL TILE CEILING REFER TO SHEETS A-954 - A-957		LIGHT FIXTURE. REFER TO ELECTRICAL PLANS
	FIBER CEMENT SOFFIT PANEL REFER TO SUPPORTING DOCUMENT ICC REPORT ESR-2273 TABLE 5, LINE 2 REF. TO: 44 / A-920		
	GYPSUM WALLBOARD DIRECT APPLIED TO STRUCTURE ABOVE		
	CARBON MONOXIDE ALARM		

- RCP GENERAL NOTES**
- REFER TO GENERAL NOTES SHEET G-002 FOR ADDITIONAL REQUIREMENTS.
 - REFER TO ELECTRICAL PLANS FOR FURTHER INFORMATION.
 - REFER TO MECHANICAL PLANS FOR FURTHER INFORMATION.
 - REFER TO DETAILS FOR FLOOR/CEILING ASSEMBLIES.
 - HEIGHT OF CEILINGS SHALL BE MEASURED FROM TOP OF SLAB TO FINISH FACE OF GWB OR FACE OF CEILING GRID AS INDICATED ON THE REFLECTED CEILING PLAN, UNO.
 - BORDERS AT LAY-IN ACOUSTICAL CEILING PANELS SHALL BE CUT TO MATCH FACTORY EDGE PROFILE. NO EXPOSED FASTENERS SHALL BE PERMITTED INCLUDING POP RIVETS AND TAPSETS.
 - CONTRACTOR TO VERIFY DEPTH OF SOFFITS AND HOLD TIGHT TO PLUMBING, SPRINKLERS, ELECTRICAL AND MECHANICAL DUCTS
 - SEE MECHANICAL DRAWINGS FOR MECH. ACCESS PANELS. PAINT TO MATCH CEILING
 - AT DROPPED GWB SOFFITS/GWB BEAMS, PROVIDE C-STUDS AS VERTICAL SUPPORTS AT EACH SIDE OF THE SOFFIT/BEAM AND DIAGONAL BRACING FOR WRACKING. IF CEILING JOIST SPACING DIFFERS FROM FLOOR THEN BLOCKING BETWEEN THE FLOOR FRAMING MAY BE UTILIZED TO ATTACH THE VERTICAL STRUTS
 - ALL LIGHT FIXTURES ARE TO BE INSTALLED ACCORDING TO THE ARCHITECTURAL REFLECTED CEILING PLAN. ARCHITECT TO REVIEW CEILING LAYOUT INCLUDING BULKHEADS AND GRID PRIOR TO INSTALLATION.
 - LIGHT FIXTURES SHALL BE CENTERED WITHIN SPACES AND/OR WINDOW EVENLY ARRANGED. IF CONFLICTS OCCUR AT MECHANICAL REGISTERS OR SPRINKLER HEADS, LIGHTING LOCATIONS SHALL TAKE PRECEDENCE. CONSULT ARCHITECT AS NEEDED TO RESOLVE.
 - SEE ELECTRICAL PLANS FOR LIGHTING SPECIFICATIONS, AND EXIT LIGHT LOCATIONS.



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REFLECTED CEILING PLAN

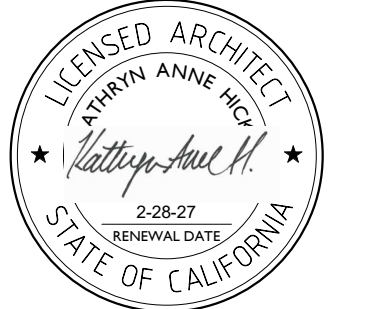
NO.	REVISION	DATE
△	ADDENDUM #1	05/29/26
△	ADDENDUM #2	06/16/26
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PROJECT MANAGER
KH
DRAWN BY
DK
CHECKED BY
KF
DATE
JUNE 16, 2026
PROJECT NUMBER
0822-03-ED25
SHEET
A-111

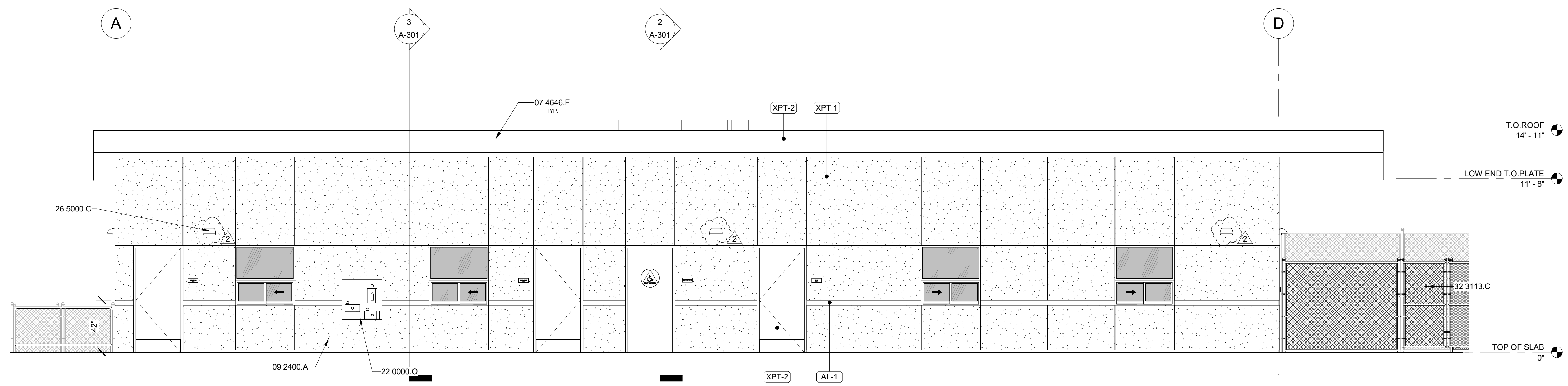
ADDENDUM #2



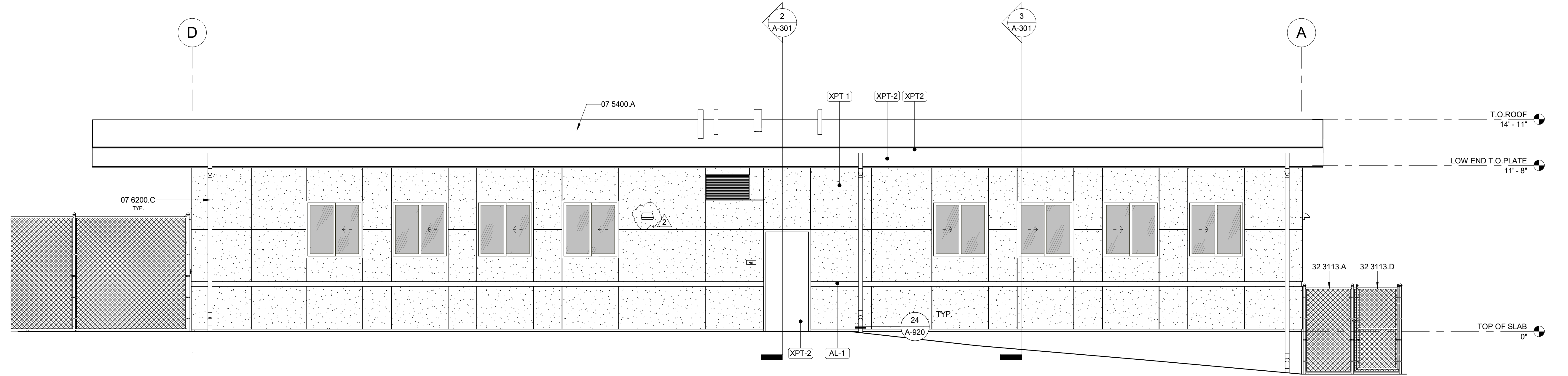
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1 EAST ELEVATION
A-101 | A-201 | SCALE: 1/4" = 1'-0"



2 WEST ELEVATION
A-101 | A-201 | SCALE: 1/4" = 1'-0"

MATERIAL SCHEDULE

Tag	Description	Application	Manufacturer	Pattern/Texture	Color	Other
PAINT						
AL-1	Aluminum Trim	Trim				
XPT-1	Exterior Paint	Field Color	Sherwin Williams	Satin	Sawyer's Fence SM 30719	
XPT-2	Exterior Paint	Accent Color/Trim	Sherwin Williams	Satin	Roman Blue	
XPT-2	Exterior Paint	Doors/Frames	Sherwin Williams	Semi-Gloss	Roman Blue	

KEYNOTES

- 07 4646.F FIBER CEMENT FASCIA. REFER TO A-920 FOR DETAILS.
- 07 5400.A LOW SLOPE MEMBRANE ROOFING SYSTEM
- 07 6200.C DOWNSPOUT. REFER TO DETAIL 24/A-920 FOR ATTACHMENT AT STUCCO.
- 09 2400.A CEMENT PLASTER SYSTEM
- 22 0000.O HI LOW DRINKING FOUNTAIN. REFER TO 21/A-904 DETAIL. SEE PLUMBING FIXTURE SCHEDULE ON SHEET P-001.
- 26 5000.C EXTERIOR WALL SCOFF. REFER TO ELECTRICAL.
- 32 3113.A 6' TALL CHAIN LINK FENCE. REFER TO DETAILS ON AS-904. COORDINATE FENCE POST AND FOOTING LOCATIONS WITH EXISTING UTILITY LINES.
- 32 3113.C 6' TALL CHAIN LINK ACCESSIBLE GATE. REFER TO DETAILS ON AS-904. COORDINATE FENCE POST AND FOOTING LOCATIONS WITH EXISTING UTILITY LINES.
- 32 3113.D 6' TALL CHAIN LINK MAINTENANCE GATE. REFER TO DETAILS ON AS-904. COORDINATE FENCE POST AND FOOTING LOCATIONS WITH EXISTING UTILITY LINES.

LEGEND

- [CPT 1] MATERIAL TAG REFER TO MATERIAL SCHEDULE FOR MORE INFORMATION
- [XPT 1] EXTERIOR PAINT - FIELD COLOR

ELEVATION GENERAL NOTES

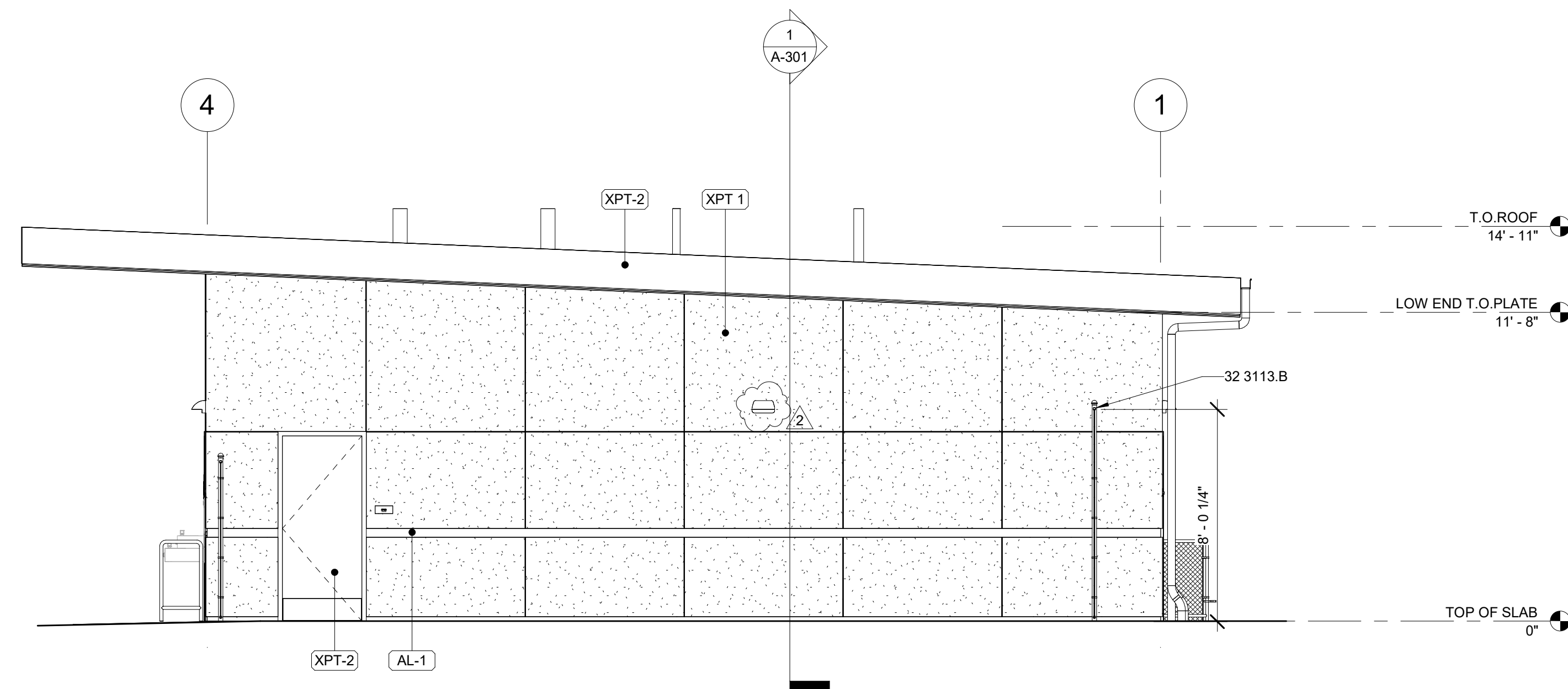
- REFER TO GENERAL NOTES SHEET G-002 FOR ADDITIONAL REQUIREMENTS.
- FRAMING ELEVATIONS, INCLUDING FLOOR PLATES AND FLOOR LEVEL ELEVATIONS ARE MEASURED FROM BUILDING FINISH FLOOR, U.N.O.
- SEE DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- REFER TO ROOF PLAN FOR ROOF PITCH AND OVERHANGS. FASCIA PER DETAILS.
- SEE ROOF PLAN FOR APPROXIMATE DOWNSPOUT LOCATIONS, U.N.O.
- REFER TO DOOR AND WINDOW SCHEDULES AND TYPES FOR DOOR AND WINDOW INFORMATION.
- SEE ELECTRICAL DRAWINGS FOR EXTERIOR LIGHTING
- SEE MECHANICAL DRAWINGS FOR GRILLES AND LOUVERS. PAINT TO MATCH ADJACENT FINISH.
- CONTRACTOR TO VERIFY COLOR SCHEME WITH OWNER BEFORE PERFORMING THE WORK.

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EXTERIOR ELEVATIONS

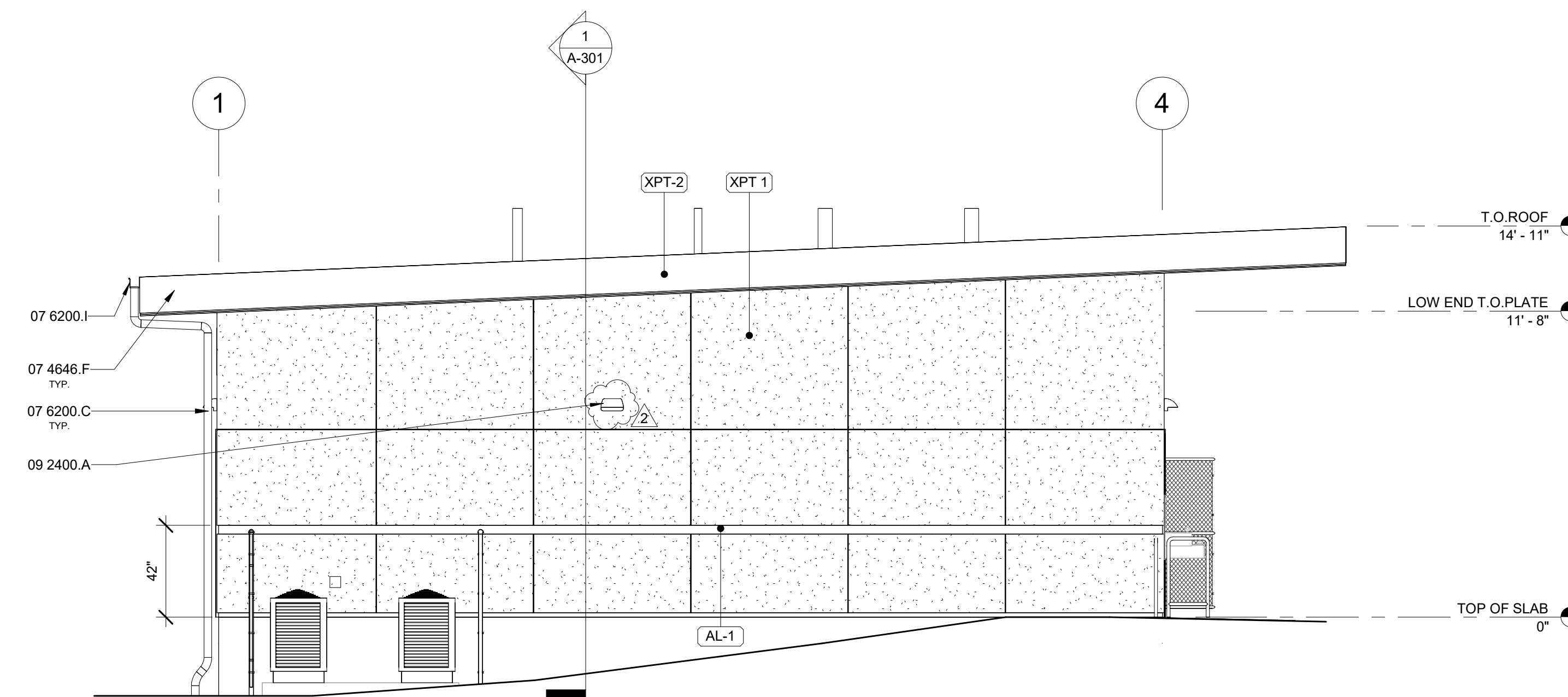
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PROJECT MANAGER
KH
DRAWN BY
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JUNE 16, 2026
PROJECT NUMBER
0822-03-ED25
SHEET
A-201

ADDENDUM #2



1 NORTH ELEVATION
A-101 | A-202 SCALE: 1/4" = 1'-0"



2 SOUTH ELEVATION
A-101 | A-202 SCALE: 1/4" = 1'-0"

MATERIAL SCHEDULE

Tag	Description	Application	Manufacturer	Pattern/Texture	Color	Other
PAINT						
AL-1	Aluminum Trim	Trim				
XPT-1	Exterior Paint	Field Color	Sherwin Williams	Satin	Sawyer's Fence SM 30719	
XPT-2	Exterior Paint	Accent Color/Trim	Sherwin Williams	Satin	Roman Blue	
XPT-2	Exterior Paint	Doors/Frames	Sherwin Williams	Semi-Gloss	Roman Blue	

KEYNOTES

- 07 4646.F FIBER CEMENT FASCIA. REFER TO A-920 FOR DETAILS.
- 07 6200.C DOWNSPOUT. REFER TO DETAIL 24/A-920 FOR ATTACHMENT AT STUCCO.
- 07 6200.I GUTTER
- 09 2400.A CEMENT PLASTER SYSTEM
- 32 3113.B 8' TALL CHAIN LINK FENCE. REFER TO DETAILS ON AS-904. COORDINATE FENCE POST AND FOOTING LOCATIONS WITH EXISTING UTILITY LINES.

LEGEND

- CPT 1 MATERIAL TAG
REFER TO MATERIAL SCHEDULE FOR MORE INFORMATION
- XPT 1 EXTERIOR PAINT - FIELD COLOR

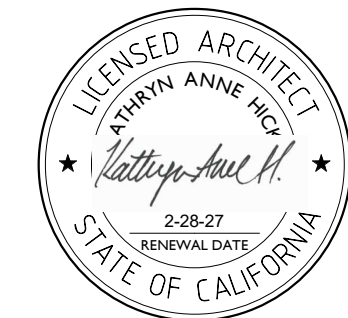
ELEVATION GENERAL NOTES

1. REFER TO GENERAL NOTES SHEET G-002 FOR ADDITIONAL REQUIREMENTS.
2. FRAMING ELEVATIONS, INCLUDING FLOOR PLATES AND FLOOR LEVEL ELEVATIONS ARE MEASURED FROM BUILDING FINISH FLOOR, U.N.O.
3. SEE DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
4. REFER TO ROOF PLAN FOR ROOF PITCH AND OVERHANGS. FASCIA PER DETAILS.
5. SEE ROOF PLAN FOR APPROXIMATE DOWNSPOUT LOCATIONS, U.N.O.
6. REFER TO DOOR AND WINDOW SCHEDULES AND TYPES FOR DOOR AND WINDOW INFORMATION.
7. SEE ELECTRICAL DRAWINGS FOR EXTERIOR LIGHTING
8. SEE MECHANICAL DRAWINGS FOR GRILLES AND LOUVERS. PAINT TO MATCH ADJACENT FINISH.
9. CONTRACTOR TO VERIFY COLOR SCHEME WITH OWNER BEFORE PERFORMING THE WORK.



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EXTERIOR ELEVATIONS

NO.	REVISION	DATE
△	ADDENDUM #2	06/16/26
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PROJECT MANAGER
KH

DRAWN BY DK **CHECKED BY** KF

DATE
JUNE 16, 2026

PROJECT NUMBER
0822-03-ED25

SHEET
A-202

ADDENDUM #2

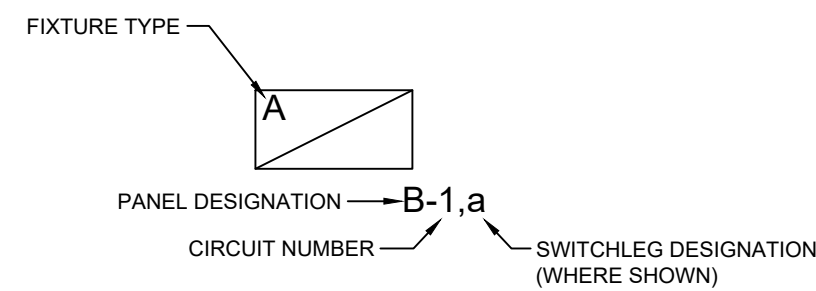
CIRCUITING LEGEND

ABBREVIATIONS

POWER PLAN NOTES

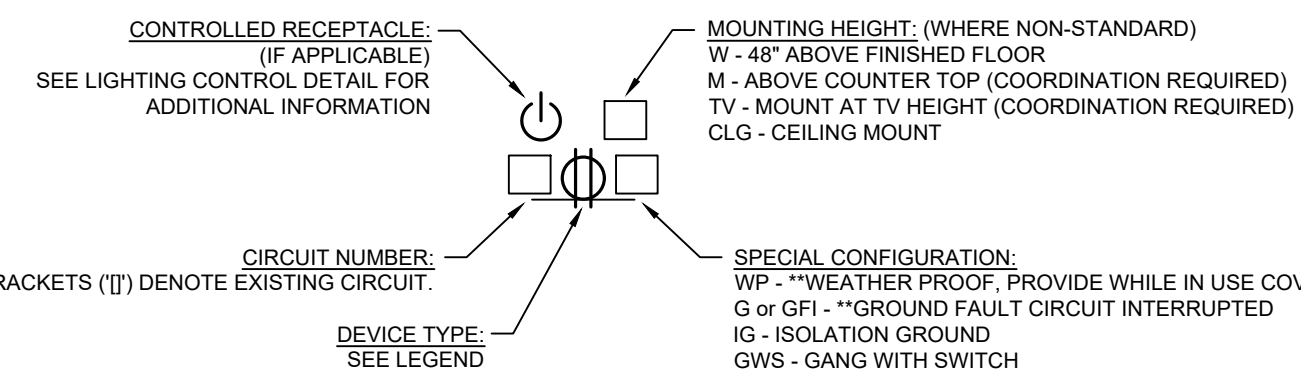
GENERAL NOTES

LIGHTING PLAN



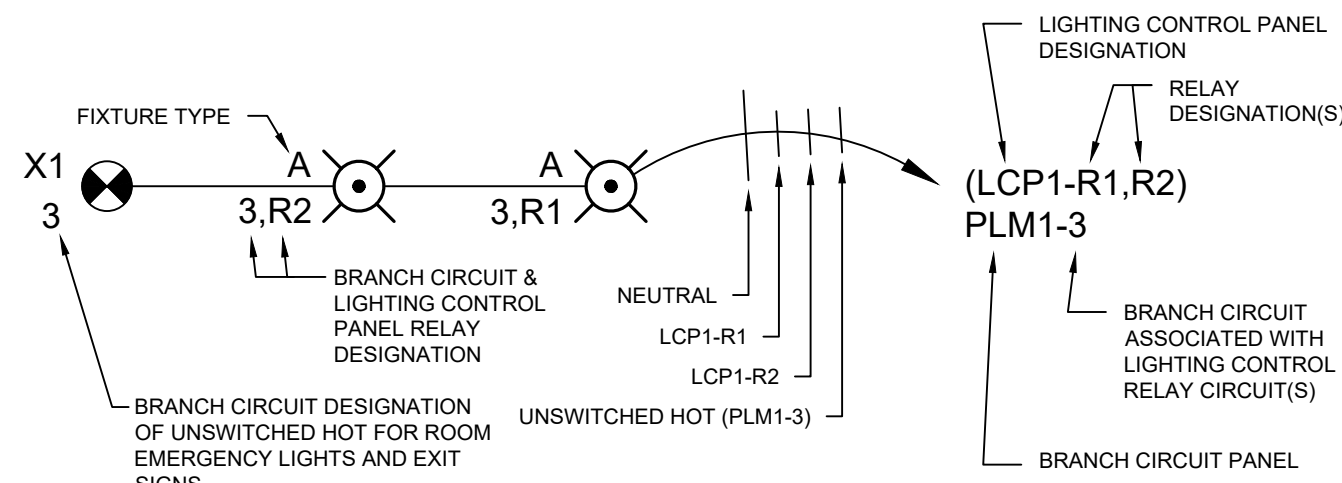
- PROVIDE ALL BRANCH CIRCUIT WIRING FROM FIXTURES TO PANEL(S) AS DESCRIBED BY CIRCUIT NUMBERS SHOWN.
PROVIDE ALL WIRING BETWEEN FIXTURES AND CONTROL DEVICES AS DESCRIBED IN REFERENCE NOTES AND/OR SHOWN BY SWITCHLEG DESIGNATIONS.
EXIT AND EMERGENCY LIGHT FIXTURES SHALL BE CONNECTED TO AN UNSWITCHED BRANCH CIRCUIT CONDUCTOR.
HOME RUN CONDUITS SHALL BE 3/4" MAX OF (3) BRANCH CIRCUITS PER CONDUIT.
PROVIDE ALL BRANCH CIRCUIT WIRING FROM MECH. EQUIPMENT TO PANELS.

POWER PLAN



- PROVIDE ALL BRANCH CIRCUIT WIRING FROM DEVICES TO PANEL(S) PER DESIGNATIONS/CIRCUIT NUMBERS.
EACH BRANCH CIRCUIT SHALL HAVE A SEPARATE NEUTRAL AS INDICATED ON PANEL SCHEDULES.
HOME RUN CONDUITS SHALL BE 3/4" MAX OF (3) BRANCH CIRCUITS PER CONDUIT.
INCREASE HOME RUN CONDUIT SIZE TO 1" FOR (4) BRANCH CIRCUITS OR MORE.
(*) DENOTES SPECIAL DEVICE/TEMPLATE REQUIREMENTS.

TYPICAL LIGHTING CONTROL PANEL CIRCUIT CONVENTION



NOTE: SEE PLANS FOR RELAY, LIGHTING CONTROL CIRCUIT, AND BRANCH CIRCUIT QUANTITIES & DESIGNATIONS

NOTE: THE INTENT OF THE DRAWINGS IS TO SHOW FIXTURE / DEVICE LOCATIONS AND PANEL DESIGNATIONS. ALL BRANCH CIRCUIT WIRING, MEETING THE CRITERIA NOTED ABOVE, WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. LIGHTING AND POWER PLANS SHOW AN ABOVE CEILING JUNCTION BOX / HOME RUN WITH CIRCUIT NUMBERS BY FIXTURES / DEVICES. PROVIDE ALL BRANCH CIRCUITING AS REQUIRED FOR A COMPLETE INSTALLATION. DOCUMENT ALL BRANCH CIRCUITING ON AS-BUILT DRAWINGS ACCURATELY REFLECTING THE INSTALLATION.

Table of abbreviations including terms like AMPERE, ABANDONED, ABOVE, ALTERNATING CURRENT, AIR CONDITIONER, ADJACENT, etc.

- A. FUSING: ALL FUSIBLE SAFETY DISCONNECT SWITCHES SHALL BE PROVIDED WITH DUAL-ELEMENT TIME DELAY TYPE FUSES SIZED AND RATED PER EQUIPMENT MANUFACTURERS' RECOMMENDATIONS.
B. INSTALL SEPARATE NEUTRALS FOR EACH 120V BRANCH CIRCUIT.
C. MOTOR OVERLOAD PROTECTION: WHERE REQUIRED BY CEC ARTICLE 430 PART III AND NOT SHOWN ON PLAN OR PROVIDED INTEGRAL WITH EQUIPMENT, PROVIDE AND INSTALL THERMAL OVERLOAD PROTECTION FOR ALL MOTORS.
D. SPARE CONDUIT FOR RECESSED PANELS: PROVIDE (1) 3/4" SPARE CONDUIT STUB UP TO ACCESSIBLE ABOVE CEILING SPACE AND/OR ACCESSIBLE SPACE BELOW FOR EVERY (3) SPARE BREAKER SPACES AS INDICATED ON PANEL SCHEDULES.
E. DEVICE LOCATIONS SHOWN ARE SCHEMATIC AND APPROXIMATE. EXACT LOCATIONS SHALL BE FIELD VERIFIED DURING ROUGH-IN WITH ARCHITECTURAL ELEVATIONS, CASEWORK SHOP DRAWINGS, FURNITURE, ETC. AND SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT WITH OTHER EQUIPMENT.
F. ELECTRICAL AND COMMUNICATIONS OUTLETS SHOWN IN THE SAME LOCATION, SHALL BE MOUNTED ON OPPOSITE SIDES OF THE SAME STUD. COORDINATE BETWEEN ELECTRICAL AND COMMUNICATIONS PLANS.
G. ALL 125V AND 250V, 15- AND 20-AMPERE NONLOCKING-TYPE RECEPTACLES WITHIN COMMON AREAS SHALL BE TAMPER-RESISTANT PER CEC 406.12.

LIGHTING PLAN NOTES

- A. NIGHT LIGHT "NL" DESIGNATED LUMINAIRES IN INTERIOR LOCATIONS SHALL HAVE THE DRIVER CONTINUOUSLY ENERGIZED. LUMINAIRES IN EXTERIOR LOCATIONS SHALL BE AUTOMATICALLY CONTROLLED TO BE ON FROM DUSK TO DAWN.
B. LIGHTING FIXTURE LOCATIONS SHOWN ARE SCHEMATIC. REFER TO ARCHITECTURAL PLANS (REFLECTED CEILING, ELEVATIONS, ETC.) FOR EXACT LOCATIONS AND MOUNTING HEIGHTS PRIOR TO ROUGH-IN.
C. REFER TO ARCHITECT'S REFLECTED CEILING PLAN(S) FOR CEILING HEIGHTS, TYPES, FINISHES, ETC. IN EACH AREA. VERIFY FLANGE TYPES, TRIM KITS, STEM LENGTHS, ETC. FOR ALL FIXTURES PRIOR TO SUBMITTALS.
D. CONFIRM LOCATION OF ALL DOORS SWINGS WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN OF SWITCHES.
E. PROVIDE UNSWITCHED HOT LEG OF ROOM LIGHTING BRANCH CIRCUIT TO EACH BATTERY POWERED EMERGENCY LIGHT AND EXIT SIGN FOR CONTINUOUS CHARGING.

LIGHTING CONTROL GENERAL NOTES

- A. CONTRACTOR TO PROVIDE COMPLETE MANUFACTURERS SHOP DRAWINGS SPECIFIC TO THIS PROJECT FOR THE INTERIOR AND EXTERIOR LIGHTING CONTROL SYSTEM.
B. VERIFY OCCUPANCY SETTING FOR EACH TYPE OF ROOM WITH OWNER AND ADJUST AS DIRECTED BY OWNER.
C. VERIFY EACH RELAY PROGRAMMING WITH OWNER AND PROGRAM EACH AS DIRECTED BY OWNER.
D. PROVIDE OWNER IN SERVICE TRAINING FOR LIGHTING CONTROL SYSTEM.
E. WHERE MULTIPLE CHANNEL CONTROLS HAVE BEEN PROVIDED IN A ROOM OR SPACE, VERIFY FIXTURE ZONING REQUIREMENTS WITH OWNER PRIOR TO PRODUCING SHOP DRAWINGS AND INSTALLATION.
F. FOR CLARIFICATION ALL REQUIRED LOW VOLTAGE CONTROL DEVICES AND CABLING MAY HAVE NOT BEEN SHOWN. CONTRACTOR TO PROVIDE ALL LOW VOLTAGE DEVICES AND CABLING AS REQUIRED TO MAKE CONTROL SYSTEMS FULLY FUNCTIONAL.

CONDUIT SYSTEM NOTES

- CONDUIT SYSTEMS USED ON THIS PROJECT SHALL BE AS FOLLOWS
1. PVC SCHEDULE 40 OR 80 - UNDERGROUND/BELOW SLAB WITH GRS ELBOWS AND RISERS TAPE WRAPPED.
2. ELECTRICAL METALLIC CONDUIT (EMT) - ABOVE GRADE/SLAB IN BUILDING CONSTRUCTION AND WHERE EXPOSED ABOVE 8'-0" AFF.
3. GALVANIZED RIGID STEEL (GRS) - WHERE EXPOSED BELOW 8'-0" AFF. AND/OR WHERE SUBJECT TO PHYSICAL DAMAGE.
REFER TO SECTION 260533 & 260500 OF SPECIFICATIONS FOR ADDITIONAL INFORMATION. CONDUITS SHALL BE MINIMUM 1/2" UNLESS OTHERWISE NOTED. 3/4" FOR ALL HOME RUN CONDUITS AND WHERE ROUTED BELOW SLAB OR UNDERGROUND CONDUIT SIZES, WHERE NOT NOTED ON THE DRAWINGS, SHALL BE SIZED FOR MAXIMUM 40% FILL PER CEC 310.6.
ADDITIONAL CONDUIT REQUIREMENTS:
- PVC UNDERGROUND TO EACH - EMT FOR PHOTOVOLTAIC AND - GRS FOR ANY EXPOSED AT PANEL AND COMM CABINET. WEATHERHEAD EXTERIOR WALLS

LUCIA MAR UNIFIED SCHOOL DISTRICT STANDARDS

ALL WORK SHALL COMPLY WITH LUCIA MAR UNIFIED SCHOOL DISTRICT STANDARDS. CONTRACTOR TO CONTACT SCHOOL DISTRICT DIRECTLY, OBTAIN COMPLETE LIST OF DISTRICT STANDARDS, AND ADHERE ACCORDINGLY.

SHEET INDEX

Table with columns for SHEET NO. and SHEET DESCRIPTION, listing sheets E001 through E501.

LEGEND

MISCELLANEOUS

LIGHT FIXTURES

POWER

- NUMBERED SHEET NOTES: REFERS TO NOTES ON SAME SHEET AS REFERENCE
DETAIL REFERENCE: Z = DETAIL DESIGNATION, X = SHEET NUMBER REFERENCE
MECHANICAL SYSTEMS TAG (REFER TO MECHANICAL SHEETS) Y = UNIT TYPE, X = UNIT NUMBER
FEEDER SCHEDULE DESIGNATION (EXAMPLE: 3103 = 310 AMPERE, 600V, 3 CURRENT CARRYING CONDUCTORS. PREFIXES: 'M' INDICATES MEDIUM VOLTAGE, 'C014' INDICATES CONDUIT ONLY, QUANTITY (1) AND SIZE (4"))

- Ceiling surface mount, wall surface mount, pendant mount, recessed downlight, recessed wall wash, recessed troffer, surface wrap (wide), surface wrap (narrow), floor strip ion, pole light, bollard, tandem-wired lamps, undercabinet light, wall linear, pendant linear, recessed wall mount, exit light, exit light-ceiling, letter adjacent indicates fixture type, led cove light per fixture schedule

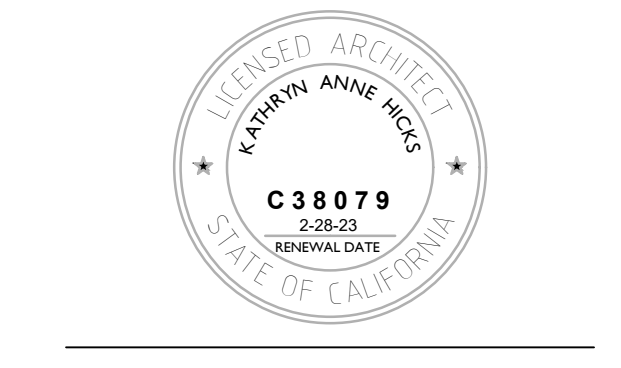
- TAMPER-RESISTANT DUPLEX RECEPTACLE, (GFCI) GROUND FAULT CURRENT INTERRUPTER DEVICE, MOUNT ABOVE COUNTER PER ADA, MOUNT AT +48" MEASURED TO TOP OF BOX, NEMA 3R COVER, 208V RECEPTACLE, WHILE-IN USE NEMA 3R COVER, FLOOR MOUNTED OUTLET, CONTROLLED DUPLEX RECEPTACLE, CONTROLLED DUPLEX RECEPTACLE AND (1) DUPLEX RECEPTACLE, COMBINATION POWER AND TELEVISION OUTLET, GROUND BAR, CEILING MOUNTED OUTLET, DUPLEX HALF SWITCHED, SWITCH RECEPTACLE, DUPLEX RECEPTACLE, 120V COMBINATION SMOKE ALARM AND CARBON MONOXIDE WITH SEALED LITHIUM BATTERY BACK-UP MOUNTED AT CEILING, DISCONNECT FUSE OR NON FUSED, USB OUTLET

CONDUIT/WIRE

- NEW, UNDERGROUND, NEW POWER HOMERUN, CONDUIT SEAL, INDICATES LINE CONTINUOUS, CONDUIT STUB, FLEXIBLE CONNECTION



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THE INCLUDED DRAWINGS, SPECIFICATIONS, IDEAS, DESIGN AND ARRANGEMENTS...



THOMAS ENGINEERING CONSULTANT
P.O. Box 1167, 3662 Empire St, San Luis Obispo, CA 93406
Phone: (805) 543-3850, Fax: (805) 543-3829, cad@thomaselec.com

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
2555 S HALCYON RD, ARROYO GRANDE, CA
GENERAL NOTES, LEGEND, AND ABBREVIATIONS

Table with columns for NO., REVISION, and DATE, showing ADDENDUM 02 dated 06/16/26.

CONSTRUCTION DOCUMENTS
PROJECT MANAGER: JC
DRAWN BY: AV, CHECKED BY: JC
DATE: 08 SEP 2025
PROJECT NUMBER: 0822-03-ED25
SHEET: E001

BASIS OF DESIGN

TELECOMMUNICATIONS ROOM ('TR' / 'IDF' / 'MDF') ROOM EQUIPMENT

MANUF.	MANUFACTURER'S PART NO. / SERIES NO.	DESCRIPTION
CHATSWORTH	CUBE-IT	QUADCAB WALL MOUNTED IDF CABINET. 24H"x24"D
LEVITON	6R2UM-F04	2RU FIBER OPTIC SPICE ENCLOSURE AND PATCH PANEL
LEVITON	49255-H24	24 PORT, 1RU MODULAR PATCH PANEL (CAT6A) - COMPATIBLE WITH LEVITON QUICKPORT CONNECTORS
LEVITON	49255-H48	48 PORT, 2RU MODULAR PATCH PANEL (CAT6A) - COMPATIBLE WITH LEVITON QUICKPORT CONNECTORS
LEVITON	49253-LPM	5-RING HORIZONTAL MANAGER 1RU
LEVITON	49253-BCM	5-RING HORIZONTAL MANAGER 2RU
CHATSWORTH	13704-703	VERTICAL CABLING MANAGERS 6"W

CABLING

MANUF.	MANUFACTURER'S PART NO. / SERIES NO.	DESCRIPTION
BERK-TEK	"ADVENTUM"	INDOOR/OUTDOOR, GIGALITE-AB', LOOSE TUBE 'OS2', 12-STRAND, SINGLE MODE FIBER OPTIC CABLE
BERK-TEK	LANMARK-1000"	CAT6 CABLE (INDOOR, RISER RATED, REFER TO SPECIFICATIONS FOR COLOR SCHEME)
BERK-TEK	LANMARK-1000" OSP	CAT6 CABLE (OSP, OUTDOOR RATED, REFER TO SPECIFICATIONS FOR COLOR SCHEME)
BERK-TEK	RDT UTP CMR	CAT6A CABLE (INDOOR, RISER RATED, REFER TO SPECIFICATIONS FOR COLOR SCHEME)
BERK-TEK	RDT I/O UTP CMR	CAT6A CABLE (OSP, OUTDOOR RATED, REFER TO SPECIFICATIONS FOR COLOR SCHEME)

INTERCOM/PA/BELLS/CLOCKS

(CONTRACTOR SHALL PROVIDE MOUNTING ACCORDING TO CEILING TYPE SHOWN ON ARCHITECTURAL REFLECTED CEILING PLAN)

MANUF.	MANUFACTURER'S PART NO. / SERIES NO.	DESCRIPTION
ALGO	8180 G2	IP SPEAKER FOR VOICE PAGING, EMERGENCY ALTERING, & LOUD RINGING (POE)
ALGO	8128	IP STROBE LIGHT FOR TELEPHONE, SAFETY, SECURITY & EMERGENCY ALTERING (POE) - ONLY USED WHEN A ROOM REQUIRES A VISUAL ALERTER.
ALGO	8186	WIDEBAND IP HORN SPEAKER FOR VOICE PAGING, EMERGENCY ALTERING & LOUD RINGING (POE)

*NOTE: PROVIDE OSP OUTDOOR CABLE WHERE ROUTED OUTDOORS AND BETWEEN BUILDINGS.

TASK RESPONSIBILITY MATRIX

TASK	RESPONSIBLE PARTY
TELECOM - CONDUIT, BACKBOXES, FLOORBOXES, POKE-THRU'S, SLEEVES	CFCI
TELECOM - CONDUIT ID, LABELING, AND PULLSTRINGS	CFCI
TELECOM - EQUIPMENT STRUCTURAL SUPPORTS AND BACKING	CFCI
TELECOM - EQUIPMENT CEILING PREP (ACCESS POINTS, CAMERAS, INTRUSION)	CFCI
POWER TO TELECOM, RACKS, HEAD-END EQUIPMENT	CFCI
TELECOM EQUIPMENT RACKS, PATCH PANELS, CABLE MANAGEMENT, LADDER RACKING/TRAY	CFCI
TELECOM CABLING AND TERMINATION	CFCI
TELECOM FACEPLATES AND DIVIDERS	CFCI
NETWORK EQUIPMENT (SWITCHES, RACK-MOUNT UPS IN IDF'S, SERVERS, STORAGE)	OFOI
MISC. IT EQUIPMENT (TELEPHONES, COMPUTERS, MONITORS)	OFOI
WIRELESS ACCESS POINTS	OFCI
POE SPEAKERS	OFCI
CLOCK DEVICES	CFCI
HDMI CABLES	OFCI

CFCI = CONTRACTOR FURNISHED AND INSTALLED
OFCI = OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI = OWNER FURNISHED, OWNER INSTALLED

NOTE: CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING OWNER OF ALL HARDWARE NOTED WITHIN DRAWINGS OR SPECIFICATIONS AS FURNISHED OR PROVIDED BY OWNER AND CONTRACTOR INSTALLED. SUCH NOTICE SHALL BE PROVIDED TO OWNER AT CONTRACT NOTICE TO PROCEED, AND A CORRESPONDING SCHEDULE FOR WHEN SPECIFIC EQUIPMENT IS NECESSARY FOR INSTALLATION BY CONTRACTOR. ALL HARDWARE SHALL BE INSTALLED BY THE EC UNLESS NOTED OTHERWISE.

GENERAL COMMUNICATION PLAN NOTES

- REFER TO PROJECT TELECOMMUNICATIONS PLANS AND SPECIFICATIONS FOR FURTHER INFORMATION.
- SIGNAL AND COMMUNICATIONS SYSTEMS RACEWAYS AND BOXES: PROVIDE AND INSTALL 5" SQUARE ("RANDL, INC") RECESSED JUNCTION BOX WITH 1-GANG RING AND (1) 1-1/4" CONDUIT STUB TO ACCESSIBLE CEILING SPACE ABOVE OR UNDER FLOOR SPACE BELOW AS APPLICABLE AT EACH WALL. TELECOMMUNICATIONS (PHONE, PHONE/DATA, DATA) OUTLET AND TELEVISION OUTLET LOCATION SHOWN ON THE PLANS UNLESS OTHERWISE NOTED. PROVIDE PATHWAYS BETWEEN COMMUNICATIONS EQUIPMENT ROOM LOCATIONS AND ACCESSIBLE CEILINGS FOR ROUTING OF PHONE/DATA CABLES.

WHERE NO ACCESSIBLE CEILING EXIST; RUN CONDUIT FROM OUTLETS (FLOOR OR WALL) TO COMMUNICATIONS EQUIPMENT LOCATION.

PROVIDE 1-1/4" CONDUIT MINIMUM FOR FLOOR BOX TELECOM, AS SHOWN ON TELECOM PLANS.

BEFORE CONSTRUCTION, COORDINATE AND VERIFY TELECOMMUNICATIONS OUTLET LOCATIONS WITH OWNER OR ARCHITECT.
- CONDUIT STUBS FROM BACKBOXES SHALL BE ROUTED TO ABOVE NEAREST ACCESSIBLE CEILING SPACE WITH ACCESS TO PRIMARY PATHWAY BACK TO IDF OR MDF, UNLESS NOTED OTHERWISE
- CONFIRM ALL DEVICE HEIGHTS WITH ARCHITECTURAL ELEVATIONS PRIOR TO ROUGH IN AND COORDINATE FINAL LOCATIONS WITH NEARBY DEVICE DISCIPLINES.
- COORDINATE ALL ROUGH-IN FOR OFOI DEVICES WITH OWNER IT REPRESENTATIVE PRIOR TO ROUGH-IN.
- PROVIDE EQUIPMENT RACKS, PATCH PANELS, CABLING, TERMINAL BLOCKS & COMPLETE OUTLET ASSEMBLIES.
- DEVICE LOCATIONS SHOWN ARE SCHEMATIC AND APPROXIMATE. EXACT LOCATIONS SHALL BE FIELD VERIFIED DURING ROUGH-IN WITH ARCHITECTURAL ELEVATIONS, CASEWORK SHOP DRAWINGS, FURNITURE, ETC. AND SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT WITH OTHER EQUIPMENT.
- ELECTRICAL AND COMMUNICATIONS OUTLETS SHOWN IN FIRE RATED, OR SOUND RATED (STC) ASSEMBLIES SHALL BE PROVIDED WITH PUTTY PADS LISTED FOR THE APPLICATION.
- ELECTRICAL AND COMMUNICATIONS OUTLETS SHOWN IN THE SAME LOCATION, SHALL BE MOUNTED ON OPPOSITE SIDES OF THE SAME STUD. COORDINATE BETWEEN ELECTRICAL AND COMMUNICATIONS PLANS. ALTERNATIVELY, A DEVICE BRACKET MAY BE USED BETWEEN STUDS WITH 4-INCH SEPARATION BETWEEN POWER AND LOW VOLTAGE BOXES.
- AVOID UNDERGROUND TELECOM CONDUIT RUNS UNLESS NECESSARY. WHERE UNDERGROUND CONDUIT IS USED, TELECOM CABLES SHALL BE WET LISTED.
- CABLE LADDER DROP-OUTS SHALL BE INSTALLED WHEREVER NECESSARY TO FACILITATE CABLE TRANSITIONS AND MIN BEND RADIUS. DROP-OUTS SHALL BE EQUIVALENT TO CHATSWORTH AND SOLID ONE PIECE CONSTRUCTION.
- NO LOW-VOLTAGE SYSTEM MAY USE THE TELECOMMUNICATIONS PATHWAY AS DESCRIBED ON THE TECHNOLOGY PLANS AND SPECIFICATIONS. THE TELECOMMUNICATION SYSTEM CABLING SHALL BE THE ONLY SYSTEM TO UTILIZE THE INFRASTRUCTURE AND CABLE TRAY / CABLE RUNWAY SYSTEM.

TELECOMMUNICATIONS DEVICE SCHEDULE

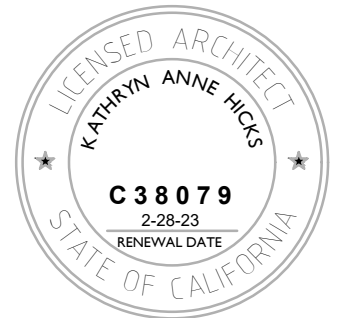
SYMBOL	BACKBOX	MUD RING	CONDUIT STUB	CABLE TYPE	CABLE QUANTITY	CABLE COLOR	FACEPLATE	NOTES
▽	EXTRA DEEP 5-SQUARE	SINGLE GANG	1-1/4"	CAT6/6A	4	(1) CAT6 CABLE (RISER), BLUE IN COLOR (1) CAT6 CABLE (RISER), BLUE IN COLOR (1) CAT6 CABLE (RISER), BLUE IN COLOR	4-PORT, WHITE	STANDARD WORK AREA OUTLET. "n" = NUMBER OF CAT6/6A DATA DROPS. PROVIDE BLANK COVERS FOR UNUSED PORTS. SEE DETAIL 1/E007 AND 3/E007 FOR FACEPLATE NAMING CONVENTIONS.
▽ ^{100"}	EXTRA DEEP 5-SQUARE	SINGLE GANG	1-1/4"	CAT6	2	CAT6 CABLE (RISER) BLUE IN COLOR	2-PORT, WHITE	DATA OUTLET AT 100" AT LOCATION SHOWN IN PLAN. "n" = NUMBER OF CAT6/6A DATA DROPS. COORDINATE MOUNTING HEIGHT AND LOCATION WITH OWNER PRIOR TO ROUGH IN. SEE DETAIL 4/E007 FOR RECESSED MEDIA LAYOUT.
▽ ⁿ	EXTRA DEEP 5-SQUARE	SINGLE GANG	1-1/4"	CAT6	2	(1) CAT6 CABLE (RISER), BLUE IN COLOR (1) CAT6 CABLE (RISER), BLUE IN COLOR	2-PORT, WHITE	ABOVE COUNTER WORK AREA OUTLET. "n" = NUMBER OF CAT6/6A DATA DROPS. PROVIDE BLANK COVERS FOR UNUSED PORTS. SEE DETAIL 1/E007 AND 3/E007 FOR FACEPLATE NAMING CONVENTIONS.
⊙	-	-	1-1/4"	CAT6A	2	CAT6A CABLE (RISER) WHITE IN COLOR	-	INTERIOR WIRELESS ACCESS POINT, DISTRICT PROVIDED (INCLUDING MOUNT) AND CONTRACTOR INSTALLED. MOUNTING PER DETAIL 2/E007 OR 6/E007.
⊙ ^{WP}	-	-	1-1/4"	CAT6A	1	CAT6A CABLE (RISER) WHITE IN COLOR	-	EXTERIOR (WP) WALL MOUNTED WIRELESS ACCESS POINT LOCATION, DISTRICT PROVIDED (INCLUDING MOUNT) AND CONTRACTOR INSTALLED. EC SHALL PROVIDE (1) CAT6A CABLE EACH. REFER TO MANUFACTURER'S MOUNTING REQUIREMENTS.
⊙ ^{HDMI}	4-11/16"	SINGLE GANG	1-1/4"	NONE	-	-	LEVITON BRUSHED	
⊙	-	-	1-1/4"	CAT6	1	CAT6 CABLE (RISER) BLUE IN COLOR	-	VOIP ENABLED CEILING MOUNTED SPEAKER (PART NUMBERS PER BASIS OF DESIGN). CONTRACTOR SHALL PROVIDE (1) BLUE CAT6 CABLE PER DEVICE FROM IDF WITH MINIMUM 10'-0" SERVICE LOOP TERMINATED IN BISCUIT INSIDE SPEAKER ENCLOSURE.
⊙	-	-	1-1/4"	CAT6	1	CAT6 CABLE (RISER) BLUE IN COLOR	-	VOIP ENABLED WALL MOUNTED SPEAKER (PART NUMBERS PER BASIS OF DESIGN). CONTRACTOR SHALL PROVIDE (1) BLUE CAT6 CABLE PER DEVICE FROM IDF WITH MINIMUM 10'-0" SERVICE LOOP TERMINATED IN BISCUIT INSIDE SPEAKER ENCLOSURE.
⊙ ^{WP}	-	-	1-1/4"	CAT6	1	CAT6 CABLE (RISER) BLUE IN COLOR	-	WEATHER PROOF (WP) OUTDOOR SPEAKER (PART NUMBERS PER BASIS OF DESIGN). EC SHALL PROVIDE (N) (1) CAT6 CABLE PER SPEAKER WITH MINIMUM 10'-0" SERVICE LOOP TERMINATED IN BISCUIT INSIDE SPEAKER ENCLOSURE. EC SHALL COORDINATE WITH DISTRICT REPRESENTATIVE FOR FINISHED MOUNTING HEIGHT.
▽ ^{vs}	EXTRA DEEP 5-SQUARE	SINGLE GANG	1-1/4"	CAT6	HARD LID = (1) T-BAR = (2)	CAT6 CABLE (RISER) BLUE IN COLOR	-	PROVIDE SINGLE GANG BOX, DATA PORT AND COVER WITH (1) CAT6 CABLE TO IDF FLUSH MOUNTED IN HARD LID CEILING FOR FUTURE VAPE SENSOR.
⊙ ^{CAM}	-	-	1-1/4"	CAT6	1	CAT6 CABLE (RISER) BLUE IN COLOR	-	FUTURE EXTERIOR CAMERA LOCATION, PROVIDE (1) BLUE CAT6 CABLE PER LOCATION, TERMINATED IN 1-PORT BISCUIT IN FLUSH MOUNTED WEATHERPROOF 5S BOX. EC SHALL PAINT WEATHERPROOF COVER TO MATCH EXISTING BUILDING. COORDINATE BOX HEIGHT WITH DISTRICT.

1 TELECOMMUNICATION DEVICE CABLE AND ROUGH-IN SCHEDULE

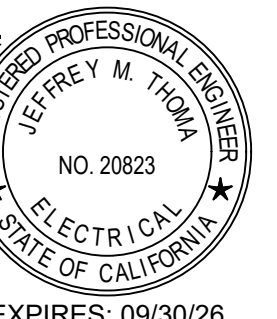
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EXPIRES: 09/30/26
THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
 2555 S HALCYON RD, ARROYO GRANDE, CA
COMMUNICATION GENERAL NOTES, BASIS OF DESIGN, AND DEVICE SCHEDULE

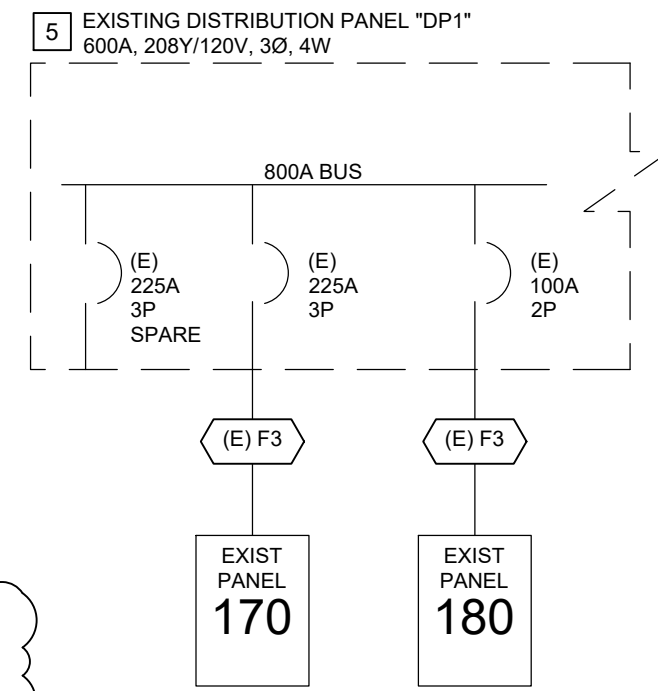
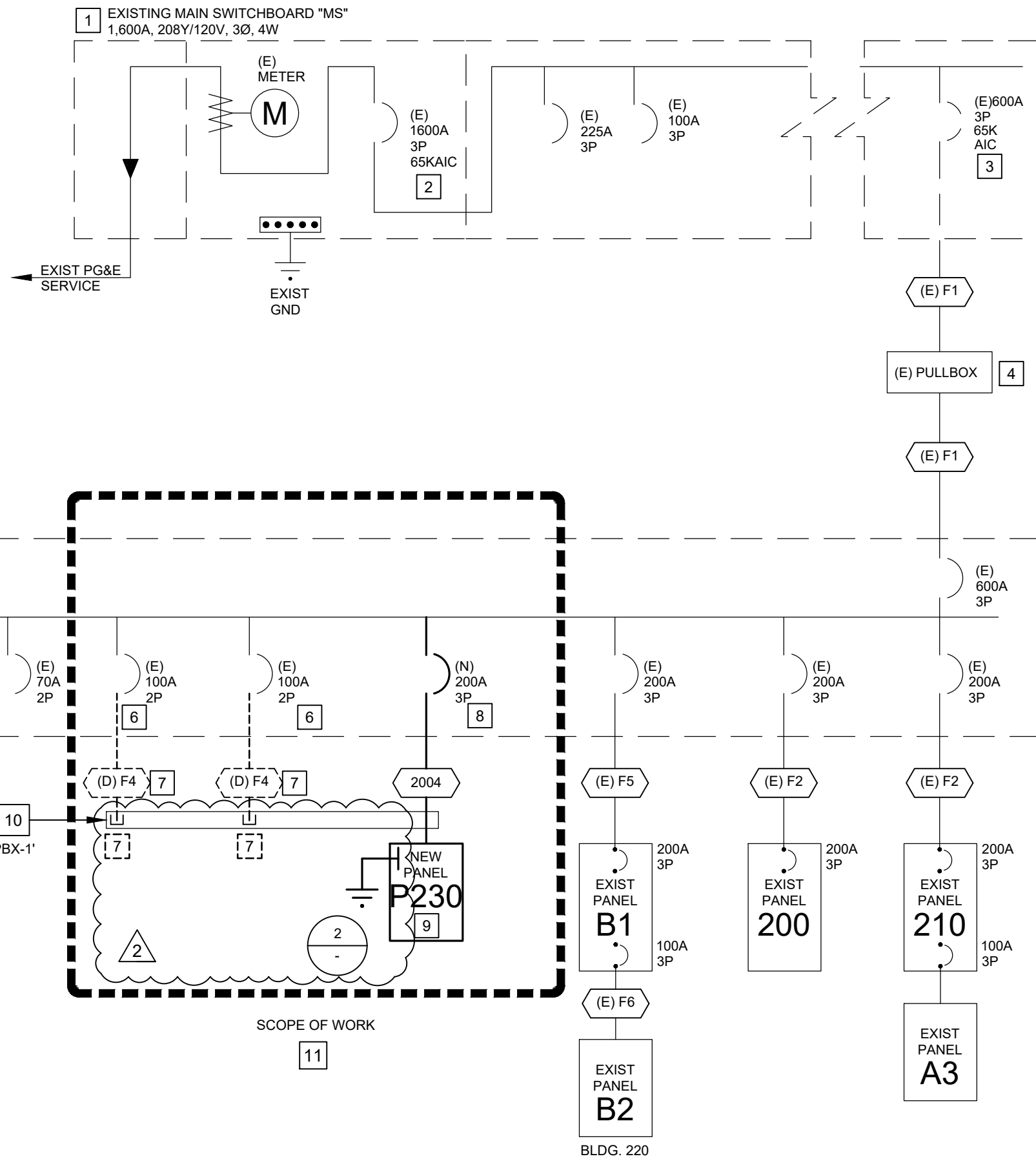
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△	ADDENDUM 02	06/16/26
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PROJECT MANAGER
JC
DRAWN BY
AV
CHECKED BY
JC
DATE
08 SEP 2025
PROJECT NUMBER
0822-03-ED25
SHEET

E002

CONSTRUCTION DOCUMENTS

COPPER FEEDER SCHEDULE		
FEEDER NO.	RACEWAY QUANTITY/SIZE	CONDUCTORS
2004	(1) 2" C	(4) #3/0 THWN & (1) #6 GND.
(E) F1	(2) 4" C	(4) #400 KCMIL THWN & (1) #2 GND. EA.
(E) F2	(1) 2" C	(4) #3/0 THWN & (1) #6 GND.
(E) F3	(1) 1-1/2" C	(3) #2 THWN & (1) #8 GND.
(E) F4	(1) 2" C	(3) #2 THWN & (1) #8 GND.
(E) F5	(1) 3" C	(4) #4/0 THWN & (1) #4 GND.
(E) F6	(1) 1-1/2" C	(4) #2 THWN & (1) #8 GND.



1 PARTIAL SINGLE LINE DIAGRAM
SCALE: NTS

- ### SINGLE LINE DIAGRAM REFERENCE NOTES
- EXISTING MAIN SWBD INSTALLED UNDER DSA #51515 TO REMAIN.
 - EXISTING MAIN CIRCUIT BREAKER. SCHEDULED TO REMAIN.
 - EXISTING BREAKER FEEDING DISTRIBUTION PANELBOARD 'DP1' SCHEDULED TO REMAIN.
 - EXISTING 2' X 3' PULLBOX W/ DRAIN.
 - EXISTING DISTRIBUTION PANELBOARD 'DP1' INSTALLED UNDER DSA#03-118807, SCHEDULED TO REMAIN.
 - BREAKER SHALL BE REMOVED AND RETURNED TO DISTRICT.
 - FEEDERS ARE EXISTING AT EXISTING VAULT AND ARE SCHEDULED TO BE REMOVED FROM EXISTING VAULT TO DISTRIBUTION BOARD 'DP1' AND RETURN TO DISTRICT.
 - PROVIDE AND INSTALL NEW CIRCUIT BREAKER IN EXISTING EQUIPMENT COMPLETE WITH ALL REQUIRED MOUNTING HARDWARE. NEW CIRCUIT BREAKER AIC TO MATCH EXISTING EQUIPMENT MAIN CIRCUIT BREAKER AIC RATING. CONTRACTOR TO FIELD VERIFY EXISTING EQUIPMENT INFORMATION AND MATCH ACCORDINGLY. RATING AS INDICATED.
 - NEW PANELBOARD 'P230'. RATING AS INDICATED ON THE ELECTRICAL SCHEDULES. INSTALL IN UTILITY/STORAGE ROOM AS SHOWN ON PLANS.
 - (E) VAULT 'PBX-1' SCHEDULED TO REMAIN. REFER TO SITE PLAN FOR VAULT LOCATION.
 - SCOPE OF WORK. AREA THAT WILL BE AFFECTED BY SCOPE OF WORK.

- ### SINGLE LINE DIAGRAM NOTES
- ALL CONDUCTORS SHALL BE COPPER WITH TYPE (THHN/THWN) INSULATION UNLESS OTHERWISE NOTED.
 - ALL SWITCHES, CIRCUIT BREAKERS AND OTHER EQUIPMENT, AS SPECIFIED, SHALL HAVE TERMINATION PROVISIONS LISTED AND IDENTIFIED FOR USE WITH 75 DEG. CONDUCTORS, AND ALL FEEDER CONDUCTORS, AND CONDUITS, ARE SIZE BASED ON USE OF 75 DEG. C COPPER WIRES TYPE THWN/THHN.
 - DESIGN SHOWN IS BASED ON [SQUARE-D] PRODUCT.
 - ALL EQUIPMENT SHALL HAVE ARC FLASH WARNING LABELS PER DETAIL 1/E003.
 - ALL EQUIPMENT SHALL HAVE AN APPROVED TESTING LABORATORY LABEL ATTACHED (UL, CSA, ETC.) (CEC 110-2).
 - REFER TO PANEL SCHEDULES FOR INDIVIDUAL BRANCH CIRCUIT VOLTAGE DROP AND/OR SINGLE LINE DIAGRAM FOR FEEDER VOLTAGE DROP CALCULATIONS.
 - BRANCH CIRCUIT/FEEDER DISTANCE IS SHOWN FOR REFERENCE ONLY AS THE BASIS OF VOLTAGE DROP CALCULATIONS. CONDUCTOR DISTANCE AS INDICATED SHALL NOT BE USED FOR BIDDING/CONSTRUCTION PURPOSES. SHOULD THE FEEDER DISTANCE EXCEED THE LENGTH NOTED PER INSTALLATION CONDITIONS, NOTIFY THE ENGINEER OF RECORD.

WARNING

Arc Flash And Shock Hazard

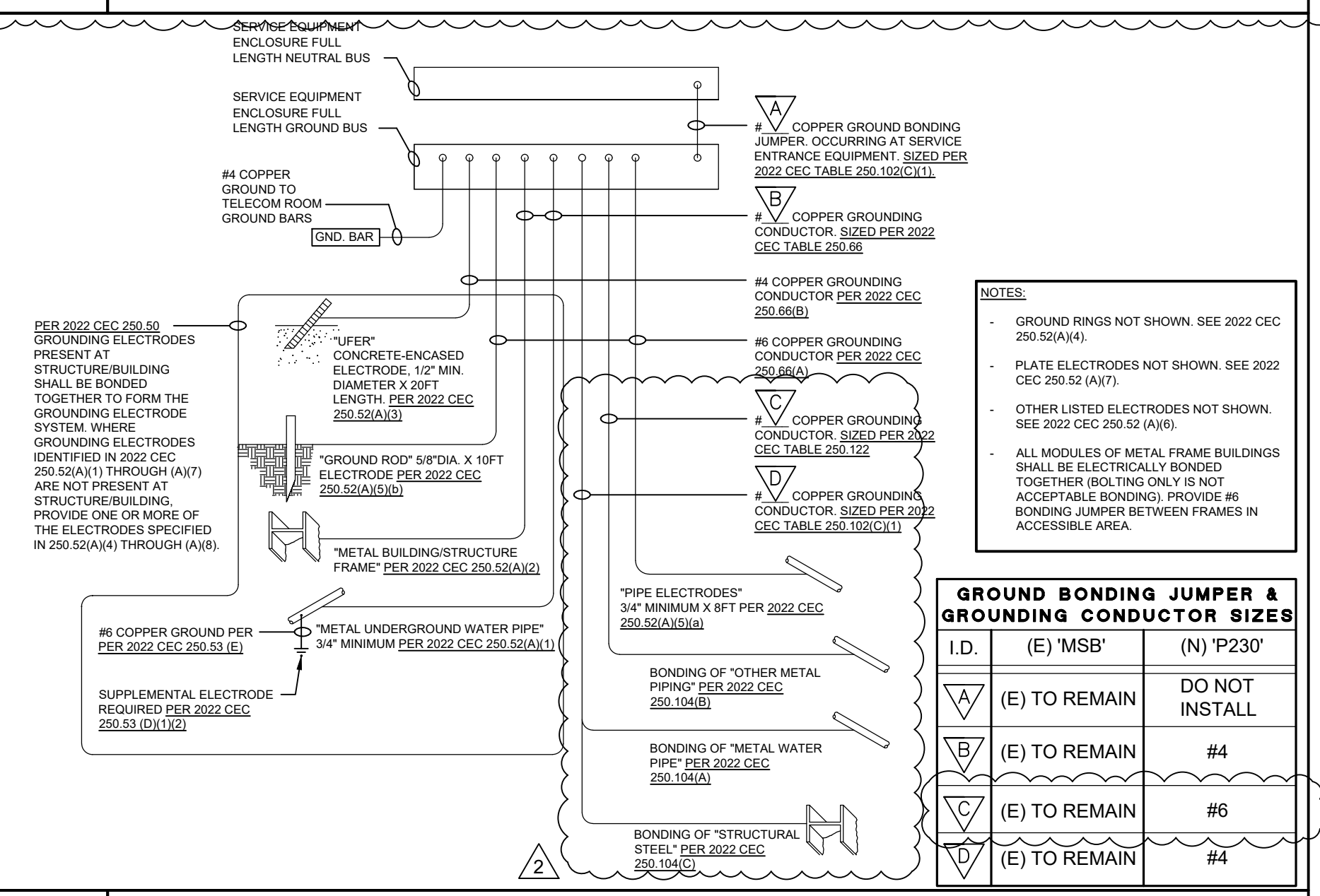
Appropriate PPE Required

Do not operate controls or open covers without appropriate personal protection equipment.
Failure to comply may result in injury or death!

Refer to NFPA 70E for minimum PPE requirements

- ARC-FLASH HAZARD WARNING LABEL SHALL BE PROVIDED FOR ALL NEWLY INSTALLED ELECTRICAL EQUIPMENT, SUCH AS SWITCHBOARDS, SWITCHGEAR, ENCLOSED PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS, THAT IS IN OTHER THAN DWELLING UNITS IN ACCORDANCE WITH CEC 110.16.
- AF LABEL SHALL FOLLOW HAZARD LABEL CONVENTION PER ANSI Z535/NFPA 70E
- PROVIDE DECAL WARNING LABEL WITH BLACK TEXT ON ORANGE BACKGROUND

1 TYPICAL ARC FLASH SIGNAGE



GROUND BONDING JUMPER & GROUNDING CONDUCTOR SIZES		
I.D.	(E) 'MSB'	(N) 'P230'
(E) TO REMAIN	DO NOT INSTALL	
(E) TO REMAIN	#4	
(E) TO REMAIN	#6	
(E) TO REMAIN	#4	

2 TYPICAL GROUND / BOND DETAIL

BUS RATING: 225A 120/208V 3PH 4W		MAIN: 225A MAIN CIRCUIT BREAKER		SPACES: 42 FULL SIZE BOLT-ON CB SPACES		KAG PANEL		(N) PANEL P230		SURFACE MOUNT, NEMA 1		LOCATION: UTILITY/STOR. 306		WITH EQUIPMENT GND BUS					
CKT	WVD	DIST (FT)	LOAD TYPE	DESCRIPTION	TRIP	POLES	COND SIZE	PHASE A	PHASE B	PHASE C	COND SIZE	POLES	TRIP	DESCRIPTION	CKT	LOAD TYPE	NOTES	DIST (FT)	CKT WVD
1.49%	75	R	1	301 REC.	20	1	12	750			12	1	20	302 REC	2	R		75	1.49%
1.49%	75	R	3	301 REC.	20	1	12	750			12	1	20	302 REC	4	R		75	1.49%
1.49%	75	R	5	301 REC.	20	1	12	750			12	1	20	302 REC	6	R		100	2.48%
2.48%	100	R	7	301 REC.	20	1	12	900			12	1	20	302 LTQ/EF-2	8	C		100	1.16%
1.11%	100	C	9	301 LTQ/EF-1	20	1	12	405			12	1	20	302 REC	10	R		100	2.48%
0.52%	35	R	11	UTILITY/BREAKOUT REC	20	1	12	540			12	1	20	MICROWAVE	12	K		25	0.83%
0.82%	55	R	13	STUDENT RR 3.3/304	20	1	12	540			12	1	20	EXTERIOR LTG.	14	L		150	0.33%
0.32%	15	M	15	FC-1	60	2	6	540R			12	1	20	LTG CONTROL	16	L		15	0.08%
0.32%	15	M	17	-	-	-	-	540R			-	-	-	SPARE	18				
0.32%	15	M	19	PC-2	60	2	6	540R			-	-	-	SPARE	20				
0.32%	15	M	21	-	-	-	-	540R			-	-	-	SPARE	22				
1.20%	75	M	23	HPC-1	60	2	6	4056			-	-	-	SPACE	24				
1.20%	75	M	25	-	-	-	-	4056			-	-	-	SPACE	26				
1.20%	75	M	27	HPC-2	60	2	6	4056			-	-	-	SPACE	28				
1.20%	75	M	29	-	-	-	-	4056			-	-	-	SPACE	30				
1.55%	50	M	31	WH-1	20	1	10	1800			-	-	-	SPACE	32				
0.12%	25	M	33	CDP-1	20	1	12	180			-	-	-	SPACE	34				
1.55%	50	M	35	WH-2	20	1	10	1800			-	-	-	SPACE	36				
1.32%	25	N	37	DF CABINET	20	1	12	1920			-	-	-	SPACE	38				
0.08%	15	N	39	FACP	20	1	12	200			-	-	-	SPACE	40				
0.36%	65	N	41	IRIGATION CONTROLLER	20	1	12	200			-	-	-	SPACE	42				



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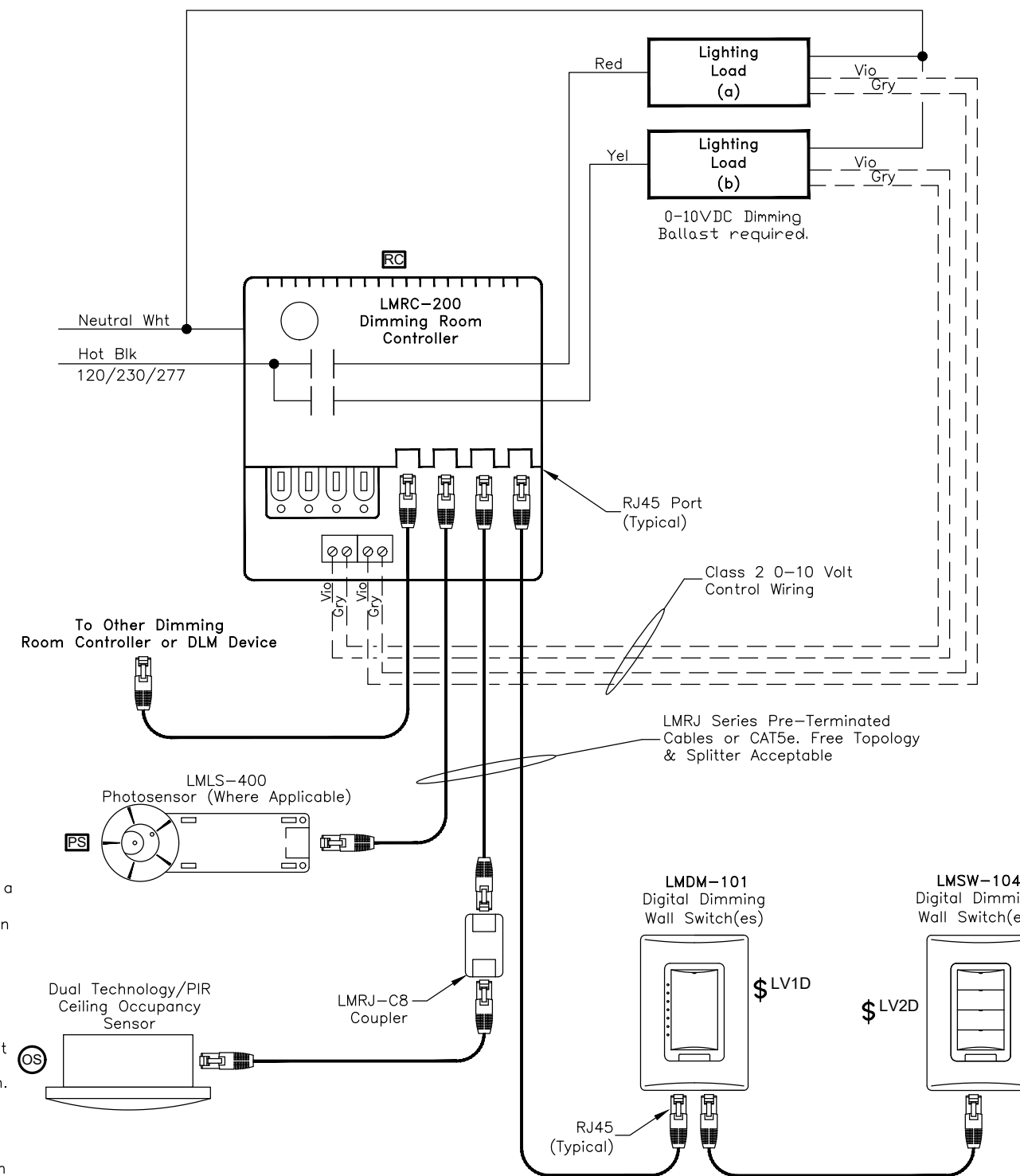
EXPIRES: 09/30/26
THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
2555 S HALCYON RD, ARROYO GRANDE, CA
ELECTRICAL SINGLE LINE DIAGRAM

NO.	REVISION	DATE
1	ADDENDUM 02	06/16/26

PROJECT MANAGER
JC
DRAWN BY
AV
CHECKED BY
JC
DATE
08 SEP 2025
PROJECT NUMBER
0822-03-ED25
SHEET

E003



3 TYPICAL ROOM CONTROLLER WITH DUAL 0-10V RELAY WIRING DIAGRAM
NTS

LUMINAIRE SCHEDULE

TYPE	ILLUSTRATION	MANUFACTURER	CATALOG NUMBER	VOLTAGE	TOTAL INPUT WATTS (W)	LAMP TYPE	NOMINAL LUMEN OUTPUT (L)	LAMP COLOR TEMP (K)	MOUNTING TYPE	WEIGHT (LBS)	DESCRIPTION	REMARKS
A1/A1E		LITHONIA LIGHTING	2BLT4-48L-ADP-MVOLT-GZ10-LP840 A1EM: ADD "E"	MVOLT	39.0	LED	4800	4000	RECESSED 7/E005	20	2'X4' LED TROFFER RECESSED, STANDARD 0-10V DIMMING. EMERGENCY FIXTURES SHALL BE PROVIDED WITH BATTERY BACKUP WITH A MINIMUM OF 90-MIN. DURATION.	
A2		LITHONIA LIGHTING	2BLT4-33L-ADP-MVOLT-GZ10-LP840	MVOLT	22.5	LED	3300	4000	RECESSED 3/E-402	15	2'X4' LED TROFFER RECESSED, STANDARD 0-10V DIMMING.	
C1		LITHONIA	SFL4-40L-GZ10-LP840 EM: E10WLCF	120/277	35.0	LED	4000	4000	SURFACE 6/E005	13	1'X4' LED SURFACE TROFFER WITH 0-10V DIMMING TO 10% AND WHITE FINISH.	
S1		HUBBELL LIGHTING	LMC-12LU-4K-2-UNV-DBT EM: E	120/277	28.0	LED	2465	4000	SURFACE 6/E005	10	LED WALL PACK WITH TYPE 2 DISTRIBUTION AND DARK BRONZE MATTE TEXTURED FINISH. PROVIDE WITH BATTERY BACKUP FOR UP TO 90-MIN. RUNTIME.	CONFIRM FINISH WITH ARCHITECT PRIOR TO ORDERING. B-0, U-0, G-1.
X1EM		LITHONIA	LES-W1-R-EL-N	120/277	2.0	LED	N/A	N/A	SURFACE 6/E005	5	LED EMERGENCY EXIT SIGN, 90-MINUTE BATTERY OPERATION (CA T20 COMPLAINT), WHITE HOUSING, SINGLE SIDED WHITE FACE, RED LETTERS.	MOUNT PER MANUFACTURER'S RECOMMENDATIONS

NOTES
 • LUMINAIRE SUPPLIED VOLTAGE TO BE VERIFIED BY ELECTRICAL CONTRACTOR.
 • WHERE NOT SPECIFIED, FINISHES TO BE VERIFIED WITH ARCHITECT.
 • FOR FIXTURE TYPES ENDING IN "EM": PROVIDE WITH 90 MINUTE EMERGENCY BATTERY PACK.

1 LUMINAIRE SCHEDULE
NTS

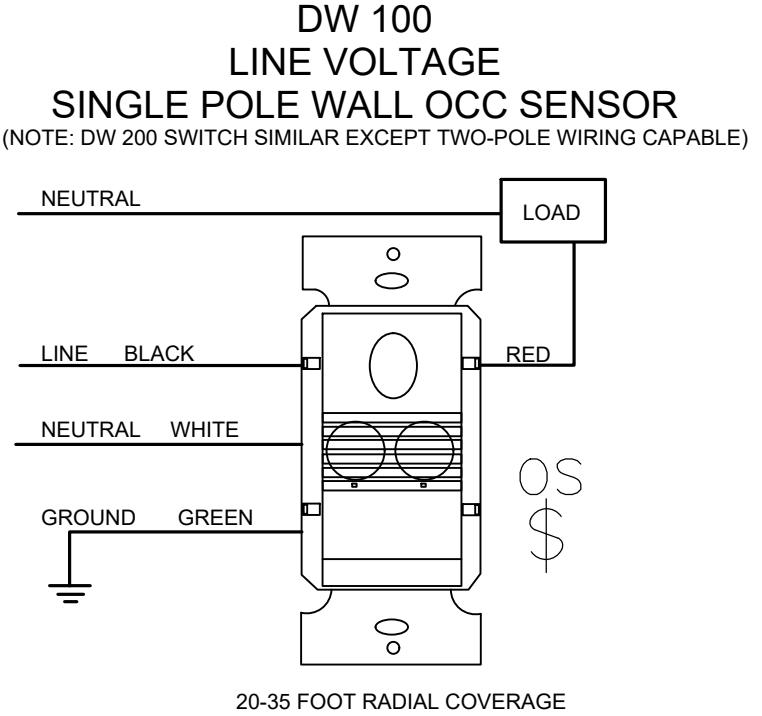
SYMBOL	PRODUCT	DESCRIPTION
LV1D	LMDM-101	1 CHANNEL ON/OFF TOGGLE WITH DIMMING LOW VOLTAGE; ON / OFF / RAISE / LOWER CONTROL
LV2D	LMSW-104	2 CHANNEL, 4 BUTTON ON/OFF TOGGLE WITH DIMMING LOW VOLTAGE; ON / OFF / RAISE / LOWER CONTROL
RC	LMRC-212	20 AMP, DUAL RELAY ROOM CONTROLLER WITH 0-10V DIMMING CONTROL
OS	LMDC-100	STANDARD RANGE 360° SENSOR-CEILING MOUNT, LOW VOLTAGE, DUAL TECHNOLOGY OCCUPANCY SENSOR
DZC	LMZC-301	DLM ZONE CONTROLLER PROVIDES TIME OF DAY AND ASTRONOMICAL FUNCTIONS, AS WELL AS EVENT-BASED SCHEDULE ROUTINES, TO REMOTE DLM DEVICES.
PS	LMLS-500	MULTI-ZONE (3 ZONE MAX) SWITCHING AND DIMMING OPEN LOOP PHOTOSENSOR
OS, 2P	DW-100	OCCUPANCY SENSOR WALL SWITCH, SINGLE-BUTTON, LINE VOLTAGE, DUAL TECHNOLOGY, STANDARD RANGE
OS, 2P	DW-200	OCCUPANCY SENSOR WALL SWITCH, TWO-BUTTON/RELAY, LINE VOLTAGE, DUAL TECHNOLOGY, STANDARD RANGE

GENERAL NOTES

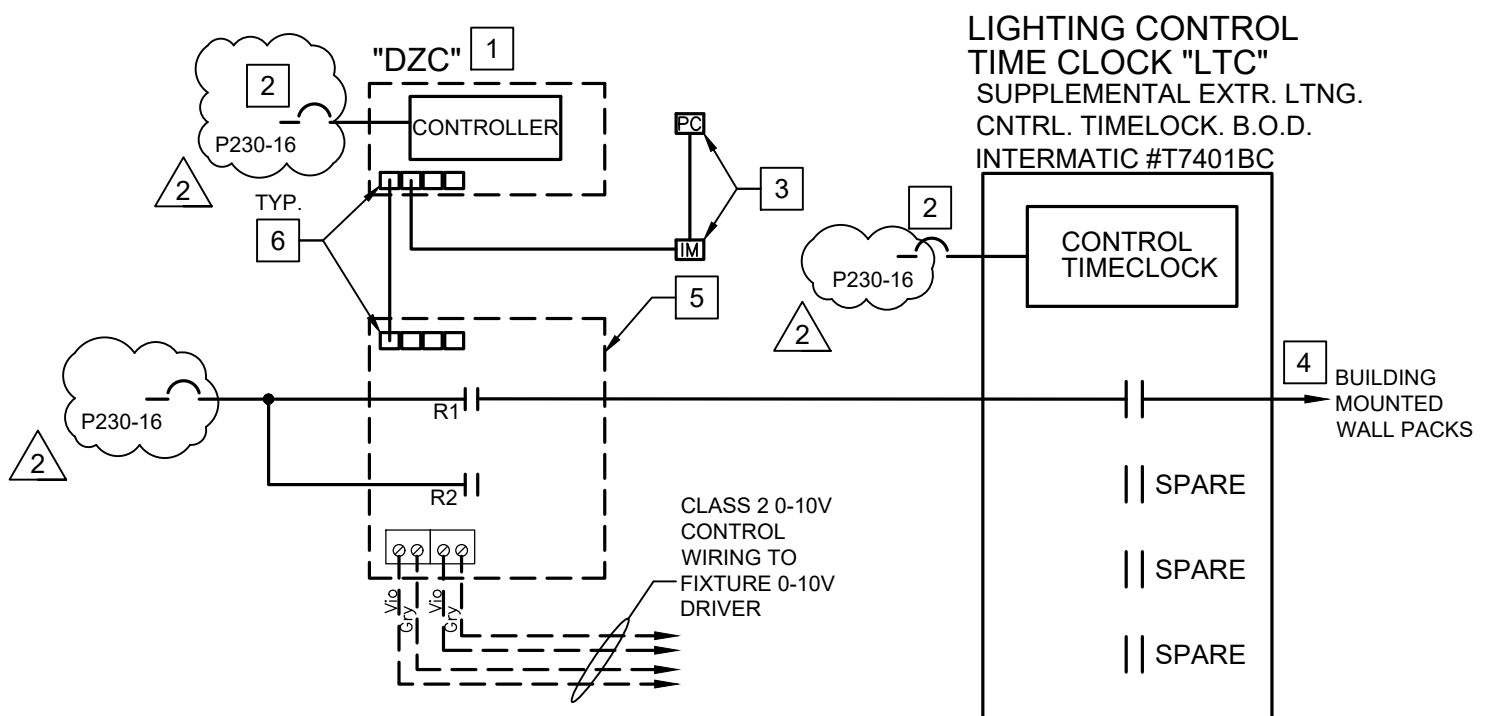
- FOR THE LIGHTING CONTROL SYSTEM; OPEN CABLE INSTALLATION OF CAT 5 IN ACCESSIBLE CEILING SPACE IS ACCEPTABLE. CONDUIT SLEEVES SHALL BE PROVIDED AT ANY AREAS WITH INACCESSIBLE OR HARD LID CEILINGS.
- OPEN CABLE INSTALLATION OF CAT 5 IN ACCESSIBLE CEILING SPACE SHALL BE INSTALLED IN AN ORGANIZED WORKMAN LIKE MANNER WITH J-HOOKS AND/OR CABLE SUPPORTS AT 8FT O.C. MINIMUM.
- 0-10V CONTROL CABLE SHALL BE 600V RATED #18 THWN CU, OR AS PER LIGHTING CONTROL MANUFACTURERS REQUIREMENTS. INSTALLED IN LIGHTING BRANCH CIRCUIT CONDUITS.
- LOCATE ROOM CONTROLLER ABOVE CEILINGS IN A CONSISTENT MANNER AT EACH ROOM TYPE. TYPICALLY LOCATE THE ROOM CONTROLLERS ABOVE THE LIGHTING CONTROL SWITCH(ES).

NOTES:
 A. VERIFY QUANTITY OF DEVICES REQUIRED TO PROVIDE COMPLETE COVERAGE AND CONTROL PER ROOM DIMENSIONAL REQUIREMENTS AND CONTROL FUNCTIONS SHALL SHOWN ON LIGHTING PLANS AND POWER PLANS.
 B. PROVIDE A SHOP DRAWING OF THE BUILDING FLOOR PLANS WITH LAYOUT OF CONTROL DEVICES.
 C. PROVIDE AT LEAST (1) LMCT-100 WIRELESS CONFIGURATION TOOL ON ALL WATTSTOPPER PROJECTS.

SWITCH TYPE	ENGRAVING	ZONES CONTROLLED	BUTTON PROGRAM	FUNCTION	APPLICABLE ROOMS
LV1D	RAISE	REFER TO FLOOR PLAN	ON/RAISE	PRESS & HOLD FOR RAISE	CLASSROOMS
	LOWER	REFER TO FLOOR PLAN	OFF/LOWER	PRESS & HOLD FOR LOWER	
LV2D	RAISE	REFER TO FLOOR PLAN	ON/RAISE	PRESS & HOLD FOR RAISE	CLASSROOMS
	LOWER	REFER TO FLOOR PLAN	OFF/LOWER	PRESS & HOLD FOR LOWER	
	RAISE	REFER TO FLOOR PLAN	ON/RAISE	PRESS & HOLD FOR RAISE	
	LOWER	REFER TO FLOOR PLAN	OFF/LOWER	PRESS & HOLD FOR LOWER	



4 SWITCH ELEVATIONS AND SCHEDULES
NTS



REFERENCE NOTES

- DIGITAL ZONE CONTROLLER "DZC" WITH INTEGRAL ASTRONOMICAL TIME CLOCK PER CALIFORNIA ENERGY CODE (CEC 130.2(c)1 & 2). PROGRAM PER OWNER AND TITLE 24 REQUIREMENTS. SEE PANEL SCHEDULE ON THIS SHEET.
- DEDICATED CIRCUIT TO CONTROLLER(S) POWER SUPPLY.
- PROVIDE NEW PHOTOCELL (WATTSTOPPER LMPO-200) AT ROOF. (ORIENT WINDOW NORTH). PROVIDE 1/2" DOWN TO PHOTOCELL INPUT MODULE (LMIO-301) WITH (2)#18 AWG. THEN PROVIDE LMRJ CABLE CONNECTION BETWEEN PHOTOCELL INPUT MODULE AND DIGITAL ZONE CONTROLLER "DZC".
- TO LIGHTING FIXTURES, SEE FLOOR PLANS.
- DEDICATED EXTERIOR LIGHTING ROOM CONTROLLER (WATTSTOPPER LMRC-212, EQUIPPED WITH TWO 0-10V RELAYS FOR SWITCHING AND DIMMING CAPABILITY TO SATISFY CEC 130.2(c)2 A & B). CONNECT TO WATTSTOPPER DLM ZONE CONTROLLER (LMZC-301; LOCATION PER LIGHTING FLOOR PLAN) TO ENABLE SCHEDULED EVENTS AND ASTRONOMICAL TIME CLOCK CONTROL OF EXTERIOR LUMINAIRES. ROOM CONTROLLER REQUIRES CONSTANT HOT INPUT.
- RJ45 PORTS FOR CONNECTION OF DEVICES TO WATTSTOPPER DLM NETWORK VIA LMRJ SERIES PRE-TERMINATED CABLES OR CAT5E.

RELAY NO.	INPUT VA	CIRCUIT NO.	LOAD DESCRIPTION	SCHEDULED CONTROL DESCRIPTION	NOTES
R1	80	P230-14	EXTERIOR BUILDING WALLPACK LTG	DUSK ON / TIMECLOCK OFF	1,4,5
R2			SPARE		

NOTES:
 1. PROGRAM RELAY FOR DUSK 'ON' WITH PROGRAMMED 'OFF' PER OWNER TIME SCHEDULE.
 2. PROGRAM RELAY FOR DUSK TO DAWN (NIGHT LIGHT) OPERATION.
 3. PROGRAM RELAY TO DIM TO 50% WHEN UNOCCUPIED AND 100% WHEN OCCUPIED.
 4. EXTEND 0-10V WIRES TO FIXTURES) FOR DIMMING CONTROL CAPABILITY.
 5. INCLUDE AN UNSWITCHED HOT LEG OF LIGHTING CIRCUIT TO PROVIDE CONTINUOUS CHARGING OF EMERGENCY BATTERY PACKS OR TO SERVE OTHER ROOMS WITH LOCAL CONTROLS.

* INCLUDE EXTERIOR PHOTOCELL (WATTSTOPPER LMPO-200 WITH CONNECTION TO WATTSTOPPER PHOTOCELL INPUT MODULE LMIO-301) INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATION TO CONTROL DUSK TO DAWN, AND DUSK TO TIME CLOCK OFF OPERATIONS.
 * PROVIDE LOW VOLTAGE OVERRIDE SWITCH ADJACENT TO PANEL WITH WEATHER PROOF LOCKABLE COVER. PROGRAM SWITCH FOR 2-HOUR OVERRIDE OF ALL EXTERIOR LIGHTING RELAYS. LABEL SWITCH "OVERRIDE".

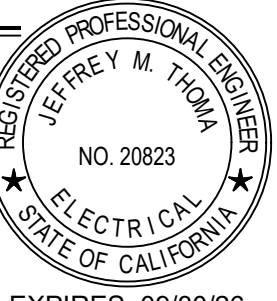
2 EXTERIOR LIGHTING CONTROL DIAGRAM
NTS



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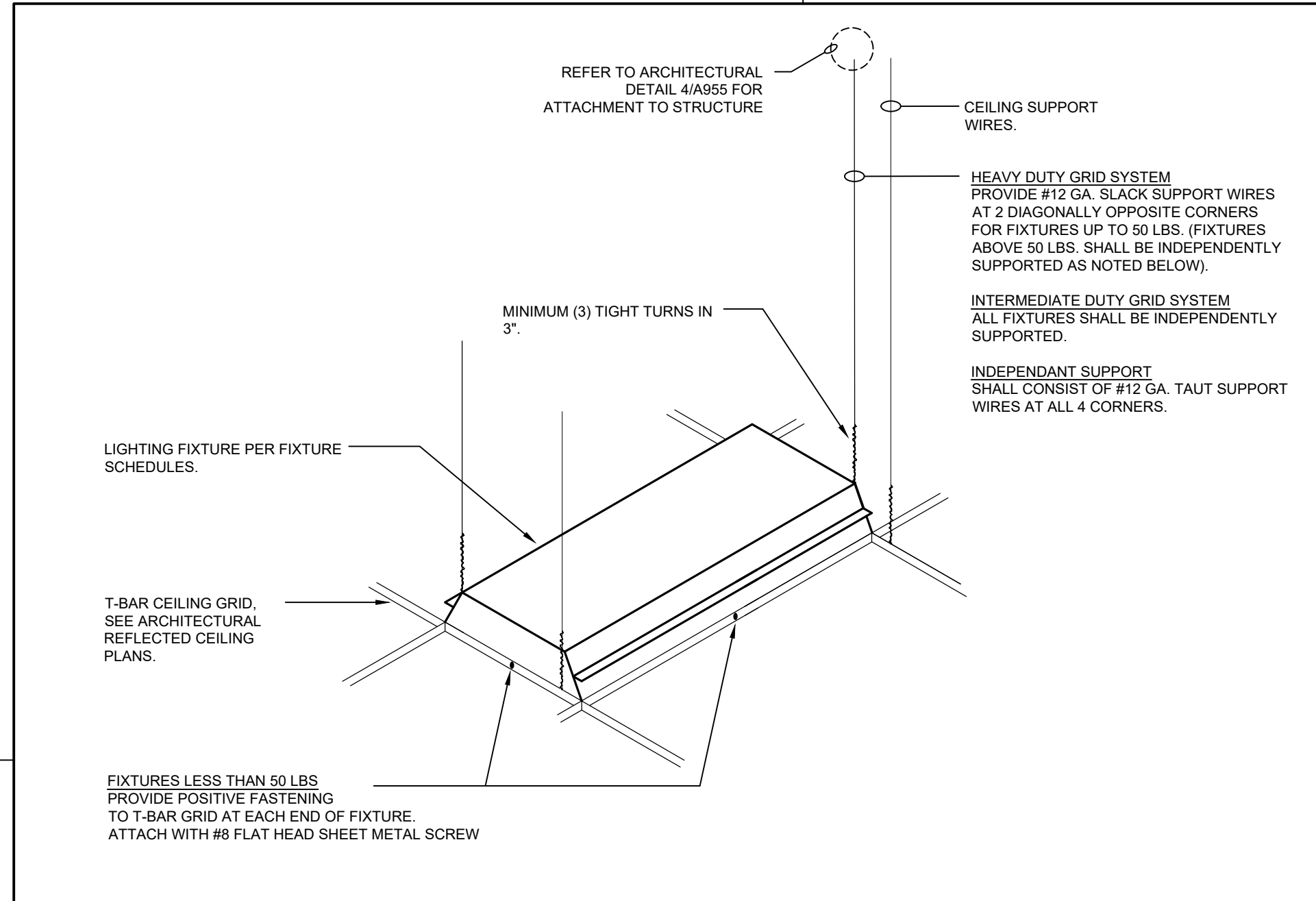
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 THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
 2555 S HALCYON RD, ARROYO GRANDE, CA
ELECTRICAL LUMINAIRE SCHEDULE AND CONTROL DIAGRAMS

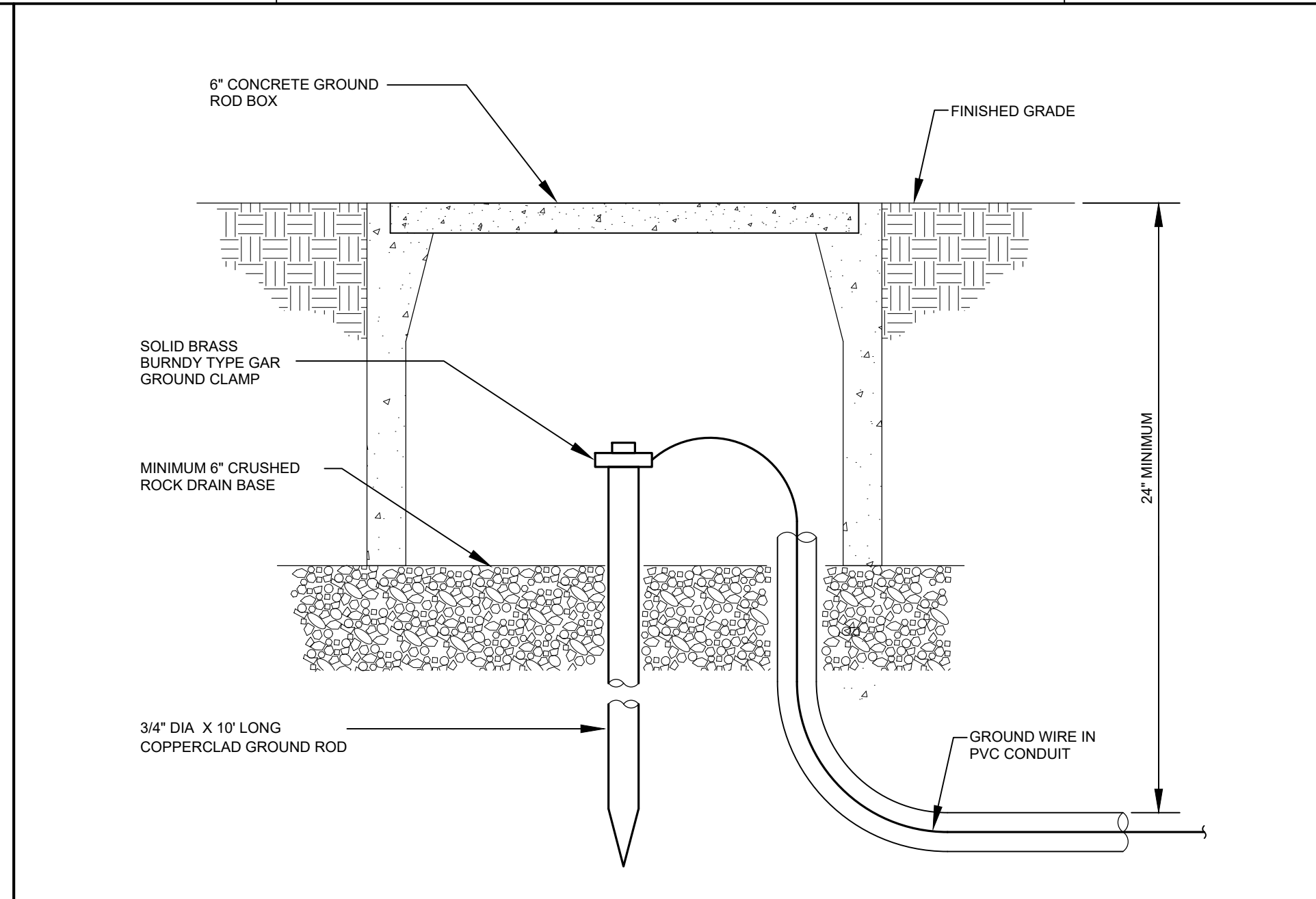
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PROJECT MANAGER
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 AV
CHECKED BY
 JC
DATE
 08 SEP 2025
PROJECT NUMBER
 0822-03-ED25
SHEET

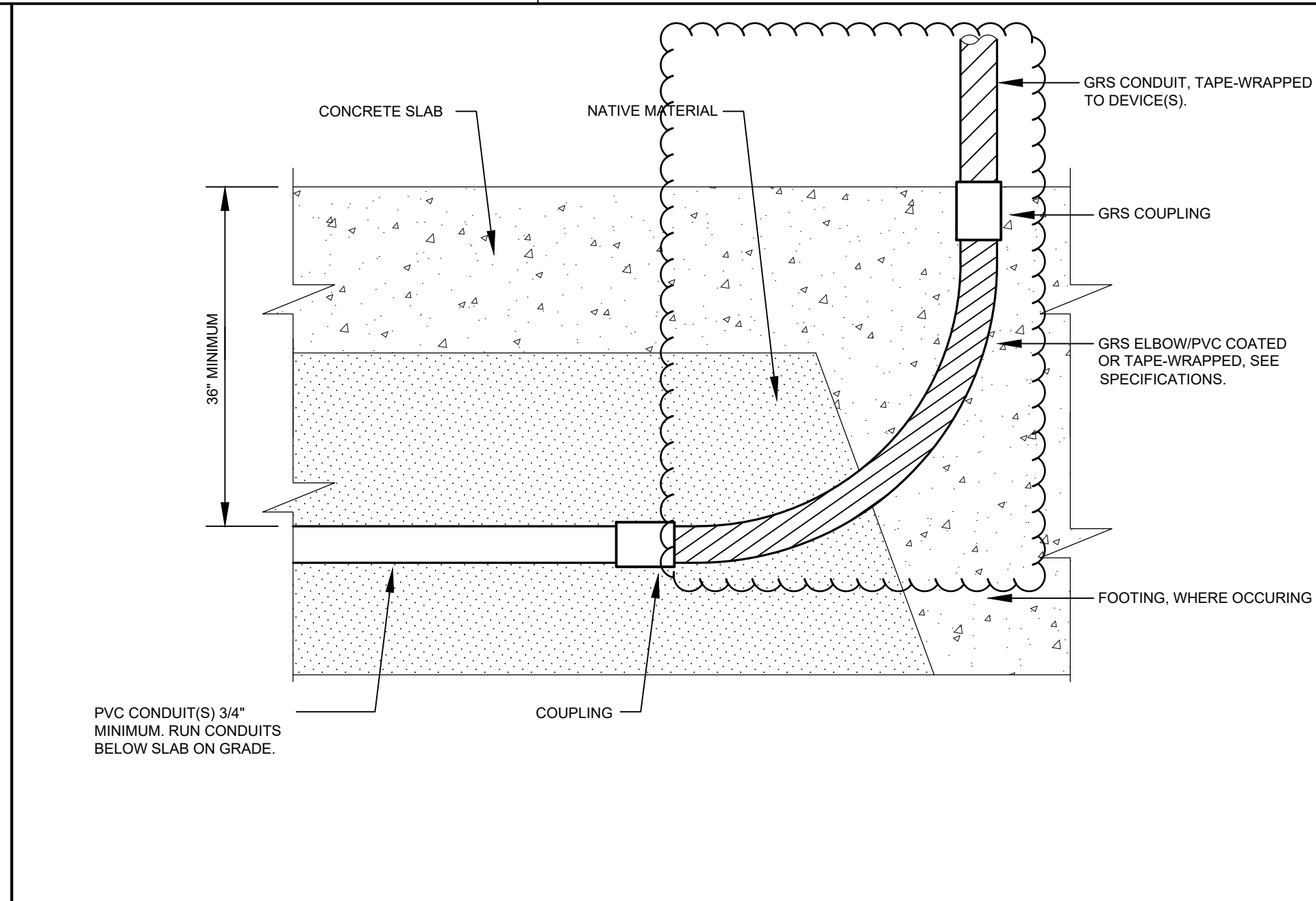
E004



7 LAY-IN TROFFER FIXTURE MOUNTING DETAIL
SCALE: NTS



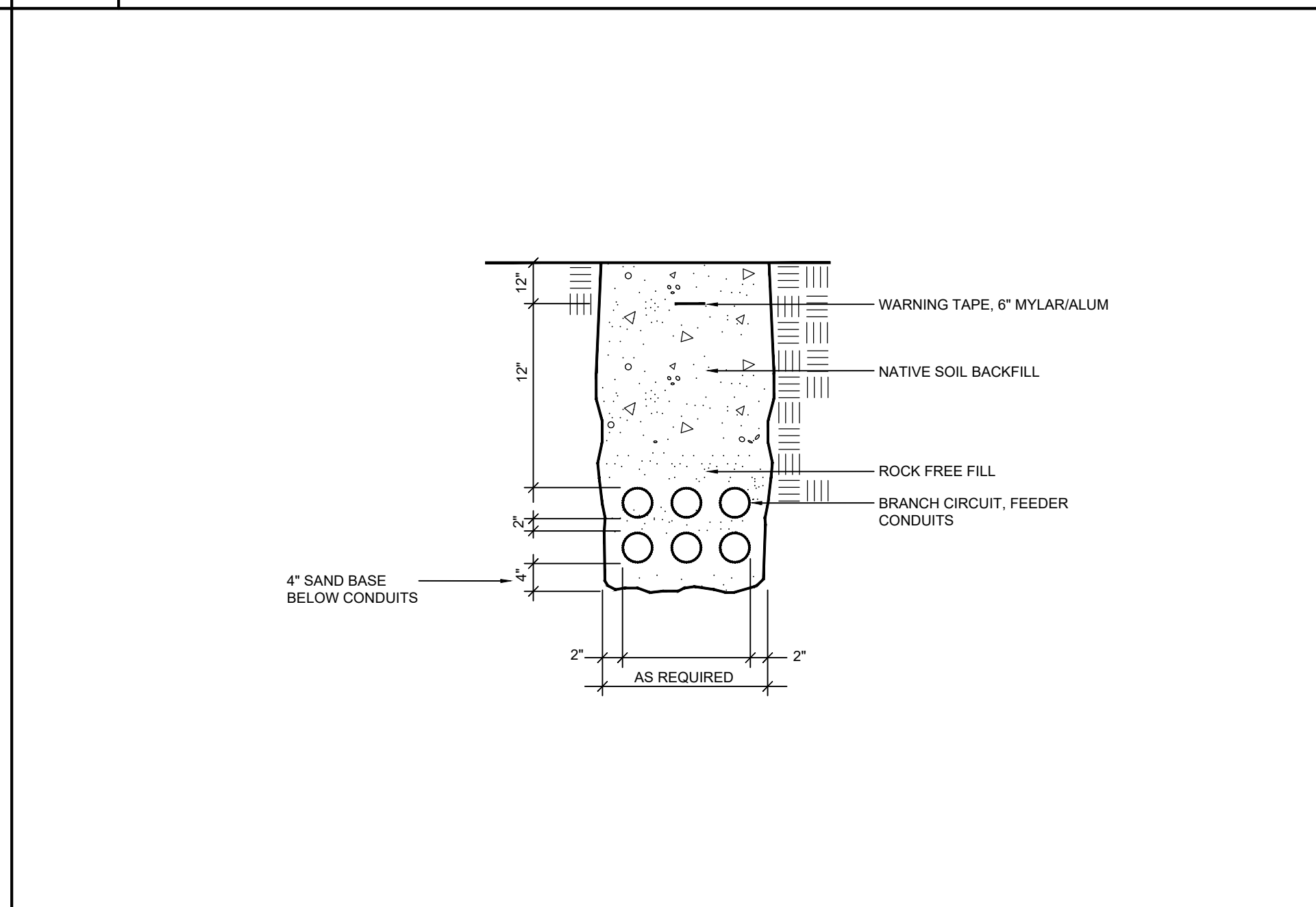
4 GROUND ROD/GROUND WELL
SCALE: NTS



1 CONDUIT RISER DETAIL
SCALE: NTS



5 TYPICAL PULL BOX, SMALLER THAN 24" X 36"
SCALE: NTS



2 TYPICAL CONDUIT IN TRENCH DETAIL
SCALE: NTS

8 NOT USED
SCALE: NTS

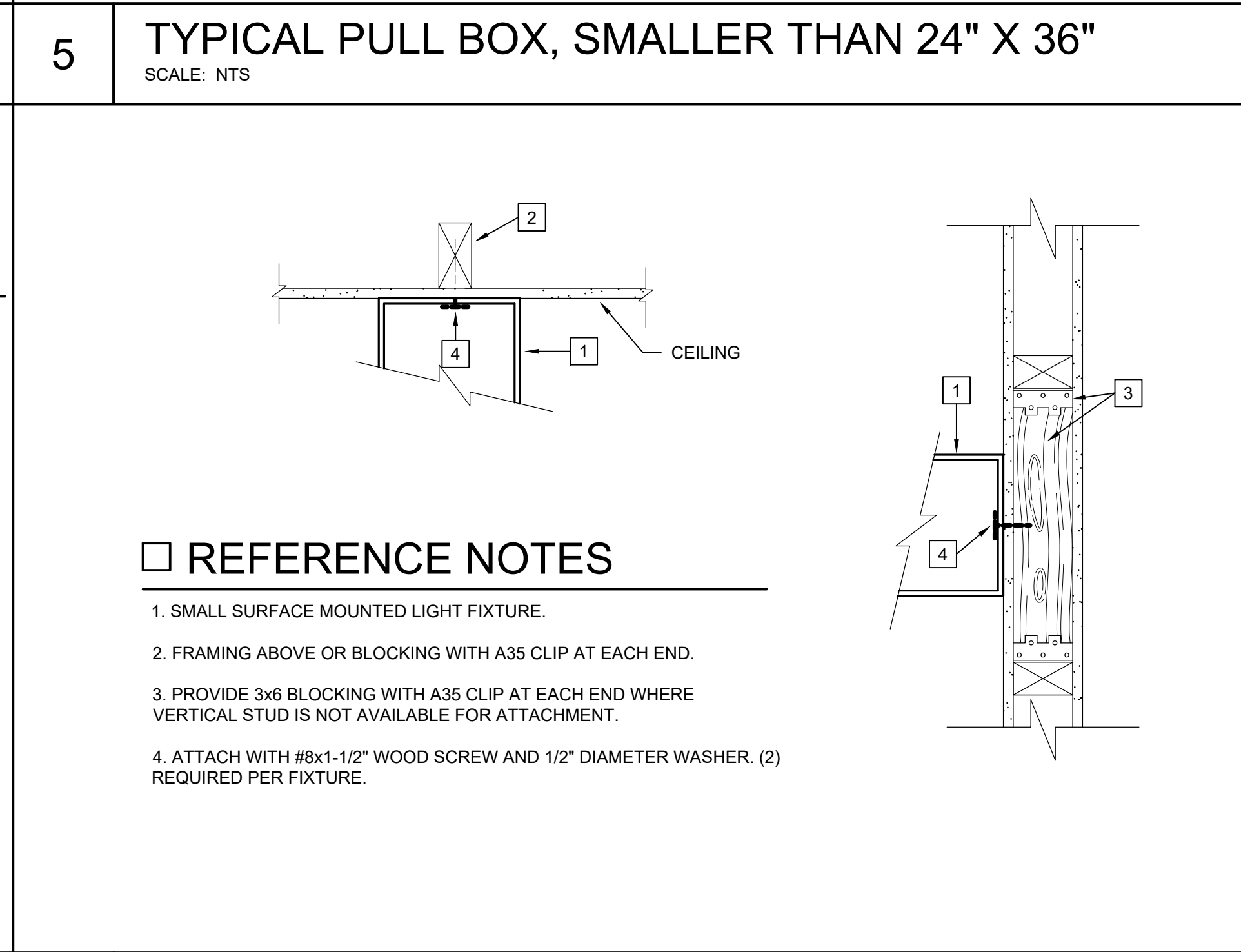
PORTABLE SYSTEM KIT

TWO SETS OF ASSISTED LISTENING SYSTEMS SHALL BE STORED IN A DESIGNATED AREA (COORDINATE WITH DISTRICT) AND SHARED AS NECESSARY TO COMPLY WITH EACH CLASSROOM AREA REQUIRING ASSISTED LISTENING SYSTEMS (ALS). PORTABLE SYSTEM SHALL BE MANUFACTURED BY WILLIAMS SOUND:

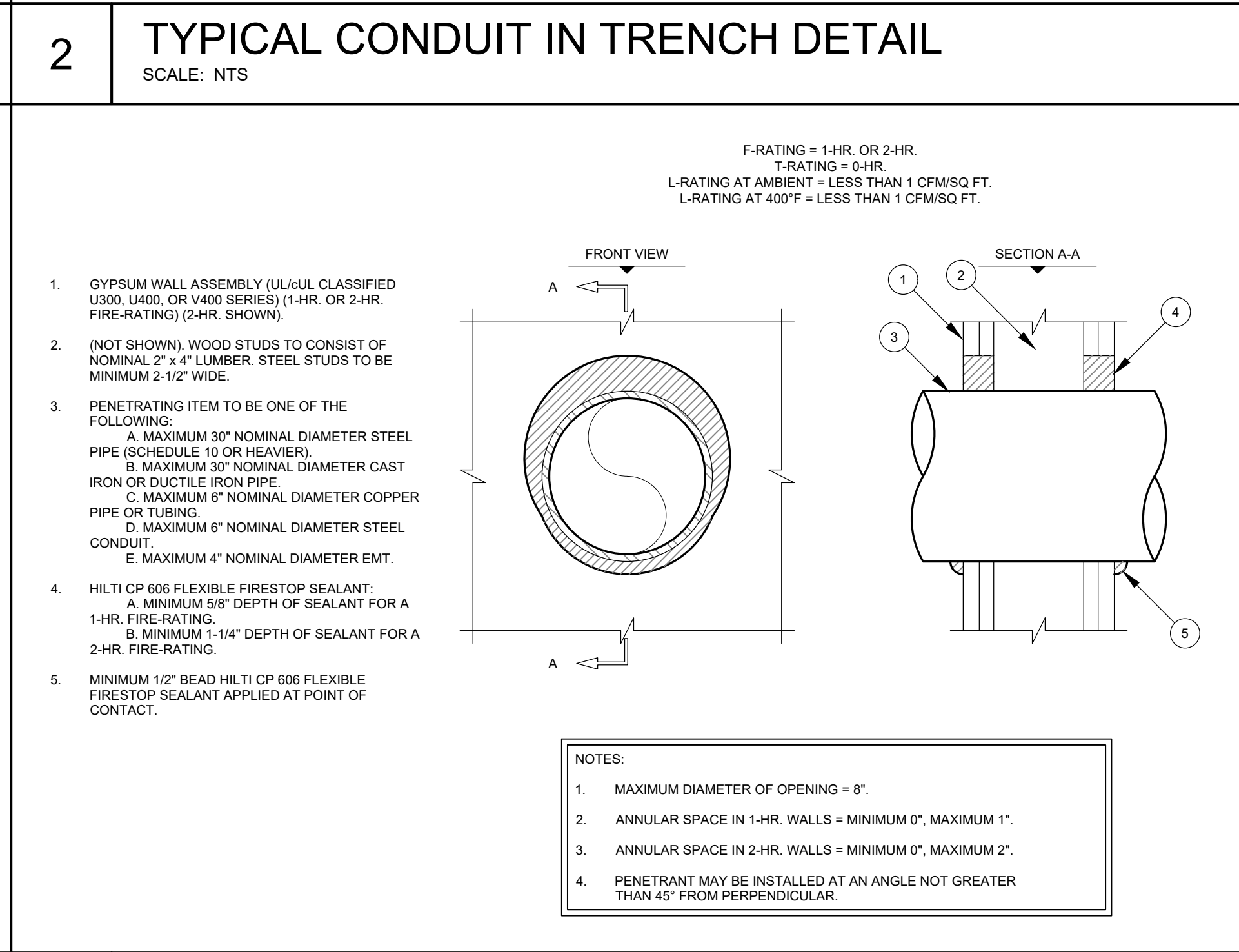
(2) FM ADA KIT 37 - EACH KIT CONSISTS OF THE FOLLOWING COMPONENTS:

- A. (1) PPA T46 TRANSMITTER
- B. (4) PPA R37 RECEIVERS
- C. (4) HED 027 HEADPHONES
- D. (1) MIC 090 LAPEL MIC
- E. (1) MIC 049 DESKTOP CONFERENCE MIC
- F. (1) CCS 029 CARRY CASE
- G. (2) NKL 001 NECKLOOPS (HEARING AID COMPATIBLE)
- H. (5) BAT 001-2 AA ALKALINE BATTERIES
- I. IDP 008 ADA WALL PLAQUE (← EC SHALL COORDINATE TO WALL-MOUNT ON EACH ROOM)

REFER TO ARCHITECTURAL SHEETS FOR ALS SIGNAGE REQUIREMENTS.



6 WALL/CEILING FIXTURE MOUNTING DETAIL
SCALE: NTS



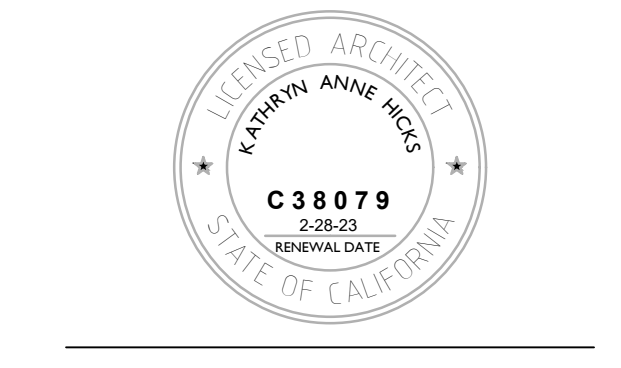
3 METAL PIPE THROUGH 1-HR OR 2-HR GYPSUM WALL
SCALE: NTS

9 ASSISTED LISTENING COMPONENT LISTS
SCALE: NTS



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EXPIRES: 09/30/26
THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS

2555 S HALCYON RD, ARROYO GRANDE, CA

ELECTRICAL DETAILS

NO.	REVISION	DATE
1	ADDENDUM 02	06/16/26
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JC

DRAWN BY
AV

CHECKED BY
JC

DATE
08 SEP 2025

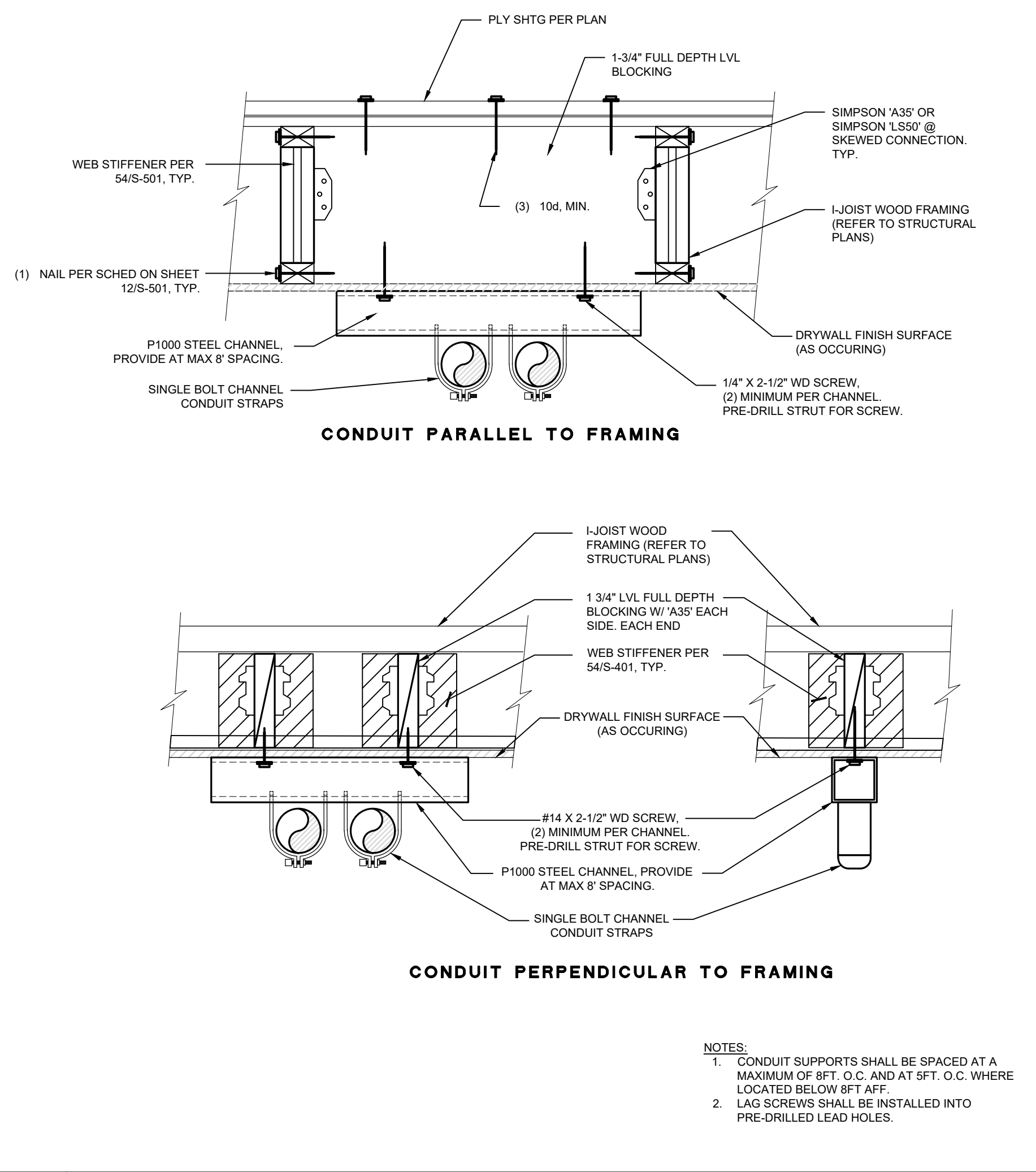
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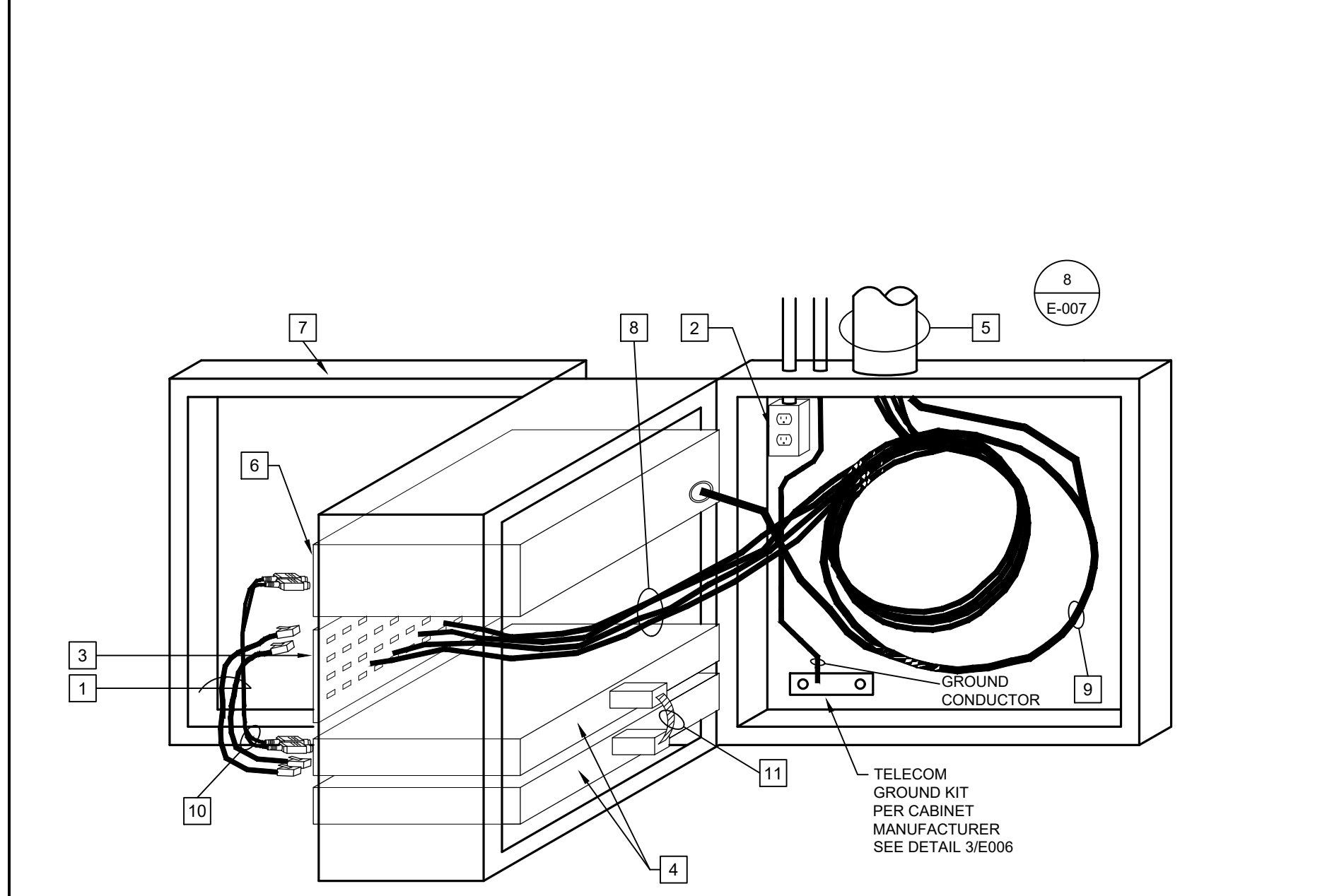
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CONSTRUCTION DOCUMENTS

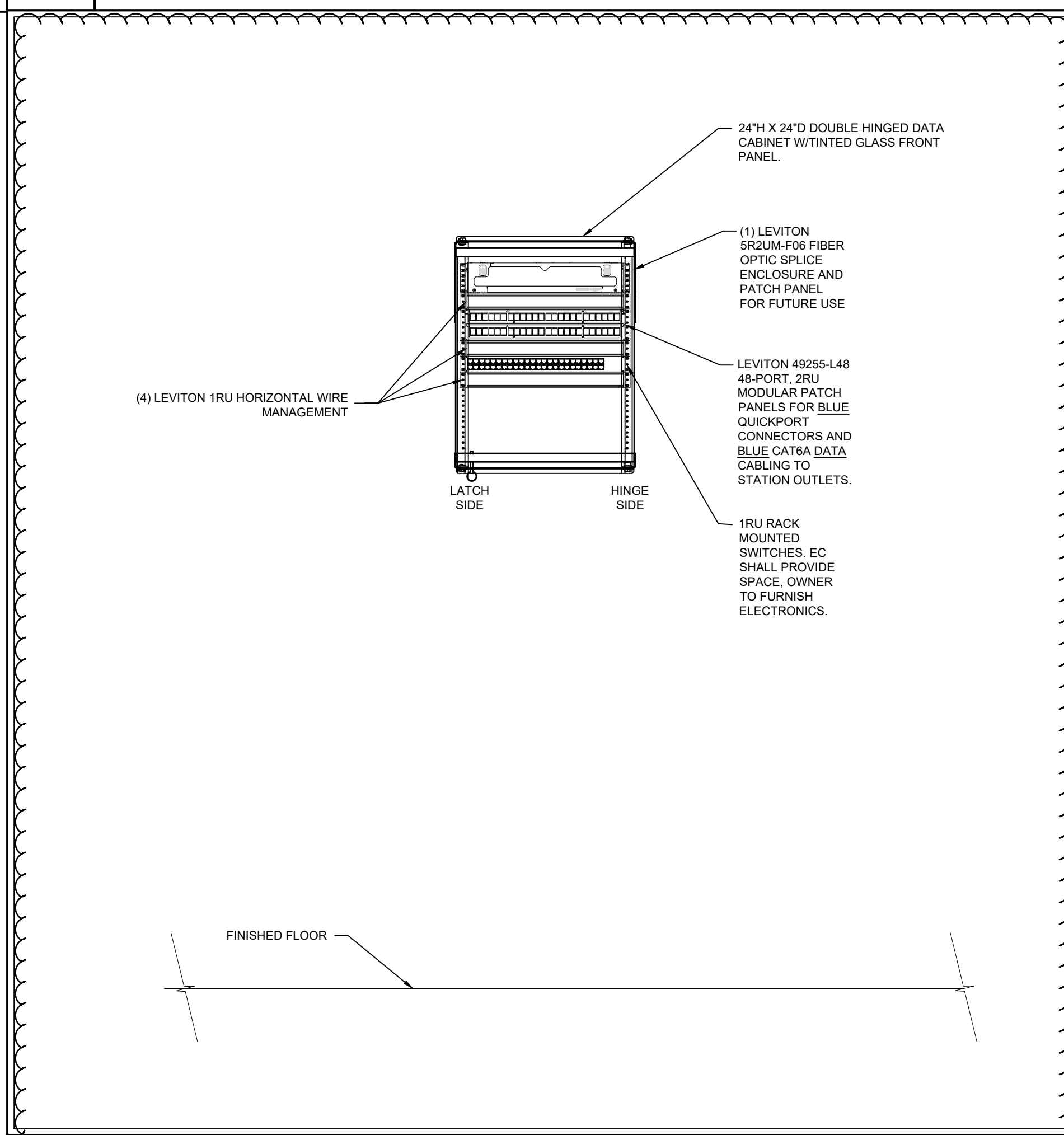


6 TYPICAL CONDUIT ANCHORAGE DETAILS
SCALE: NTS

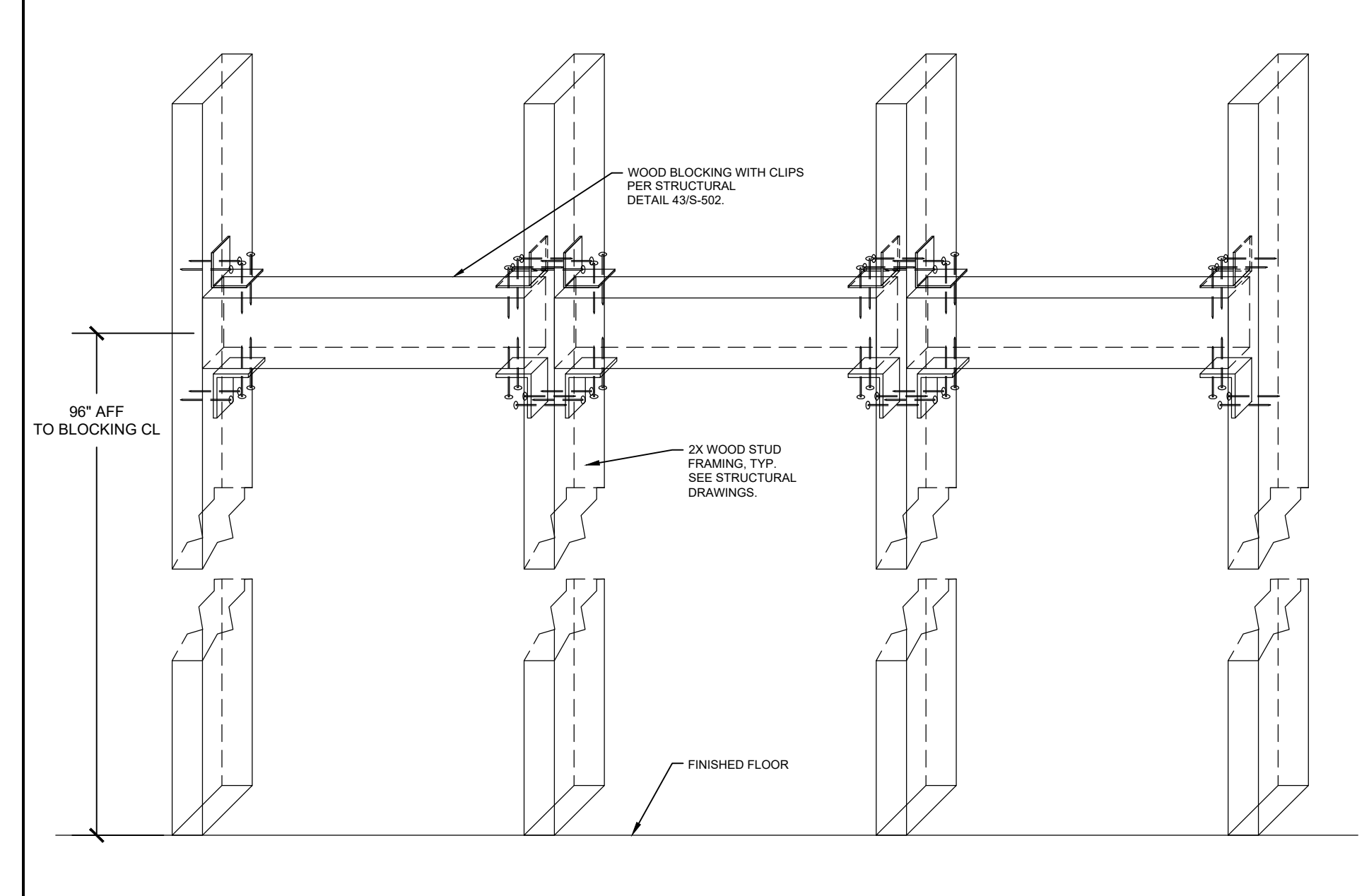


- REFERENCE NOTES**
- 1M CAT6 UTP PATCH CORDS TO BE BLUE IN COLOR. 1M CAT6A UTP PATCH CORDS TO BE WHITE IN COLOR.
 - DEDICATED 20A 120V POWER CIRCUIT TO RECEPTACLE.
 - INSTALL RACK MOUNTED 19" MODULAR PATCH PANEL. SEE RISER DIAGRAM FOR PORT COUNT. WHERE CAT6 IS TERMINATED, USE BLUE MODULAR JACK COLOR, WHERE CAT6A IS TERMINATED USE WHITE MODULAR JACK COLOR.
 - SYSTEM ELECTRONICS TO BE PROVIDED AND INSTALLED BY OTHERS.
 - (E) AND (N) RACEWAY FOR HORIZONTAL CABLING TO USER STATIONS AND INCOMING FIBER OPTIC CABLE.
 - INSTALL FIBER OPTIC SPLICE TRAY, LEVITON OPT-X 1000 SERIES OR EQUIVALENT. FUSION SPLICE ALL FIBER CABLE ACCORDING TO RISER DIAGRAM.
 - DOUBLE HINGED IDF CABINET CHATSWORTH CUBE-IT, 24"W X 24"H X 24"D OR EQUIVALENT WITH TINTED GLASS FRONT PANEL. THERMOSTATICALLY CONTROLLED FAN/FILTER KIT AND SURGE-PROTECTED OUTLET KIT SHALL BE INSTALLED.
 - (N) INCOMING CATEGORY 6A CABLE. PROVIDE SERVICE LOOP INSIDE CABINET.
 - (N) INCOMING FIBER OPTIC CABLE, PROVIDE SERVICE LOOP INSIDE CABINET.
 - DUPLEX FIBER OPTIC PATCH CORD. LC-LC, CONNECTOR TYPE, MATCH INCOMING FIBER TYPE.
 - CABLE PROVIDED BY OTHERS TO SUPPORT LOGICAL STACKED SWITCH. PROVIDED ONLY WHEN (2) OR MORE NETWORK SWITCHES ARE INSTALLED INTO CABINET.

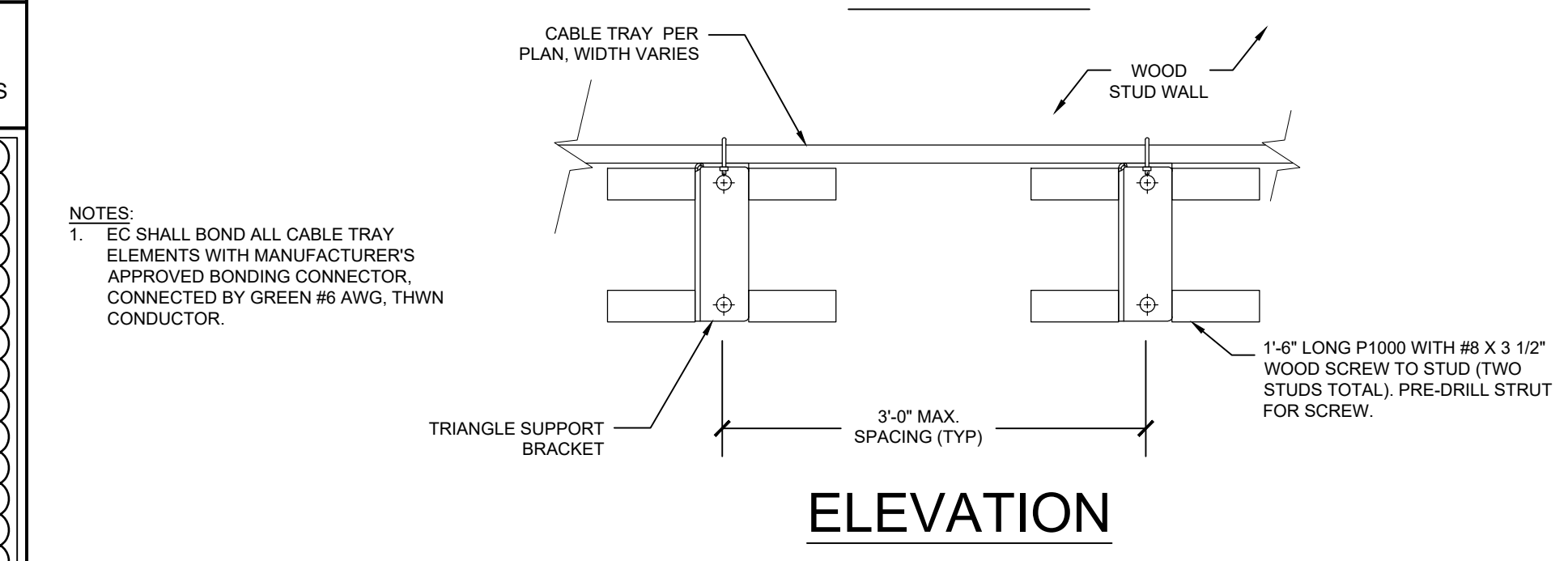
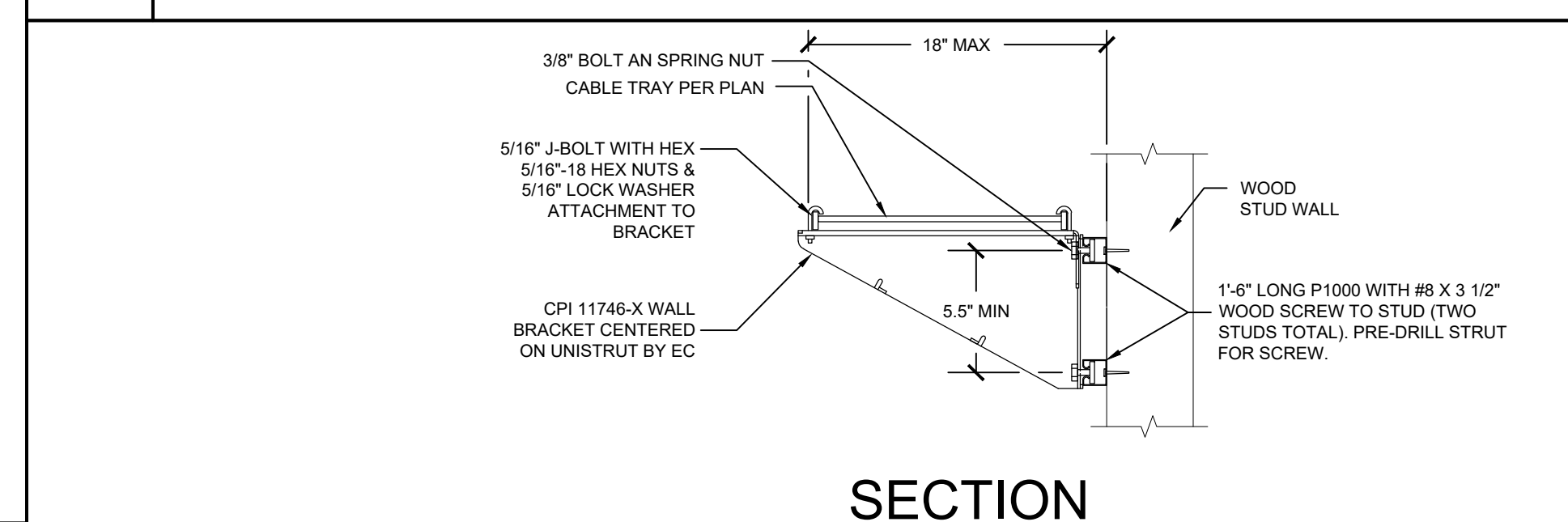
4 IDF CABINET
SCALE: NTS
MAXIMUM WEIGHT (INCLUDING CABINET) - 300 LBS



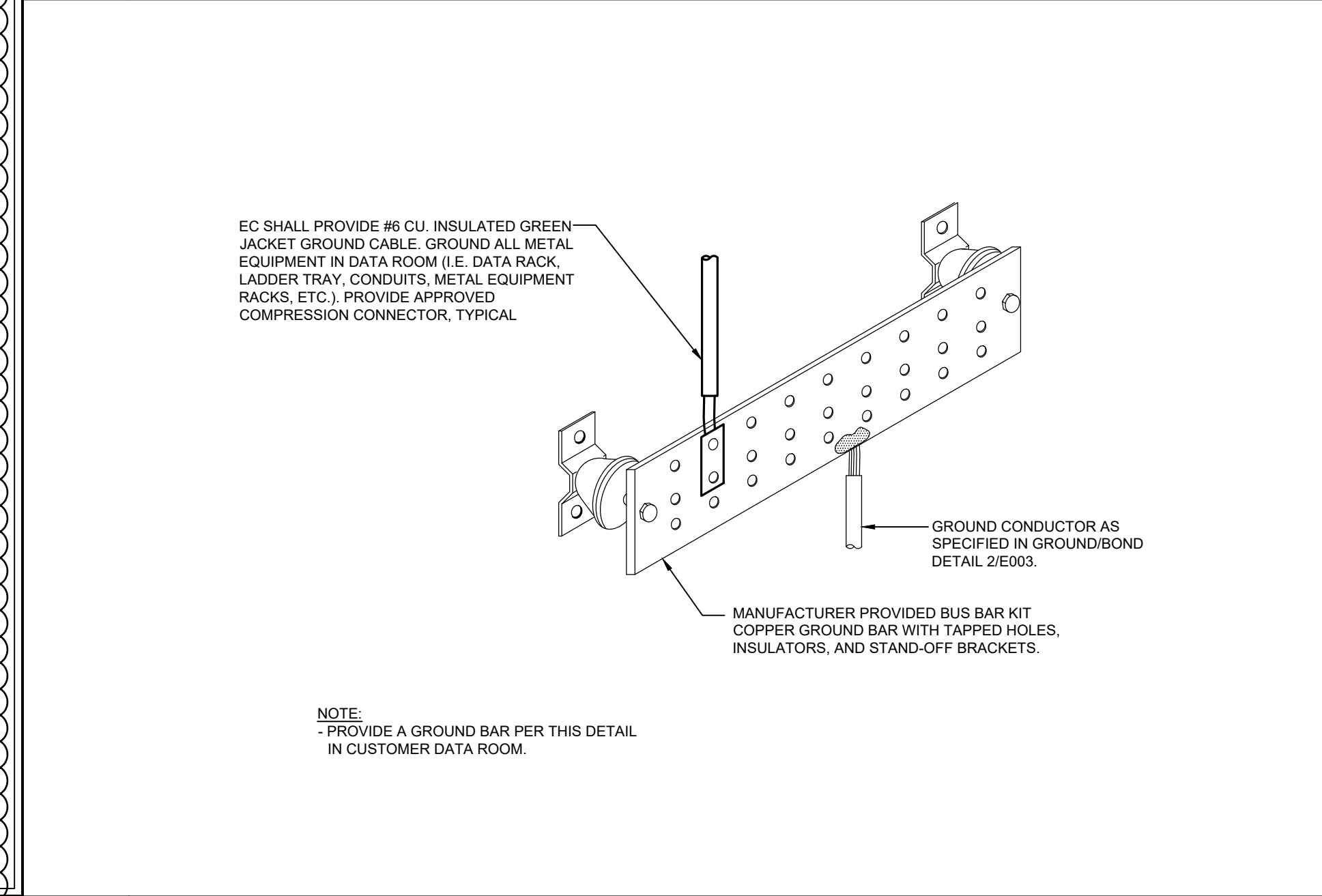
5 IDF WALL MOUNTED CABINET ELEVATION
SCALE: NTS
MAXIMUM WEIGHT (INCLUDING CABINET) - 300 LBS



1 BLOCKING FOR TELEVISION
SCALE: NTS



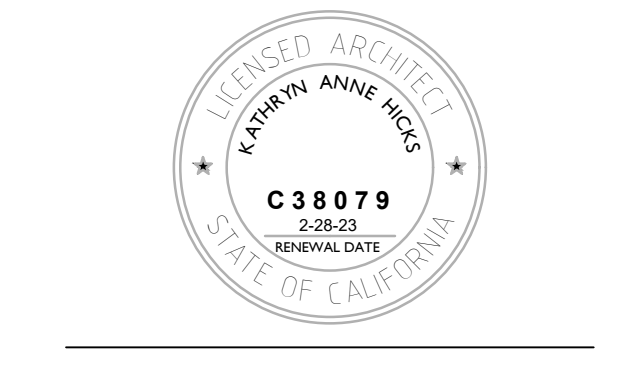
2 WALL MOUNT LADDER TRAY
SCALE: NTS
MAXIMUM WEIGHT - 25LBS./FT.



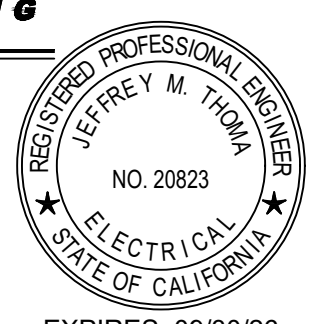
3 TYP. TELECOM GROUND BAR
SCALE: NTS



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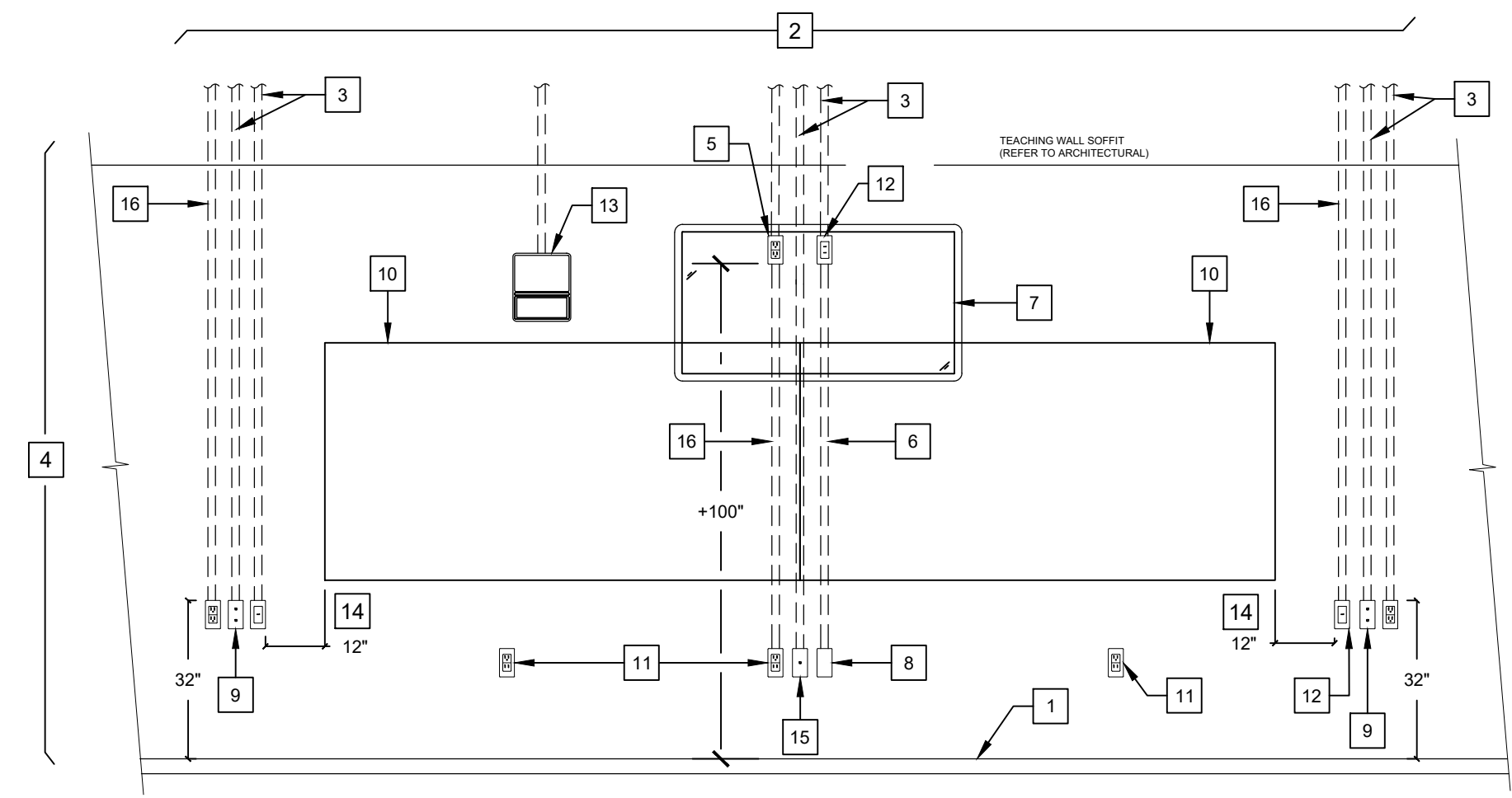
MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
2555 S HALCYON RD, ARROYO GRANDE, CA
ELECTRICAL DETAILS

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PROJECT NUMBER
0822-03-ED25
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E006

CONSTRUCTION DOCUMENTS



REFERENCE NOTES

1. FINISHED FLOOR.
2. ACCESSIBLE CEILING SPACE.
3. (N)2 1-1/4" CONDUITS (LOW VOLTAGE CABLING).
4. FINISHED WALL, REFER TO ARCHITECTURAL ELEVATIONS FOR DEVICE MOUNTING HEIGHTS. COORDINATE WITH OWNER PRIOR TO ROUGH-IN.
5. (N) DUPLEX RECEPTACLE PROVIDED BEHIND TELEVISION. EXACT LOCATION TO BE COORDINATED PRIOR TO ROUGH-IN WITH TELEVISION MOUNTING HARDWARE AND VERIFIED WITH DISTRICT REPRESENTATIVE.
6. (1) 1-1/4" C BETWEEN LOW VOLTAGE BOXES AS SHOWN.
7. TELEVISION AND TELEVISION MOUNT (REFER TO ARCHITECTURAL DETAIL 44(A-941) SHALL BE INSTALLED BY OWNER. PROVIDE BLOCKING PER DETAIL 1/E006.
8. 5S BACKBOX WITH SINGLE GANG MUD RING WITHOUT CABLES AND BLANK FACEPLATE.
9. 2-PORT DATA OUTLET IN TRUE 5S BACKBOX AS SHOWN ON PLAN. FIELD VERIFY FINAL LOCATION WITH DISTRICT REPRESENTATIVE PRIOR TO ROUGH-IN.
10. WHITE BOARDS PER ARCHITECTURAL PLANS. WHITEBOARD LOCATION IN ELEVATION VIEW DOES NOT REFLECT ACTUAL CONDITION. REFER TO ARCHITECTURAL SHEETS FOR REQUIREMENTS. CONFIRM LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.
11. (N) DUPLEX RECEPTACLE MOUNTED BELOW WHITE BOARD AT 16" AFF UNLESS OTHERWISE NOTED. (+15" MINIMUM AFF TO BOTTOM OF BOX)
12. HDMI BRUSHED PASS-THROUGH 4-11/16" SQUARE BACKBOX WITH WALL PLATE IN MULTI-GANG CONFIGURATION.
13. VOIP SPEAKER. 5S BOX WITH SINGLE-GANG PLASTER RING. 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE.
14. MAINTAIN 12" SEPARATION FROM WHITEBOARD EDGE. MAINTAIN 32" BOX HEIGHT (TOP OF BOX). REFER TO ARCH FOR ACTUAL WHITE BOARD DIMENSIONS.
15. SINGLE-PORT DATA OUTLET IN TRUE 5S BACKBOX AS SHOWN ON PLAN. FIELD VERIFY FINAL LOCATION WITH DISTRICT REPRESENTATIVE PRIOR TO ROUGH-IN.
16. (N) (1) 3/4" CONDUIT (POWER).

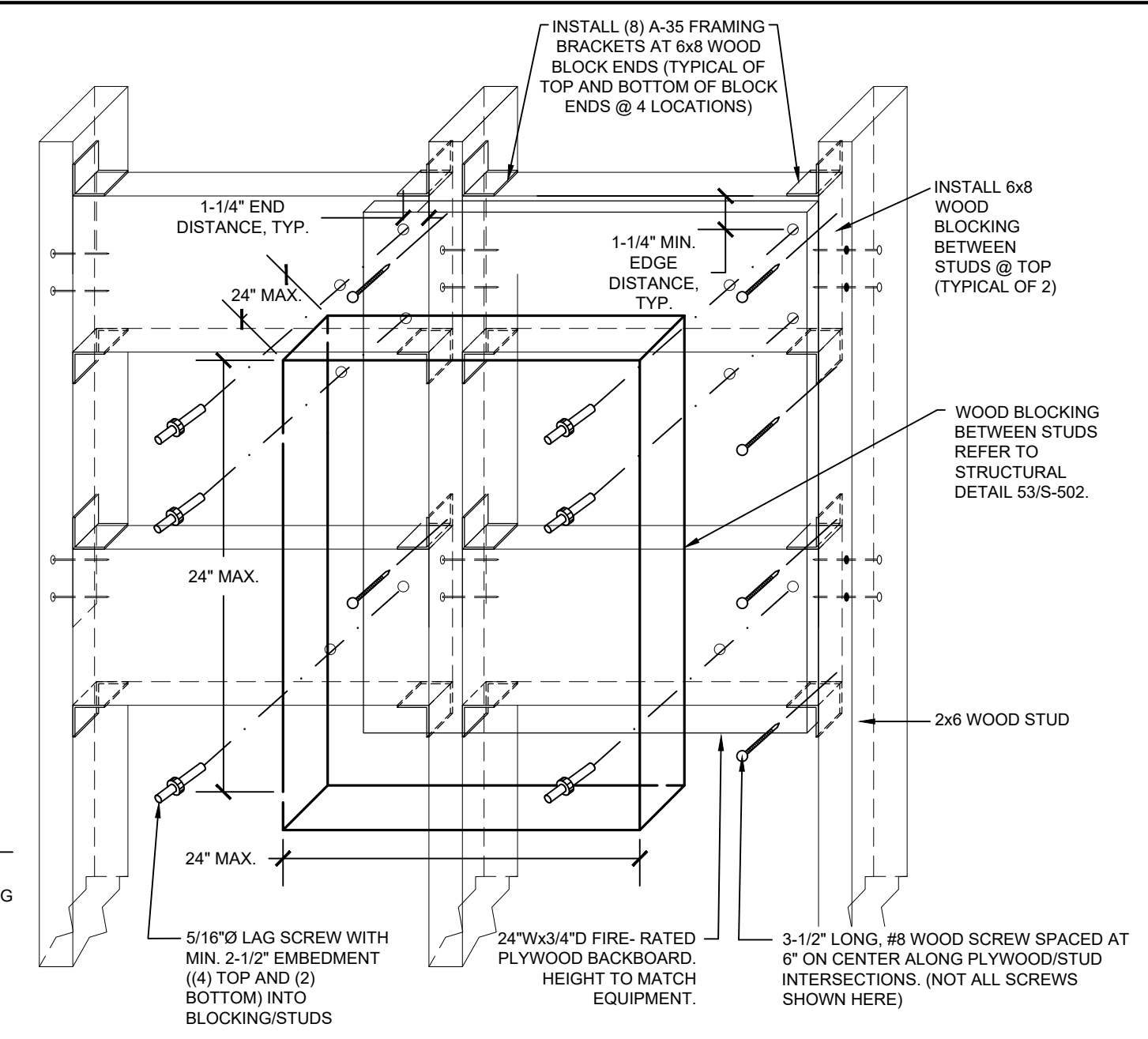
VERTICAL ORIENTATION

HORIZONTAL ORIENTATION



- NOTES:**
- ALL JACK LOCATIONS ASSIGNED BY POSITION IN ROOM. SEE 'DATA OUTLET NAMING CONVENTIONS WITHIN ROOM' DETAIL FOR ASSIGNMENT METHODOLOGY.
 - ALL JACKS TERMINATED AS T568B PINOUT.
 - ALL JACKS COLOR TO MATCH INCOMING CABLE PLANT.
 - PROVIDE IDENTICAL LABEL AT CORRESPONDING PATCH PANEL LOCATION AND ON CABLE PLANT ITSELF.

4 RECESSED MEDIA - TEACHING WALL
SCALE: NTS

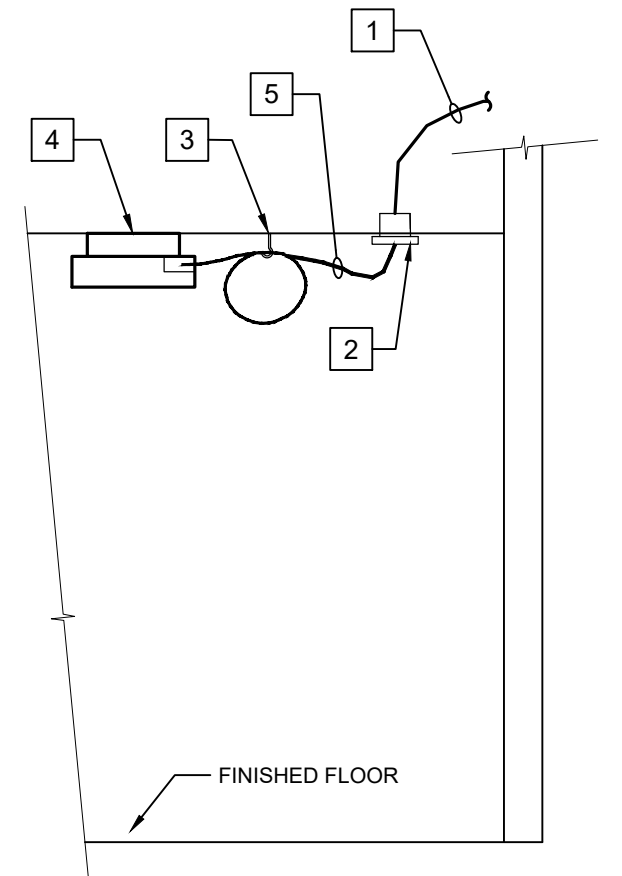


- NOTES:**
1. CABINET SHALL NOT SUPPORT MORE THAN 300LBS (INCLUDING CABINET WEIGHT).

1 DATA OUTLET NAMING CONVENTIONS AT FACEPLATE
SCALE: NTS

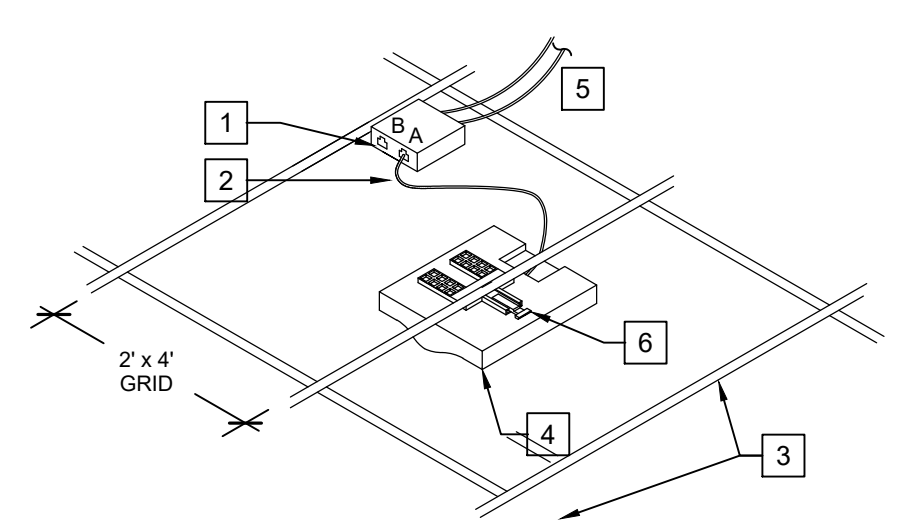
REFERENCE NOTES

1. DATA CABLING BACK TO TELECOMMUNICATIONS ROOM, WAP CABLING TYPE/COLORS AS DETAILED ON RISER DIAGRAM.
- (1) (N) 5-SQUARE RECESSED BOX WITH (2) (N) CAT6A FEMALE RJ-45 TERMINATED. FOLLOW COLOR CODING OUTLINED ON RISER DIAGRAM.
- J-HOOK OR APPROVED MOUNTING AND RETENTION OF SERVICE LOOP
- WIRELESS ACCESS POINT FLUSH-MOUNT BRACKET. MOUNT TO CEILING FRAME USING MANUFACTURER PROVIDED GUIDELINES AND HARDWARE.
- (2) NEW 2-METER CAT6A PATCH CABLE BETWEEN NEW WIRELESS ACCESS POINT AND OUTLET FACEPLATE. PATCH CABLE TO BE INSERTED INTO RJ-45 PORT LABELED 'PoE'



8 SURFACE MOUNTED IDF CABINET
SCALE: NTS
MAXIMUM WEIGHT (INCLUDING CABINET) - 300 LBS

5 NOT USED
SCALE:



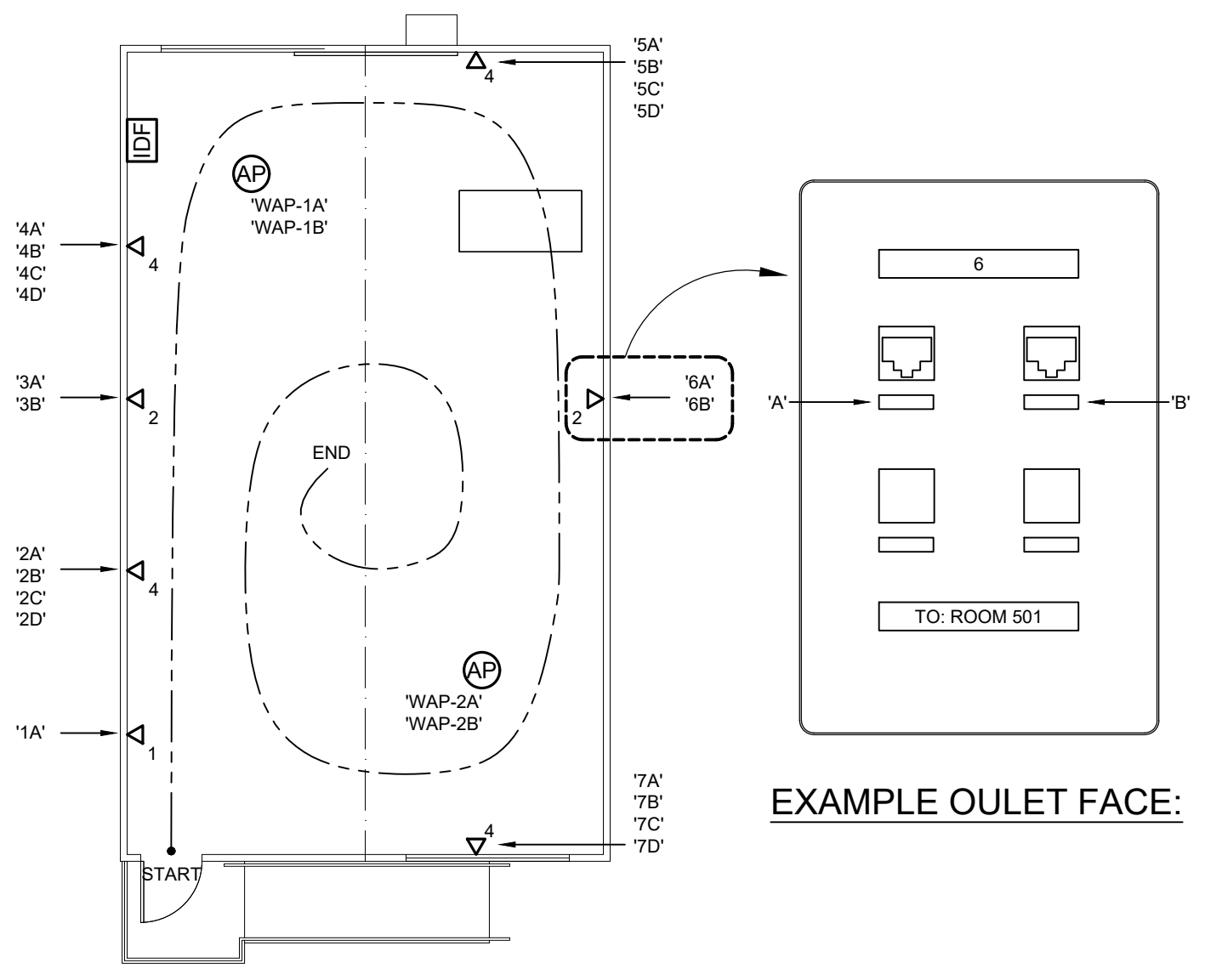
GENERAL NOTES

ALL HARDWARE NOTED AS "PROVIDED BY OWNER" SHALL BE BROUGHT TO THE ATTENTION OF OWNER REPRESENTATIVE AT NOTICE TO PROCEED FOR SCHEDULING OF EQUIPMENT ARRIVAL WITHIN CONSTRUCTION TIMELINE. ALL HARDWARE SHALL BE INSTALLED BY THE CONTRACTOR UNLESS DIRECTED OTHERWISE BY OWNER.

REFERENCE NOTES

1. 2-PORT BISCUIT MOUNTED IN ACCESSIBLE CEILING SPACE. CONTRACTOR SHALL PROVIDE LABELS FOR EACH CABLE AT BISCUIT, AND SHALL TERMINATE (FEMALE) AND TEST BOTH CABLES, AND PROVIDE TEST RESULTS TO OWNER.
- (1) (N) WHITE, 2-METER CAT6A PATCH CABLE BETWEEN NEW WIRELESS ACCESS POINT AND CAT6A TERMINATION BISCUIT. PATCH CABLE SHALL BE INSERTED INTO RJ-45 PORT LABELED 'PoE' ON WIRELESS ACCESS POINT, AND 'A' CABLE ON BISCUIT.
- (E) T-BAR CEILING. PENETRATIONS THROUGH CEILING TILES SHALL BE SEALED SO AS TO MAINTAIN FIRE RATING OF CEILING TILE IF APPLICABLE.
- (N) WIRELESS ACCESS POINT (NOT TO EXCEED 18"x18"x6", WEIGHING NO MORE THAN 8 LBS), TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER OF ACCESS POINT QUANTITIES AND LOCATIONS A MINIMUM OF 6-WEEKS PRIOR TO INSTALLATION DATE.
- (2) (N) WHITE CAT6A CABLES FROM IDF TO BISCUIT. ALL CAT6A CABLE AND TERMINATION HARDWARE (INCLUDING MODULAR JACKS, PATCH CABLES, ETC.) SHALL BE WHITE IN COLOR.
- WAP MANUFACTURER PROVIDED T-BAR MOUNTING CLIP. ADHERE STRICTLY TO MANUFACTURER PROVIDED INSTALLATION INSTRUCTIONS.

2 INDOOR WIRELESS ACCESS POINT - HARD LID MOUNT
SCALE: NTS
MAXIMU WEIGHT - 8LBS.



- NOTES:**
- ALL OUTLET INDICES SHALL BE ASSIGNED BY POSITION IN ROOM. LABELS SHALL START AT OCCUPANT ENTRANCE TO ROOM.
 - WHERE MORE THAN ONE ENTRANCE IS PRESENT, LABEL SHALL BEGIN AT ANY ENTRANCE.
 - OUTLET NUMBERS SHALL BE ASSIGNED ACCORDING TO "SPIRAL INWARD" METHOD WHEREBY USER STARTS AT ENTRANCE AND INCREMENTS OUTLET ASSIGNMENT IN CLOCKWISE PATTERN. SEE ABOVE DIAGRAM FOR EXAMPLE ILLUSTRATION.
 - WIRELESS ACCESS POINTS SHALL HAVE ADDITIONAL PREFIX 'WAP-' AND INDEX SHALL BE SEPARATELY MAINTAINED.

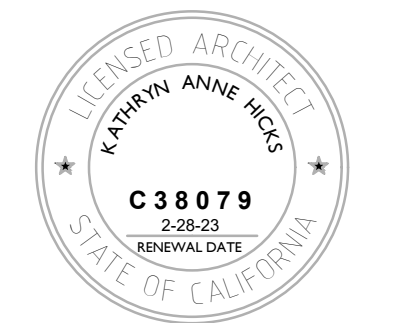
EXAMPLE OULET FACE:

6 INDOOR WIRELESS ACCESS POINT T-BAR MOUNTING
SCALE: NTS
MAXIMU WEIGHT - 8LBS.

3 DATA OUTLET NAMING CONVENTIONS WITHIN ROOM
SCALE: NTS



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2555 S HALCYON RD, ARROYO GRANDE, CA
ELECTRICAL DETAILS

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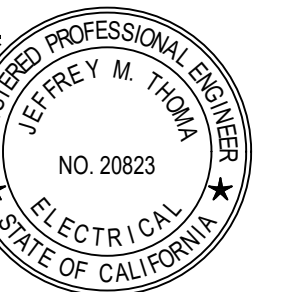


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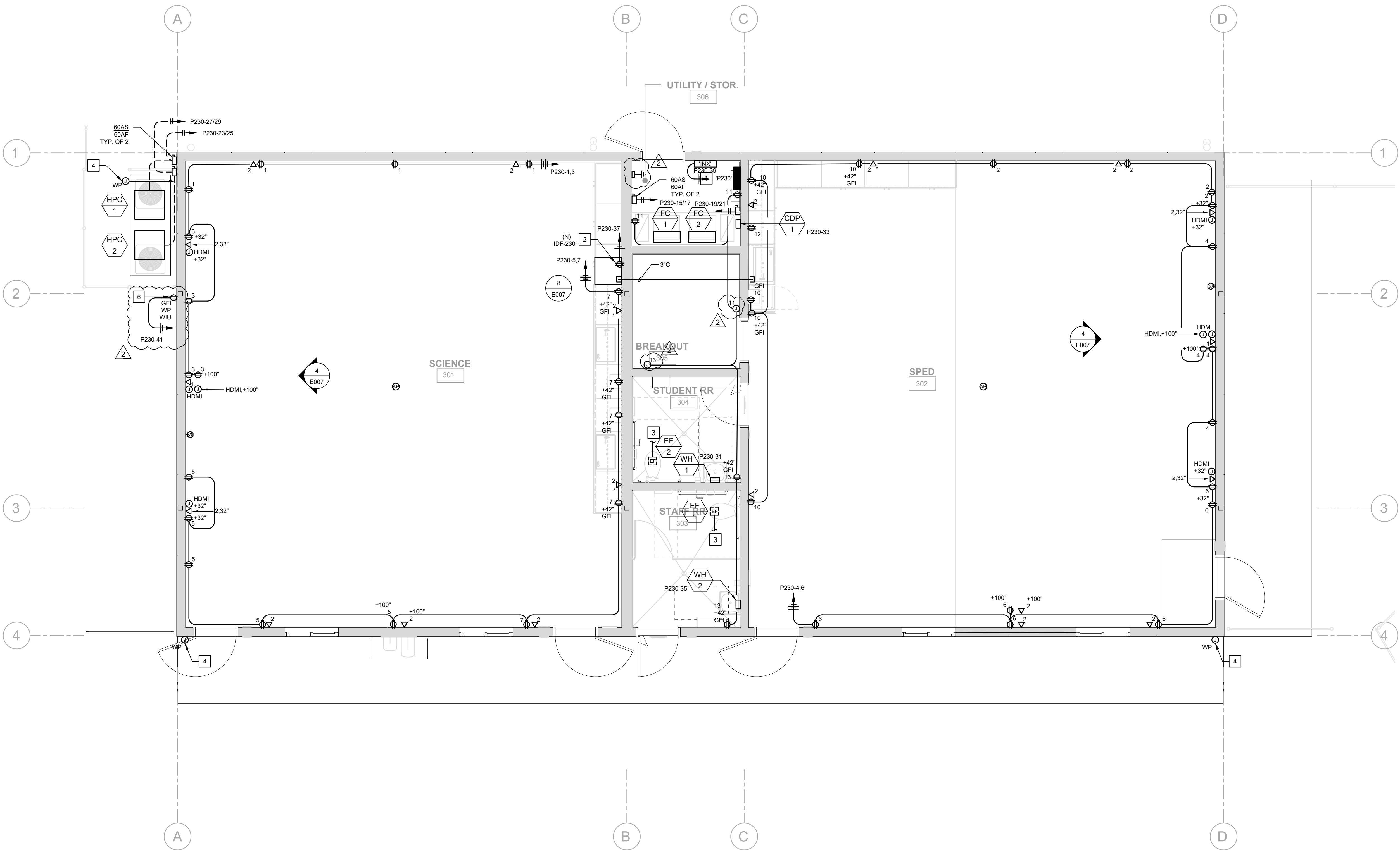
MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
 2555 S HALCYON RD, ARROYO GRANDE, CA
ELECTRICAL POWER & COMMUNICATION PLAN

CONSTRUCTION DOCUMENTS

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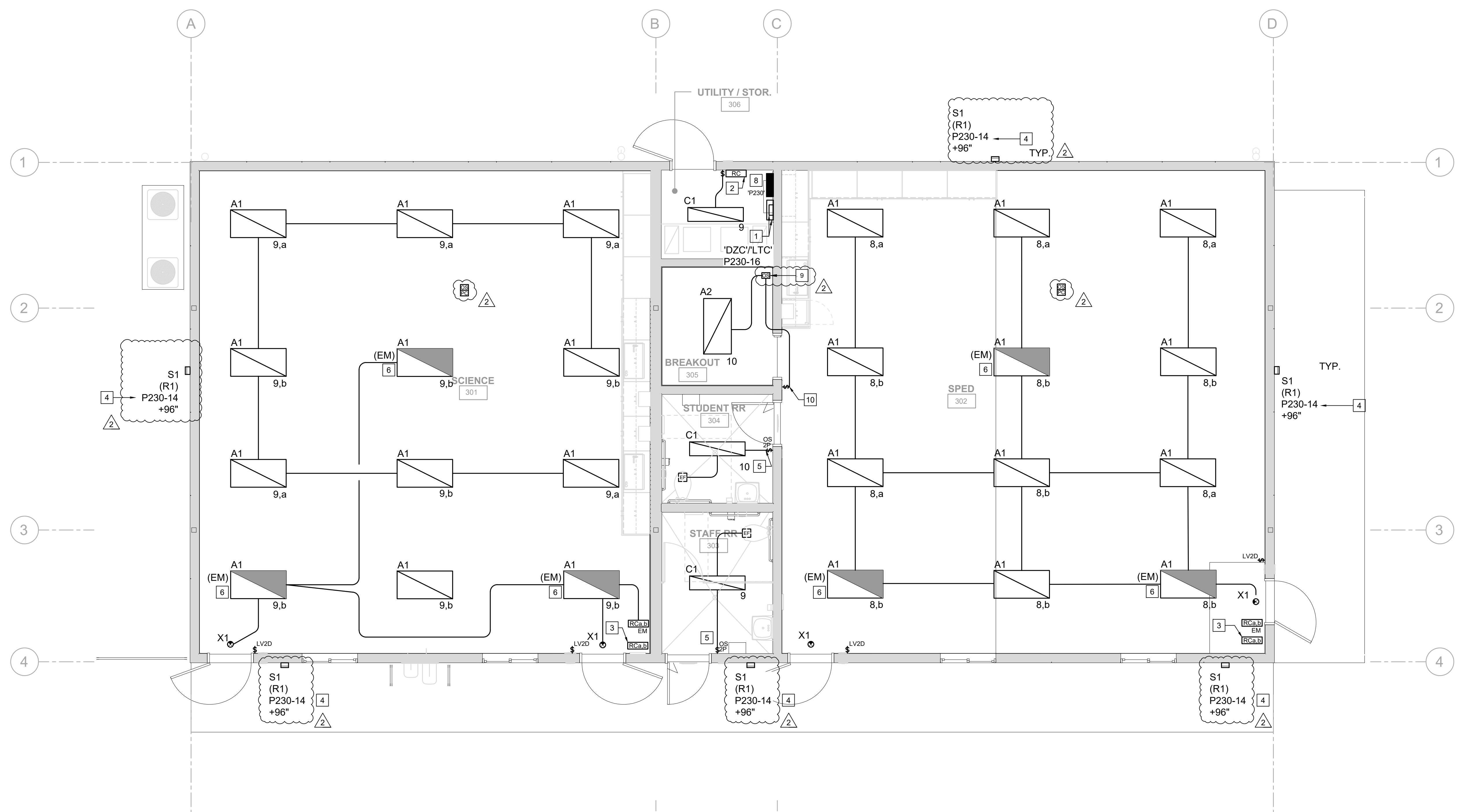
E200



ELECTRICAL POWER & COMMUNICATION PLAN
 SCALE: 1/4" = 1'-0"
 NORTH

REFERENCE NOTES

- NEW PANELBOARD 'P230'. REFER TO SINGLELINE DIAGRAM AND ELECTRICAL SCHEDULES FOR PANELBOARD RATING AND ADDITIONAL INFORMATION.
- PROVIDE DEDICATED POWER CONNECTION TO CABINET. ONE (1) 20A, 120V DUPLEX RECEPTACLE INSIDE IDF CABINET.
- REFER TO LIGHTING PLANS FOR EXHAUST FAN CIRCUIT CONNECTION.
- CONTRACTOR SHALL INSTALL JUNCTION BOX FOR CAMERA. INSTALL 1" CONDUIT FROM JUNCTION BOX TO IDF CABINET (CAMERA AND WIRING BY OTHERS).
- CONTRACTOR SHALL INSTALL NEW TELECOMMUNICATION GROUND BAR. REFER TO DETAIL 6/E006.
- CONTRACTOR SHALL PROVIDE POWER CONNECTION FOR IRRIGATION CONTROLLER.



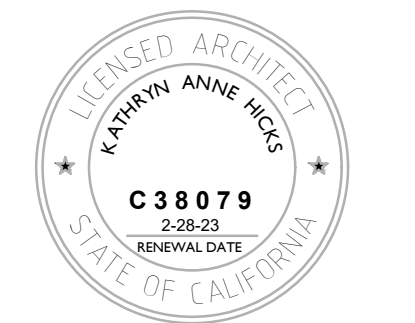
ELECTRICAL LIGHTING PLAN
 SCALE: 1/4" = 1'-0"
 NORTH

REFERENCE NOTES

- PROVIDE WATTSTOPPER DLM ZONE CONTROLLER 'DZC' (LMZC-301; PRODUCT WEIGHT IS 18LBS) WALL MOUNTED AS SHOWN TO PROVIDE SCHEDULED EVENTS AND ASTRONOMICAL TIME CLOCK CONTROL OF EXTERIOR LUMINAIRES. MOREOVER, PROVIDE SUPPLEMENTAL MECHANICAL EXTERIOR LIGHTING CONTROL TIME CLOCK 'LTC' (INTERMATIC #T7401BC OR DISTRICT APPROVED EQUAL; PRODUCT WEIGHT IS 9.5LBS). ALL BUILDING MOUNTED EXTERIOR LIGHTING FOR NEW BUILDING TO BE WIRED THROUGH THE MECHANICAL TIME CLOCK IN ADDITION TO THE EXTERIOR LIGHTING ROOM CONTROLLER (REFER TO REFERENCE NOTE #2 ON THIS SHEET). SEE LIGHTING CONTROL DIAGRAM DETAIL 2/E004.
- DEDICATED EXTERIOR LIGHTING ROOM CONTROLLER (WATTSTOPPER LMRC-212, EQUIPPED WITH TWO 0-10V RELAYS). LOCATE IN A CONCEALED SPACE INSIDE (NOT NECESSARILY WHERE SHOWN ON PLAN). CONNECT TO WATTSTOPPER DLM ZONE CONTROLLER (LMZC-301) TO ENABLE SCHEDULED EVENTS AND ASTRONOMICAL TIME CLOCK CONTROL OF EXTERIOR LUMINAIRES (REFER TO LIGHTING CONTROL DIAGRAM DETAIL 2/E004 FOR FURTHER INFORMATION). ROOM CONTROLLER WEIGHT IS 0.375LBS.
- WATTSTOPPER ROOM CONTROLLER FOR LIGHTING CONTROL, PER CALIFORNIA ENERGY CODE 130.1(b) & (c). LOCATE IN A CONCEALED SPACE (NOT NECESSARILY WHERE SHOWN ON PLAN). REFER TO SHEET E004 FOR LIGHTING CONTROL SYSTEM LEGEND AND WATTSTOPPER SYSTEM WIRING DIAGRAMS. TEXT ADJACENT TO "RC" (WHERE PROVIDED) IN ROOM CONTROLLER SYMBOL INDICATES SWITCH LEGS BEING CONTROLLED (I.E., "RCa,b" ARE RELAYS FOR SWITCH LEGS "a" and "b" LUMINAIRES) IN A GIVEN ROOM/SPACE. ROOM CONTROLLER WEIGHT IS 0.375LBS.
- ROUTE EXTERIOR LIGHTING BRANCH CIRCUIT THROUGH DEDICATED EXTERIOR LIGHTING ROOM CONTROLLER (WATTSTOPPER LMRC-212, EQUIPPED WITH TWO 0-10V RELAYS). RELAY NUMBER INDICATED BY '(R#)' NOMENCLATURE BEFORE CIRCUIT ID; SEE LIGHTING CONTROL DIAGRAM DETAIL 2/E004.
- INTERLOCK EXHAUST FAN WITH LIGHTING IN RESTROOM VIA LINE VOLTAGE WITH OCCUPANCY SENSING SWITCH. PROVIDE 5-MINUTE TIME DELAY OFF FOR EXHAUST, PER MECHANICAL PLANS.
- "EM" DESIGNATION ON LUMINAIRE TYPE INDICATES LUMINAIRE EQUIPPED WITH INTEGRAL EMERGENCY BATTERY PACK (TYP). REFER TO LUMINAIRE SCHEDULE FOR FURTHER INFORMATION.
- WATTSTOPPER DAYLIGHT HARVESTING PHOTOCELL (LMLS-500) FOR AUTOMATIC DAYLIGHTING CONTROL OF LUMINAIRES IN PRIMARY AND SECONDARY DAYLIT ZONES, PER CA T24 ENERGY CODE 130.1(d) REQUIREMENTS. SURFACE MOUNT TO CEILING VIA JUNCTION BOX MOUNTING BRACKET (WATTSTOPPER PART NO. LMLS-MB1) TO STANDARD 4" SQUARE JUNCTION BOX (REFER TO MANUFACTURER INSTALLATION INSTRUCTIONS).
- (N) BUILDING ELECTRICAL PANEL—REFER TO SINGLE LINE DIAGRAM FOR FEEDER CONDUIT AND CONDUCTOR SIZE, AND PANEL SCHEDULE FOR CIRCUITED LOADS.
- PROVIDE OS WITH WIREGUARD.
- INSTALL LIGHT SWITCH FOR CALM ROOM OUTSIDE/ADJACENT OF ROOM. FIELD COORDINATE FINAL LOCATION.

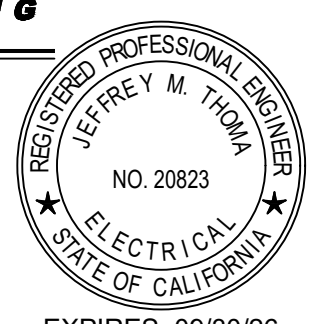


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 2555 S HALCYON RD, ARROYO GRANDE, CA
ELECTRICAL LIGHTING PLAN

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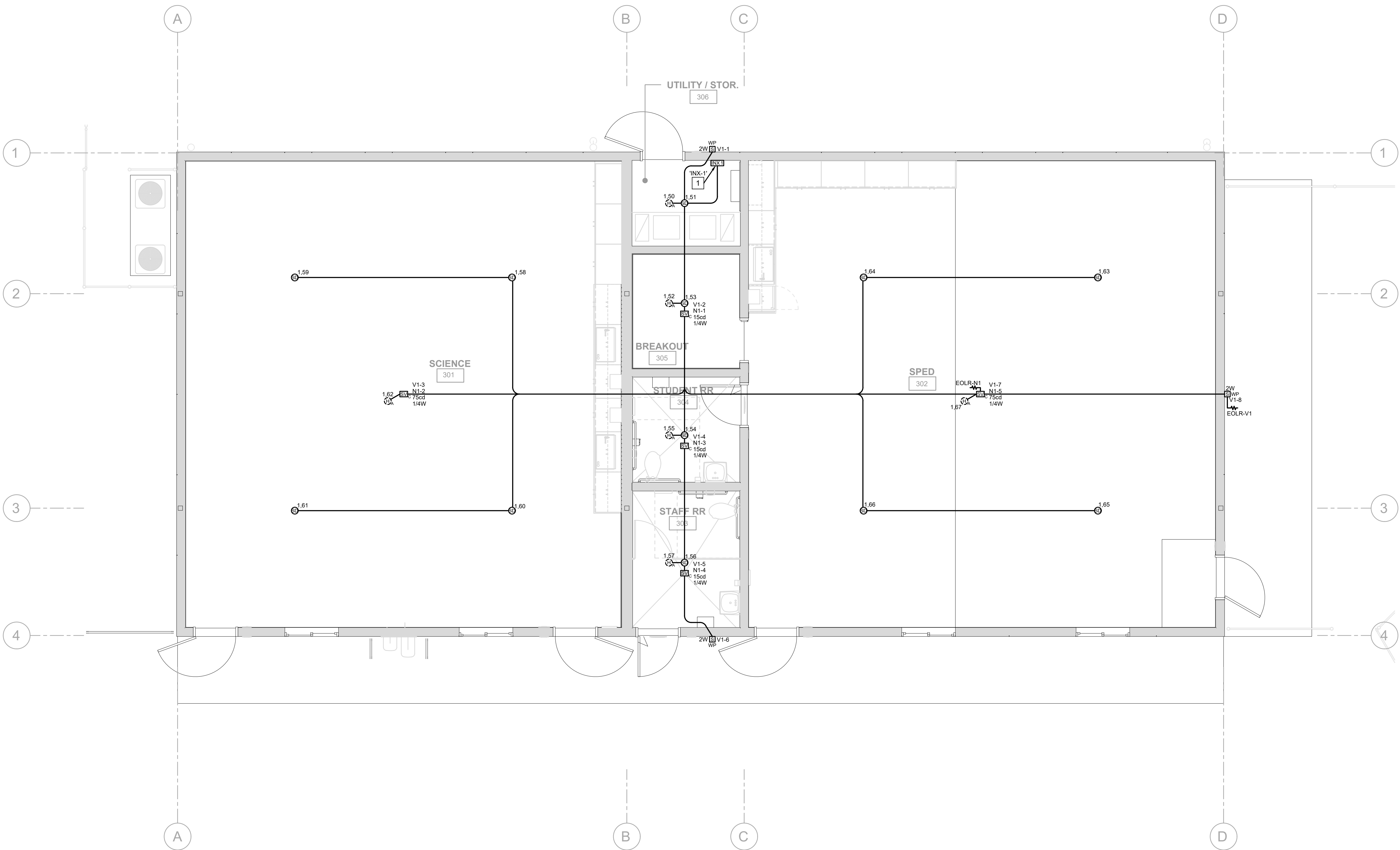
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CONSTRUCTION DOCUMENTS

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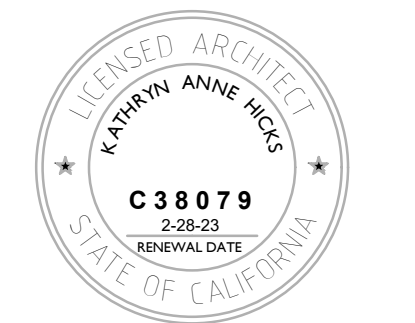


FIRE ALARM PLAN
 SCALE: 1/4" = 1'-0"
 NORTH

- REFERENCE NOTES**
- NEW FIRE ALARM INX TRANSPONDER "INX-1". SEE FIRE ALARM RISER DIAGRAM SHEET E300.

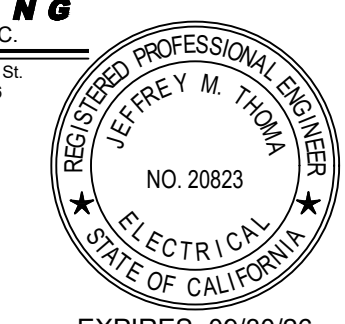


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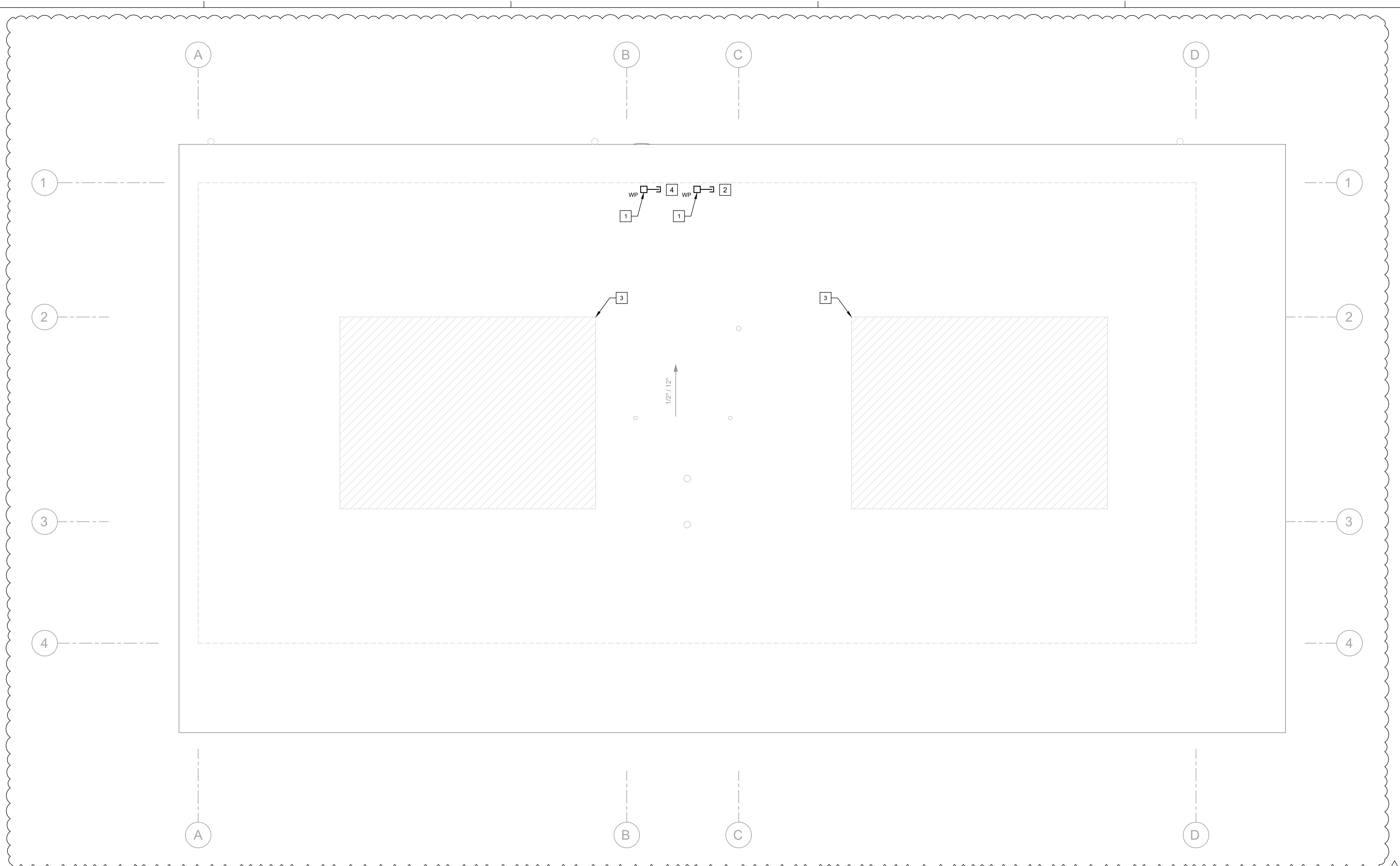
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FIRE ALARM PLAN

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CONSTRUCTION DOCUMENTS



ELECTRICAL ROOF PLAN

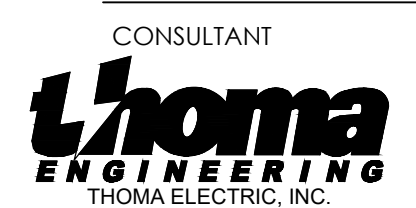
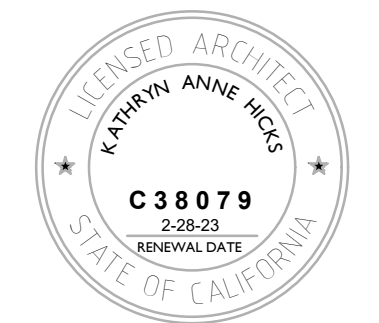
SCALE: 1/4" = 1'-0"

REFERENCE NOTES

1. CONTRACTOR SHALL PROVIDE 6" X 6" X 6" MINIMUM PULLBOX. PULLBOX SHALL BE PROVIDED WITH NEMA 3R ENCLOSURE.
2. CONTRACTOR SHALL EXTEND (1) 1" C.O. FROM PULL BOX TO NEW PANELBOARD 'P230' FOR FUTURE SOLAR SYSTEM.
3. SOLAR READY AREA FOR FUTURE PHOTOVOLTAIC SYSTEM.
4. CONTRACTOR SHALL EXTEND (1) 1" C.O. FOR FUTURE MONITORING SYSTEM FROM PULL BOX TO UTILITY/STORAGE 306.



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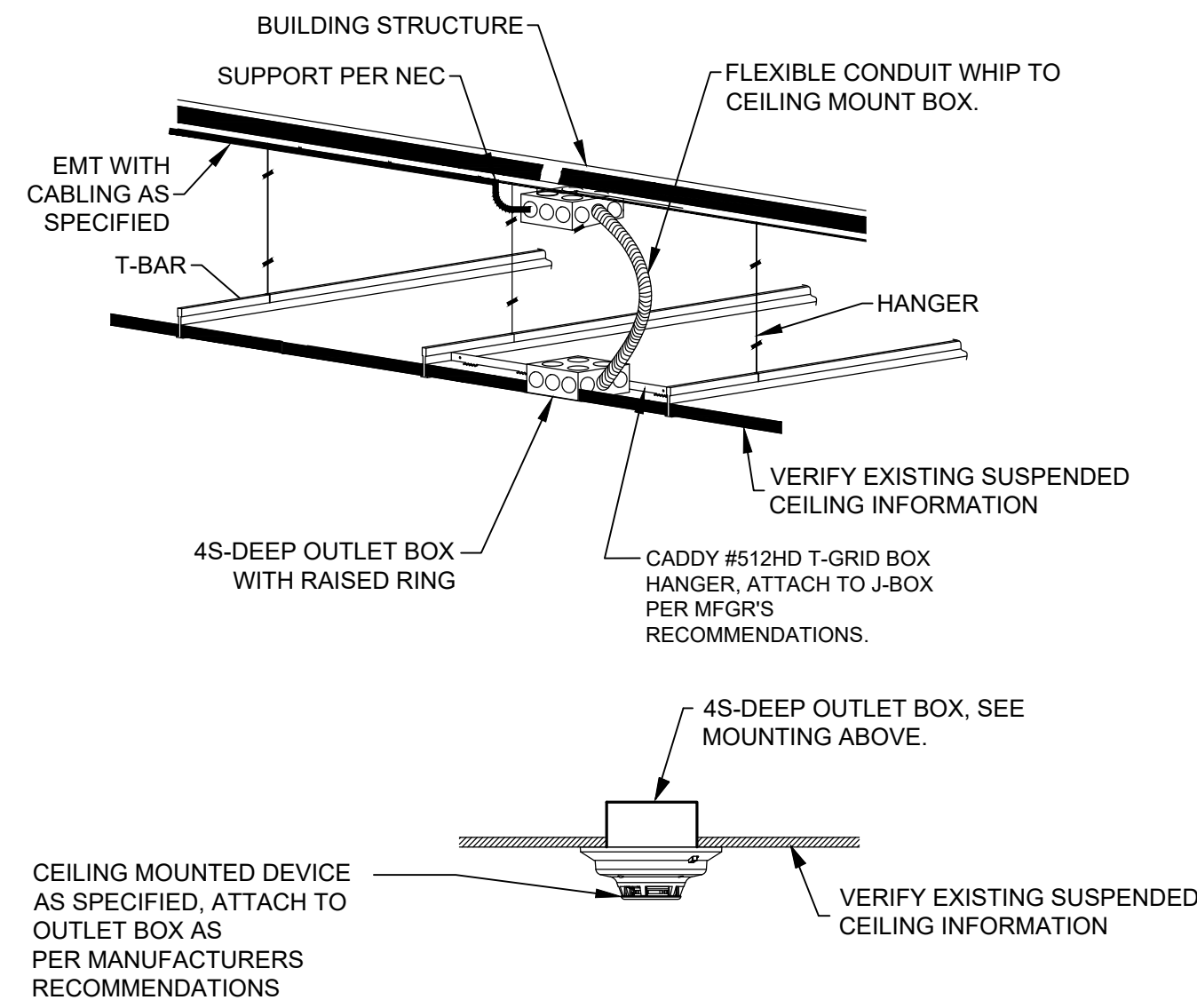
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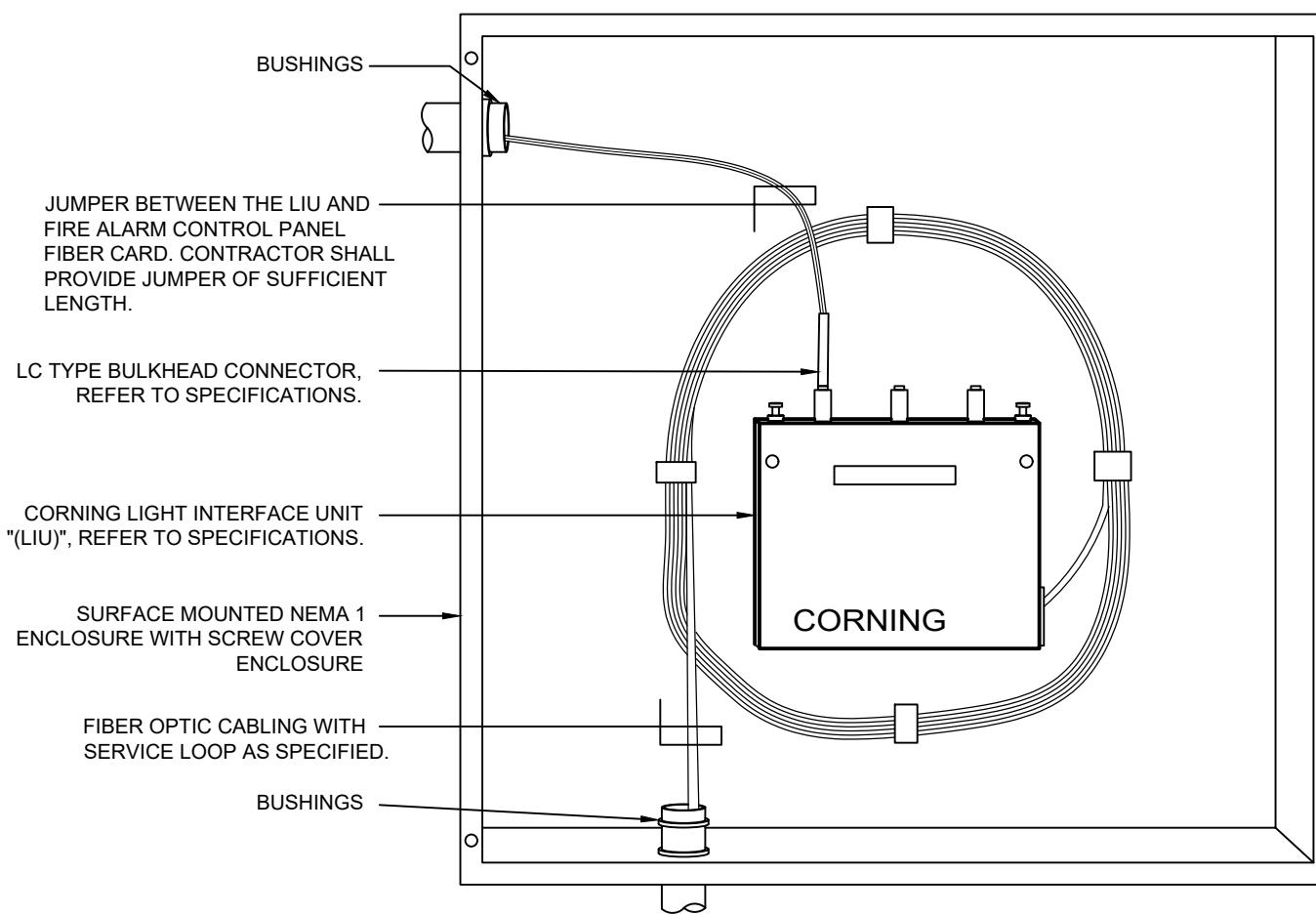
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GL-2 FIRE ALARM NOTES CHECKLIST:

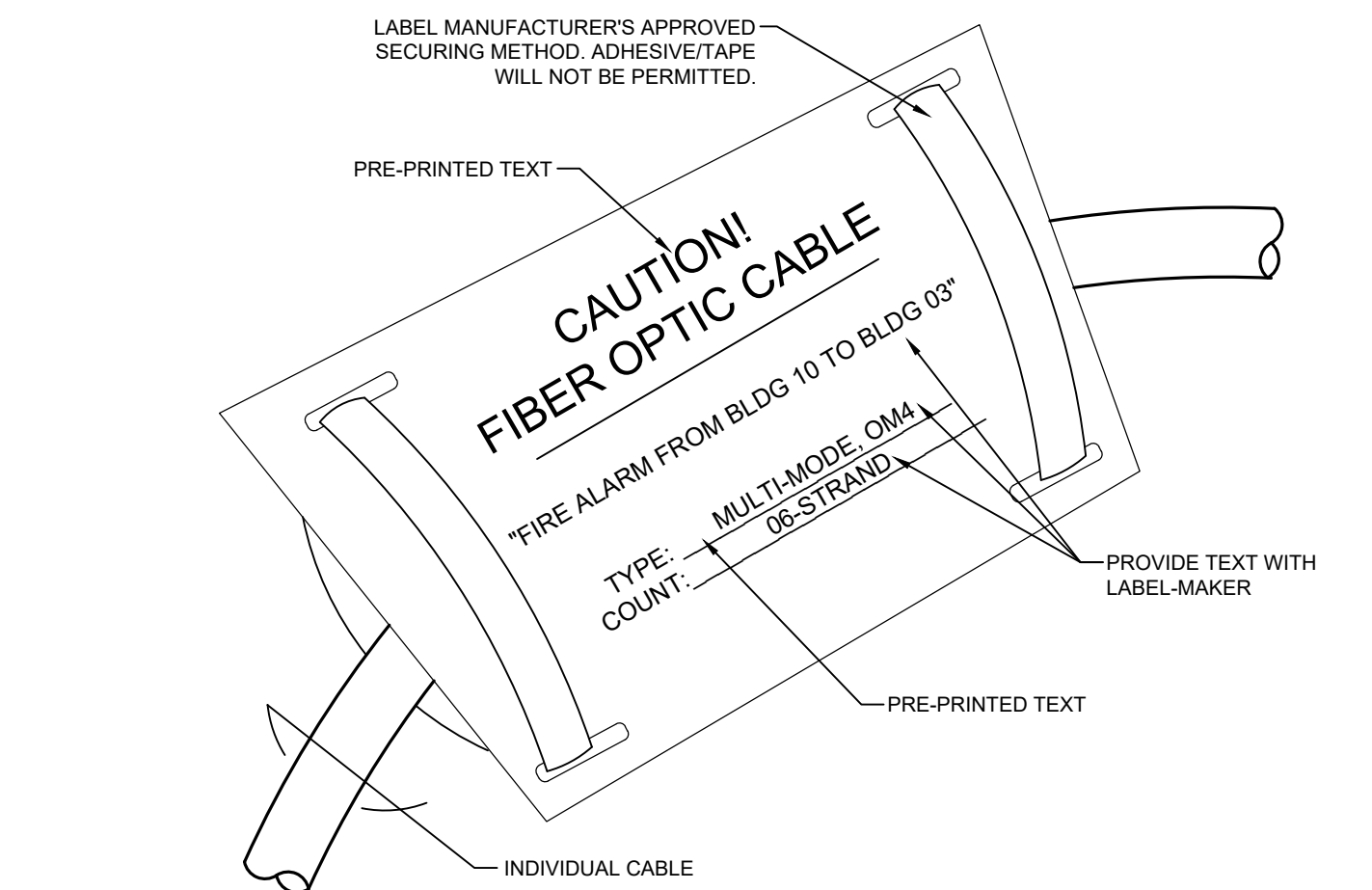
1. APPLICABLE STANDARD NFPA 72, AS ADOPTED AND AMENDED IN CBC CHAPTER 35
2. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATION, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM, HAS BEEN APPROVED BY DSA.
3. UPON COMPLETION OF SYSTEM INSTALLATION, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF THE PROJECT.
6. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND /OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITH A PENETRATION FIRE STOP SYSTEM AS IDENTIFIED IN CBC CHAPTER 7, UL OR OTHER APPROVED LAB TESTING CRITERIA. APPROVED TYPES OF MATERIALS SHALL BE IDENTIFIED WITHIN THE PROJECT SPECIFICATIONS WITHIN THE FIRE ALARM SECTION.
8. WALL MOUNTED VISIBLE NOTIFICATION DEVICES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 98" MAXIMUM FROM FINISHED FLOOR.
9. WALL MOUNTED AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM FROM FINISHED FLOOR AND NO CLOSER THAN 6" TO A HORIZONTAL STRUCTURE.
10. AUDIBLE DEVICES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DECIBELS (DBA) ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR FIVE DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIABLE SPACE WITHIN THE BUILDING.
11. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
 - 2.16 APPLICABLE CODES: ENSURE THE CURRENT CODES ARE LISTED ON THE PLANS.
12. THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
13. VISIBLE DEVICES SHOULD NOT EXCEED TWO FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN ONE FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELLA. VISIBLE DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
14. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATER TIGHT FITTINGS AND WIRE TO BE APPROVED FOR WET LOCATIONS.
15. ALL FIRE ALARM WIRING SHALL BE FPL OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE TYPE THHN OR THWN.
16. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. ALL BOXES TO BE SIZED PER CEC.
17. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1' FROM FIRE SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM, DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER.
18. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANNER AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
19. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
20. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL." CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXTENDERS.
21. THE INSTALLING CONTRACTOR SHALL PROVIDE A COMPLETED "SYSTEM RECORD OF COMPLETION" PER NFPA 72, FIGURE 17.8.2.
22. FIRE ALARM CONTROL PANELS AND REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48" ABOVE THE FINISHED FLOOR.
23. MICROPHONES ASSOCIATED WITH EMERGENCY VOICE ALARM COMMUNICATION SYSTEMS (EVAC) SHALL BE ACCESSIBLE FOR USE, INSTALLED IN COMPLIANCE WITH CBC SECTIONS 11B-305 AND 11B-308.
24. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2.
25. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
26. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.



5 TYPICAL DEVICE MOUNTING DETAIL AT T-BAR CEILINGS
NTS

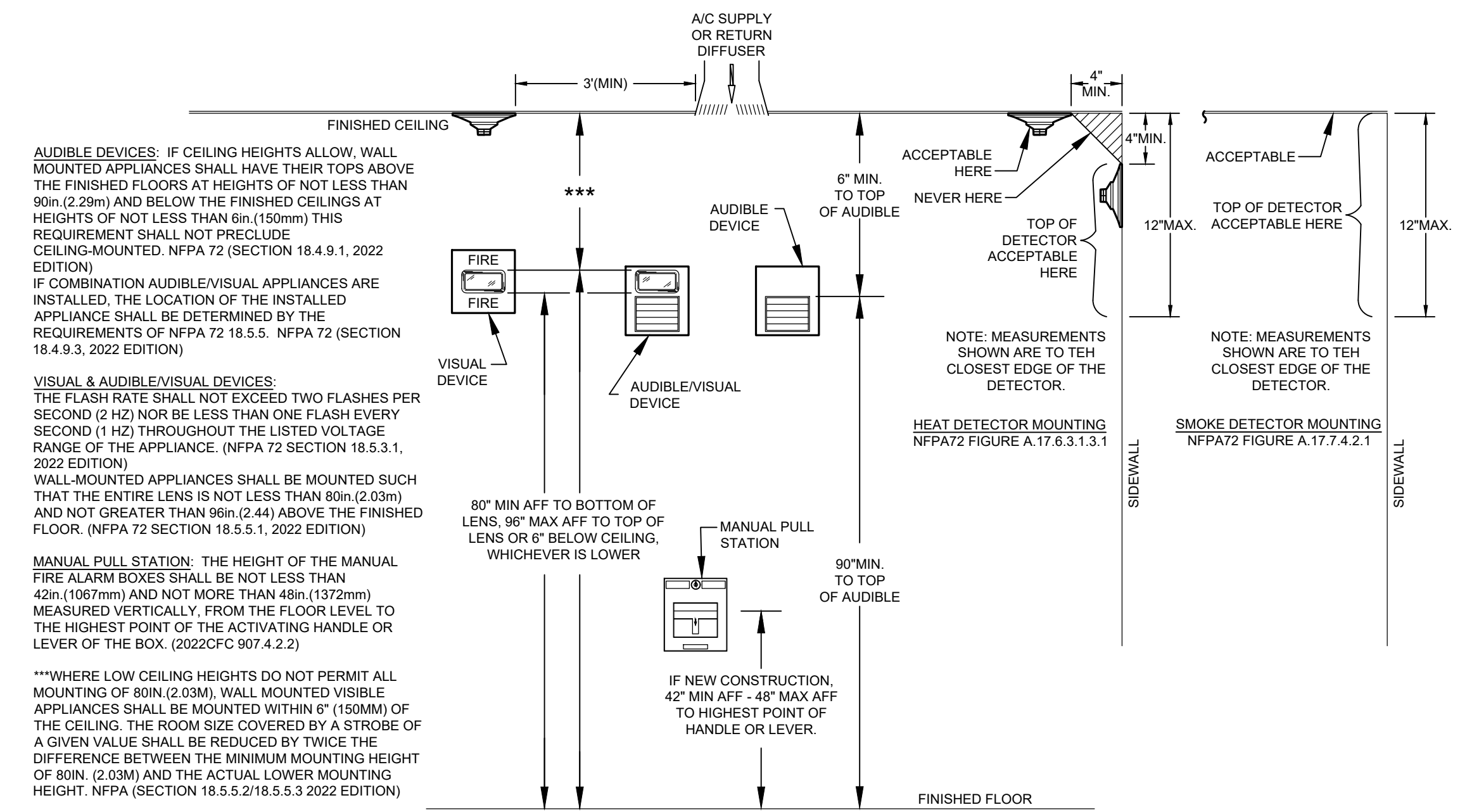


6 TYPICAL LIGHT INTERFACE UNIT 'LIU' INSTALLATION
NTS

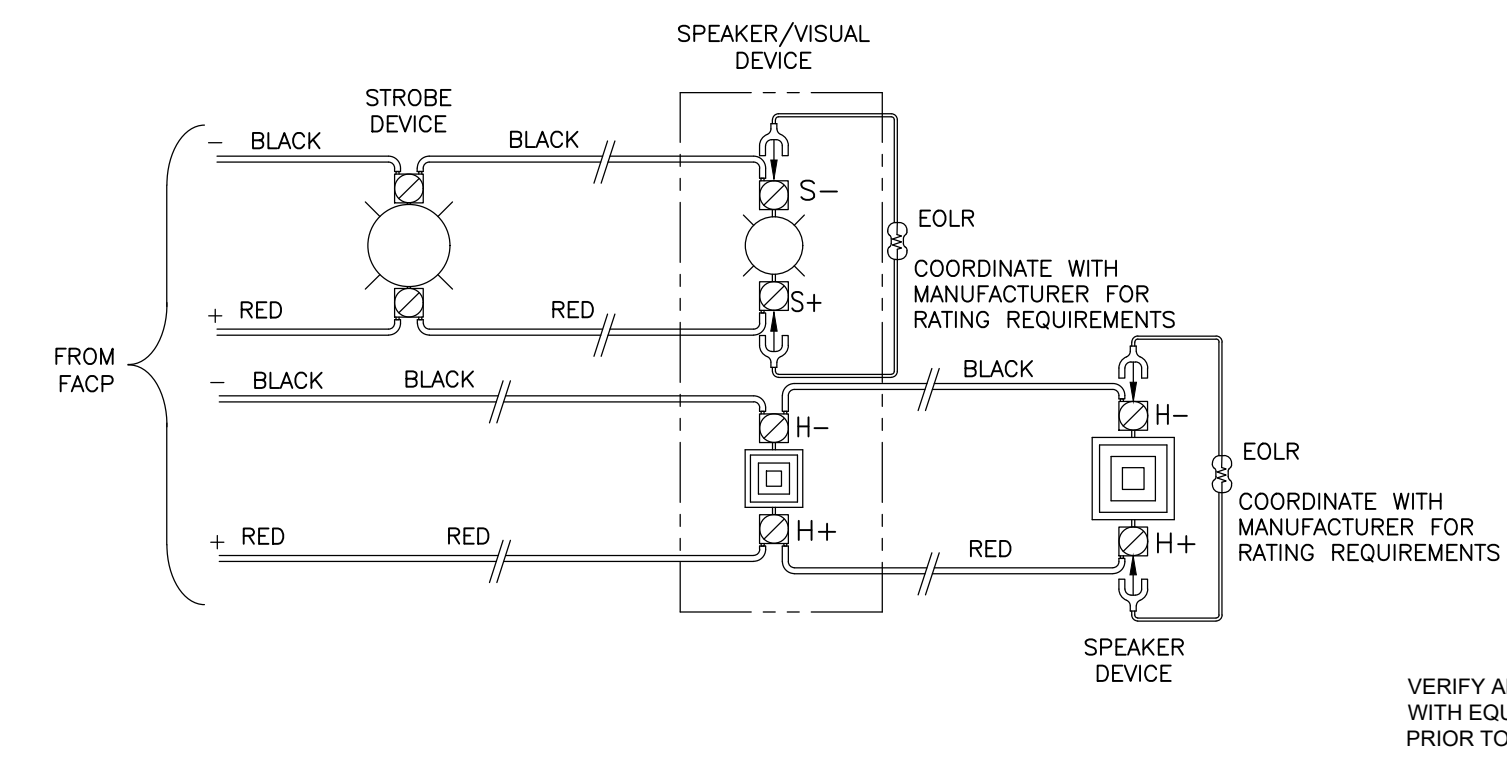


- NOTES:
- LABEL SHALL CONTAIN THE WORDS "CAUTION! FIBER OPTIC CABLE"
 - LABEL SHALL CLEARLY IDENTIFY THE SOURCE AND DESTINATION OF THE FIBER CABLE.
 - LABEL SHALL CLEARLY IDENTIFY THE TYPE AND STRAND COUNT CONTAINED WITHIN THE CABLE.
 - ALL LABEL MARKINGS SHALL BE MADE IN INDELIBLE INK.
 - LABEL SHALL BE SELF LAMINATED AND SUITABLE FOR OUTDOOR, SUBMERGED APPLICATIONS WITHOUT DEGRADATION.
 - WHERE USED FOR CAMPUS FIRE ALARM CABLING, TAG COLORS SHALL BE BLACK AND RED.

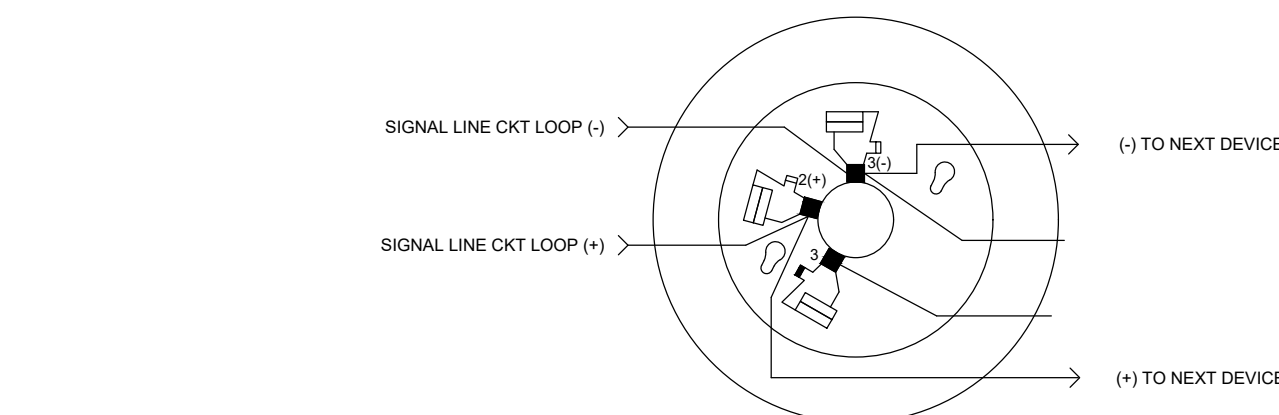
7 FIBER OPTIC CABLE LABEL
NTS



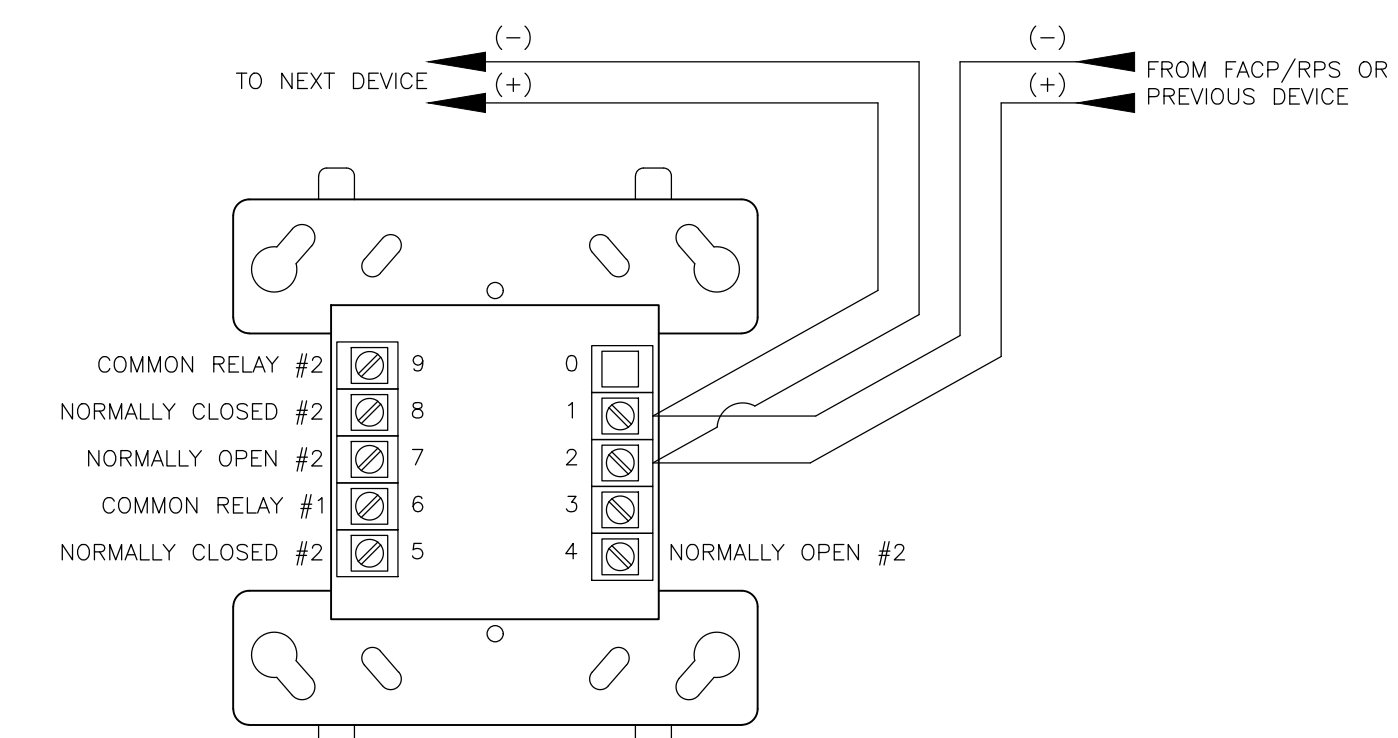
1 DEVICE ELEVATION DETAIL
SCALE: N.T.S.



2 TYPICAL NOTIFICATION CIRCUIT WIRING DIAGRAM
NTS



3 ADDRESSABLE SMOKE AND HEAT DETECTOR WIRING DIAGRAM
NTS

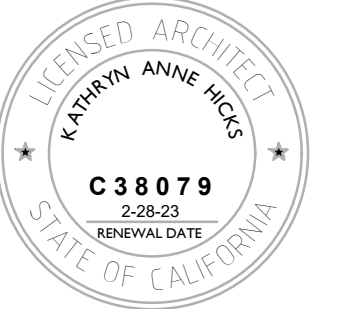


4 TYPICAL ADDRESSABLE CONTROL MODULE WIRING DIAGRAM
NTS



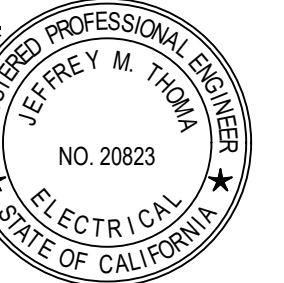
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cad@thomaelec.com



EXPIRES: 09/30/26
THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
2555 S HALCYON RD, ARROYO GRANDE, CA
FIRE ALARM DETAILS

NO.	REVISION	DATE
△	ADDENDUM 02	06/16/26
△		
△		
△		
△		

PROJECT MANAGER
JC
DRAWN BY
AV
CHECKED BY
JC
DATE
08 SEP 2025
PROJECT NUMBER
0822-03-ED25
SHEET

E301

CONSTRUCTION DOCUMENTS

VOLTAGE DROP (VD) CALCULATION

PROJ. NAME Mesa M.S. Sci. & SPED C.R.										
VAC/VOICE SIG CKT# V1										
CKT/DEVICE #	V1-1	V1-2	V1-3	V1-4	V1-5	V1-6	V1-7	V1-8	V1-9	V1-10
GAUGE WIRE	14	14	14	14	14	14	14	14	14	14
DISTANCE (FT)	30	30	45	45	25	25	60	35	0	0
AMPS @ DEVICE	0.083	0.0104	0.0208	0.0104	0.0104	0.083	0.0208	0.083	0	0
AMPS DEVELOPED	0.3218	0.2388	0.2284	0.2076	0.1972	0.1868	0.1038	0.083	0	0
VOLT. DROP	0.049	0.036	0.052	0.047	0.025	0.024	0.031	0.015	0.000	0.000

CKT/DEVICE #	V1-11	V1-12	V1-13	V1-14	V1-15	V1-16	V1-17	V1-18	V1-19	V1-20
GAUGE WIRE	14	14	14	14	14	14	14	14	14	14
DISTANCE (FT)	0	0	0	0	0	0	0	0	0	0
AMPS @ DEVICE	0	0	0	0	0	0	0	0	0	0
AMPS DEVELOPED	0	0	0	0	0	0	0	0	0	0
VOLT. DROP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FORMULA		SPEAKER LOAD		WIRE RESIS. /CIRC.
IX FEET X OHMS / FT		INTERIOR 25W = .0104A		SIZE /M FT. MILS.
SIGNAL CIRCUIT =	V1	INTERIOR 5W = .0208A		6 0.5 26240
TOTAL CKT AMPS =	0.3218 (7.72W)	EXTERIOR 2W = .0830A		10 1.21 10380
CIRCUIT LENGTH =	296FT			12 1.59 6530
CKT VOLTAGE =	20.4			14 2.52 4110
TOTAL CKT V.D. =	0.278			16 4.02 2580
				18 6.39 1620
VOLTAGE AT FINAL DEVICE =	20.122			20 10.1 1020
				22 16.2 640
% VOLTAGE DROP =	1.363			24 25.7 404

VOLTAGE DROP (VD) CALCULATION

PROJ. NAME Mesa M.S. Sci. & SPED C.R.										
NAC/VISUAL SIG CKT# N1										
CKT/DEVICE #	N1-1	N1-2	N1-3	N1-4	N1-5	N1-6	N1-7	N1-8	N1-9	N1-10
DEVICE	SV15cd-C	SV175cd-C	SV15cd-C	SV15cd-C	SV15cd-C	0	0	0	0	0
GAUGE WIRE	14	14	14	14	14	14	14	14	14	14
DISTANCE (FT)	25	35	35	35	30	0	0	0	0	0
AMPS @ DEVICE	0.022	0.06	0.022	0.022	0.06	0	0	0	0	0
AMPS DEVELOPED	0.186	0.164	0.104	0.082	0.06	0	0	0	0	0
VOLT. DROP	0.023	0.029	0.018	0.014	0.009	0.000	0.000	0.000	0.000	0.000

CKT/DEVICE #	N1-11	N1-12	N1-13	N1-14	N1-15	N1-16	N1-17	N1-18	N1-19	N1-20
DEVICE	0	0	0	0	0	0	0	0	0	0
GAUGE WIRE	14	14	14	14	14	14	14	14	14	14
DISTANCE (FT)	0	0	0	0	0	0	0	0	0	0
AMPS @ DEVICE	0	0	0	0	0	0	0	0	0	0
AMPS DEVELOPED	0	0	0	0	0	0	0	0	0	0
VOLT. DROP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FORMULA		DEVICE LEGEND		WIRE RESIS. /CIRC.
IX FEET X OHMS / FT		SPEAKER/VISUAL =S/V		SIZE /M FT. MILS.
SIGNAL CIRCUIT =	N1	VISUAL DEVICE =V		6 0.5 26240
TOTAL CKT AMPS =	0.186	CANDELA RATING =XXcd		10 1.21 10380
CIRCUIT LENGTH =	160FT	CEILING =C		12 1.59 6530
CKT VOLTAGE =	20.4	WALL =(BLANK)		14 2.52 4110
TOTAL CKT V.D. =	0.094			16 4.02 2580
				18 6.39 1620
VOLTAGE AT FINAL DEVICE =	20.306			20 10.1 1020
				22 16.2 640
% VOLTAGE DROP =	0.462			24 25.7 404

BATTERY CALCULATIONS

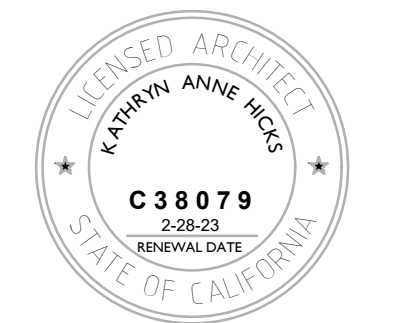
PROJECT: Mesa M.S. Sci. & SPED C.R.-(E)FACP'										
Based on 24 Hour Standby										
Device	Manufacturer	#	QTY	Standby Amps	Total Standby Amps	Alarm Amps	Total Alarm Amps			
(E)Fire Alarm Control Pnl	Gamewell-FCI	E3-Series	1	0.0000	0.0000	0.0000	0.0000			
(E)Intelligent Loop Interface	Gamewell-FCI	ILI-MB-E3	1	0.08100	0.0810	0.15000	0.15000			
(E)LCD Keypad Display	Gamewell-FCI	LCD-E3	1	0.02400	0.0240	0.02800	0.0280			
(E)Addressable Switch Module	Gamewell-FCI	ASM-16	1	0.01100	0.0110	0.01100	0.0110			
(E)Digital Alarm Communicator Transmitter	Gamewell-FCI	DACT-E3	1	0.01800	0.0180	0.01800	0.0180			
(E)Transponder Voice Gateway W/ INC-MIC	Gamewell-FCI	INI-VGX	1	0.15000	0.1500	0.15000	0.1500			
(E)Amplifier	Gamewell-FCI	AM-50	1	0.08600	0.0860	2.20600	2.2060			
Fiber Loop Module	Gamewell-FCI	FML-E3	1	0.05300	0.0530	0.05300	0.0530			
Power Supply Module	Gamewell-FCI	PM-9	1	0.05000	0.0500	0.05000	0.0500			
Smoke Detector	Gamewell-FCI	ASD-PL3	12	0.00020	0.0024	0.00200	0.0240			
(E)Smoke Detector	Gamewell-FCI	ASD-PL2F	9	0.00030	0.0027	0.00650	0.0585			
Heat Detector	Gamewell-FCI	ATD-L3(H)	6	0.00020	0.0012	0.00200	0.0120			
(E)Heat Detector	Gamewell-FCI	ATD-L2F	1	0.00030	0.0003	0.00650	0.0065			
(E)Relay Control Module	Gamewell-FCI	AOM-2RF	8	0.00038	0.0030	0.00650	0.0520			
Control Module	Gamewell-FCI	AOM-2SF	2	0.00038	0.0008	0.00650	0.0130			
(E)Control Module	Gamewell-FCI	AOM-2SF	2	0.00038	0.0008	0.00650	0.0130			
(E)Dual Monitor Module	Gamewell-FCI	AMM-2IF	2	0.0075	0.0150	0.0057	0.0114			
(E)Monitor Module	Gamewell-FCI	AMM-2F	11	0.00038	0.0041	0.00060	0.0066			
(E)Monitor Module	Gamewell-FCI	AMM-4SF	7	0.00030	0.0021	0.00520	0.0364			
(E)NAC Circuit - N1	---	---	1	0.00000	0.0000	2.00000	2.0000			
(E)NAC Circuit - N2	---	---	1	0.00000	0.0000	2.00000	2.0000			
			0	0.00000	0.0000	0.00000	0.0000			
					Total: 0.5053		Total: 6.8994			
Total Standby Amps =				0.505 x 24 Hours =	12.1278	Amp-Hours				
Total Alarm Amps =				6.899 x 0.25 Hours =	1.7249	Amp-Hours				
				(15 minutes)						
Total Amp-Hours required after 24 hours standby and 15 minutes alarm.					13.8527	Amp-Hours				
Total Battery Amp-Hours required:										
Total Amp-Hours required x 1.25 =					17.3158	Amp-Hours				
Total Amp-Hours Supplied=					18.0000	Amp-Hours				
Spare Capacity=					0.6842	Amp-Hours				

BATTERY CALCULATIONS

PROJECT: Mesa M.S. Sci. & SPED C.R.-(E)INX-1'										
Based on 24 Hour Standby										
Device	Manufacturer	#	QTY	Standby Amps	Total Standby Amps	Alarm Amps	Total Alarm Amps			
Intelligent Network Voice Gateway	Gamewell-FCI	INI-VGX	1	0.1500	0.1500	0.1500	0.150			
Amplifier Sub-assembly	Gamewell-FCI	AM-50	1	0.0860	0.086	2.2060	2.206			
Fiber Loop Module	Gamewell-FCI	FML-E3	1	0.05300	0.0530	0.05300	0.0530			
Dual Sync Module	Wheelock	DSM-12/24	1	0.0000	0.000	0.0500	0.050			
Power Supply	Gamewell-FCI	PM9	1	0.0500	0.050	0.0500	0.050			
Speaker-Weatherproof (2Watts)	Wheelock	EL4XSPK-NR	3	0.00000	0.0000	0.08300	0.2490			
Speaker/Strobe-Ceiling (-15cd/ 25Watts Speaker)	Wheelock	ELSPSTRC	3	0.00000	0.0000	0.03240	0.0972			
Speaker/Strobe-Ceiling (-75cd/ 5Watts Speaker)	Wheelock	ELSPSTRC	2	0.00000	0.0000	0.08080	0.1616			
			0	0.0000	0.000	0.0000	0.000			
					Total: 0.339		Total: 3.017			
Total Standby Amps =				0.339 x 24 Hours =	8.136	Amp-Hours				
Total Alarm Amps =				3.017 x 0.25 Hours =	0.754	Amp-Hours				
				(15 minutes)						
Total Amp-Hours required after 24 hours standby and 15 minutes alarm.					8.890	Amp-Hours				
Total Battery Amp-Hours required:										
Total Amp-Hours required x 1.25 =					11.11	Amp-Hours				
Total Amp-Hours Supplied=					18	Amp-Hours				
Spare Capacity=					6.887	Amp-Hours				



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REGISTERED PROFESSIONAL ENGINEER
 KATHRYN ANNE HICKS
 NO. 20823
 ELECTRICAL
 STATE OF CALIFORNIA
 EXPIRES: 09/30/26
 THOMA #25-8026

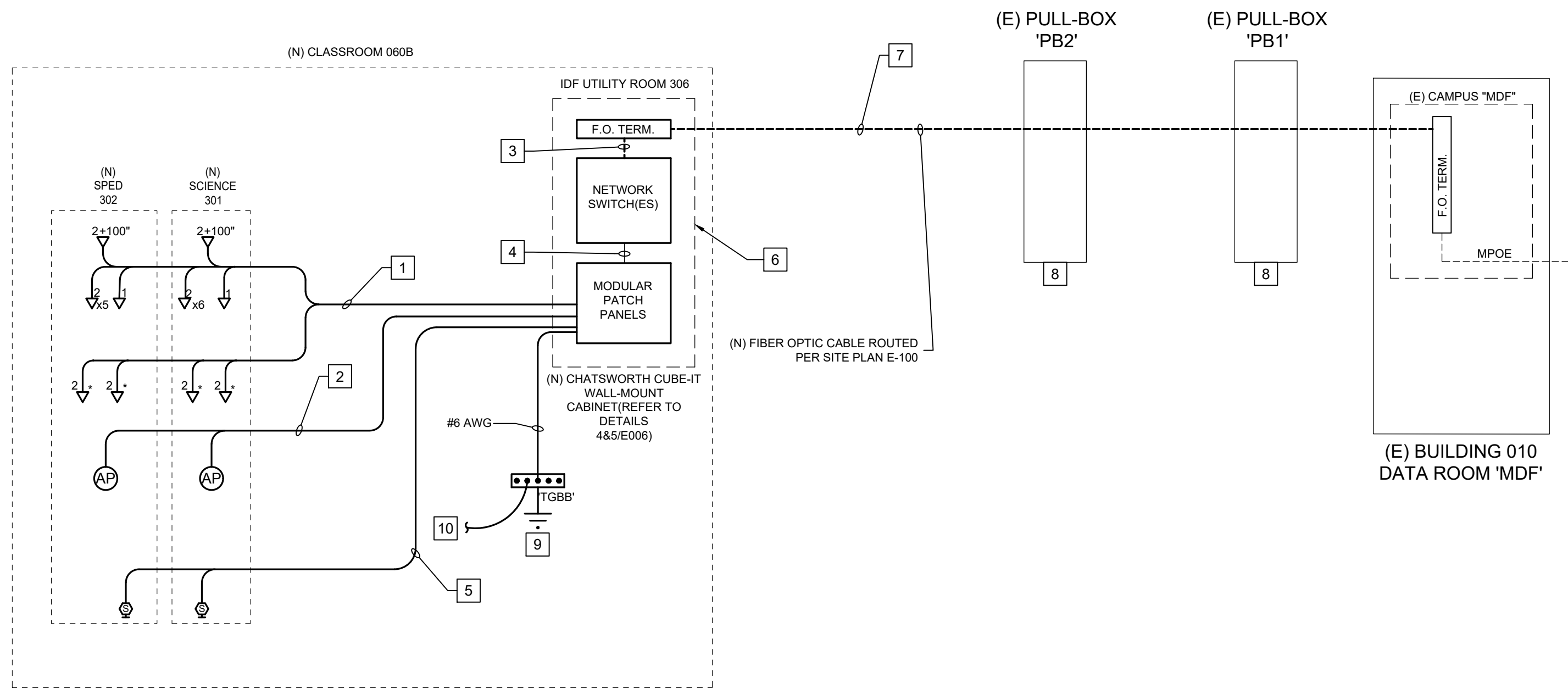
MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
 2555 S HALCYON RD, ARROYO GRANDE, CA
FIRE ALARM CALCULATIONS

NO.	REVISION	DATE
△	ADDENDUM 02	06/16/26
△		
△		
△		
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△		

PROJECT MANAGER
 JC
 DRAWN BY
 AV
 CHECKED BY
 JC
 DATE
 08 SEP 2025
 PROJECT NUMBER
 0822-03-ED25
 SHEET

E302

CONSTRUCTION DOCUMENTS



REFERENCE NOTES

1. (N) CAT6 TO EACH DATA OUTLET (QUANTITY PER RISER; BLUE JACKET).
2. (N) (2) CAT6A AT EACH CLASSROOM WAP (WHITE JACKET).
3. F.O. JUMPERS - TO MATCH CABLE PLANT (2M MAX).
4. CAT 6/6A JUMPERS - TO MATCH CABLE PLANT (2M MAX).
5. (N) (1) CAT6 CABLE PER EACH SPEAKER DEVICE TERMINATED IN BISCUIT IN TRUE 5S BACKBOX ON WALL. USE WEATHERPROOF BOXES AND METHODS FOR EXTERIOR SPEAKERS. SPEAKER DEVICE SHALL BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR. EC SHALL TERMINATE AND TEST BISCUIT IN PREPARATION FOR (N) DEVICE.
6. CONTRACTOR SHALL COORDINATE WITH DISTRICT IT STAFF FOR INSTALLATION AND SCHEDULING OF NEW EQUIPMENT TO BE PROVIDED BY THE IT DEPT.
7. (N) 12 STRAND SINGLE-MODE (OS2) IN A SINGLE JACKET AND PLACED IN CONDUIT (SIZES/QUANTITIES PER SITE PLAN). ALL STRANDS SHALL BE TERMINATED IN FIBER SPLICE ENCLOSURES AT EACH END OF THE CABLE INSTALLATION. ALL CABLING BETWEEN EXISTING CAMPUS MDF AND NEW BUILDING IDFS SHALL BE UNDERGROUND/WET LOCATION LISTED. VERIFY CABLE TYPES WITH DISTRICT PRIOR TO SUBMITTALS. REFER TO ELECTRICAL SITE PLANS FOR ROUTING.
8. REFER TO ELECTRICAL SITE PLAN FOR LOCATION.
9. (N) WALL MOUNTED TELECOMMUNICATIONS GROUND BUS BAR PER DETAIL 3/E006.
10. (N) THWN, GREEN JACKETED GROUND CONDUCTOR BETWEEN TELECOMMUNICATIONS ROOM GROUND BUS BAR AND BUILDING MAIN ELECTRICAL PANEL EQUIPMENT GROUND BUS ROUTE IN (N) 1" CONDUIT.

GENERAL NOTES

- A. CATEGORY CABLING, MODULAR JACKS, AND PATCH CABLES SHALL MATCH COLOR OF (N) CABLE PLANT AS FOLLOWS:
 - CAT6 = BLUE IN COLOR
 - CAT6A = WHITE IN COLOR
- B. CAT6 AND CAT6A CABLES, TOTAL LENGTH FROM IDF TO ENDPOINT SHALL NOT BE MORE THAN 295'-0"; CONTRACTOR SHALL BRING TO THE ATTENTION OF THE ENGINEER ANY LENGTHS IN EXCESS OF 295'-0" PRIOR TO ROUGH-IN INSPECTION.
- C. CAT6 AND CAT6A CABLES SHOWN AS ROUTED UNDERGROUND BETWEEN BUILDINGS SHALL BE OUTDOOR PLANT RATED AS SHOWN.
- D. EC SHALL PROVIDE 10' SERVICE LOOP AT EACH (E) AND (N) PULL-BOX FOR CABLE SHOWN AS (N).
- E. DISTRICT TO PROVIDE VOIP (VOICE OVER INTERNET PROTOCOL) PHONE HAND SETS AT EACH NEW CLASSROOM.
- F. CABLING TYPES SHALL BE SUITABLE AND RATED FOR THE APPLICATION INSTALLED (PLENUM, UNDERGROUND, ETC.).
- G. ALL FIBER OPTIC CABLES SHALL BE FUSION SPLICED TO PRE-TERMINATED/POLISHED PIG-TAILS IN APPROVED FIBER SPLICE ENCLOSURES AND SPLICE TRAYS.

PARTIAL CAMPUS COMMUNICATIONS RISER DIAGRAM

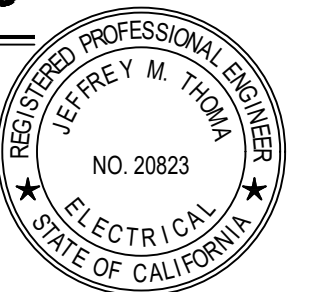


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EXPIRES: 09/30/26
 THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS COMMUNICATIONS RISER DIAGRAM
 2555 S HALCYON RD, ARROYO GRANDE, CA

NO.	REVISION	DATE
△	ADDENDUM 02	06/16/26
△		
△		
△		
△		
△		

PROJECT MANAGER
 JC
 DRAWN BY
 AV
 CHECKED BY
 JC
 DATE
 08 SEP 2025
 PROJECT NUMBER
 0822-03-ED25
 SHEET

E401

CONSTRUCTION DOCUMENTS

STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 7 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
 I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Jeffrey M. Thoma
 Signature Date: 2026-06-16
 Company: Thoma Electric, Inc.
 Address: 3562 Empleo Street, San Luis Obispo CA 93401
 Phone: 805-543-3850

RESPONSIBLE PERSON'S DECLARATION STATEMENT
 I certify the following under penalty of perjury, under the laws of the State of California:
 1. The information provided on this Certificate of Compliance is true and correct.
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Jeffrey M. Thoma
 Date Signed: 2026-06-16
 Company: Thoma Electric, Inc.
 Address: 3562 Empleo Street, San Luis Obispo CA 93401
 Phone: 805-543-3850

Generated Date/Time: 2026-06-16 14:56:25
 Documentation Software: EnergyPro
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
 Report Version: 2022.0.000
 Schema Version: rev 20220101
 Compliance ID: EPR-6405-0626-0007
 Report Generated: 2026-06-16 14:56:25

STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 4 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

H. OUTDOOR LIGHTING CONTROLS
 This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie unswitched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
 Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit.
Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Areas in Multifamily Buildings

01	02	03	04	05
Area Description	Shut-Off 130.2(c)(1) / 160.5(c)	Auto-Schedule 130.2(c)(2) / 160.5(c)	Motion Sensor 130.2(c)(3) / 160.5(c)	Field Inspector
Exterior	Photocontrol	Provided	NA: Each Luminaire <= 40 Watts	Pass Fail

I. FOOTNOTES: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.
 *Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.
 †Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are exempted from II and III.

Generated Date/Time: 2026-06-16 14:56:25
 Documentation Software: EnergyPro
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
 Report Version: 2022.0.000
 Schema Version: rev 20220101
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STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 1 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

A. GENERAL INFORMATION

01 Project Location (city): Arroyo Grande
 02 Climate Zone: 5
 04 Total Illuminated Hardscape Area (ft²): 1242
 03 Outdoor Lighting Zone per Title 24 Part 1.10.114 or as designated by Authority Having Jurisdiction (AHJ):
 LZ-0: Very Low - Undeveloped Parkland LZ-2: Moderate - Urban Clusters LZ-4: High - Must be reviewed by CA Energy Commission for Approval
 LZ-1: Low - Rural Areas LZ-3: Moderately High - Urban Areas
 05 Occupancy Types within Project:
 Classroom Support Areas All Other Occupancies

B. PROJECT SCOPE
 This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)(6) or 141.0(b)(2) / 180.2(b)(4B) for alterations.
 My Project Consists of:

01	02	03	04	05
<input checked="" type="checkbox"/> New Lighting System	Must Comply with Allowances from 140.7 / 170.2(e)(6)	<input type="checkbox"/> Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)?	Yes No
<input type="checkbox"/> < 10% <input type="checkbox"/> >= 10% and < 50% <input type="checkbox"/> >= 50%		Sum Total of Luminaires Being Added or Altered		
<input type="checkbox"/> < 10% <input type="checkbox"/> >= 10% and < 50% <input type="checkbox"/> >= 50%		Calculation Method		

C. COMPLIANCE RESULTS
 Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)(6) or 141.0(b)(2) / 180.2(b)(4B)						Compliance Results		
01	02	03	04	05	06	07	08	09
General Hardscape Allowance	Per Application 140.7(d)(2) / 170.2(e)(6) (See Table J)	Sales Frontage 140.7(d)(2) / 170.2(e)(6) (See Table K)	Ornamental 140.7(d)(2) / 170.2(e)(6) (See Table L)	Per Specific Area 140.7(d)(2) / 170.2(e)(6) (See Table M)	Existing Power Allowance 141.0(b)(2) / 180.2(b)(4B) (See Table N)	Total Allowed (Watts)	Total Actual (Watts)	07 must be >= 08
345	---	---	---	---	---	345	168	COMPLIES
Shielding Compliance (See Table G for Details)						COMPLIES		

D. EXCEPTIONAL CONDITIONS
 This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS
 This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

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 Report Version: 2022.0.000
 Schema Version: rev 20220101
 Compliance ID: EPR-6405-0626-0007
 Report Generated: 2026-06-16 14:56:25

STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 5 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))
 This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/ Table 170.2-R while "Use it or lose it" allowances are per Table 140.7-B/ Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.
 Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H, and are not included here. All other multifamily outdoor lighting is included here.
 Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel

01	02	03	04	05	06	07	08	09
Area Description	Area Wattage Allowance (AWA)	Area Allowance (W/ft²)	Perimeter Length (ft)	Allowed Density (W/ft)	Linear Wattage Allowance (LWA)	Linear Allowance (Watts)	Total General AWA + LWA (Watts)	
Pedestrian Hardscape	1242	0.021	26.1	345	0.2	69	95	
Initial Wattage Allowance for Entire Site (Watts):								250
Instances of Initial Wattage Allowance (LZ 0 only):								
Total General Hardscape Allowance (Watts):								345

J. LIGHTING ALLOWANCE: PER APPLICATION
 This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE
 This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL
 This section does not apply to this project.

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 Report Version: 2022.0.000
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 Report Generated: 2026-06-16 14:56:25

STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 2 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

F. OUTDOOR LIGHTING FIXTURE SCHEDULE
 For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)(6) all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)(2) only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H, and are not included here. All other multifamily outdoor lighting is included here.

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description	Watts per luminaire ¹	How is Wattage determined	Total Number Luminaires ²	Luminaire Status ³	Excluded per 140.7(a) / 170.2(e)(6)	Design Watts	Cutoff Req: > 6,200 initial lumen output	Field Inspector
S1	S1	28	Mfr. Spec	6	New	NA < 6200 lumens	168	NA < 6200 lumens	Pass Fail
Total Design Watts:							168		

G. SHIELDING REQUIREMENTS (BUG)
 This section does not apply to this project.

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 Report Version: 2022.0.000
 Schema Version: rev 20220101
 Compliance ID: EPR-6405-0626-0007
 Report Generated: 2026-06-16 14:56:25

STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 6 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA
 This section does not apply to this project.

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)
 This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
 Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online
 Form/Title: NRCC-LTO-E - Must be submitted for all buildings

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE
 Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/title24/attcp/providers.html>
 Form/Title: NRCC-LTO-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires. Exterior; Verified

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 Report Version: 2022.0.000
 Schema Version: rev 20220101
 Compliance ID: EPR-6405-0626-0007
 Report Generated: 2026-06-16 14:56:25

STATE OF CALIFORNIA
Outdoor Lighting
 CERTIFICATE OF COMPLIANCE
 Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 3 of 7)
 Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/16/2026

CALIFORNIA ENERGY COMMISSION
 NRCC-LTO-4

F. OUTDOOR LIGHTING FIXTURE SCHEDULE
 For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)(6) all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)(2) only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H, and are not included here. All other multifamily outdoor lighting is included here.

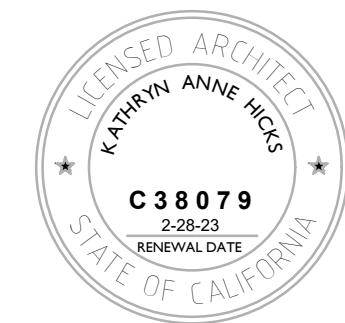
01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description	Watts per luminaire ¹	How is Wattage determined	Total Number Luminaires ²	Luminaire Status ³	Excluded per 140.7(a) / 170.2(e)(6)	Design Watts	Cutoff Req: > 6,200 initial lumen output	Field Inspector
S1	S1	28	Mfr. Spec	6	New	NA < 6200 lumens	168	NA < 6200 lumens	Pass Fail
Total Design Watts:							168		

G. SHIELDING REQUIREMENTS (BUG)
 This section does not apply to this project.

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 cad@thomaelec.com

REGISTERED PROFESSIONAL ENGINEER
 JEFFREY M. THOMA
 ELECTRICAL
 STATE OF CALIFORNIA
 NO. 20823

EXPIRES: 09/30/26
 THOMA #25-8026

MESA MIDDLE SCHOOL SCIENCE AND SPED CLASSROOMS
 2555 S HALCYON RD, ARROYO GRANDE, CA
 TITLE 24 COMPLIANCE DOCUMENTS - EXTERIOR

NO.	REVISION	DATE
△	ADDENDUM 02	06/16/26
△		
△		
△		
△		
△		

CONSTRUCTION DOCUMENTS

PROJECT MANAGER: JC
 DRAWN BY: AV
 CHECKED BY: JC
 DATE: 08 SEP 2025
 PROJECT NUMBER: 0822-03-ED25
 SHEET: E500

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 2 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Jeffrey M. Thoma
Signature Date: 2026-06-15
Company: Thoma Electric, Inc.
Address: 3562 Empleo Street
City/State/Zip: San Luis Obispo CA 93401
Phone: 805-543-3850

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design conform to the requirements of Title 24, Part 1 and Part 2 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Jeffrey M. Thoma
Signature Date: 2026-06-15
Company: Thoma Electric, Inc.
Address: 3562 Empleo Street
City/State/Zip: San Luis Obispo CA 93401
Phone: 805-543-3850

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Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EPR-6405-0626-0005
Report Generated: 2026-06-15 15:31:01

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 4 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

H. INDOOR LIGHTING CONTROLS (Not including PAFs)
Area Level Controls

04	05	06	07	08	09	10	11	12
Area Description	Complete Building or Area Category Primary Function Area	Manual Area Control, 130.1(a) / 160.5(b)4A	Multi-Level Controls, 130.1(b) / 160.5(b)4B	Shut-Off Controls, 130.1(c) // 160.5(b)4C	Primary/Skylight Daylighting, 130.1(d) / 160.5(b)4D	Secondary Daylighting, 130.1(f) / 140.6(a)11 / 170.2(e)2A	Interlocked Systems, 140.6(a)12 / 170.2(e)2B	Field Inspector
Classroom	All Other Space Types	Readily Accessible	Dimmer	Occupancy Sensor	Included	NA: Overhang	No	Pass Fail
Restrooms	Restroom	Readily Accessible	NA: Enclosed area <100SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	Pass Fail
Storage room	Electrical Mechanical Telephone Room	Readily Accessible	NA: Enclosed area <100SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	Pass Fail
Plan Sheet Showing Daylit Zones: E100 & E201								

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS
Each area complying using the Complete Building or Area Category Methods per 140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per 140.6(c) or adjustments per 140.6(a) are being used.

01	02	03	04	05	06
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment
Classroom/Lab/Train/Nox Areas	Classroom, Lecture, or Training Vocational	0.6	2,588	1,552.8	No No
Elec/Mech/Tel	Electrical Mechanical Telephone Room	0.4	64	25.6	No No
Restrooms	Restroom	0.65	172	111.8	No No
TOTALS:			2,824	1,690.2	See Tables J, or P for detail

Generated Date/Time: 2026-06-15 15:31:01
Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EPR-6405-0626-0005
Report Generated: 2026-06-15 15:31:01

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 1 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

A. GENERAL INFORMATION

01 Project Location (city)	Arroyo Grande	04 Total Conditioned Floor Area (ft²)	2,824
02 Climate Zone	5	05 Total Unconditioned Floor Area (ft²)	0
03 Occupancy Types Within Project (select all that apply):		06 # of Stories (Habitable Above Grade)	1

Classrooms Support Areas All Other Occupancies

B. PROJECT SCOPE
This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.6 / 170.2(e) or 141.0(b)2 / 180.2(b)4 for alterations.

Scope of Work	Conditioned Spaces	Unconditioned Spaces
01	02	03
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)
<input checked="" type="checkbox"/> New Lighting System	Area Category Method	2824
<input type="checkbox"/> New Lighting System - Parking Garage	Area Category Method	0
Total Area of Work (ft²)		2824

Generated Date/Time: 2026-06-15 15:31:01
Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EPR-6405-0626-0005
Report Generated: 2026-06-15 15:31:01

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 5 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM
This section does not apply to this project.

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE
This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY
This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING
This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED DECORATIVE /SPECIAL EFFECTS
This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE
This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))
This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ONE-FOR-ONE ALTERATIONS
This section does not apply to this project.

Generated Date/Time: 2026-06-15 15:31:01
Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
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STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 2 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

C. COMPLIANCE RESULTS
If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per 140.6(b)1 / 170.2(e)	Allowed Lighting Power per 140.6(b) / 170.2(e) (Watts)					Adjusted Lighting Power per 140.6(a) / 170.2(e) (Watts)			Compliance Results
	01	02	03	04	05	06	07	08	
Complete Building 140.6(c)1	Area Category 140.6(c)2 / 170.2(e)4	Area Category 140.6(c)2G / 170.2(e)4Av (+)	Tailored Category 140.6(c)13 / 170.2(e)4B (+)	Total Allowed (Watts)	≥	Total Designed (Watts)	PAF Lighting Control Credits 140.6(c)13 / 170.2(e)1B (-)	Total Adjusted (Watts) *includes Adjustments	05 must be ≥ 08 140.6 / 170.2(e)
(See Table I)	(See Table I)	(See Table J)	(See Table K)	=	1,690	≥	1,080	=	1080
Conditioned	1,690.2	0		=	1,690	≥	1,080	=	1080
Unconditioned				=	0	≥	0	=	0
Controls Compliance (See Table H for Details)									
Rated Power Reduction Compliance (See Table Q for Details)									

D. EXCEPTIONAL CONDITIONS
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Generated Date/Time: 2026-06-15 15:31:01
Documentation Software: EnergyPro
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Report Version: 2022.0.000
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STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 6 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS
This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)
This section does not apply to this project.

T. DWELLING UNIT LIGHTING
This section does not apply to this project.

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
Selections have been made based on information provided in this document. If any selections have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online.

Form/Title

NRCC-LTH-E - Must be submitted for all buildings

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE
Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: <http://www.energy.ca.gov/title24/attcp/providers.html>

Form/Title

NRCA-LTH-02-A - Must be submitted for occupancy sensors and automatic time switch controls.

NRCA-LTH-03-A - Must be submitted for automatic daylight controls.

Systems/Spaces To Be Field Verified

Classroom, Restrooms, Storage room;

Classroom;

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Documentation Software: EnergyPro
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Report Version: 2022.0.000
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Compliance ID: EPR-6405-0626-0005
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STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION
NRCC-LTH-4

Project Name: Mesa MS New Classroom Bldg. 230 Report Page: (Page 3 of 7)
Project Address: 2555 S. Halcyon Rd. Date Prepared: 6/15/2026

F. INDOOR LIGHTING FIXTURE SCHEDULE
This table includes all planned permanent and portable lighting other than dwelling unit/hotel/motel room lighting. Multifamily dwelling unit and hotel/motel room lighting is documented in Table T. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.

01	02	03	04	05	06	07	08	09	10
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change	Watts per luminaire	How is Wattage determined	Total Number of Luminaires	Excluded per 140.6(a)3 / 170.2(e)2C	Design Watts	Field Inspector
A1	A1	No	NA	39	Mfr. Spec	1	No	39	Pass Fail
A3	A1	No	NA	39	Mfr. Spec	24	No	936	Pass Fail
C1	C1	No	NA	35	Mfr. Spec	3	No	105	Pass Fail
Total Designed Watts: CONDITIONED SPACES								1,080	

*FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per 140.6(a)4B / 170.2(e)2D is adjusted to be 75%/80% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.
*Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b). Wattage used must be the maximum rated for the luminaire, not the lamp.

G. MODULAR LIGHTING SYSTEMS
This section does not apply to this project.

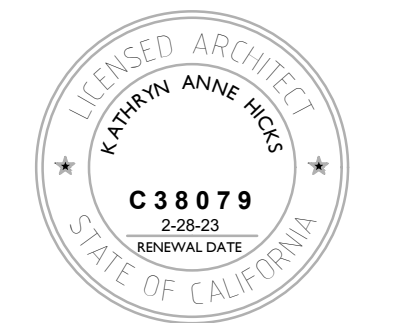
H. INDOOR LIGHTING CONTROLS (Not including PAFs)
This table includes lighting controls for conditioned and unconditioned spaces.

Building Level Controls	01	02	03
Mandatory Demand Response 110.12(c)		Shut-off controls 130.1(c) / 160.5(b)4C	Field Inspector
NA < 4,000W subject to multilevel		See Area/Space Level Controls	Pass Fail

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Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Report Version: 2022.0.000
Schema Version: rev 20220101
Compliance ID: EPR-6405-0626-0005
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