ADDENDUM

Campus HVAC System Upgrade
Mt. Vernon Elementary School
Bakersfield City School District
566-0015

Date: **July 11, 2024**

To: **All Bidders**

Subject: **Addendum #02**

NOTICE TO CONTRACTORS FIGURING THIS WORK

You are hereby notified of the following changes in the Plans and Specifications, which shall take precedence over anything to the contrary therein.

Item # Description

2.1 Refer to Electrical Sheet E-001, Single Line Diagram and Electrical Notes:

2.1.1 Refer to LED FIXTURE SCHEDULE:

2.1.1.1 Omit Fixture Type “E” and “EM”. These fixtures will not be required on this project.

2.2 Refer to Project Manual (Specifications):

2.2.1 Add attached Specification Section 101100 Visual Display Boards.

2.2.2 Add attached Specification Section 096723 Resinous Flooring.

2.3 Refer to Architectural Sheet A2.00 Schedules, Interior Finish Schedule, Building D, Staff:

2.3.1 Change FLOOR finish to Resinous Flooring over existing concrete. See specification via this Addendum for more information.

2.4 Changes to the BCSD Project Manual (Division 00):

2.4.1 To Addendum 02, Item 1.2.2, **DELETE** the following:

~~2.4.1.1 The following statement applies to each Prime Contractor and shall be ADDED to each work scope summary as a new work scope item following in numerical sequence:~~ ~~**Building A shall be completed during summer 2025 as specified in the bid schedule. All prime contractors to furnish required labor and materials to meet the milestones as specified. Performing this work may require 10 hours work per week days and working on Saturdays. Prime contractors to consider this as part of their base bid. No change requests related to this matter will be approved.**~~

2.5 To Document 00 21 13.1 Work Scope Summaries by Bid Package:

2.5.1 Bid Package #MVES-01, General Construction

2.5.1.1 **ADD** the following new specification sections to the table on page 1 of the work scope summary:

2.5.1.1.1 09 67 23 Resinous Flooring

2.5.1.1.2 10 11 00 Visual Display Boards

2.5.1.2 **ADD** new work scope item #87. To read as follows:

2.5.1.2.1 Provide patching of existing epoxy flooring to match existing flooring.

2.5.2 Bid Package #MVES-06, Electrical, Low Voltage & Fire Alarm

2.5.2.1 **ADD** the following new specification sections to the table on page 1 of the work scope summary:

27 10 00 Structured Cabling System

2.5.2.2 To “Allowances” section, **REVISE** the Allowance amount stipulated in the first sentence from $200,000.00 to **$250,000.00**.

2.6 To Document 00 41 13 Bid Form and Proposal

2.6.1 **REMOVE AND REPLACE** Bid Form and Proposal as attached herein

2.7 <u>GENERAL: Pre-Bid Questions and Responses</u>

2.7.1 **ADD** the Pre-Bid RFI Question and Answer Log, attached herein.

2.8 Refer to Project Documents (Drawings)- ELECTRICAL SHEETS:

2.8.1 Replace ELECTRICAL SHEETS in their entirety, attached herein.

2.9 Refer to attached Addendum Drawing AD 2.01- Existing Campus Camera Locations:

2.9.1 Provide and install install new data cable to existing cameras to remain- (total of 14).

2.9.1.1 Run cable to location identified as “**IDF 1**” for cameras in **Building B**.

2.9.1.2 Run cable to location identified as “**IDF 2**” for cameras in **Building C**.

2.9.1.3 Run cable to location identified as “**IDF 3**” for cameras in **Building D**.

2.9.1.4 Run cable to location identified as “**IDF 4**” for cameras in **Buildings E**.

2.9.2 Refer to attached Specification Section **27000 STRUCTURED CABLING** SYSTEM for additional information.

2.9.3 Coordinate with Owner regarding cabling connections prior to installation.

2.10 Refer to Electrical Sheet E-005 (included via this Addendum):

2.10.1 Refer to Standard Classroom DATA Keynotes, Keynote C:

2.10.1.1 Ceiling mounted PA Speakers to be provided and installed in each classroom at Building B, C,D and E. Speaker to be **Quam System 12 2’x2’ Loudspeaker**- see attached cut sheet/ spec.

2.11 Refer to attached Addendum Drawing AD 2.02- Existing Campus Network IDF Locations:

2.11.1 See attached Drawing ADD 2.02 Existing Campus Network diagram for IDF locations.

2.11.2 Contractor to remove and replace existing **IDF 1, IDF 2, IDF 3, IDF 4 and IDF 12.**

2.11.2.1 Refer to attached Specification Section **27000 STRUCTURED CABLING SYSTEM** for additional information.

2.11.2.2 Coordinate with Owner regarding cabling connections prior to installation.

2.11.2.3 IDF cabinets to be “light gray” (Hubbell “RE4X”).

2.11.2.4 Refer to attached Specification for BCSD SMARTBOARD/LCD INSTALLATION METHODS AND REQUIREMENTS for additional information.

ATTACHMENTS:

A. **Specification Section 096723 Resinous Flooring**
B. **Specification Section 101100 Visual Display Boards**
C. **Specification Section 271000 Structured Cabling**
D. **Bid Form and Proposal (Addendum 02)**
E. **Pre-Bid RFI Question and Answer Log (PB RFI 001, 002, 003, 004, 005, 006)**
F. **Quam System Loudspeaker**
G. **Network IDF Location Diagram**
H. **Camera Location Drawing**
I. **Electrical Sheets**

End of addendum

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SECTION 096723 - RESINOUS FLOORING
ACCELERA HB BROADCAST FLOOR SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes the following:

1. Resinous flooring system.

1.3 SYSTEM DESCRIPTION

A. The work shall consist of preparation of the substrate, the furnishing and applications of a cementitious urethane and a squeegee-applied resinous flooring system with flintshot quartz and topcoat. The system shall have the color and texture as specified by the Owner with a nominal thickness of ¼ inch. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.
B. Cove base to be applied per manufacturers standard details unless otherwise noted.

1.4 SUBMITTALS

A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.
B. Manufacturer’s Safety Data Sheet (SDS) for each product being used.
C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.

1.5 QUALITY ASSURANCE

A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical
support of epoxy and urethane industrial flooring and related materials.
B. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.
C. No requests for substitutions shall be considered that would change the generic type of the specified System.
D. System shall be in compliance with requirements of United States Department of Agriculture (USDA),
Food, Drug Administration (FDA), and local Health Department.
E. A pre-installation conference shall be held between Applicator, General Contractor and the Owner to review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production schedule.
F. System shall be in compliance with the Indoor Air Quality requirements of California section 01350 as verified by a qualified independent testing laboratory.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping

1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.

B. Storage and Protection

1. The Applicator shall be provided with a storage area for all components. The area shall be between 60 F and 90 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.
2. Copies of Safety Data Sheets (SDS) for all components shall be kept on site for review by the Engineer or other personnel.

C. Waste Disposal

1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.

1.7 PROJECT CONDITIONS

A. Site Requirements

1. Application may proceed while air, material and substrate temperatures are between 60 F and 85 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.
2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.
3. Application of Accelera where jobsite relative humidity is less than 30% is not recommended.
4. Use Accelera LH resin where jobsite relative humidity is between 10% and 30%.
5. The Applicator shall ensure that adequate ventilation is available for the work area.
6. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.

1.8 WARRANTY

A. Dur-A-Flex, Inc. warrants that material shipped to buyers at the time of shipment substantially free from material defects and will perform substantially to Dur-A-Flex, Inc. published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.
B. Dur-A-Flex, Inc. liability with respect to this warranty is strictly limited to the value of the material purchase.

PART 2 – PRODUCTS

2.1 FLOORING

A. Basis-of- Design Product: The design of resinous flooring is based on the product named. Subject to compliance with requirements, provide either the named product or an approved comparable product. Subject to compliance with requirements, manufacturers offering Resinous Flooring that may be incorporated into the Work include, but are not limited to, the following. Product name ACCELERA HB manufactured by DUR-A-FLEX are listed to establish a standard of quality for design, function, materials and workmanship. Other manufacturers may be submitted for evaluation by the Architect. Approval shall be obtained 45 days after

Contract date. The Architect shall be the sole judge as to the acceptability of all products submitted for substitution.

A. Dur-A-Flex, Inc, ACCELERA HB self-leveling, quartz broadcast, cementitious urethane/blended polymer seamless flooring system or equal.

1. System Materials:
   a. Topping: Dur-A-Flex, Inc, Poly-Crete SL resin, hardener and SL aggregate.
   b. The broadcast aggregate shall be Dur-A-Flex, Inc. flintshot quartz aggregate.
   c. 2nd Broadcast Coat: Dur-A-Flex, Inc, ACCELERA pigmented resin and hardener.
   d. Topcoat: Dur-A-Flex, Inc. ACCELERA pigmented resin and hardener.

2. Patch Materials
   a. Shallow Fill and Patching: Use Dur-A-Flex, Inc. Poly-Crete SL (up to 1/2 inch).
   b. Deep Fill and Sloping Material (over 1/2 inch): Use Dur-A-Flex, Inc. Poly-Crete WR or UM.

2.2 MANUFACTURER

A. Dur-A-Flex, Inc., 95 Goodwin Street, East Hartford, CT 06108, Phone: (860) 528-9838, Fax: (860) 528-2802 or equal.

2.3 PRODUCT REQUIREMENTS

A.	Topping	Poly-Crete SL
1.	Percent Reactive	100 %
2.	VOC	0 g/L
3.	Bond Strength to Concrete ASTM D 4541	400 psi, substrates fails
4.	Compressive Strength, ASTM C579	9,000 psi
5.	Tensile Strength, ASTM D 638	2,175 psi
6.	Flexural Strength, ASTM D 790	5,076 psi
7.	Impact Resistance @ 125 mils, MIL D-3134,	160 inch lbs
B.	Broadcasts and Topcoat	ACCELERA
1.	Percent Solids	100 %
2.	VOC	0 g/L
3.	Bond Strength to Concrete ASTM D 4541	400 psi, substrates fails
4.	Hardness, Shore D ASTM D2240	70
5.	Compressive Strength, ASTM C579	18,000 psi
6.	Tensile Strength, ASTM D638	2,600 psi
7.	Abrasion Resistance, ASTM D4060 C-17 Wheel, 1,000 gm load, 1,000 cycles	27 mg loss
8.	Potlife @ 70 F	7 – 10 minutes
9.	Gloss (ASTM D523) 60°	90
10.	Coefficient of Friction (ASTM D2047)	>0.6
C.	Primer and Topcoat	ACCELERA EXT
1.	Percent Solids	96 %
2.	VOC	33 g/L
3.	Bond Strength to Concrete ASTM D 4541	400 psi, substrates fails
4.	Hardness, Shore D ASTM D2240	70
5.	Compressive Strength, ASTM C579	18,000 psi
6.	Tensile Strength, ASTM D638	2,600 psi

7.	Abrasion Resistance, ASTM D4060 C-17 Wheel, 1,000 gm load, 1,000 cycles	27 mg loss
8.	Potlife @ 70 F	10 – 15 minutes
9.	Gloss (ASTM D523) 60°	90
10.	Coefficient of Friction (ASTM D2047)	>0.6

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.

1. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.

3.2 PREPARATION

A. General

1. New and existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss,
algae growth, laitance, friable matter, dirt, and bituminous products.
2. Moisture Testing: Perform tests recommended by manufacturer and as follows.
. a. Perform anhydrous calcium chloride test ASTM F 1869-98. Application will proceed only when the vapor/moisture emission rates from the slab is less than and not higher than 20 lbs/1,000 sf/24 hrs.
   b. Perform relative humidity test using is situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.
   c. If the vapor drive exceeds 99% relative humidity or 20 lbs/1,000 sf/24 hrs then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.
3. There shall be no visible moisture present on the surface at the time of application of the system. Compressed oil-free air and/or a light passing of a propane torch may be used to dry the substrate.
4. Mechanical surface preparation
   a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastrac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 3 as described by the International Concrete Repair Institute.
   b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.
   c. Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/4 inch
   key cut shall be made to properly seat the system, providing a smooth transition between areas. The
   detail cut shall also apply to drain perimeters and expansion joint edges.
   d. Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped-out and repaired per manufacturer's recommendations. Refer to Dur-A-Flex joint guidelines.

5. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and
patch per manufactures recommendations.

3.3 APPLICATION

A. General

1. The system shall be applied in four distinct steps as listed below:
   a. Substrate preparation
   b. Topping/overlay application with quartz aggregate broadcast.
   c. Resin application with quartz aggregate broadcast
   d. Topcoat application
2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.
3. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.
4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.
5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.

B. Topping

1. The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch.
2. The topping shall be comprised of three components, a resin, hardener and aggregate as supplied by the Manufacturer.
3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. SL Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.
4. The topping shall be applied over horizontal surfaces using ½" V-notched notched squeegee, trowels or other systems approved by the Manufacturer at the rate of 55 sq. ft. per kit.
5. Immediately upon placing, the topping shall be degassed with a loop roller.
6. Flintshot quartz aggregate shall be broadcast to excess into the wet material at the rate of 0.8 lbs./sf.
7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.

C. Second Broadcast Coat

1. The second broadcast coat shall be comprised of three components: a resin, hardener and pigment as supplied by the Manufacturer and mixed per manufacturer instructions.
2. The hardener shall be added to the resin and thoroughly mixed by suitably approved mechanical means.
3. The second broadcast coat shall be applied over horizontal surfaces using a flat squeegee and cross rolled with a 3/8 inch nap roller at the rate of 65 SF/kit.
4. Flintshot quartz shall be broadcast to excess into the wet material at the rate of 0.8 lbs/sf.
5. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.

D. Topcoat

1. The topcoat shall be comprised of ACCELERA pigmented resin and hardener and mixed per the manufacturer's instructions.
2. The topcoat shall be applied using a flat squeegee and cross rolled with a 3/8 inch nap roller at the rate of 65 SF/kit.
3. The finished floor will have a nominal thickness of ¼ inch.

3.4 FIELD QUALITY CONTROL

A. Tests, Inspection

1. The following tests shall be conducted by the Applicator:
   a. Temperature
      1. Air, substrate temperatures and, if applicable, dew point.
   b. Coverage Rates
      1. Rates for all layers shall be monitored by checking quantity of material used against the area covered.

3.5 CLEANING AND PROTECTION

A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.

B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.

END OF SECTION 096723

SECTION 101100 - VISUAL DISPLAY BOARDS

05/12/15

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 0 & 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes, but is not limited to, the following:

1. Porcelain enamel markerboards.

B. Related Sections include the following:

1. Division 9 Section "Vinyl Covered Tackboard" for tackable, fabric-covered wall surfaces.
2. Division 9 Section “Presentation Dry Erase Wallcovering” for specialized wallcoverings.
3. Division 10 Section "Miscellaneous Items" and accessory schedule for individually framed, wall-mounted bulletin boards.
4. Division 10 Section "Miscellaneous Items" for grip strips.

1.3 SUBMITTALS

A. Product Data: For each type of visual display board indicated. Include motor capacities and individual panel weights for sliding chalkboard and markerboard units.

B. Shop Drawings: For each type of visual display board required.

1. Include dimensioned elevations. Show location of joints between individual panels where unit dimensions exceed maximum panel length.
2. Include sections of typical trim members.
3. Show anchors, grounds, reinforcement, accessories, layout, and installation details.

C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors and textures available for the following:

1. Markerboards: Actual sections of porcelain enamel finish for each type of chalkboard and markerboard required.

D. Samples for Verification: Of the following products, showing color and texture or finish selected. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected. Prepare Samples from the same material to be used for the Work.

1. Visual Display Boards: Sample panels not less than 8-1/2 by 11 inches (215 by 280 mm), mounted on the substrate indicated for the final Work. Include a panel for each type, color, and texture required.
2. Aluminum Trim and Accessories: Samples of each finish type and color, on 6-inch- (150-mm-) long sections of extrusions and not less than 4-inch (100-mm) squares of sheet or plate. Include Sample sets showing the full range of color variations expected.

E. Project Closeout Requirements:

1. 10-year warranty markerboards.
2. Cleaning and maintenance data.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who is an authorized representative of chalkboard manufacturer for both installation and maintenance of the type of siding chalkboard units required for this Project.

B. Source Limitations: Obtain visual display boards through one source from a single manufacturer.

C. Fire-Test-Response Characteristics: Provide vinyl-fabric-faced tackboards with the following surface-burning characteristics as determined by testing assembled materials composed of facings and backings identical to those required in this Section per ASTM E 84 by a testing and inspecting agency acceptable to authorities having jurisdiction. Identify vinyl-fabric-faced tackboards with appropriate markings of applicable testing and inspecting agency.

1. Flame Spread: 25 or less.
2. Smoke Developed: 10 or less.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify field measurements before preparation of Shop Drawings and before fabrication to ensure proper fitting. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating chalkboards without field measurements. Coordinate wall construction to ensure actual dimensions correspond to established dimensions.

1.6 WARRANTY

A. General Warranty: The special porcelain enamel chalkboard warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Porcelain Enamel Markerboard Warranty: Submit a written warranty executed by manufacturer agreeing to replace porcelain enamel chalkboards that do not retain their original writing and erasing qualities, become slick and shiny, or exhibit crazing, cracking, or flaking within the specified warranty period, provided the manufacturer's written instructions for handling, installation, protection, and maintenance have been followed.

1. Warranty Period: 10 years from date of Notice of Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Porcelain Enamel Markerboards:

a. Best-Rite Chalkboard Co.
b. Claridge Products and Equipment, Inc.
c. Greensteel, Inc.
d. ADP Lemco Inc.

2.2 MATERIALS

A. Porcelain Enamel Markerboards: Balanced, high-pressure-laminated, porcelain enamel chalkboards of 3-ply construction consisting of face sheet, core material, and backing.

1. Face Sheet: 0.024-inch (0.61-mm) enameling grade steel especially processed for temperatures used in coating porcelain on steel. Coat exposed face and edges with a 3-coat process consisting of primer, ground coat, and color cover coat. Coat concealed face with a 2-coat process consisting of primer and ground coat. Fuse cover and ground coats to steel at manufacturer's standard firing temperatures, but not less than 1200 deg F (649 deg C).

a. Cover Coat: Provide manufacturer's standard matte-finish cover coat, with color selected from manufacturer's standards.

2. Core: 3/8-inch- (9.5-mm-) thick, particleboard core material complying with requirements of ANSI A208.1, Grade 1-M-1.
3. Backing Sheet: 0.018-inch- (0.46-mm-) thick, galvanized steel sheet backing.
4. Laminating Adhesive: Manufacturer's standard, moisture-resistant, thermoplastic-type adhesive.

2.3 ACCESSORIES

A. Metal Trim and Accessories: Fabricate frames and trim of not less than 0.062-inch- (1.57-mm-) thick, extruded-aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single-length units. Keep joints to a minimum. Miter corners to a neat, hairline closure.

1. Where size of visual display boards or other conditions require support in addition to normal trim, provide structural supports or modify trim as indicated or as selected by Architect from manufacturer's standard structural support accessories to suit conditions indicated.
2. Field-Applied Trim: Manufacturer's standard snap-on trim with no visible screws or exposed joints.
3. Chalktray: Manufacturer's standard, continuous, box-type, aluminum chalktray with slanted front and cast-aluminum end closures for each chalkboard.
4. Map Rail: Furnish map rail at top of each unit, complete with the following metal accessories:

a. Display Rail: Provide continuous cork display rail approximately 1 or 2 inches (25 or 50 mm) wide, as indicated, integral with map rail.
b. End Stops: Provide one end stop at each end of map rail.
c. Map Hooks: Provide 2 metal map hooks for every 48 inches (1220 mm) of map rail or fraction thereof.
d. Flag Holder: Provide one flag holder for each room.

2.4 FABRICATION

A. Porcelain Enamel Markerboards: Laminate facing sheet and backing sheet to core material under pressure with manufacturer's recommended flexible, waterproof adhesive.

B. Assembly: Provide factory-assembled markerboard and tackboard units, unless field-assembled units are required.

1. Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, see plans for joint locations.

2.5 FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.

B. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

C. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 607.1.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine wall surfaces, with Installer present, for compliance with requirements and other conditions affecting installation of visual display boards.

1. Surfaces to receive markerboards shall be free of dirt, scaling paint, and projections or depressions that would affect smooth, finished surfaces of chalkboards or markerboards.
2. Surfaces to receive tackboards shall be dry and free of substances that would impair the bond between tackboards and substrate.
3. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Deliver factory-built visual display boards completely assembled in one piece without joints, where possible. If dimensions exceed panel size, provide 2 or more pieces of equal length as acceptable to Architect. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site. Use splines at joints to maintain surface alignment.

B. Install units in locations and at mounting heights indicated and according to manufacturer's written instructions. Keep perimeter lines straight, plumb, and level. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.

C. Coordinate Project-site-assembled units with grounds, trim, and accessories. Join parts with a neat, precision fit.

3.3 ADJUSTING AND CLEANING

A. Verify that accessories required for each unit have been properly installed and that operating units function properly.

B. Clean units according to manufacturer's written instructions.

END OF SECTION 101100

SECTION 27 1000

STRUCTURED CABLING SYSTEM

Part 1 General

1.1 Work Included

A. General

1. Provide all labor, materials, tools and equipment required for the complete installation of work called for on the Construction Drawings and described in the Specifying Documentation.
2. This document describes the requirements for the contractors, products and installation relating to furnishing and installing Telecommunications Cabling systems.
3. The Horizontal Cabling System as described in this document is comprised of cabling, infrastructure, J-hook pathways and termination devices for Data systems.
4. Contractor will provide a bid including all labor, materials, tools and equipment required for the complete installation of work called for on the Construction Drawings and described in this Document. It is the responsibility of the Contractor to provide all material necessary to provide a complete and operable system. If the contractor feels that the system described is incomplete, they must address this in writing to the Owner/Owner's Representative before providing a bid.
5. All questions concerning non-specified product and services will be address to the Owner's Representative before Contactor provides a bid. Owner expects that by accepting the Contractor's bid proposal that the Contractor has provided a competent bid for a complete solution.
6. 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.

1.2 References

A. Regulatory References

1. Contractors will comply with all requirements as specified in Section 27 0000 '1.3. – Regulatory References'.

1.3 Safety and Indemnity

A. Requirements

1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 27 0000 '2.1 – Safety and Indemnity'.

1.4 Contractor Qualifications

A. Requirements

1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 27 0000 '2.2 – Contractor Qualifications'.

1.5 Quality Assurance

A. Requirements

1. Contractors shall comply with all requirements as specified in Section 27 0000 '2.3 – Quality Assurance'.

1.6 Equivalent Products

A. Approved Products

1. All Products described, and Part Numbers given in this Specification are those of Hubbell unless otherwise noted.

B. Pre-Approved Equals:

1. None

C. Other Than Approved Products

1. Contractors wishing to approve a system other than those specified in this document shall do so in accordance with Section 27 000 '3.1 Products'.

1.7 Submittal Documentation

A. Requirements

1. The successful contractor shall provide their submittal package in accordance with the Section '01 20 00 – Submittal Schedule' and Section 27 0000 '3.2 – Submittal Documentation'.

1.8 Acceptance

A. Requirements

1. The contractor shall comply with all requirements as listed in Section 27 0000 '3.3 – Acceptance'.

1.9 Warranty

A. Requirements

1. The contractor shall comply with all requirements as listed in Section 27 0000 '3.4 – Warranty'.

1.10 Technology Clause

A. General Requirements

1. As technology advances, it is understood that improved or enhanced products may supersede existing products in both price and performance and yet be essentially similar. This request for bids seeks to address the rapid advances in technology by allowing functionally similar or identical products that may be introduced in the future, during the term of this bid, to be included under the general umbrella of compatible product lines and are thus specifically included in this bid document.
2. Discontinued or end of life products shall be replaced with an equal product to the original specified product at no additional costs to the owner.

Part 2 Products

2.1 Work Area Subsystem

A. General

1. The Work Area shall consist of the connectivity equipment used to connect the horizontal cabling subsystem and the equipment in the work area. The connectivity equipment shall include the following options:
   - Patch Cords

- Modular Inserts, Jacks and Plugs
- Faceplates

B. Patch Cords

1. Category 6 Data/Voice Outlet Patch Cords
   - All category 6 channel patch cords shall be constructed with a snagless boot, made of molded PVC, colored matched to the color of the patch cord cable.
   - All category 6 channel patch cords shall be constructed with category 6 patch cable, 24 AWG, 7/32 tinned copper stranded patch cable, insulated with polyethylene and paired, jacketed with PVC, ETL Verified for ISO 11801, (UL) NEC type CM or CMR, 75º C, Article 800 CSA Type CMG.
   - All category 6 channel patch cords shall be 100% factory tested to pass return loss (RL) and near-end cross talk (NEXT).
   - All category 6 channel patch cords shall be manufactured using a T568-B plug-wiring format.
     - All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all Work Area Data Patch Cords.
   - Length:
     - Data/Voice patch cords will be 15 feet long.
   - Color:
     - Data/Voice Black
   - Quantity
     - Data/Voice Contractor will provide 25% of all data outlets shown on the drawings, and contractor to provide one (1) 3ft patch cord for each television location.
   - Hubbell Premise Part #, or approved equal:
     - Data/Voice **HCL6BK15**
     - TV **HCL6BK03**

2. Category 6A Wireless Access Points Outlet Patch Cords
   - All category 6A channel patch cords shall be constructed with a snagless boot, made of molded PVC, colored matched to the color of the patch cord cable.
   - All category 6A channel patch cords shall be constructed with category 6A patch cable, 24 AWG, 7/32 tinned copper stranded patch cable, insulated with polyethylene and paired, jacketed with PVC, ETL Verified for ISO 11801, (UL) NEC type CM or CMR, 75º C, Article 800 CSA Type CMG.
   - All category 6A channel patch cords shall be 100% factory tested to pass return loss (RL) and near-end cross talk (NEXT).
   - All category 6A channel patch cords shall be manufactured using a T568-B plug-wiring format.
     - All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all Work Area Data Patch Cords.
   - Length:
     - Wi-Fi patch cords will be 3 feet long.
   - Color:
     - Wi-Fi White
   - Quantity
     - Wi-Fi Contractor will provide one (1) patch cable for each Wi-Fi data outlet.
   - Hubbell Premise Part #, or approved equal:
     - Wi-Fi **HCL6AW03**

C. Modular Inserts and Jacks

1. Category 6 Data/Voice Jack & Camera Termination Plugs
   - Jack will meet the Category 6 Standard.
   - Jacks shall be 8 positions un-keyed
   - Each jack shall be an individually constructed unit and shall snap mount in an industry standard keystone opening (.760" x 580")
   - Jacks shall utilize a 2-layer printed circuit board to control NEXT
   - Jack termination shall follow the industry standard 110 IDC.
   - Jacks shall have a designation indicating Category 6 on the nose which can be plainly seen from the front of the faceplate. Bottom of jack shall have date code and an abbreviated catalog number.
   - Jacks shall utilize a paired punch down sequence. Cable pair twists shall be maintained up to the IDC, terminating all conductors adjacent to its pair mate to better maintain pair characteristics designed by the cable manufacturer.
   - Jacks shall terminate 22-26 AWG stranded or solid conductors.
   - Jacks shall be compatible with single conductor 110 impact termination tools.
   - Jacks shall be compatible with TIA/EIA 606 color code labeling
   - Jacks shall have universal wiring designation.
   - Jacks shall have an attached color-coded wiring instruction label housed between the IDC termination towers.
   - Jacks shall be manufactured in the USA
   - Jacks will be terminated according to theT568B wiring scheme
   - Color:
     - Data/Voice WHITE
     - Camera Factory
   - Quantity: Contractor will provide one jack for every outlet cable shown on the drawings.
   - Hubbell Premise Part #, or approved equal.
     - Data/Voice **HXJ6W**

2. Category 6A Wireless Access Point Jack
   - Jack will meet the Category 6A Standard.
   - Jacks shall be 8 positions un-keyed
   - Each jack shall be an individually constructed unit and shall snap mount in an industry standard keystone opening (.760" x 580")
   - Jacks shall utilize a 2-layer printed circuit board to control NEXT
   - Jack termination shall follow the industry standard 110 IDC.
   - Jacks shall have a designation indicating Category 6A on the nose which can be plainly seen from the front of the faceplate. Bottom of jack shall have date code and an abbreviated catalog number.
   - Jacks shall utilize a paired punch down sequence. Cable pair twists shall be maintained up to the IDC, terminating all conductors adjacent to its pair mate to better maintain pair characteristics designed by the cable manufacturer.
   - Jacks shall terminate 22-26 AWG stranded or solid conductors.
   - Jacks shall be compatible with single conductor 110 impact termination tools.
   - Jacks shall be compatible with TIA/EIA 606 color code labeling
   - Jacks shall have universal wiring designation.
   - Jacks shall have an attached color-coded wiring instruction label housed between the IDC termination towers.
   - Jacks shall be manufactured in the USA
   - Jacks will be terminated according to theT568B wiring scheme
   - Color:
     - Wi-Fi Purple

- Quantity: Contractor will provide one jack for every outlet cable shown on the drawings.
- Hubbell Premise Part #, or approved equal.
  - Wi-Fi **HJU6AP24**

D. Wall Mount and Modular Furniture Faceplates

1. Wall Plates
   - Faceplates shall be UL Listed and CSA Certified
   - Faceplates shall be 2.75" W x 4.5" H (69.8 mm x 114.3 mm)
   - Faceplates shall provide for TIA/EIA 606 compliant station labeling
   - Faceplates shall have plastic covers over the mounting screws that can be replaced with a clear plastic window over a printable paper insert
   - Color: WHITE or STAINLESS STEEL.
     - Contractor will field verify and match finish to the existing electrical outlet face plate cover.
   - Quantity: Contractor will provide one single gang faceplate for each outlet shown on the drawings.
   - Hubbell Premise Part #, or approved equal.
     - WHITE
       - **1 Port IFP11W**
       - **2 Port IFP12W**
       - **3 Port IFP13W**
       - **4 Port IFP14W**
       - **6 Port IFP16W**
     - STAINLESS STEEL
       - **1 Port SSFL11**
       - **2 Port SSFL12**
       - **3 Port SSFL13**
       - **4 Port SSFL14**
       - **6 Port SSFL16**
2. Blank Insert
   - Color: Blank Insert to be WHITE –
   - Quantity: Contractor will provide one insert for every unused port in a faceplate.
   - Hubbell Wiring, Part #: **SFBW10**, or approved equal.
3. Wall Phone Plates
   - Faceplate shall be a two-piece design, including a steel base and a stainless-steel cover plate.
   - Faceplates steel base shall incorporate six screw terminals, one 6 position jack and an insulating plastic sleeve.
   - Faceplate shall be equipped with screw studs to be used as the mounts for wall hung telephones.
   - Color: Faceplate to be STAINLESS STEEL
   - Quantity: Contractor will provide one faceplate for each Intercom Handset outlet shown on the drawings.
   - Allen Tel, Part #: **AT630A-6**, or approved equal. Tragic

4. Blank Wall Plates
   - Faceplate shall be constructed from stainless steel.
   - Faceplates shall be UL Listed and CSA Certified
   - Faceplates shall be 2.75" W x 4.5" H (69.8 mm x 114.3 mm) for single gang.
   - Color: Faceplate to be STAINLESS STEEL
   - Quantity: Contractor will provide one faceplate for each unused data/voice/video/intercom outlet shown on the drawings.

- Hubbell Wiring Part #: **S13**, or approved equal.

5. Surface Mount Raceway Insert –
   - Inserts for Hubble PB2, PB3, and PS3 Device Mounting Brackets
   - Insert shall allow for two category 6 jacks to be mounted flush.
   - Insert shall match the color of the Raceway installed.
   - Color: Faceplate to be IVORY
   - Quantity: Contractor will provide one 2port insert for each outlet in the Surface Mount Raceway shown on the drawings.
   - Hubbell Part #: **KP2162 or approved equal**.

2.2 Horizontal Distribution Cabling

1. The horizontal distribution cabling system is the portion of the telecommunications cabling system that extends from the Work Area (WA) telecommunications outlet/connector to the horizontal cross-connect in the Telecommunications Room (TR).
   - Cabling Support System
   - Copper Station Cabling
   - Copper Cross-Connect Cabling

B. Cabling Support System

1. J-Hooks
   - Cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables; cULus Listed.
   - Cable supports shall have flared edges to prevent damage while installing cables.
   - Cable support system shall provide fasteners that allow them to be mounted to wall, concrete, joist, tee-bar wire, treaded rod, beams and raised floor supports.
   - Fasteners shall have the ability to either be factory or jobsite assembled; rated for indoor use in non-corrosive environments; cULus Listed.
   - Fastener to with one non-continuous cable support, factory or jobsite assembled.
   - Color: NA
   - Quantity: Contractor will provide quantities of j-hooks and hanger accessories in the amount necessary to support all horizontal cabling every 4-5 feet.
   - Part #:
     - ERICO CAT425
     - Cooper B-Line BCH12, BCH21, BCH32, BCH64 and accessories.

C. Copper Station Cable

1. Category 6 Data/Voice, Camera, and Intercom Unshielded Twisted Pair (UTP) Cable
   - Cable will meet or exceed the proposed requirements of ANSI/TIA/EIA 568-B.2, 568-B.2 Addendum #1 and ISO/IEC 11801 Category 6 Cable Standard for: NEXT and ELFEXT (Pair-To-Pair and Power Sum), Insertion Loss (Attenuation), Return Loss, and Delay Skew.
   - Cable shall be proven to support Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, IEEE 802.3af Power Over Ethernet for VoIP, 100 Mbps Fast Ethernet / 100BASE-T / IEEE 802.3, ANSI.X3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps Token Ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz Broadband Video and standards under development such as ATM at 622 Mbps, 1.2 and 2.4 Gbps.
   - The cable shall consist of four unshielded twisted pairs of thermoplastic insulated bare copper enclosed in a thermoplastic jacket.
   - All cable shall conform to the requirements for communications circuits defined by the National Electrical Code (Article 800) and the Canadian Building Code.

Cable listed to NEC Article 800-51(a) will be used for “Plenum” installations. Cable listed to NEC Article 800-51(b) shall be installed in vertical runs penetrating more than one floor.

- Cable shall have been certified with the UL 1666 Vertical Tray Flame Test.
- Cable shall be available in a Plenum, Riser and Indoor/Outdoor rated jackets.
- Contractor will use the indoor/outdoor rated cable for all locations where the cable pathway goes underground and/or run in exterior conduit.
- The listed Category 6 cables in this specification are manufactured by Mohawk/CDT. All other manufactures eligible for Hubbell’s Certified Premise Solution also have been pre-approved.
- Color:
  - Data/Voice BLUE
  - Camera WHITE
  - Intercom YELLOW
- Quantity: See Drawing for quantity and installation details.
- Part#:
  - For Riser Application:
    - Data/Voice Hubbell **HC6SRB**
    - Camera Hubbell **HC6RRW**
    - Intercom Hubbell **HC6SRY**
  - For Plenum Application:
    - Data/Voice Hubbell **C6RPEB**
    - Camera Hubbell **C6RPEW**
    - Intercom Hubbell **C6RPEY**
  - For Indoor/Outdoor Application:
    - Data/Voice, Mohawk PN# **M58722** (all cable jackets will be BLACK)

2. Category 6A Wireless Access Point Unshielded Twisted Pair (UTP) Cable
   - Cable will meet or exceed the proposed requirements of ANSI/TIA/EIA 568-B.2, 568-B.2 Addendum #1 and ISO/IEC 11801 Category 6 Cable Standard for: NEXT and ELFEXT (Pair-To-Pair and Power Sum), Insertion Loss (Attenuation), Return Loss, and Delay Skew.
   - Cable shall be proven to support Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, IEEE 802.3af Power Over Ethernet for VoIP, 100 Mbps Fast Ethernet / 100BASE-T / IEEE 802.3, ANSI.X3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps Token Ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz Broadband Video and standards under development such as ATM at 622 Mbps, 1.2 and 2.4 Gbps.
   - The cable shall consist of four unshielded twisted pairs of thermoplastic insulated bare copper enclosed in a thermoplastic jacket.
   - All cable shall conform to the requirements for communications circuits defined by the National Electrical Code (Article 800) and the Canadian Building Code. Cable listed to NEC Article 800-51(a) will be used for “Plenum” installations. Cable listed to NEC Article 800-51(b) shall be installed in vertical runs penetrating more than one floor.
   - Cable shall have been certified with the UL 1666 Vertical Tray Flame Test.
   - Cable shall be available in a Plenum, Riser and Indoor/Outdoor rated jackets.
   - Contractor will use the indoor/outdoor rated cable for all locations where the cable pathway goes underground and/or run in exterior conduit.
   - The listed Category 6 cables in this specification are manufactured by Mohawk/CDT. All other manufactures eligible for Hubbell’s Certified Premise Solution also have been pre-approved.
   - Color:
     - Wi-Fi BLUE
   - Quantity: See Drawing for quantity and installation details.

- Part#:
  - For Riser Application:
    - Wi-Fi Hubbell **C6ASRB**
  - For Plenum Application:
    - Wi-Fi Hubbell **C6ASPB**
  - For Indoor/Outdoor Application:
    - Wi-Fi, Mohawk PN# **M58722** (all cable jackets will be BLACK)

D. Horizontal Copper Cross-Connect Cabling

1. Voice Cross-Connect Cabling
   - Cable shall meet and/or exceed the UL Listed Type CMR and the ANSI/ICEA S-80-576 standard.
   - Core Construction
     - Conductors: Solid-copper conductors, 24 AWG.
     - Insulation: Flame retardant semi-rigid PVC.
     - Core Assembly: Cable core will be made up of 100 pair units consisting of four (4) 25 pair sub-units. Each group individually identifiable by color coded unit binders.
   - Jacket: Gray, flame retardant PVC jacket.
   - Color: Voice cable jacket will be GRAY
   - Quantity: See Drawing for quantity and installation details. The number of 25-pair cable between the MDF and the IDF shall be derived by multiplying the number of pairs required for the cross-connect by 1.25 to the nearest 25-pair increment.
   - Part#: Equal to Mohawk Cable:
     - 12 pair = PN# **09-094-02 – Superior Essex**
     - 25 pair = PN# **M58141**
     - 50 pair = PN# **M58522**
     - 100 pair = PN# **M585201**

2.3 Backbone Cabling

A. General

1. The backbone cabling system is the portion of the telecommunications cabling system that extends from the Intermediate Distribution Frame (IDF) to the Main Distribution Frame (MDF).
   - Fiber Optic Backbone Cabling
   - Copper Backbone Cabling

B. Fiber Optic Backbone Cabling –

1. Data System Backbone Cabling
   - Cable shall be UL/cUL OFNR/OFN FTA rated and be Flame Resistant in accordance with the UL 1666.
   - Cable shall an indoor/outdoor rated jacket.
   - Cable shall be constructed utilizing a loose tube design.
   - Cable will be fully water blocked combining overall water blocking tape and a moisture blocking gel for each individual tube.
   - Cable will maintain the following:
     - Crush Resistance (EIA-455-41) = 2000 N/cm
     - Impact Resistance (EIA-455-25) = 2000 Impacts w/1.6 N-m
     - Min Bend Radius:
       - Long Term - No Load = 15x Cable diameter
       - Short Term – Load = 20x Cable diameter
     - Operating Temp. = -40°C to +70°C
     - Storage Temp. = -40°C to +80°C

- Cable shall be constructed of 50/125µ Laser Optimized rated glass capable of:
  - 1 Gigabit Ethernet Link at 1000m/600m (@850nm/1300nm)
  - 10 Gigabit Ethernet Link at 300m/300m (@850nm/1300nm)
- The Fiber Optic Cable in this specification is manufactured by Mohawk/CDT. All other manufactures eligible for Hubbell's Certified Premise Solution that meet and/or exceed the below specifications have also been pre-approved.
- Color: Fiber Optic cable jacket will be BLACK
- Quantity: See Drawing for quantity and installation details.
- Hubbell Premise Part #:
  - 12 Strand Multi Mode Fiber **HFCD14012R4BK**

C. Copper System Backbone Cabling

1. Voice & Intercom System Backbone Cabling
   - Cable shall meet or exceed those specified in RUS Bulletin 1753F-208 (REA PE-89)
   - Core Construction
     - Conductors: Solid, annealed copper, 24 AWG unless otherwise noted on design documents.
     - Insulation: Dual insulation consisting of an inner layer of foamed polyolefin skin, colored coded in accordance with industry standards
     - Core Assembly: Cables of 25 pairs and less formed by assembling pairs together in a single group. Cables of more than 25 pairs formed by twisted pairs arranged in groups with each group having a color coded unit binder.
     - Filling Compound: The entire core assembly completely filled with ETPR compound, filling the interstices between the pairs and under the core tape.
     - Core Wrap: Non-hygroscopic dielectric tape applied longitudinally with an overlap.
     - Sheath Construction
     - Aluminum Shield: Corrosion protected plastic coated, corrugated 0.008" aluminum tape.
   - Jacket: Black, linear low-density polyethylene.
   - Color: Voice cable jacket will be BLACK
   - Quantity: See Drawing for quantity and installation details. The number of 25-pair cable between the MDF and the IDF shall be derived by multiplying the number of pairs serving the individual telephone handsets by 1.25 to the nearest 25-pair increment.
   - Part#: Equal to General Cable:
     - 12 pair = PN#**09-094-02 – Superior Essex**
     - 25 pair = PN# **7525758**
     - 50 pair = PN# **7525793**
     - 75 pair = PN# **7525801**
     - 100 pair = PN# **7525819**
     - 200 pair = PN# **7525835**

2.4 Telecommunication Room

A. General Requirements

1. The Telecommunication Room (TR) includes those products that terminate horizontal and backbone cabling subsystems and connect then to the network equipment.
   - Patch Cords
   - Horizontal Cabling Termination Equipment
   - Backbone Cabling Termination Equipment
   - Cabinets, Racks, and Enclosures
   - Cable Support System

B. Patch Cords
1. Category 6 Data/Voice & Camera TR Patch Cords
- TR Copper Patch Cords shall comply with those specified in 2.1 Work Area Subsystem, A. Patch Cords, 1. Category 6 Data Outlet Patch Cords
- All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all TR Data and Voice Patch Cords.
- Color:
  - Data/Voice BLUE
  - Camera RED
- Quantity: Contractor will provide one patch cord for every data and voice outlet cable shown on the drawings. Contractor will provide the quantity of different length patch cords as follows:
- Part#:
  - Data/Voice Patch Cords
    - 3-Foot **HCL6B03**
  - Camera Patch Cords
    - 3-Foot **HCL6R03**

2. Category 6A Wireless Access Points TR Patch Cords
- TR Copper Patch Cords shall comply with those specified in 2.1 Work Area Subsystem, A. Patch Cords, 1. Category 6A Data Outlet Patch Cords
- All patch cords will be delivered to the site and must be signed for by the Owner/Owner's Representative. It will be the responsibility of other to install all TR Data and Voice Patch Cords.
- Color:
  - Wi-Fi PURPLE
- Quantity: Contractor will provide one patch cord for every data and voice outlet cable shown on the drawings. Contractor will provide the quantity of different length patch cords as follows:
- Part#:
  - Wi-Fi Patch Cords
    - 3-Foot **HCL6AP03**

3. Fiber Patch Cords
- Patch Cords shall be a Duplex LC to LC 50/125µm "Laser Optimize" Graded-Index Multimode Fiber Patch Cord.
- All patch cords shall be factory polished and 100% optically tested for superior performance.
- Cables shall have a Mated Pair MM Insertion Loss of less than 0.60 dB (0.25 dB Typical).
- Cable Retention: > 25 pounds
- All optical, mechanical and environmental performance shall meet and/or exceed the TIAEIA-568-B.3 specifications.
- Fiber patch cords will be 1-meter long.
- Color: NA
- Quantity: Contractor will provide two fiber patch cords for every New fiber optic backbone cable run shown on the drawings.
- Part#: **DFRCLCLCF1MM**

C. Horizontal Cable Termination Equipment
1. Modular Unloaded Patch Panels (Only 48-Port Patch Panels is Acceptable)
- Panels shall be made of black anodized aluminum in 24-, 48-, and 96- port configurations.

- Panels shall have modular jacks employing a tri-plane staggered contact array with a flat “hairpin” contact design made of Beryllium copper with a minimum 50-micro-inch gold plating on contact surfaces over 50-100 micro-inch of nickel compliant with FCC part 68.
- Panels shall be equipped with 110-style termination made of fire retardant UL 94V0 rated thermoplastic and tin lead solder plated IDC.
- Panels shall have optional rear cable support bar for strain relief. Cable support bar shall attach to the rear of the patch panel itself without the use of additional fasteners or screws.
- Panels shall have self-adhesive, clear label holders and white designation labels provided with the panel for each row of 24 ports.
- Panels shall provide wiring identification & color code and maintain an in-line, paired punch down sequence that does not require the splitting of conductors from individual cable pairs.
- Panels shall terminate 22-26 AWG solid conductors, maximum insulated conductor outside diameter 0.050”.
- Panels shall be ANSI/TIA/EIA-568-B.1, B.2 and ISO/IEC 11801 category 6 compliant.
- Panels shall be UL LISTED 1863 and CSA certified.
- Panels shall be made by an ISO 9002 Certified Manufacturer.
- Panels installed in a 4-connector channel with a category 6 modular jack, and category 6 patch cords, all from the same manufacturer, and a qualified category 6 cables shall meet or exceed the requirements of Draft 5 of the TIA UTP Systems Task Group PN3727, Category 6 Draft Addendum to the ANSI/TIA/EIA-568-B.2 standard.
- Color: Patch Panel shall be BLACK
- Quantity: See Drawing for quantity and installation details. The number of patch panels to be supplied shall be derived by multiplying the number of data/voice cables being terminated at the individual TR by 1.25 and providing additional panels in the nearest 24 port increment.
- Part#:
  - 24 port Category Patch Panel, **HWS14608C**
  - 48 port Category Patch Panel, **HWS14609C**
    - *Provide one Cable Management Bar, PN# **PCBLMGT**, for each 24 ports.

D. Horizontal Voice & Intercom Cross-Connect 66 Wiring Blocks

1. Wall Mount
   - Blocks shall be available in a 25 pair unit.
   - Blocks shall be wall mounted.
   - Wiring blocks shall be available as kits that include the wiring blocks, the proper number of connecting clips, wire management and label strips.
   - Blocks shall be constructed of a UL94 V0 rated polycarbonate blend.
   - Blocks shall be mounted to a rugged 16 ga steel distribution frame. Frame shall support the 66 blocks and allow for a through for cables to be routed through the rear of the blocks directly to the termination point.
   - Blocks shall be UL VERIFIED for TIA/EIA-568-B compliance.
   - Color: NA
   - Quantity: See Drawing for quantity and installation details.
   - Part#: 6 pair block, PN# **HPW66B16**
   - Part#: 25 pair block, PN# **HPW66B425**
   - Accessories to be provided with each installed 66 Block:
     - Mounting Bracket PN# **HPW89D**

E. Backbone Cable Termination Equipment
   1. Fiber Optic Cassette
      - ETL Tested per TIA/EIA-568-C.3
      - MM Mated Pair Insertion Loss: <0.5dB (0.35dB typical)
      - Return Loss: <-35dB
      - Operating temperature: 0-70°C
      - Materials:
        - Connector ferrule: Zirconia ceramic
        - Connector body/nut: Nickel plated brass/zinc or polymer
      - Strain relief boot: Flame retardant (UL-Rated 94-V0) polymer
      - Color: Aqua
      - Quantity: See Drawing for quantity and installation details.
      - Part#: **OCLC50G4CVI**

F. Copper Termination Panels
   1. Voice 110 Wiring Blocks
   2. Wall Mount
      - Blocks shall be available in a 300-pair unit.
      - Blocks shall be wall mounted.
      - Wiring blocks shall be available as kits that include the wiring blocks, the proper number of 5 pair connecting clips, wire management and label strips.
      - Blocks shall be constructed of a UL94 V0 rated polycarbonate blend.
      - Blocks shall be mounted to a rugged 16 ga steel distribution frame. Frame shall support the 110 blocks and allow for a through for cables to be routed through the rear of the blocks directly to the termination point.
      - Blocks shall be UL VERIFIED for TIA/EIA-568-B compliance.
      - Color: NA
      - Quantity: See Drawing for quantity and installation details. The number of 110 blocks to be supplied shall be derived by multiplying the number of voice/intercom cables being terminated at the individual TR by 1.25 and providing additional panels in the nearest 300 pair block increment.
      - Part#: 300 pair block, PN# **110WMK**
   3. OSP Protection Panels
      - 110 connector input and output
      - wall or frame mountable
      - designed with an internal splice chamber and cover over incoming and outgoing connections and protection modules
      - stackable to allow for future service expansion
      - equipped with an internal fuse link
      - external ground connectors accept 6-14 AWG ground wire
      - accommodates industry standard 5 pin protection modules
      - designed to exceed the requirements set forth in Underwriters Laboratory's UL497
      - Color: NA
      - Quantity: One protection panel will be installed per IDF home run to the MDF. Protection panels are not required at the IDF side of the cable run.
   4. Part#: Circa Enterprise inc. –
      25 pair block, PN# **1880ECA1-25**
      50 pair block, PN# **1880ECA1-50**
      100 pair block, PN# **1880ECA1-100**

G. Fiber Termination Panels
   1. MDF Rack Mount Fiber Panel

- Panels shall be constructed of cold rolled 16 ga. steel with a black powder paint finish and provide for fully enclosed fiber patching and termination.
- Panels shall have a removable smoked Plexiglas front cover with optional lock kit. The panel shall have a removable top, front and rear covers. The panel adapter tray shall be removable from the front of the panel by sliding the tray forward. Panels shall come with rack mounting brackets that allow it to be mounted with the front cover flush with the front of the rack, or with the front of the panel extended 5.0" in front of the rack.
- Panels shall be 2 rack spaces, accepting 9 adapter panels.
- Adapter panels shall be available with SC multimode adapters. Adapter shall have a zirconia alignment sleeve.
- Panel shall have a splice tray mounting stud incorporated into the base for mounting of mechanical or fusion splice trays. Adapter tray shall have cable management anchor points and come with cable anchors allowing for the maintenance of the incoming cable with the proper minimum bend radius.
- Panels shall have four cable entrance ports on the top and 2 on the bottom, which are covered by knock outs. Panels shall have two jumper ports in the bottom at the front of the panel with plastic dust covers for routing of jumpers.
- Color: Fiber Panel will be BLACK
- Quantity: See Drawing for quantity and installation details.
- Hubbell Premise Part #, or approved equal:
  - 4U Rack Mount Panel **FCR4U15SPL**
  - Insert Panels
    - Blanks **FSPB**

2. IDF Rack Mount Fiber Panel
   - Panels shall be constructed of cold rolled 16-gauge steel with a black powder paint finish.
   - The panel shall have a hinged swing-out fiber drawer. Panels shall come with rack mounting brackets that allow it to be mounted on a 19" or 23" rack. Panel shall occupy no more than one rack space.
   - Panel shall be constructed to accept up to 3 adaptor panels.
   - Panels shall have cable entrance points in the rear, which are covered by knock-outs
   - Color: Fiber Panel will be BLACK
   - Quantity: See Drawing for quantity and installation details.
   - Hubbell Premise Part #, or approved equal:
     - Rack Mount Panel
       - 1U Rack Mount Panel **FCR1U3SPL**
     - Insert Panels
       - Blanks **FSPB**

3. IDF Wall Mount Fiber Panel
   - Panels shall be constructed of cold rolled 16-gauge steel with a black powder paint finish.
   - Panel shall be constructed to accept up to 1 adaptor panels.
   - Color: Fiber Panel will be BLACK
   - Quantity: See Drawing for quantity and installation details.
   - Corning Cabling System Part #, or approved equal:
     - Wall Mount Panel
       - Single Panel Housing **SPH-01P**

H. Cabinets, Racks, and Enclosures
   1. Contractor will provide the following 'MDF/IDF' Cabinets, Racks, Enclosures and components based on the number of cables to that will be terminated:

1. Floor Mount Cabinets
   - Width: 750.0mm 29.52” (19” EIA)
   - Height: 1991.0mm 78.38” (42 RMU)
   - Depth: 39”
   - **Color:** Floor Mount Cabinet will be or **BLACK**
   - **Quantity:** See Drawing for quantity and installation details.
   - **Part#:**

     Floor Mount Cabinet

     AR3150 NetShelter SX 42U
     - Provide (3) for MDF see drawing detail 3T4.3 & Elevations 3T3.0

     In Row Air Conditioner

     ACRD100
     - Provide (1) for MDF see drawing detail 3T4.3 & Elevations 3T3.0

     AP9325
     - Provide (1) per In Row Air Conditioner

     Condenser

     ACCD75215
     - Provide (1) for MDF see drawing detail 3T4.3 & Elevations 3T3.0

     ACAC75009
     - Provide (2) per Condenser

     ACAC10022
     - Provide (1) per Condenser

     AR7701
     - Provide (1) per Condenser

2. Wall-Mounted Cabinets
   - Wall-mounted cabinets shall be manufactured from steel sheet.
   - Each cabinet will have a rear panel that attaches to the wall, a hinged cabinet body that swings open from the rear panel providing easy access to the rear of equipment and a locking front door.
   - The rear panel will provide cable access with pre-punched knockouts, up to 3”, for conduit along the top and bottom edges of the panel. There will also be cutouts in the back of the rear panel so that cables can enter the panel through the wall. The rear panel will provide attachment points for accessory equipment mounting brackets and cable tie points within the panel (cabinet).
   - The cabinet body will include a single pair of vertical 19” EIA equipment mounting rails. The mounting rails will be EIA-310-D compliant with the Universal hole pattern. Mounting holes will have #12-24 threads.
   - Mounting rails will be adjustable in depth so that they can be positioned at any point within the cabinet body. The design of all cabinets will allow an additional pair of mounting rails (for a total of two pairs of mounting rails per cabinet) to be added to the cabinet.
   - The wall-mount cabinet shall provide a hinge design that attaches the cabinet body and the rear panel and allow the rear panel to be removed during installation. The hinge design will allow the cabinet body to open at least 90°. The hasp used to secure the rear panel and the cabinet body together will assist in drawing the components together during the locking action.
   - The cabinet body will include vents that are designed to accept fan kits.
   - The front door will be hinged and locking. The front door and rear panel will be keyed alike. The front door will have rounded edges and corners. The cabinet body will allow the front door to be attached so that it will swing open from the right or left. The cabinet manufacture shall provide an option for a solid or a tinted

plexi-glass window front door. The plexi-glass in doors shall be bronze acrylic (not clear) with a UL flammability classification of 94HB or better.

- Finish shall be epoxy-polyester hybrid powder coat (paint).
- The cabinet shall have the option of being delivered fully assembled. All cabinets will include installation hardware (hex lag screws) for wood studs and 50 each #12-24 equipment mounting screws.
- Load bearing capacity for cabinets that wall-mount will be a minimum of 200 pounds per cabinet.
- Cabinets that are wall-mount only will be certified and UL Listed to standard UL 60950 under category NWIN.
- Color: Wall Mount Cabinet will be BLACK
- Quantity: See Drawing for size, quantity and installation details.
- Part#:
  - Wall Mount Cabinet **RE4X**

  - Accessories to be provided with each installed cabinet:
    - Sound Dampening Kit **REKS**
    - Fan Kit **REKF**
    - Fan Filter Kit **REKFF**

I. Telco Backboards

1. Backboards shall be 4’ x 8’ x .75” void free plywood (ACX Plywood with the “A” side turned out).
2. Sheets shall be but to size for the application intended.
3. The plywood shall be painted with two coats of white fire-retardant paint.
   - Flame Stop III paint additive ASTM E-84, NFPA 255, UL 723
   - Add one pint of Flame Stop III and one pint of water to one gallon of latex-based paint.

Part 3 Execution

3.1 Installation

A. Work Area Outlets Installation

1. No more than 12” of cable shall be stored in an outlet box, modular furniture raceway, or insulated walls.
2. Bend radius of the cable in the termination area shall not be less than 4 times the outside diameter of the cable.
3. The cable jacket shall be maintained to within 12.7mm (½ inch) of the termination point.
4. All UTP cables shall have no more than 12.7mm (½ inch) of pair untwist at the termination point.
5. Data jacks, unless otherwise noted in drawings, shall be located in the top position(s) of each faceplate. Data jacks in horizontally oriented faceplates shall occupy the left-most position(s).
6. Voice jacks, unless otherwise noted in drawings, shall occupy the next position(s) below the data on the faceplate. Voice jacks in horizontally oriented faceplates shall occupy the position left of the data jack.
7. Video jacks, unless otherwise noted in drawings, shall occupy the bottom position(s) on the faceplate. Video jacks in horizontally oriented faceplates shall occupy the position left of the data/voice jack.
8. All faceplates installed shall be level.
9. All outlets will be labeled according to the approved labeling scheme.

10. Each faceplate shall be machine labeled. The labeling shall be placed on the faceplate so that the individual jack can be clearly identified by its associated label.
11. Cables shall be identified by a self-adhesive label in accordance with the Identification and Labeling section of this specification and ANSI/TIA/EIA-606. The cable label shall be applied to the cable no further than 6" behind termination module, behind the faceplate on a section of cable that can be accessed by removing the cover plate.

B. Horizontal Distribution Cable Installation
1. Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
2. Tie Wraps will not be allowed for supporting, bundling and/or dressing of any station cables on this project.
3. Contractor will provide a three foot "service loop" for all station cables. The service loop will be coiled and secured using Velcro in the accessible ceiling at the conduit stub to the work area outlet box.
4. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in all "common" conduit runs. "Common" Conduit Runs are those that house more than one cable or set of cables that do not specifically feed a Work Station Outlet. Examples of "Common" Conduit Runs are: floor/ceiling penetrations, stub-throughs, distribution conduits, all conduits between J-boxes, etc.
5. Cable raceways shall not be filled greater than the TIA/EIA-569-A maximum fill for the particular raceway type or 40%.
6. Cables shall be installed in continuous lengths from origin to destination (no splices) except for transition points, or consolidation points.
7. The cable's minimum bend radius and maximum pulling tension shall not be exceeded.
8. Pulling tension on 4-pair UTP cables shall not exceed 25-lb for a four-pair UTP cable.
9. The Cable Support System shall be installed in such away that will allow for future cables to be added and to provide sufficient protection of all cable.
10. For all installs where station cables are not installed in a continuous conduit run the following guidelines will apply. The Contractor will be responsible to reinstall all cables and pathways that do not meet with the following at no additional cost to the Owner:
11. J-hooks shall be installed to support all station cables every 4ft to 5ft.
12. All pathways shall be run at right angles. No diagonal pathways will be allowed unless otherwise noted on the drawings.
13. Horizontal cables shall be bundled in groups of no more than 25 cables per Cooper B-Line's BCH21 J-hook, no more than 40 cables per Cooper B-Line's BCH32 J-hook, and no more than 64 cables per Cooper B-Line's BCH64 J-hook.
14. At no point shall cable(s) rest on acoustic ceiling grids, acoustic panels, or lighting fixtures.
15. All cables will be installed so that there is a minimum of 3" of clearance above all ceiling grid and tiles.
16. All cables will be installed so that there is a minimum of 12" of clearance above all florescent lighting.
17. All cables will be installed so that there is a minimum of 6" of clearance from all fire alarm and electrical system conduits.
18. Cables shall not be attached to the ceiling grid or lighting fixture wires. The contractor will provide their own carriers wires to support their horizontal cabling.
19. All cables shall be installed above fire-sprinkler systems and plumbing system fixtures and devises. Cables shall not be attached to or supported by these fixtures and/or their ancillary equipment or hardware.
20. 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.

21. Contractor is responsible for sealing around all cables that penetrate fire rated barriers.
22. 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.

C. Horizontal Cross-Connect Installation
1. Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-A standard, manufacturer's recommendations and best industry practices.
2. The cable jacket shall be maintained to within 12.7mm (½ inch) of the termination point.
3. All UTP cables shall have no more than 12.7mm (½ inch) of pair untwist at the termination point.
4. Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.
5. All cables shall be neatly bundled and dressed continuously from the entrance point of the Telecommunications Room 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. Contractor will use Velcro strip to bundle cables together. The use of Tie –Wraps is not permitted.
6. 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.

D. Backbone Cable Installation
1. Backbone cables shall be installed separately from horizontal distribution cables.
2. Where possible the backbone and horizontal cables shall be installed in separate conduits.
3. 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.
4. Pulling tension on Backbone cables shall not exceed the manufacture’s limitations.
5. The minimum bend radius for all Backbone cables is 16 times the cable diameter or the manufactures specification, whichever is greater.
6. All OSP cables may not penetrate more than 50ft into the buildings before be terminated or splices to cable with a fire resistant jacket, unless the jacket is indoor/outdoor rated.
7. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in any conduit.
8. A pull cord (nylon; 1/8" minimum) shall be installed with all empty OSP and Entrance Facility conduit.
9. All backbone cables shall be securely fastened to the sidewall of the TR on each floor.
10. 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.
11. 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.
12. Large bundles of cables and/or heavy cables shall be attached using metal clamps and/or metal banding to support the cables.

E. Backbone Cross-Connect Installation
1. Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-A document, manufacturer's recommendations and best industry practices.

2. Bend radius of the cable in the termination area shall not exceed 16 times the outside diameter of the cable.
3. All cables shall be neatly bundled and dressed continuously from the entrance point of the Telecommunications Room to their respective panels or blocks.
4. Contractor will provide a minimum of a 3 foot “service loop” for each backbone cable before terminating to allow future rearrangement. Cables will be coiled and secured above the ceiling where possible or to the Telco Backboard where entrance point is from the floor.
5. Wall mounted termination block fields shall be installed with the lowest edge of the mounting frame 18” from the finished floor.
6. Contractor shall provide a machine label 1ft. to 2ft. from the entrance point of the TR and 6in. to 12in. from the termination point on each backbone cable. Cable shall be easily identified and fully legible without removing the bundle support ties.

F. Cabinets, Racks, Enclosures and Ladder Rack Installation
1. Wall Mount Racks/Cabinets shall be securely attached to the Telco Backboard using minimum 3/8” hardware or as required by local codes.
2. Floor Mount Racks/Cabinets shall be securely attached to the concrete floor using minimum 3/8” drop-in anchor hardware or as required by local codes.
3. All Floor Mount Racks/Cabinets will be either; secured on one side to the wall or attached to the closest wall with ladder rack.
4. All Racks/Cabinets shall be braced to meet Zone 4 seismic requirements.
5. Contractor will maintain a minimum of 36 inches of clearance from the front of the all rack/cabinets and all other obstructions.
6. Floor Mount Racks/Cabinets shall be installed to allow for a minimum of 36” from rear and all other obstructions.
7. All racks shall be grounded to the telecommunications ground bus bar.
8. 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.
9. The plywood bottom edge shall be mounted vertically no less than 12” above the finished floor.
10. Contractor will provide all cutouts for the Electrical Contractors expansion rings and electric receptacles as shown on the drawings.
11. Ladder Rack must be securely attached to walls, backboards, and racks/cabinets to comply with all Zone 4 seismic requirements.
12. Ladder rack shall be installed so that there is a minimum of 8” of unobstructed clearance above rack.
13. Ladder Rack shall be installed so that there is a minimum of 12” of clearance from all: florescent lighting, electrical conduits/circuits, and fire alarm conduits/devices.

3.2 Identification and Labeling

A. General Requirements
1. The contractor shall develop and submit for approval a labeling system for the cable installation. The Owner will negotiate an appropriate labeling scheme with the successful contractor.
2. The approved system will comply with the TIA/EIA -606-A Class 2 designations and include at a minimum, identifiers for all major components of the system: telecommunication rooms, grounding bus bars, racks, cables, panels and outlets. The labeling system shall designate the cables origin and destination and a unique identifier for the cable within the system. Racks and patch panels shall be labeled to identify the location within the cable system infrastructure.
3. All label printing will be machine generated or hand-held printers 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.

4. All labeling information shall be recorded on the as-built drawings and all test documents shall reflect the appropriate labeling scheme.

3.3 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-A Addendum 5, TSB-67 and TSB-95. 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 Manufacturer's Warranty guidelines 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.
3. Contractor will notify the Owner/Owner's Representative 72 hours before commencement of testing.
4. Upon receipt of the test documentation, the Customer reserves the right to have the contractor perform a 10% witnessed "spot testing" of the cabling system to validate test results provided in the test document, at no additional cost. If a significant amount of cables are marginal and/or fail during the "spot test" Contractor will retest the entire cable plant at no additional cost.

B. Copper Cable Testing

1. Twisted Pair Cable
   - All twisted-pair copper cable links (including backbone cables) shall be tested for continuity, pair reversals, shorts, opens and performance as indicated below.
   - 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.
   - 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-A 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.
2. Category 6 Performance
   - Follow the Standards requirements established in:
     - ANSI/TIA/EIA-568-A -TSB-67
     - Wire Map
     - Length
     - Attenuation
     - NEXT (Near end crosstalk)
     - • ANSI/TIA/EIA-568-A -TSB-95
     - Return Loss

- ELFEXT Loss
- Propagation Delay
- Delay skew
- • ANSI/TIA/EIA-568-A, Amendment 5.
- PSNEXT (Power sum near-end crosstalk loss)
- PSELFEXT (Power sum equal level far-end crosstalk loss)

- A Level III or better test unit is required to verify category 6 performances and must be updated to include the requirements of TSB-95 and Amendment 5. Testers will be equal to Fluke Network's DXT CableAnalyzer™ Series.
- All testers shall have been recalibrated with 6 months of use on this project. Contractor will be asked to provide proof of recalibration.
- Test results shall be automatically evaluated by the equipment, using the most up-to-date criteria from the TIA/EIA Standard, and the result shown as pass/fail. The approved Level Three tester shall provide a printed document for each test that is also available in a downloadable file using an application from the test equipment manufacturer. The printed test results shall include a print out of all tests performed, and the individual test results for each cable.

C. Fiber Optic Cable Testing

1. 50/125µ Backbone Fiber
   - Each fiber strand shall be tested for attenuation with an Optical Power Meter and light source and with an Optical Time Domain Reflectometer (OTDR) for actual length and splice/connector loss. Cable length shall be verified using sheath markings. The guidelines and procedures established for Tier 1 testing in TIA/TSB-140 shall apply.
   - All fiber optic cables shall be tested from the site's MDF to each fiber terminals located in the IDF. The results of OTDR testing to define the length of each riser cable shall be documented. The Contractor shall conduct a power meter (loss) test of each fiber optic station and riser cable at both wavelengths, 850/1300nm for MM and 1310/1550nm for SM, A to B, B to A, and OSPL (OSPL is defined as La + Lb). No individual station or riser fiber link segment (including connectors) shall measure more than 2.0 dB loss. Tests shall be conducted using ANSI/EIA/TIA/EIA-526-14A, Method B. Test results evaluation for the panel to panel (backbone) shall be based on the values set forth in ANSI/TIA/EIA-568-B.1.The Contractor shall provide an electronic printout for each strand tested with the Power Meter and the OTDR.
   - Where concatenated links are installed to complete a circuit between devices, the Contractor shall test each link from end to end to ensure the performance of the system. After the link performance test has been successfully completed, each link shall be concatenated and tested. The test method shall be the same used for the test described above. The evaluation criteria shall be established between the Owner and the Contractor prior to the start of the test.
   - All installed cables must meet or exceed the defined standards for performance. The Contractor shall take all steps necessary to repair or replace any optic not meeting the standard.
   - Fiber optic riser and station cable test results shall be provided in electronic format to the Owner.

3.4 System Closeout and As-built Documentation

A. General Requirements

1. Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.

2. Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results 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 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.
3. The Owner's Representative/Engineer will 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.
4. Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation 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 bi-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.
5. Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.
6. 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.
7. The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
8. Contractor will provide one laminated 11"x17" drawing at each IDF that includes the building layout for that IDF, along with the outlet locations and all of the approved labeling.

END OF SECTION

DOCUMENT 00 41 13

BID FORM AND PROPOSAL

To: Governing Board of the Bakersfield City School District ("District" or "Owner")

From: _____
(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of **Bid No. 22215.00-34** for the following project known as:

Mt. Vernon Elementary School HVAC System Upgrade & Site Improvements

("Project" or "Contract"), Bid Package **#MVES-**_____ and will accept in full payment for that Work the following total lump sum amount, all taxes included:

_____ dollars $ _____

BASE BID

Bidder acknowledges and agrees that the Base Bid accounts for any and all Allowance(s).

Additive/Deductive Alternates:

Alternate #1

_____ dollars $ _____

Additive/Deductive

Description: All new casework indicated on the DSA approved drawings with exception to any casework that includes a sink. Refer to typical classroom plans (i.e. A6.00-A6.01; All casework with sink must be included in the base bid)

Descriptions of alternates are primarily scope definitions and do not necessarily detail the full range of materials and processes needed to complete the construction.

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Additional Detail Regarding Calculation of Base Bid

1. **Unit Prices**. The Bidder's Base Bid includes the following unit prices, which the Bidder must provide and the District may, at its discretion, utilize in valuing additive and/or deductive change orders (Unit Prices shall include all labor, materials, services, profit, overhead, insurance, bonds, taxes, and all other incidental costs of Contractor, subcontractors, and suppliers):

   SCHEDULE OF UNIT PRICES

Item No.	Description	Unit of Measure	Estimated Quantity	Unit Price	Total Cost = Unit Price x Estimated Quantity (Included in Base Bid)
01	Provide and Install 1" Conduit	L.F.	01	$ _____	$ _____
02	Provide and Install 1.5" Conduit	L.F.	01	$ _____	$ _____
03	Provide and Install Single Gang Electrical Box	EA.	01	$ _____	$ _____
04	Provide and Install Double Gang Electrical Box	EA.	01	$ _____	$ _____
05	Manpower to pull wire into the conduits	Per Hour	01	$ _____	$ _____

   Where scope of Work is decreased, all Work pertaining to the item, whether specifically stated or not, shall be omitted, and where scope of Work is increased, all work pertaining to that item required to render same ready for use on the Project in accordance with intentions of the Drawings and Specifications shall be included in the above agreed-upon price amount.

2. **Allowance**. The Bidder's Base Bid shall include the following Allowances for the Tasks/Work as noted here:

Task/Work by Bid Package	Total Allowance Value per bid package
#MVES-01, General Construction: Unidentified underground hazardous materials abatement, concrete repair including bushing, grinding, filling and leveling above and beyond the scope listed, repair or replacement of existing valves, landscape boxes/covers, re-routing or relocation of any underground utilities not identified within the contract documents, and/or District requested additional work on a separate mobilization as directed by the CM.	$80,000.00
#MVES-02, Acoustical Ceilings: Labor and/or material required to perform minor repairs to ceiling grids and replace tiles due to unidentified trade damage, or additional work required outside of the scope of the work, as directed by the CM.	$15,000
#MVES-03, Flooring: Additional installation of flooring as directed by the CM.	$30,000
#MVES-04, Plumbing: Re-routing or relocation of any underground utilities not identified within the contract documents, additional shut-off valves as requested by the District and beyond the locations indicated in the plans and/or any other work as directed by the CM.	$40,000
#MVES-05, HVAC: Unidentified HVAC and controls changes and/or District requested additional work as directed by the CM.	$50,000
#MVES-06, Electrical, Low Voltage & Fire Alarm: Unidentified electrical changes including any unidentified pathways required, re-routing or relocation of any underground utilities not identified within the contract documents, and/or District requested additional work.	$250,000

The Allowance Value for an Allowance Item includes the direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the applicable Allowance Item. All other costs, including Contractor's overall project management and general conditions costs, overhead and fee, are deemed to be included in the Base Bid, and are not subject to adjustment regardless of the actual amount of the Allowance Item.

The District shall have sole discretion to authorize all expenditures from the Allowances. The District shall process expenditures from the Allowances in the form of an Allowance Expenditure Directive ("AED"). Any unused Allowance or unused portion thereof shall be deducted from the Contract Price to the benefit of the District.

3. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Proposal, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to the District, and agrees that its Proposal, if accepted by the District, will be the basis for the Bidder to enter into a contract with the District in accordance with the intent of the Contract Documents.

4. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.

5. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.

6. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.

7. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.

8. The following documents are attached hereto:

   - Bid Bond on the District's form or other security
   - Designated Subcontractors List
   - Non-Collusion Declaration
   - Iran Contracting Act Certification, required if contract value is $1,000,000 or more

9. Receipt and acceptance of the following Addenda is hereby acknowledged:

No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____

10. Bidder acknowledges that the license required for performance of the Work is a _____ _____ license.

#MVES-01,	General Construction (B)	#MVES-04,	Plumbing (C-36)
#MVES-02,	Acoustical Ceilings (C-02)	#MVES-05,	HVAC (C-20)
#MVES-03,	Flooring (C-15)	#MVES-06,	Electrical, Low Voltage & Fire Alarm (C-10)

11. Bidder hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.

12. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations.

13. Bidder hereby certifies that its bid includes sufficient funds to permit Bidder to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wage, and that Bidder will comply with the provisions of Labor Code section 2810(d) if awarded the Contract

14. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with the Davis Bacon Act, applicable reporting requirements, and any and all other applicable requirements for federal funding. If a conflict exists, the more stringent requirement shall control.

15. Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.

16. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.

17. Bidder expressly acknowledges that it is familiar with and capable of complying with applicable federal, State, and local requirements relating to COVID-19 or other public health emergency/epidemic/pandemic including, if required, preparing, posting, and implementing a Social Distancing Protocol.

18. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.

19. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

*****

Furthermore, Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.

Dated this _____ day of _____ 20 ____

Name of Bidder: _____

Type of Organization: _____

Signature: _____

Print Name: _____

Title: _____

Address of Bidder: _____

Taxpayer Identification No. of Bidder: _____

Telephone Number: _____

Fax Number: _____

E-mail: _____ Web Page: _____

Contractor's License No(s): No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class:_____ Expiration Date: _____

No.: _____ Class:_____ Expiration Date: _____

Public Works Contractor Registration No.: _____

END OF DOCUMENT

PB RFI #	Subject	Pre-Bid RFI Question	Pre-Bid RFI Response	Closed
PB-001	RFI #PB-001: HVAC - Roof Curbs and Pelican System Components	IS THE DISTRICT PROVIDING THE ROOF CURBS FOR ALL OF THE HEAT PUMPS MARKED HP-1 AND ALL EXHAUST FANS MARKED EF-1, EF-2 AND EF-3? THE OFCI EQUIPMENT LIST INCLUDED IN BID PACKAGE #MVES-05 HVAC INCLUDES PELICAN TS250 THERMOSTATS WITH INTEGRAATED COS SENSORS. WOULD THE OWNER ALSO FURNISH THE REMAINING PELICAN DEVICES SUCH AS GATEWAY, WIRELESS RELAY MODULE, RELAY IN A BOX, ETC. NEEDED FOR A COMPLETE CONTROL SYSTEM?	1. The district will provide OFCI (Owner Furnished Contractor Installed) roof curbs for all heat pumps marked HP-1 and all exhaust fans marked EF-1, EF-2, and EF-3. 2. The district will also furnish the Pelican devices such as gateway and wireless relay module for control system, in addition to the Pelican TS250 thermostats with integrated CO2 sensors.	06/28/2024
PB-002	RFI #PB-002: Flooring & Tiling Scope	Information Requested: Finish Schedule A2.00 shows carpet (3) in all classrooms. Is a walk-off mat needed in these rooms?If yes, please provide the dimensional area and specifications. Finish Schedule A2.00 shows carpet patching in 19 resource room. Please confirm if you need patching for the demolished carpet area or if you require new carpet for the entire room. Pleaseadvise. Should epoxy floor patching in restrooms be included in the flooring bid, or do we need to bid separately to the general contractor? Please confirm. The ceramic wall tiles patching area is not shown in the interior elevation. Please advise. For ceramic wall tile patching, 6”x6” is specified in the specifications, but based on the site visit, it appears to be 4”x4”. Please clarify which size of tile is included in our bid. The specified carpet tile size is 24”x24”, brand: Karastan, name: Stop Staring Modular, style:DT158, collection: Infatuations. This item is discontinued. Please suggest another item for replacement.	Item1: Yes, walk off mat required- Size to be assumes to be 6'x6', Product will be issued via Addendum. Item 2: Patching only. Item 3: Epoxy floor patching in restrooms should not be included in the flooring bid. This item will be added to Bid Package #MVES-01, General Construction. Architect will provide specification for epoxy patching in the project documents by addendum. Item 4: Area of required patching to be field verified and coordinated with other trades. Item 5: New tile installation to be 6"x6", Areas of patch to match existing size. Item 6: Discontinued item will be replaced via Addendum.	07/09/2024

PB RFI #	Subject	Pre-Bid RFI Question	Pre-Bid RFI Response	Closed
PB-003	RFI #PB-003: Carpet Tile	Subject: Carpet Tile Section: 096813 Sheet: A2.20 1. This section is for a discontinued walk off mat from 2009. Please update said submittal; to; current BCSD building standards.Will the walk off mats be shown/required on A2.20?	Yes, walk off mat required- Size to be assumed to be 6'x6', Product will be issued via Addendum.	07/09/2024
PB-004	RFI #PB-004: Scale, Conduit Specs & Compaction Requirements	1. Scale is missing on E303. 2. E005 Detail F shows the conduit on the wall as being both rigid and emt and the underground 90 degree elbow as being PVC Coated Rigid. Which is required for this installation? 3. Will 95% compaction under walkways, driveways, traffic and paved areas be required only for plumbing or for all trades?	Question 1: Scale on E3.03 Drawing is 1/8" Question 2: Conduit should be PVC below ground, PVC coated rigid for underground elbow, rigid where exposed along the wall, and EMT where protected, such after entering the attic space. Question 3: 95% compaction required per E-005.	07/09/2024
PB-005	RFI #PB-005: Exit Fixture Requirements	1. Will Fixtures E or EM be required? No exit fixtures are referred to on the Lighting plans.	Fixtures E and EM will not be required on this project.	07/09/2024

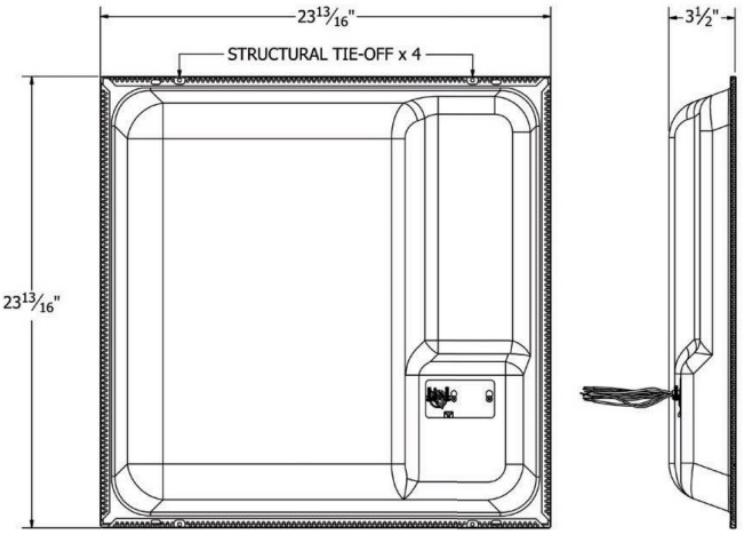
PB RFI #	Subject	Pre-Bid RFI Question	Pre-Bid RFI Response	Closed
PB-006	RFI #PB-006 Schedule, Manual, Soils, Allowances, Alternates, Boards, Cleaning, & Blinds	1. Please provide a detailed project CPM schedule as has been provided prior to bid on similar BCSD projects the past several months. 2. The BCSD project manual and the architect project manual have a general conditions/special conditions section but they do not match. Which one shall be used. 3. Item 54 of Package 01 mentions that work will follow the soils report but it does not appear to have been provided. Please provide. 4. Section 012100 says the allowance shall be $200,000 but bid package 01 scope says it shall be $80,000 and other bid packages have different amounts. Please clarify which amounts shall be used for the allowances 5. The alternates mentioned in spec section 012300 appear to be for another project as the rooms mentioned in allowance 4 do not exist on this job, there doesn't appear to be any requirement on the plan to re-roof the entire buildings per allowance 2 or paint the exterior per allowance 3. Please clarify the allowances that are required for this project. 6. There does not appear to be a specification for the visual display boards per accessory legend note 55 on A2.00. Please provide. 7. Bid package 01 scope of work does not mention the visual display boards. Shall they be part of this bid package? 8. There does not appear to be a bid package for final cleaning and it is not part of bid package 01 general construction. Shall it be part of bid package 01 and if so please provide a scope of work of what shall be required. 9. In the classroom that was opened for us at the job walk there were not any blinds or window coverings. However, the plans state that the existing windows and blinds are to remain which would mean the blinds need to be protected during construction. Please confirm that there are not any blinds in any of the classrooms.	1. Refer to Addendum 01. Detailed CPM Bid Schedule was issued via Addendum 01. 2. Refer to Addendum 01, Section 1.3. Per sub-section 1.3.1, delete the Architect's Division 00 Project Manual and use BCSD's Division 00 Project Manual. 3. Delete any reference to soils report. A soils report is not available for this project. 4. Refer to Addendum 01, Section 1.3. Per sub-section 1.3.3, remove and replace Division 01 Technical Requirements. 5. Refer to Addendum 01, Section 1.3. Per sub-section 1.3.3, remove and replace Division 01 Technical Requirements. 6. Specification will be provided via Addendum 02 7. Marker Boards/Visual Display Boards will remain as part of bid package #MVES-01, General Construction and the specification referenced in question #6. herein will be added via Addendum 02. 8. Final Cleaning will be a separate contract by the District / CM. 9. The District will remove and reinstall the window coverings.	07/11/2024

2' X 2' TILE REPLACEMENT LOUDSPEAKER

Quam SYSTEM 12

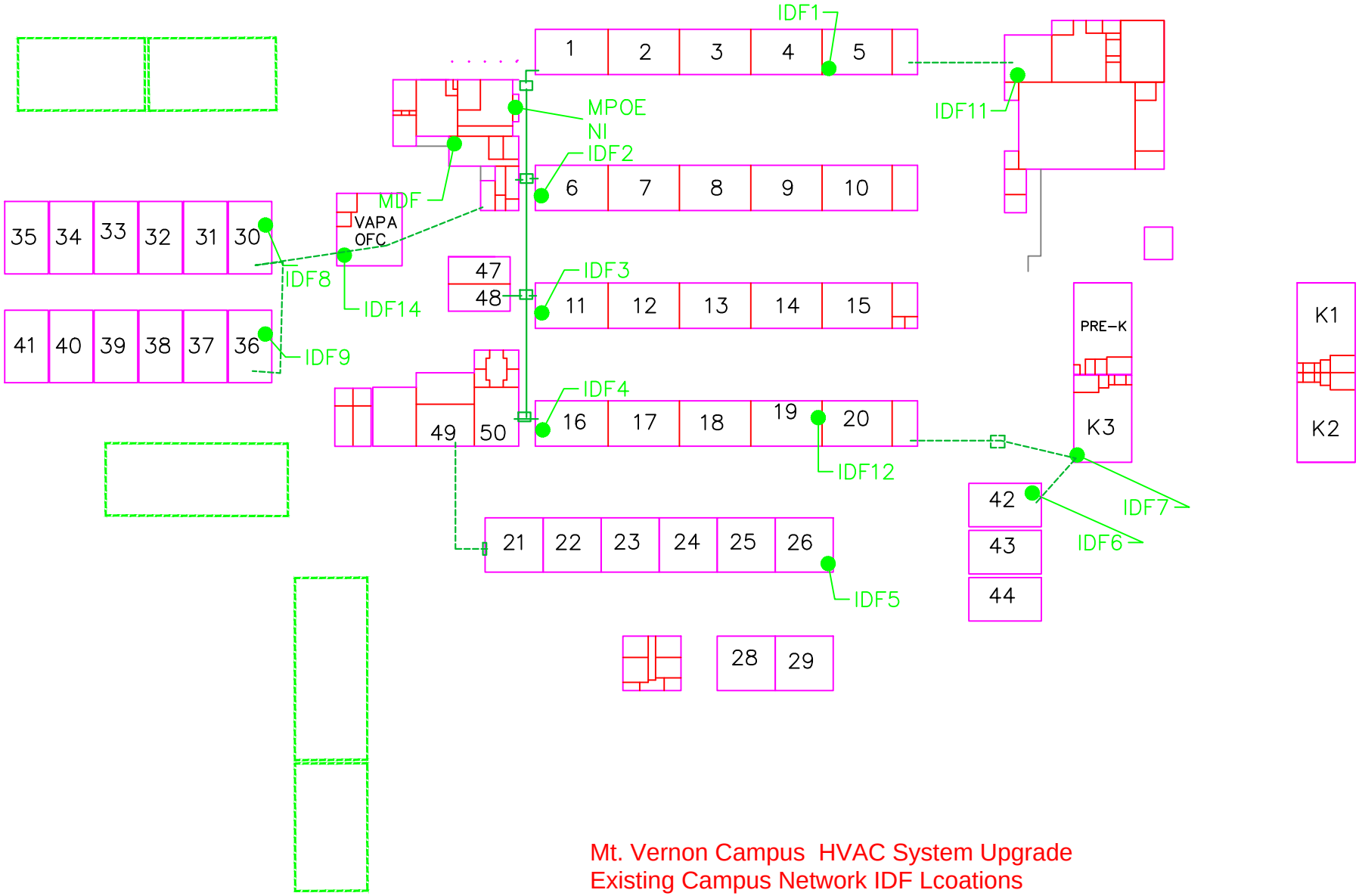
SYSTEM 12 is a complete, UL Listed, shallow depth, lightweight, 2' x 2' ceiling tile replacement loudspeaker system consisting of an 8" O.D. loudspeaker with a 5 oz. magnet and a 5W, 25/70V transformer. The molded fiber enclosure is 1,283 CID. The SYSTEM 12 has a powder coated steel baffle with standard perforation and four (4) seismic tie-off points. The cable clamp is included. No assembly required.

APPLICATION	**Intended Use:**	Indoor environment
	Program Material:	Signal tones, voice, and music
	Installation:	Mounted parallel to floor plane in a 24" wide suspended ceiling tile grid
	City of Chicago Approved:	Material and construction permits use where ceiling plenum is part of the air handling system
AUDIO PERFORMANCE	**Average Sensitivity:**	92dB SPL, 1W/1M
	Loudspeaker Power Rating:	12W RMS, EIA 426A Standard
	Maximum Power Rating:	15W @ 8 Ohms
	Calculated Output:	99dB SPL, 5W/1M
	Magnet Type & Weight:	BeFe Ceramic, 5 oz. Nominal
	Frequency Response:	65Hz - 17kHz, EIA 426A Standard
	Nominal Coverage Angle:	100° Included Angle, -6dB/2kHz, Half Space
	Audio Connection:	3 ½", Color-coded, Pre-tinned Leads
COMPONENT	**Dimension:**	3 ½" (H) x 23 13/16" (W) x 23 13/16" (D)
	Weight:	6.15 lbs.
	Loudspeaker Model:	8C5PAX
	Loudspeaker Specs:	8" O.D. loudspeaker, 5 oz. magnet
	Transformer:	TBLU; 5W, 25/70V, with 5 taps (0.31W, 0.63W, 1.25W, 2.5W, 5W)
	Integral Enclosure:	1,283 CID molded fiber
	Grille:	Standard perforated steel with four (4) seismic tie-off points
	Finish:	White powder coat finish
CERTIFICATION	**UL Listed 1480**	When installed with supplied installation instructions and requirements of NEC /AHJ. (UEAY, UEAY7- Canada)
	UL Listed 2043	Suitable for use in air-handling spaces



Standard Perforation Pattern
Shown as 1" Square Sample

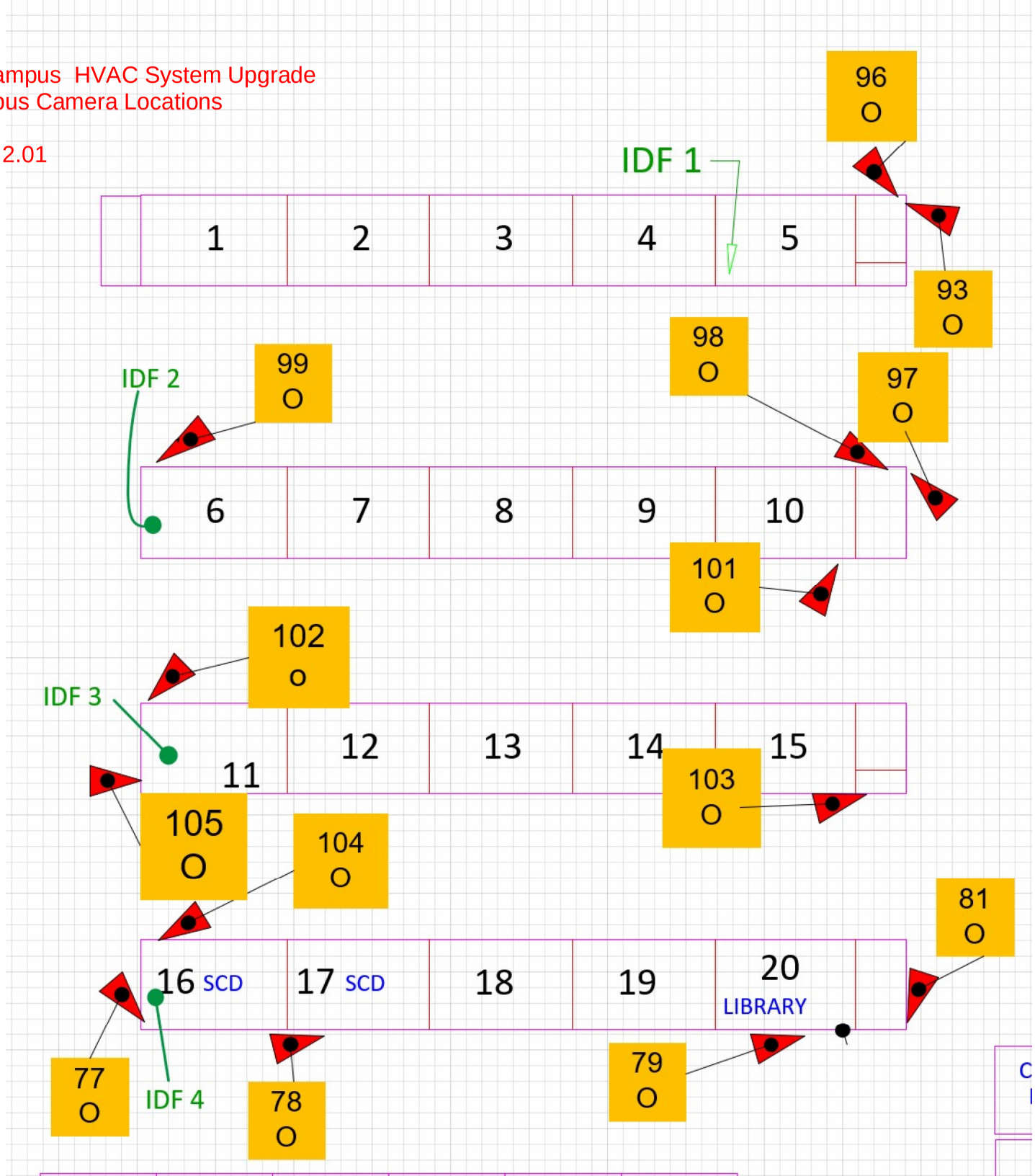
Quam Nichols Company | 234 East Marquette Road | Chicago, IL. 60637 | t: 800-633-3669 | f: 888-633-3669 | e: NeedNow@QNC.com | QuamSpeakers.com



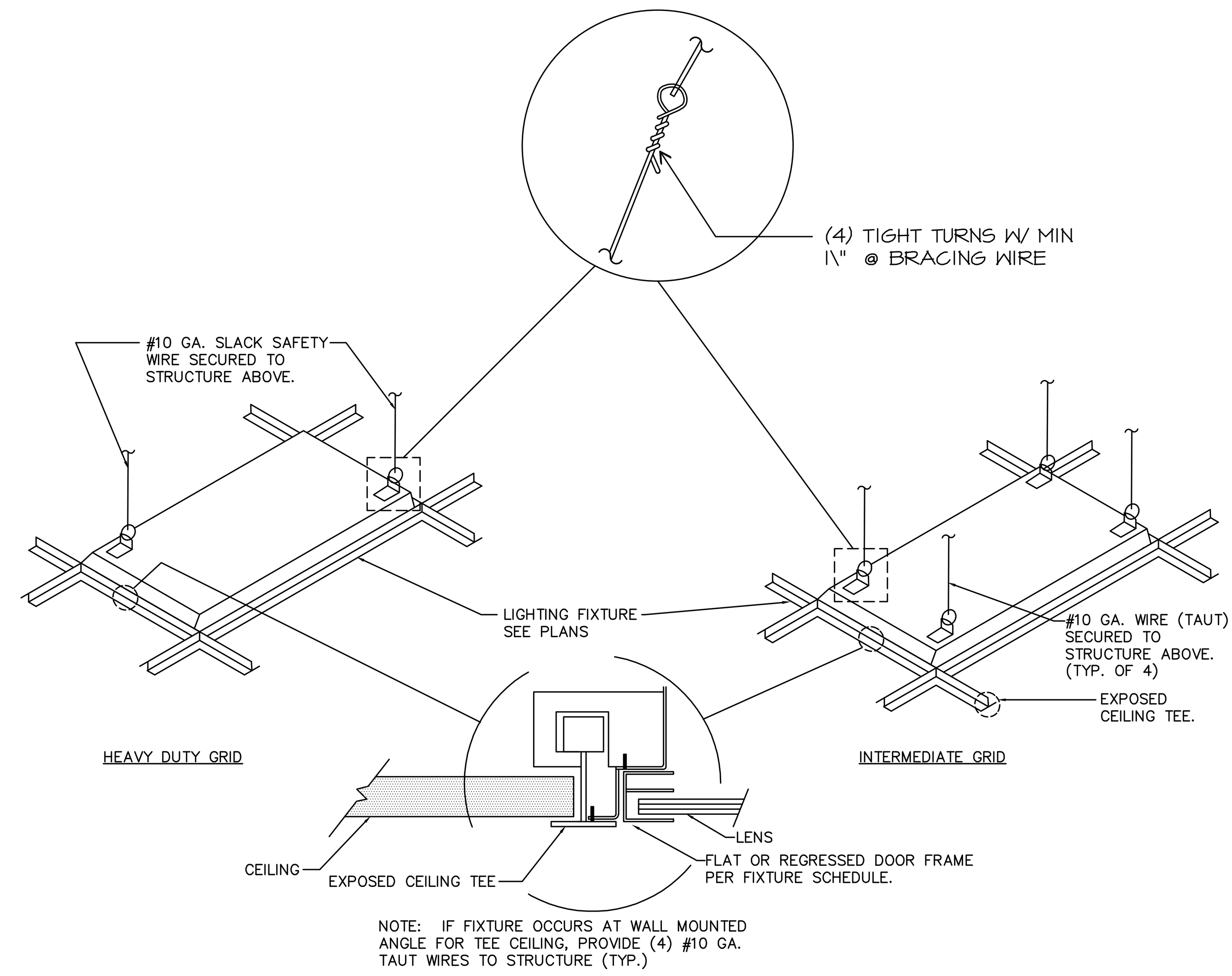
Mt. Vernon Campus HVAC System Upgrade
Existing Campus Network IDF Lcoations
Addendum 02
Drawing ADD 2.02

MT VERNON ELEMENTARY
2161 POTOMAC AVE.

Mt. Vernon Campus HVAC System Upgrade
Existing Campus Camera Locations
Addendum 02
Drawing ADD 2.01



LED FIXTURE SCHEDULE								
		LED MODULE						
TYPE	MANUFACTURER AND CATALOG NUMBER	TYPE	COLOR TEMP	WATTS	DRIVER	OPTIC/LENS	REMARKS	WEIGHT (LBS)
A / 43	LITHONIA SPX 2X4 6000LM 80CRI 35K BFR MPL MIN10 ZT MVOLT MW		3500K	43	0-10V 10%	DIFFUSE	2X4 LED	11.02
B / 34	LITHONNIA FMLWL 848		4000K	34	0-10V	DIFFUSE	4 FT S/M WRAP	2.5
E / 1	ISOLITE DTH SWW UN		GREEN	1	ELV	GREEN	DUAL TECH	4.5
EM / 6	ISOLITE BUG 6 WH		4000K	6	NICAD BATTERY	PRISMATIC	EM LIGHT	1.6



LIGHT FIXTURE SUPPORT DETAIL (B)

APPLICABLE CODE: 2019 CBC

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. “PERMANENTLY ATTACHED” SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURE ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

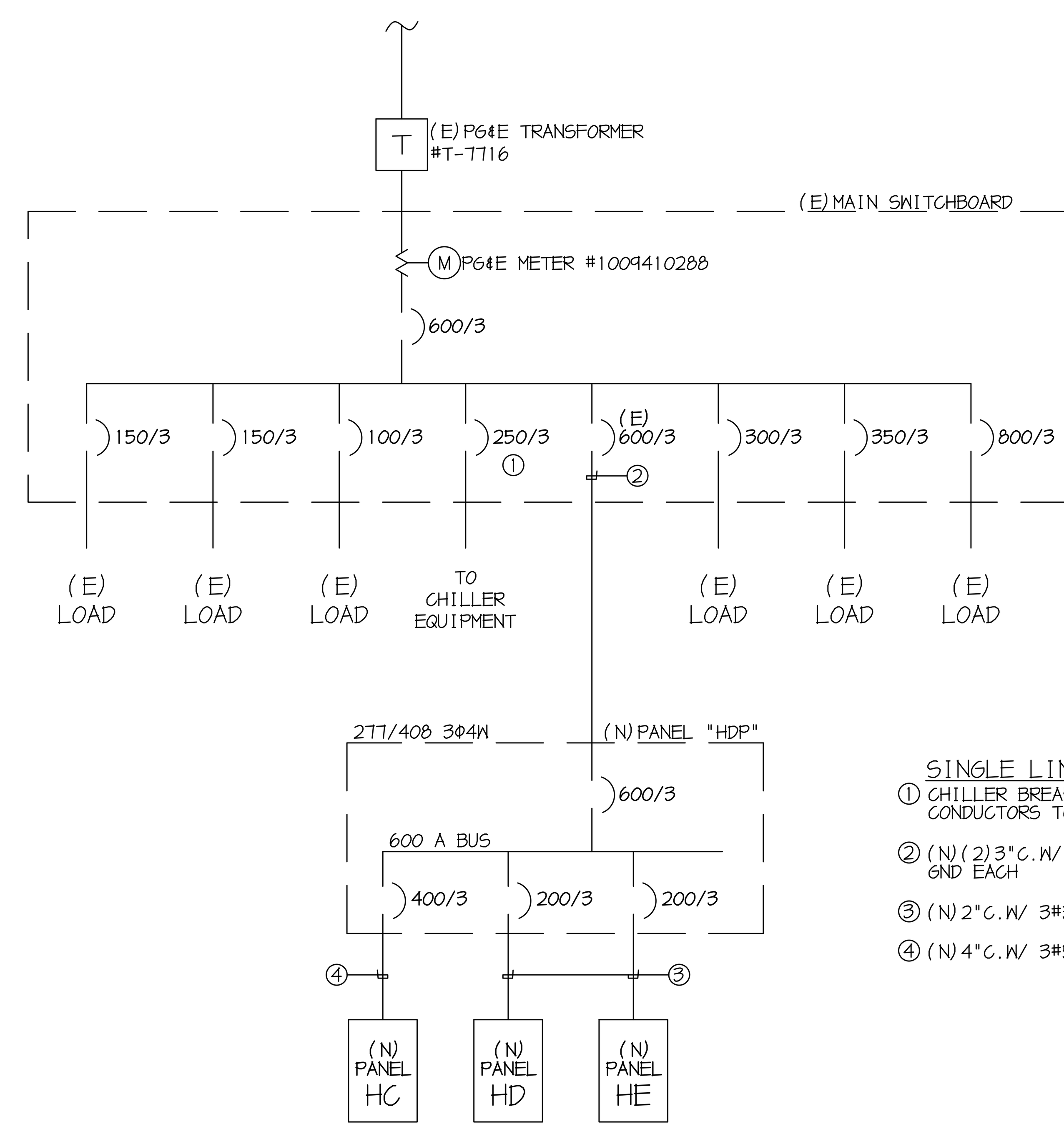
PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM BRACING

PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

ELECTRICAL DISTRIBUTION SYSTEMS (E):

DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.



SINGLE LINE DIAGRAM (A)

SINGLE LINE NOTES

① CHILLER BREAKER CONDUIT, AND CONDUCTORS TO BE REMOVED.

② (N)(2)3"C.W/ 3#350 KCMIL, 1#2/0 GND EACH

③ (N)2"C.W/ 3#3/0, 1#6GND

④ (N)4"C.W/ 3#500 KCMIL, 1#2GND

GENERAL NOTES

1. VISIT JOB SITE AND VERIFY EXISTING CONDITIONS PRIOR TO BID.
2. THE ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2019 CALIFORNIA ELECTRICAL CODE AND ALL APPLICABLE LOCAL ORDINANCES. WHERE PLANS CALL FOR A HIGHER STANDARD THAN APPLICABLE CODES, THE PLANS SHALL GOVERN.
3. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD TO SUIT FIELD CONDITIONS.
4. ALL ELECTRICAL EQUIPMENT, APPLIANCES AND LIGHTING FIXTURES SHALL BE LISTED BY A RECOGNIZED TEST LAB AND BEAR THAT LABEL OF APPROVAL.
5. CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL MATERIAL AND EQUIPMENT FOR THIS WORK UNLESS OTHERWISE NOTED.
6. FURNISH DISCONNECT SWITCHES AT REMOTE MOTORS.
7. ALL SPACES AS INDICATED ON PANELS OR SWITCHBOARDS SHALL BE COMPLETE WITH HARDWARE AND BUSSING FOR FUTURE BREAKER OR SWITCH.
8. CHECK ARCHITECTURAL PLANS FOR DOOR SWINGS BEFORE INSTALLING SWITCH OUTLETS.
9. GROUNDING AND BONDING SHALL BE PER CODE PLUS ANY ADDITIONAL PROVISIONS SPECIFIED OR SHOWN ON DRAWINGS.
10. ALL CONDUIT RUNS SHALL CONTAIN A CODE SIZED GREEN GROUND WIRE.
11. THESE PLANS ARE NOT COMPLETE UNTIL APPROVED BY THE AUTHORITY HAVING JURISDICTION.
12. ALL FEEDER CONDUCTORS SHALL BE IN CONDUIT. BRANCH CIRCUITS MAY BE NON-METALLIC SHEATHED CABLE.
13. ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHN/THWN INSULATION.
14. COORDINATE WITH SERVING ELECTRICAL UTILITY COMPANY AND MAKE PROVISIONS FOR ELECTRICAL SERVICE ACCORDINGLY. INCLUDE ALL SERVICE COSTS AND UTILITY COMPANY CHARGES IN BID.
15. COORDINATE WITH SERVING TELEPHONE UTILITY COMPANY AND MAKE PROVISIONS FOR TELEPHONE SERVICE ACCORDINGLY. INCLUDE ALL SERVICE COSTS AND ANY UTILITY COMPANY CHARGES IN BID.
16. COORDINATE WITH SERVING CABLE TELEVISION COMPANY AND MAKE PROVISIONS FOR CABLE TELEVISION ACCORDINGLY. INCLUDE ALL SERVICE COSTS AND ANY UTILITY COMPANY CHARGES IN BID.
17. ALL PERMITS SHALL BE OBTAINED AND PAID FOR BY CONTRACTOR.

SYMBOLS

CONDUIT EXISTING
CONDUIT CONCEALED IN WALL OR CEILING
CONDUIT CONCEALED UNDER FLOOR OR BELOW GRADE
CONDUIT STUBBED OUT AND CAPPED
CONDUIT TURNED UP
CONDUIT TURNED DOWN
HATCH MARKS INDICATE NO. OF #12 WIRES IN CODE SIZED CONDUIT (3) MAX. IN 1/2" C., (5) MAX. IN 3/4" C., (8) MAX. IN 1"C., NO MARKS = 2#12
A-3 — HOME RUN: LETTER INDICATES PANEL, NUMBER(S) INDICATES CIRCUIT(S).
SAWCUT
GROUND CONNECTION
DISTRIBUTION SWITCHBOARD OR PANEL
PANEL, BRANCH CIRCUIT TYPE, SURFACE AND FLUSH
SIGNAL TERMINAL CABINET, SURFACE & FLUSH
LINEAR SURFACE FIXTURE
2 a — OUTLET DATA: BAR INDICATES WALL MOUNT, LETTER INDICATES SWITCH CONTROL, NO. INDICATES CIRCUIT.
SURFACE FIXTURE ON FLUSH OUTLET.
RECESSED FIXTURE WITH JUNCTION BOX FOR THRU WIRING
EXIT LIGHT WITH ARROWS AS SHOWN ON PLANS, WALL AND CEILING MOUNT.
LOW LEVEL EXIT SIGN, +6" AFF, +4" FROM DOOR JAMB
A / 100 — LIGHT FIXTURE DESIGNATION, LETTER INDICATES TYPE, NO. INDICATES WATTAGE. SEE FIXTURE SCHEDULE.
FC / 1 — MECHANICAL EQUIPMENT DESIGNATION. SEE MECHANICAL DRAWINGS.
SPECIAL RECEPTACLE - SEE PLAN
M — METER
FLUSH FLOOR RECEPTACLE
RECEPTACLE, DUPLEX, 15A, 125V, NEMA 5-15R +18" U.N.O.
DUPLEX RECEPTACLE MTD. ABOVE BACKSPLASH
DUPLEX RECEPTACLE W/LOWER HALF SWITCHED
GFI — GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE
DOUBLE DUPLEX RECEPTACLE
CEILING RECEPTACLE
RECEPTACLE, DUPLEX, 20A, 125V, NEMA 5-20R +18" U.N.O.
J — JUNCTION BOX 4" SQUARE, 1-1/2" DEEP U.N.O.
T — THERMOSTAT F.B.O. +48"
2 — MOTOR, NO. INDICATES HORSEPOWER
CLOCK OUTLET +7'-6" U.N.O.
DISCONNECT SWITCH, NON-FUSED
F — DISCONNECT SWITCH FUSED HORSEPOWER RATED OR SIZED AS NOTED
COMBINATION MAGNETIC STARTER WITH DISCONNECT SWITCH AND FUSES
MAGNETIC MOTOR STARTER W/OVERLOADS IN EACH PHASE
D — DIMMER W/INTEGRAL "ON-OFF" SW.
PUSHBUTTON
PC — PHOTOCELL
SD — SMOKE DETECTOR
TELEPHONE/COMPUTER/DATA OUTLET, TWO GANG BOX W/1 GANG COVERPLATE & GROMMETED OPENING +18" U.N.O.
TV — CABLE TV OUTLET +18" U.N.O.
M — MOTION SENSOR
\$ — EXISTING SWITCH
S — SINGLE POLE SWITCH
S^2 — DOUBLE POLE SWITCH
S^3 — THREE WAY SWITCH
S^P — SWITCH W/PILOT LT.
(QUIET TOGGLE TYPE RATED AT 20A, 120/277V A.C. +42" U.N.O.)
S^M — MANUAL MOTOR STARTER

FACP	FIRE ALARM CONTROL PANEL
GFI	GROUND FAULT CIRCUIT INTERRUPTING
LST	LABOR SAVING TANDEM
MLO	MAIN LUGS ONLY
W/	WITH
C.O.	CONDUIT ONLY
W.P.	WEATHERPROOF
F.B.O.	FURNISHED BY OTHERS, INSTALL & CONNECT
U.N.O.	UNLESS NOTED OTHERWISE
N.E.C.	NATIONAL ELECTRICAL CODE
N.I.C.	NOT IN CONTRACT
(E)	EXISTING
(N)	NEW
(R)	REMOVE
(RL)	RELOCATE
S/M	SURFACE MOUNT
U/G	UNDERGROUND
CWP	COLD WATER PIPE
AFF	ABOVE FINISHED FLOOR
HACR	HEATING AND AIR CONDITIONING RATED CIRCUIT BREAKER
N.L.	NIGHT LIGHT

NOTE: NOT ALL SYMBOLS SHOWN ARE USED ON THIS PROJECT.

ap architects
3434 Truxtun Avenue . Suite 240
Bakersfield . California . 93301
tel|661.327.1690 fax|661.327.7204
web|www.aparchitects.net

CAMPUS HVAC SYSTEM UPGRADE

Mt Vernon Elementary School

2161 Potomac Ave. Bakersfield. CA. 93307
Bakersfield City School District

ARCHITECT

LICENSED ARCHITECT — JAMES PATRICK FOGARTY No. C-19670 REN 11-30- STATE OF CALIFORNIA
JAMES PATRICK FOGARTY, AIA
ARCHITECT C-19670

CONSULTANT

JMPE
ELECTRICAL ENGINEERING
LIGHTING DESIGN
CA REGISTRATION NO E13083
22108
627 OLIVE STREET
SANTA BARBARA CA 93105
(805) 569-9216
FAX (805) 569-2405
email : maloney@jmpe.net
www.jmpe.net
REGISTERED PROFESSIONAL ENGINEER — JOHN MALONEY No. E013083 EXP. 06/30/2025 ELECTRICAL STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

No	Date	Item
	00.00.08	DESCRIPTION
1	02-07-24	REVISIONS
2	07-11-24	ADDENDA 2

SINGLE LINE DIAGRAM AND GENERAL NOTES

E-001

(N) PANEL " HC "

SERVICE: 277/480V 3Φ 4W | MAIN BKR.: MLO | BUS: 400A | LOC.: SEE PLAN | MTG :SURFACE

REMARKS	LOAD ΦA	LOAD ΦB	LOAD ΦC	REC	LTG	MISC	POLE	TRIP	CIRC		CIRC	TRIP	POLE	REC	LTG	MISC	LOAD ΦA	LOAD ΦB	LOAD ΦC	REMARKS
AC-1 ROOM 10	7723						3	35	1		2	35	3				7723			AC-1 ROOM 5
"		7723							3		4							7723		"
"			7723						5		6								7723	"
AC-1 ROOM 9	7723						3	35	7		8	35	3				7723			AC-1 ROOM 4
"		7723							9		10							7723		"
"			7723						11		12								7723	"
AC-1 ROOM 8	7723						3	35	13		14	35	3				7723			AC-1 ROOM 3
"		7723							15		16							7723		"
"			7723						17		18								7723	"
AC-1 ROOM 7	7723						3	35	19		20	35	3				7723			AC-1 ROOM 2
"		7723							21		22							7723		"
"			7723						23		24								7723	"
AC-1 ROOM 6	7723						3	35	25		26	35	3				7723			AC-1 ROOM 1
"		7723							27		28							7723		"
"			7723						29		30								7723	"
									31		32									
									33		34									
									35		36									
									37		38									
									39		40									
									41		42									
	38615	38615	38615														38615	38615	38615	

TOTAL WATTS= 231690 | ΦA= 77230 | ΦB= 77230 | ΦC= 77230

AMPS= 278.68 | MINIMUM BKR | A.I.C. RATING= 10,000 AMPS SYM

(N) PANEL " HD "

SERVICE: 277/480V 3Φ 4W | MAIN BKR.: MLO | BUS: 225A | LOC.: SEE PLAN | MTG :SURFACE

REMARKS	LOAD ΦA	LOAD ΦB	LOAD ΦC	REC	LTG	MISC	POLE	TRIP	CIRC		CIRC	TRIP	POLE	REC	LTG	MISC	LOAD ΦA	LOAD ΦB	LOAD ΦC	REMARKS
AC-1 ROOM 15	7723						3	35	1		2	35	3				7723			AC-1 ROOM 14
"		7723							3		4							7723		"
"			7723						5		6								7723	"
AC-1 ROOM 13	7723						3	35	7		8	35	3				7723			AC-1 ROOM 12
"		7723							9		10							7723		"
"			7723						11		12								7723	"
AC-1 ROOM 11	7723						3	35	13		14									
"		7723							15		16									
"			7723						17		18									
									19		20									
									21		22									
									23		24									
									25		26									
									27		28									
									29		30									
									31		32									
									33		34									
									35		36									
									37		38									
									39		40									
									41		42									
	23169	23169	23169														15446	15446	15446	

TOTAL WATTS= 115845 | ΦA= 38615 | ΦB= 38615 | ΦC= 38615

AMPS= 139.34 | MINIMUM BKR | A.I.C. RATING= 10,000 AMPS SYM

(E) PANEL " ADMIN "

SERVICE: 120/208V 3Φ 4W | MAIN BKR.: MLO | BUS: 150A | LOC.: SEE PLAN | MTG.: FLUSH

REMARKS	LOAD ΦA	LOAD ΦB	LOAD ΦC	REC	LTG	MISC	POLE	TRIP	CIRC		CIRC	TRIP	POLE	REC	LTG	MISC	LOAD ΦA	LOAD ΦB	LOAD ΦC	REMARKS
EXISTIN LOAD							1	20	1		2	20	1							EXISTING LOAD
EXISTIN LOAD									3		4									EXISTING LOAD
EXISTIN LOAD									5		6									EXISTING LOAD
EXISTIN LOAD									7		8									EXISTING LOAD
EXISTIN LOAD									9		10									EXISTING LOAD
EXISTIN LOAD									11		12									EXISTING LOAD
EXISTIN LOAD									13		14									EXISTING LOAD
EXISTIN LOAD									15		16									EXISTING LOAD
EXISTIN LOAD									17		18									EXISTING LOAD
EXISTIN LOAD									19		20									EXISTING LOAD
EXISTIN LOAD									21		22									EXISTING LOAD
EXISTIN LOAD									23		24									EXISTING LOAD
EXISTIN LOAD									25		26									EXISTING LOAD
EXISTIN LOAD									27		28									EXISTING LOAD
EXISTIN LOAD									29		30									EXISTING LOAD
EXISTIN LOAD									31		32									EXISTING LOAD
EXISTIN LOAD									33		34									EXISTING LOAD
EXISTIN LOAD									35		36									EXISTING LOAD
									37		38									
									39		40									
(N) FACP			200				1	20	41		42									

MINIMUM BKR | A.I.C. RATING= 10,000 AMPS SYM

(E) PANEL " ADMIN "

SERVICE: 120/208V 3Φ 4W | MAIN BKR.: MLO | BUS: 225A | LOC.: SEE PLAN | MTG.: FLUSH

REMARKS	LOAD ΦA	LOAD ΦB	LOAD ΦC	REC	LTG	MISC	POLE	TRIP	CIRC		CIRC	TRIP	POLE	REC	LTG	MISC	LOAD ΦA	LOAD ΦB	LOAD ΦC	REMARKS
EXISTIN LOAD							1	20	1		2	20	1							EXISTING LOAD
EXISTIN LOAD									3		4									EXISTING LOAD
EXISTIN LOAD									5		6									EXISTING LOAD
EXISTIN LOAD									7		8									EXISTING LOAD
EXISTIN LOAD									9		10									EXISTING LOAD
EXISTIN LOAD									11		12									EXISTING LOAD
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EXISTIN LOAD									25		26									EXISTING LOAD
EXISTIN LOAD									27		28									EXISTING LOAD
EXISTIN LOAD									29		30									EXISTING LOAD
EXISTIN LOAD									31		32									EXISTING LOAD
(N) FACP		200					1	20	33		34									EXISTING LOAD
									35		36									EXISTING LOAD
									37		38									
									39		40									
									41		42									

MINIMUM BKR | A.I.C. RATING= 10,000 AMPS SYM

(E) PANEL " ADMIN "

SERVICE: 120/208V 3Φ 4W | MAIN BKR.: MLO | BUS: 225A | LOC.: SEE PLAN | MTG.: FLUSH

REMARKS	LOAD ΦA	LOAD ΦB	LOAD ΦC	REC	LTG	MISC	POLE	TRIP	CIRC		CIRC	TRIP	POLE	REC	LTG	MISC	LOAD ΦA	LOAD ΦB	LOAD ΦC	REMARKS
EXISTIN LOAD							1	20	1		2	20	1							EXISTING LOAD
EXISTIN LOAD									3		4									EXISTING LOAD
EXISTIN LOAD									5		6									EXISTING LOAD
EXISTIN LOAD									7		8									EXISTING LOAD
EXISTIN LOAD									9		10									EXISTING LOAD
EXISTIN LOAD									11		12									EXISTING LOAD
EXISTIN LOAD									13		14									EXISTING LOAD
EXISTIN LOAD									15		16									EXISTING LOAD
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EXISTIN LOAD									19		20									EXISTING LOAD
EXISTIN LOAD									21		22									EXISTING LOAD
EXISTIN LOAD									23		24									EXISTING LOAD
EXISTIN LOAD									25		26									EXISTING LOAD
EXISTIN LOAD									27		28									EXISTING LOAD
EXISTIN LOAD									29		30									EXISTING LOAD
EXISTIN LOAD									31		32									EXISTING LOAD
(N) FACP		200					1	20	33		34									EXISTING LOAD
									35		36									EXISTING LOAD
									37		38									
									39		40									
									41		42									

MINIMUM BKR | A.I.C. RATING= 10,000 AMPS SYM

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CAMPUS HVAC SYSTEM UPGRADE

Mt Vernon Elementary School

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Bakersfield City School District

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STATE OF CALIFORNIA

PROJECT INFO

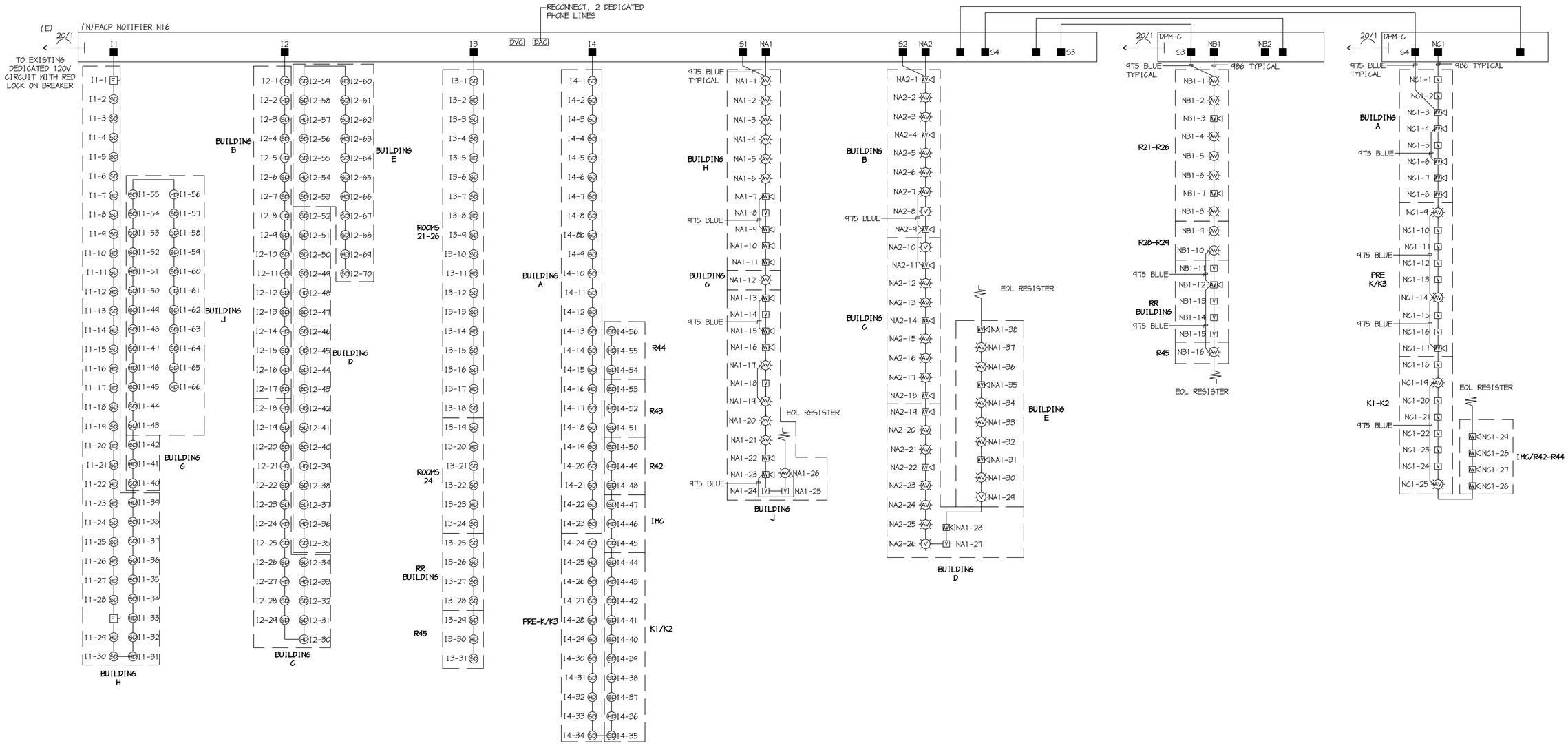
Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

No	Date	Item
	00.00.00	DESCRIPTION
	02-07-24	REVISIONS

PANEL SCHEDULES

E-002



FIRE ALARM RISER

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EXP. 06/30/2025
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
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DSA No	03-122659

REVISIONS

No	Date	Item
	00.00.00	DESCRIPTION
	02-07-24	REVISIONS

FIRE ALARM RISER

E-003

[redacted]

FIRE ALARM SEQUENCE OF OPERATION

INPUT & OUTPUT MATRIX

	SYSTEM OUTPUTS / SYSTEM INPUTS	AREA SMOKE DETECTOR	AREA HEAT DETECTOR		FIRE ALARM SYSTEM AC POWER FAILURE	FIRE ALARM SYSTEM LOW BATTERY	OPEN CIRCUIT	GROUND FAULT	NOTIFICATION APPLIANCE CIRCUIT SHORT						
Control Unit Annunciation	ACTUATE COMMON ALARM SIGNAL INDICATOR (RED LED)	●	●												
Control Unit Annunciation	ACTUATE AUDIBLE ALARM SIGNAL (PIEZO BUZZER)	●	●												
Control Unit Annunciation	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR (AMBER LED)														
Control Unit Annunciation	ACTUATE AUDIBLE SUPERVISORY SIGNAL (PIEZO BUZZER)														
Control Unit Annunciation	ACTUATE COMMON TROUBLE SIGNAL INDICATOR (AMBER LED)				●	●	●	●	●						
Control Unit Annunciation	ACTUATE AUDIBLE COMMON TROUBLE SIGNAL (PIEZO BUZZER)				●	●	●	●	●						
Control Unit Annunciation	HVAC SHUTDOWN	●	●	2											
Notification	ACTUATE EVACUATION SIGNAL THROUGHOUT THE BUILDING SPEAKERS & SPEAKER/STROBES	●	●												
Notification	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	●	●												
Notification	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION														
Notification	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION				●	●	●	●	●						
Notification															
Notification															
Supplementary															
Supplementary															
Supplementary															
Supplementary															
Supplementary															
Supplementary															

FIRE ALARM SYMBOL LIST MATRIX

SYMBOL	DEVICE	MFR & CAT#	REMARKS	CSFM LISTING
	MAIN FIRE ALARM PANEL	NOTIFIER NFS2-640	SURFACE MOUNT W/ SOFTWARE UPDATE	7165-0028:0243
DPM	ADDRESSABLE DISTRIBUTED POWER MODULE	NOTIFIER ACPS-210	SURFACE MOUNT U.N.O.	7315-0028:0243
DVC	DIGITAL VOICE COMMAND	NOTIFIER DVM EM	SURFACE MOUNT	7165-0028:0224
DAA-5025	DIGITAL AUDIO AMPLIFIER	NOTIFIER DAA-5025	PART OF DVC	7165-0028:0224
DAC	FIRE ALARM COMMUNICATOR	NOTIFIER 411UDACT	PART OF NFS2-640	7300-0075:0174
SD	SMOKE DETECTOR	NOTIFIER FSP-851	PROVIDE BASE B210 LP(A) ON 4"SQ. DEEP BOX	7272-0028:0206
QD	MULTI-CRITERIA DETECTOR	NOTIFIER FSC-851QD	PROVIDE BASE B210 LP(A) ON 4"SQ. DEEP BOX	7272-0028:0255
HD	HEAT DETECTOR (IN ATTIC SPACE)	NOTIFIER FST-851H	PROVIDE BASE B210 LP(A) ON 4"SQ. DEEP BOX	7270-0028:0196
F	ADDRESSABLE MANUAL PULL STATION	NOTIFIER NBG-12X	PROVIDE 4" SQ. DEEP BOX	7150-0028:0199
MM	MONITOR MODULE	NOTIFIER FMM-1(A)	4"SQ. DEEP EXTENSION & DBL GANG	7300-0028:0219
RM	RELAY MODULE	NOTIFIER FMM-1(A)	4"SQ. DEEP BOX	7300-0028:0219
ANN	ANNUNCIATOR	NOTIFIER NCA-2	S/M	7165-0028:0224
AV	SPEAKER STROBE	NOTIFIER SPSCR AV CM	PROVIDE DEEP SQ. J-BOX	7320-1653:0201
AV	SPEAKER STROBE	NOTIFIER SPSR AV WM	PROVIDE DEEP SQ. J-BOX	7320-1653:0505
WP S	EXTERIOR SPEAKER	SYSTEM SENSOR SPRK	PROVIDE MWBB BACKBOX	7320-1653:0201
———	FPLR CABLE	WESTPENN 975	18/2 BARE, CU, SHEILDED	7161-0859:0101
———	FPLR CABLE	WESTPENN 998	12/2 SOLID, CU, UNSHIELDED	7161-0859:0101
———	FPLR CABLE	WESTPENN AQ294	16/2 STRANDED, CU, SHIELDED W/ AQUASEAL	7161-0859:0101
———	FPLR CABLE	WESTPENN AQC294	16/2 STRANDED, CU, SHIELDED W/ AQUASEAL	7161-0859:0101

FIRE LIFE SAFETY NOTES

1 CBC 3401.12 - BUILDING AND PARTS OF THEREOF SHALL BE MAINTAINED IN A SAFE AND SANITARY CONDITION. DEVICES OR SAFEGUARDS WHICH ARE REQUIRED BY THIS CODE SHALL BE MAINTAINED IN CONFORMANCE WITH THE CODE EDITION UNDER WHICH INSTALLED. THE OWNER OR THE OWNERS DESIGNATED AGENT SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF BUILDING.

2 CFC 503.1; TITLE 19 DIVISION 1 §3.05 MAINTAIN FIRE ACCESS ROUTE(S).
PUBLIC STREET ACCESS - PROVIDE SIGN(S) 'NO PARKING FIRE LANE WITH CALIFORNIA VEHICLE CODE 22500.1' AND DETAIL. (OR INCLUDE NOTE - EXISTING NO PARKING FIRE LANE SIGN TO BE FIELD VERIFIED BY IOR)

3 CFC 503.1 - MAINTAIN / PROVIDE KEY BOXES FOR FIRE DEPARTMENT ACCESS, AS APPROPRIATE.

4 CFC 701.2 - WHERE ANY COMPONENTS IN THIS CHAPTER ARE NOT MAINTAINED AND DO NOT FUNCTION AS INTENDED OR DO NOT HAVE THE FIRE RESISTANCE REQUIRED BY THE CODE UNDER WHICH THE BUILDING WAS CONSTRUCTED, REMODELED OR ALTERED, SUCH COMPONENT(S) OR PORTIONS THEREOF SHALL BE DEEMED AN UNSAFE CONDITION, IN ACCORDANCE WITH SECTION 110.1.1. COMPONENTS OR PORTIONS THEREOF DETERMINED TO BE UNSAFE SHALL BE REPAIRED OR REPLACED TO CONFORM TO THAT CODE UNDER WHICH THE BUILDING WAS CONSTRUCTED, REMODELED, ALTERED OR THIS CHAPTER, AS DEEMED APPROPRIATE BY THE FIRE CODE OFFICIAL.

5 CFC 703.1 AND TITLE 19 DIVISION 1 §1.14 - THE REQUIRED FIRE-RESISTANCE RATING OF FIRE-RESISTANCE CONSTRUCTION (INCLUDING WALLS, FIRESTOPS, SHAFT ENCLOSURES, PARTITIONS, SMOKE-BARRIERS, FLOORS, FIRE-RESISTIVE COATINGS AND SPRAYED FIRE-RESISTANT MATERIALS APPLIED TO STRUCTURAL MEMBERS AND FIRE-RESISTANT JOINTS SYSTEMS) SHALL BE MAINTAINED. SUCH ELEMENTS SHALL BE VISUALLY INSPECTED BY THE OWNER AND PROPERLY REPAIRED, RESTORED OR REPLACED WHEN DAMAGED, ALTERED, BREACHED OR PENETRATED. OPENINGS THROUGH FIRE-RESTANCE-RATED ASSEMBLIES SHALL BE PROTECTED BY SELF- OR AUTOMATIC-CLOSING DOORS OF APPROVED CONSTRUCTION MEETING THE FIRE PROTECTION REQUIRMENTS FOR THE ASSEMBLY.

6 CFC 703.2 - OPENING PROTECTIVE SHALL BE MAINTAINED IN AN OPERATIVE CONDITION IN ACCORDANCE WITH NFPA 80. FIRE DOORS AND SMOKE BARRIER DOORS SHALL NOT BE BLOCKED OR OBSTRUCTED OR OTHERWISE BE MADE INOPERABLE. FUSIBLE LINKS SHALL BE REPLACED PROMPTLY WHENEVER FUSED OR DAMAGED. FIRE ASSEMBLIES SHALL NOT BE MODIFIED.

7 CFC 901.4; 907.8.5 AND TITLE 19 DIVISION 1 1.14 - INSTALLATION FIRE PROTECTION SYSTEM SHALL BE MAINTAINED IN ACCORDANCE WITH ORIGINAL INSTALLATION STANDARDS FOR THAT SYSTEM. REQUIRED SYSTEMS SHALL BE EXTENDED, ALTERED OR AUGMENTED AS NECESSARY TO MAINTAIN AND CONTINUE PROTECTION WHENEVER THE BUILDING IS ALTERED, REMODELED OR ADDED TO. ALTERATIONS TO FIRE PROTECTION SYSTEM SHALL BE DONE IN ACCORDANCE WITH APPLICABLE STANDARDS.

8 TITLE 19 DIVISION 1 §1.14 - EVERY FIRE ALARM SYSTEM OR DEVICE, SPRINKLER SYSTEM, FIRE EXTINGUISHER, FIRE HOSE, FIRE-RESISTIVE ASSEMBLY OR ANY OTHER FIRE SAFETY ASSEMBLY, DEVICE MATERIAL OR EQUIPMENT INSTALLED AND RETAINED IN SERVICE IN ANY BUILDING OR STRUCTURE SUBJECT TO CALIFORNIA CODE OF REGULATIONS, TITLE 19 DIVISION 1 REGULATIONS SHALL BE MAINTAINED IN AN OPERABLE CONDITION AT ALL TIMES IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATIONS TITLE 19 DIVISION 1 REGULATIONS AND WITH THEIR INTENDED USE.

9 TITLE 19 DIVISION 1 §3.24 - UPON DISRUPTION OF DIMINISHMENT OF THE FIRE PROTECTIVE QUALITIES OF SUCH EQUIPMENT, MATERIAL OR SYSTEMS IMMEDIATE ACTION SHALL BE INSTITUTED TO EFFECT A REESTABLISHMENT OF SUCH EQUIPMENT MATERIAL OR SYSTEMS TO THEIR ORIGINAL NORMAL OPERATIONAL CONDITION.

10 CFC 901.5.1 - IT SHALL BE UNLAWFUL TO OCCUPY ANY PORTION OF A BUILDING OR STRUCTURE UNTIL THE REQUIRED FIRE DETECTION, ALARM SYSTEM HAS BEEN TESTED AND APPROVED.

11 CFC 901.5.1 - IT SHALL BE UNLAWFUL TO OCCUPY ANY PORTION OF A BUILDING OR STRUCTURE UNTIL THE REQUIRED FIRE DETECTION, ALARM SYSTEM HAS BEEN TESTED AND APPROVED.

12 FIRE ALARM SCOPE REQUIRES DSA APPROVED DRAWINGS FOR REFERENCE OF AREAS IN SCOPE INCLUDE COMPLIANT FIRE ALARM COMPONENTS (SMOKE-HEAT-AUDIBLE-VISUAL-MANUAL). (STATEMENT OF COMPLIANCE PER CFC 901.2.1; 901.6.2.1 & TITLE 19 DIVISION 1§ 904.1(b) 904.2(c) RECORD AS-BUILT DRAWINGS AND TEST REPORTS.) ROOMS / AREAS IN SCOPE TO INCLUDE EXISTING FIRE ALARM COMPONENTS.

13 CFC 1030.1 - THE MEANS OF EGRESS FOR BUILDING OR PORTIONS THEREOF SHALL BE MAINTAINED IN ACCORDANCE WITH THIS SECTION.

14 CFC 1030.4 - EXIT SIGNS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH SECTION 1011.

15 CFC CHAPTER 11, PROVISIONS APPLICABLE TO EXISTING BUILDING.

16 CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION APPLICABLE PROVISIONS TO BE REPLICATED VERBATIM - SAMPLE SECTIONS - 3304 PRECAUTIONS AGAINST FIRE: 3304.2 WASTE DISPOSAL; 3304.5 FIRE WATCH; 3304.6 CUTTING AND WELDING; 3305 FLAMMABLE AND COMBUSTIBLE LIQUIDS; 3308 OWNERS RESPONSIBILITY; 3310 ACCESS FOR FIREFIGHTING; 3311 MEANS OF EGRESS; 3315 FIRE EXTINGUISHERS.

FIRE ALARM SYSTEM REQUIREMENTS

1) APPLICABLE STANDARD 2019 NFPA 72
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 THE INSTALLATION OF THE SYSTEMS, 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 LAB TESTING CRITERIA. APPROVED TYPE OF MATERIALS SHALL BE IDENTFIED WITHIN THE SPECIFICATION WITHIN THE FIRE ALARM SECTION.
8) WALL MOUNTED VISUAL NOTIFICATION DEVICES SHALL HAVE THEIR ENTIRE LENS TO BE BETWEEN 80” AND 90”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 THEN 6” TO A HORIZONTAL STRUCTURE.
10) AUDIBLE DEVICES TO BE AT LEAST 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75 DBA AT 10 FEET OR MORE THAN 110 DBA AT THE MINIM HEARING DISTANCE . SOUND LEVEL SHALL BE MAINTAIND FOR DURATION OF AT LEAST 60 SECTIONS 5 DBA MUST BE MAINTAINED.
11) AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
12) THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
13) VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELLA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
14) UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVAL FOR WET LOCATIONS.
15) ALL FIRE ALARM WIRING SHALL BE FLP OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE 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. THERE MUST BE AT LEAST 6' OF LEAD WIRE FROM THE BOX TO THE DEVICE. 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 MANOR AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMETS.
19) FIRE ALARM PANEL, REMOTES, AND COMPONENETS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 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 RECORD OF COMPLETION PER NFPA 72, REQUIREMENTS.
22) CONTROL PANELS, REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48” 23) THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.3.
24) SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
25) OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.
26) A DSA CLASS 3 INSPECTOR SHALL BE HIRED BY THE DISTRICT AND APPROVED BY DSA TO INSPECT THIS PROJECT.

MEP Component Anchorage Note

All mechanical, plumbing, and electrical components shall be anchored and installed per the details on the DSA-approved construction documents. The following components shall be anchored or braced to meet the force and displacement requirements prescribed in the 2019 CBC Sections 1617A.1.18 through 1617A.1.26 and ASCE 7-16 Chapters 13, 26, and 30:

1. All permanent equipment and components.
2. Temporary, movable or mobile equipment that is permanently attached (e.g. hard wired) to the building utility services such as electricity, gas or water. "Permanently attached" shall include all electrical connections except for plugs for 110/220 volt receptacles having a flexible cable.
3. Temporary, movable or mobile equipment which is heavier than 400 pounds or has a center of mass located 4 feed tor more above the adjacent floor or roof level that directly support the component is required to be restrained in a manner approved by DSA.

The following mechanical and electrical components shall be positively attached to the structure but need not demonstrate design compliance with the references noted above. These components shall have flexible connections provided between the component and associated ductwork, piping, and conduit. Flexible connections must allow movement in both transverse and longitudinal directions:

A. Components weighing less than 400 pounds and having a center of mass located 4 feet or less above the adjacent floor or roof level that directly support the component.

B. Components weighing less than 20 pounds, or in the case of distributed systems, less than 5 pounds per foot, which are suspended from a roof or floor or hung from a wall.

The anchorage of all mechanical, electrical and plumbing components shall be subject to the approval of the design professional in general responsible charge or structural engineer delegated responsibility and acceptance by DSA. The project inspector will verify that all components and equipment have been anchored in accordance with the above requirements.

Piping, Ductwork, and Electrical Distribution System Bracing Note

Piping, ductwork, and electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7-16 Section 13.3 as defined in ASCE 7-16 Sections 13.6.5, 13.6.6, 13.6.7, 13.6.8; and 2019 CBC, Sections 1617.1.24, 1617A1.25 and 1617A.1.26.

The method of showing bracing and attachments to the structure for the identified distribution system are as noted below. When bracing and attachments are based on a preapproved installation guide (e.g., OSHPD OPM for 2013 CBC or later), copies of the bracing system installation guide or manual shall be available on the jobsite prior to the start of and during the hanging and bracing of the distribution systems. The Structural Engineer of Record shall verify the adequacy of the structure to support the hanger and brace loads.

Mechanical Piping (MP), Mechanical Ducts (MD), Plumbing Piping (PP), Electrical Distribution Systems (E):

MP MD PP E Option 1: Detailed on the approved drawings with project specific notes and details.

#______________

FIRE WATCH, FIRE MARSHAL REQUIREMENTS:

REQUIREMENTS FOR DISABLING THE FIRE ALARM SYSTEM;

1. AS REQUIRED BY THE **2019 CALIFORNIA FIRE CODE**, STANDBY PERSONNEL OR SYSTEMS TEMPORARILY “OUT OF SERVICE”. THE LOCAL FIRE MARSHAL IS AUTHORIZED TO REQUIRE THE CONTRACTOR TO PROVIDE STANDBY PERSONNEL AS SET FORTH IN THESE SECTIONS, UNTIL THE SYSTEM IS RESTORED TO OPERATION.

2. SUCH INDIVIDUAL SHALL BE SUBJECT TO THE LOCAL FIRE MARSHAL'S ORDER AT ALL TIMES WHEN SO EMPLOYED AND SHALL REMAIN ON DUTY DURING THE TIME SUCH PLACES ARE OPEN TO THE PUBLIC OR WHEN SUCH PUBLIC ACTIVITY IS BEING CONDUCTED. FIRE WATCH PERSONNEL SHALL BE PROVIDED WITH AT LEAST ONE APPROVED MEANS FOR NOTIFICATION OF THE FIRE DEPARTMENT.

3. SUCH INDIVIDUALS SHALL KEEP A DILIGENT WATCH FOR FIRES AND BE ABLE TO TAKE PROMPT AND APPROPRIATE ACTION IN THE EVENT OF A FIRE. SUCH INDIVIDUALS SHALL NOT BE REQUIRED OR PERMITTED, WHILE ON DUTY, TO PERFORM ANY OTHER DUTIES THAN THESE HEREIN SPECIFIED.

APPLICABLE CODE REQUIREMENTS

PERFORMANCE OF THE WORK OF THIS CONTRACT SHALL CONFORM TO THE REQUIREMENTS OF APPLICABLE GOVERNING CODES AND ORDINANCES INCLUDING THE FOLLOWING:

2022	BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24, C.C.R.
2019	CALIFORNIA BUILDING CODE, PART 2, TITLE 24 C.C.R. (2012 IBC, VOLUMES 1-3 WITH CALIFORNIA AMENDMENTS)
2019	CALIFORNIA ELECTRICAL CODE, PART 3, TITLE 24 C.C.R. (2011 N.E.C. WITH CALIFORNIA AMENDMENTS)
2019	CALIFORNIA MECHANICAL CODE, PART 4, TITLE 24 C.C.R (2012 U.M.C. WITH CALIFORNIA AMENDMENTS)
2019	CALIFORNIA PLUMBING CODE, PART 5, TITLE 24 C.C.R. (2012 U.P.C. WITH CALIFORNIA AMENDMENTS)
2019	CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
2019	CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R. (2012 I.F.C. WITH CALIFORNIA AMENDMENTS)
2019	CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R. TITLE 19 C.C.R. PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.
NFPA 13	AUTOMATIC SPRINKLER SYSTEM -------------2016 EDITION
NFPA 14	STANDPIPE SYSTEM --------------------------------2016 EDITION
NFPA 17A	WET CHEMICAL SYSTEM ------------------------2017 EDITION
NFPA 24	PRIVATE SERVICE MAINS ------------------------2016 EDITION
NFPA 72	NATIONAL FIRE ALARM CODE -----------------2016 EDITION (NOTE SEE UL STANDARDS 1971 FOR (“VISUAL DEVICES”)

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web|www.aparchitects.net

CAMPUS HVAC SYSTEM UPGRADE

Mt Vernon Elementary School
2161 Potomac Ave. Bakersfield. CA. 93307
Bakersfield City School District

ARCHITECT
LICENSED ARCHITECT JAMES PATRICK FOGARTY No. C-19670 REN 11-30- STATE OF CALIFORNIA
JAMES PATRICK FOGARTY, AIA
ARCHITECT C-19670

CONSULTANT
JMPE
ELECTRICAL ENGINEERING
LIGHTING DESIGN
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FAX (805) 569-2405
email : maloney@jmpe.net
www.jmpe.net
REGISTERED PROFESSIONAL ENGINEER JOHN MALONEY No. E01308[illegible] EXP. 06/30/2025 ELECTRICAL STATE OF CALIFORNIA

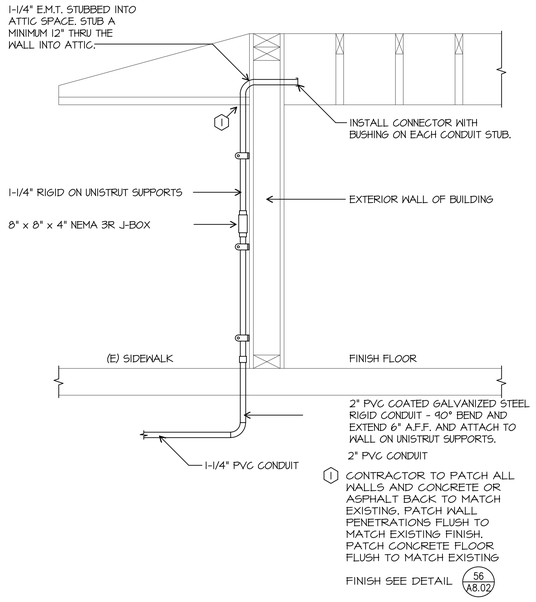
PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

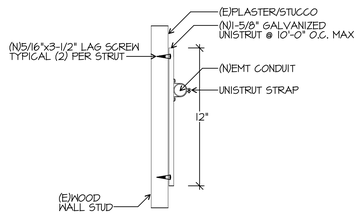
REVISIONS

No	Date	Item
	00.00.08	DESCRIPTION
	02-07-24	REVISIONS
2	07-11-24	ADDENDA 2

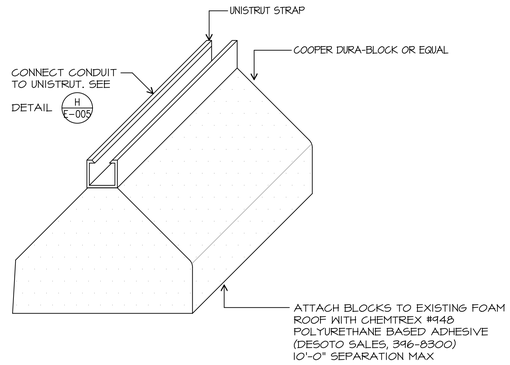
FIRE ALARM DETAILS



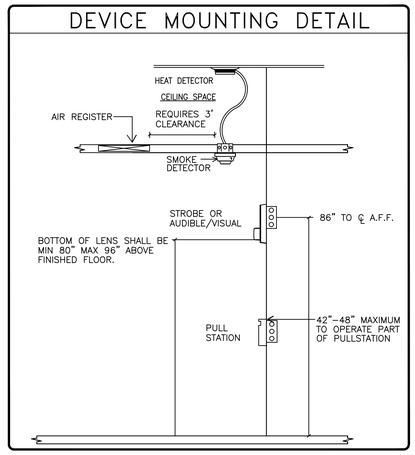
FIRE ALARM JUNCTION BOX DETAIL, TYPICAL (F)



UNISTRAT SUPPORT DETAIL (H)
SCALE: NONE



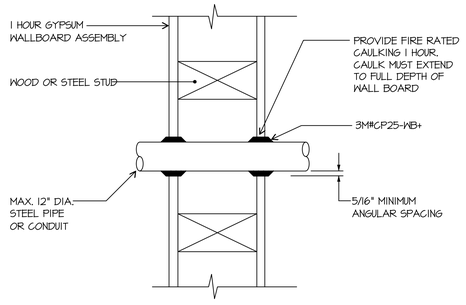
ROOF CONDUIT SUPPORT (I)
SCALE: NONE



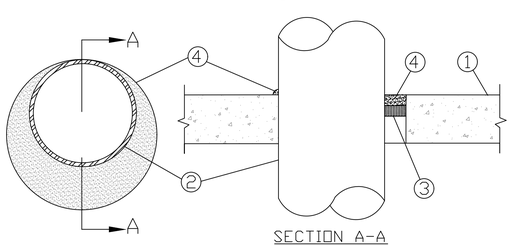
FIRE ALARM MOUNTING DETAIL (G)

* NOTE
THIS MATERIAL WAS EXTRACTED BY 3M FIRE PROTECTION PRODUCTS FROM THE 2004 EDITION OF THE UL FIRE RESISTANCE DIRECTORY.

System No. C-AJ-1001
June 15, 2005
F Rating - 3 Hr
T Rating - 0 Hr
W Rating - Class I (See Item 4)

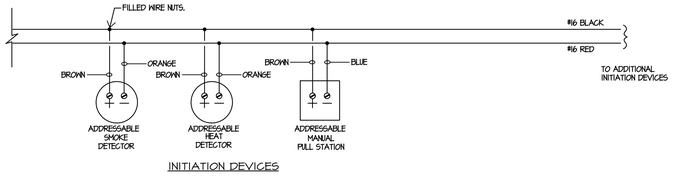


FIRE STOP PENETRATION STUD WALL (B)

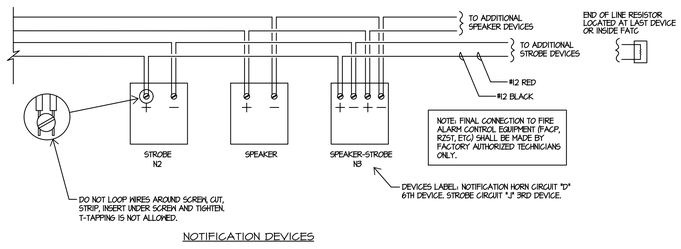


SECTION A-A

BLOCK WALL FIRE BARRIER DETAIL (C)

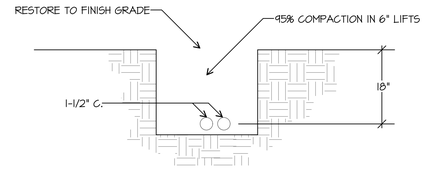


INITIATION DEVICES

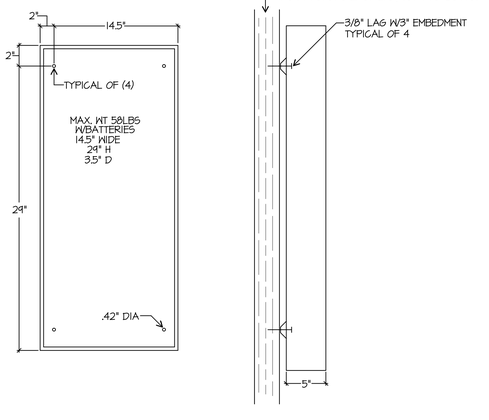


NOTIFICATION DEVICES

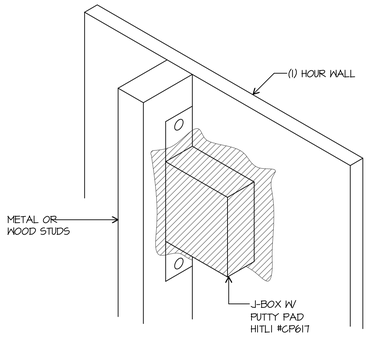
FIRE ALARM DEVICES TYPICAL MOUNTING DETAIL (A)



TRENCH DETAIL (J)
SCALE: NONE

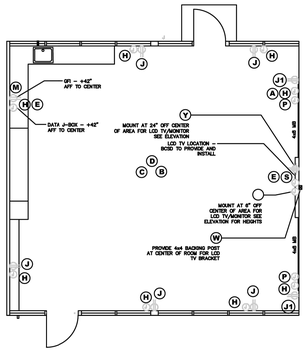


FIRE ALARM ANNUNCIATOR MOUNTING DETAIL (D)



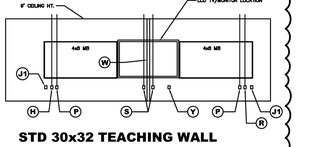
J-BOX FIRESTOP DETAIL (E)

MT VERNON HVAC Project Standard Classroom - DATA



KEYNOTES

A	3 Blue Cat6 data terminated in 3 port faceplate	L	
B	2 Cat6A data, blank ring and 2 port plate installed in ceiling tile. Install 1 distinct provided access point	L1	
C	Ceiling Mount PA speaker installed connecting to existing speaker wire	L2	
D	Install 2 Cat6 data cables terminated above tiler with 30ft coil of spare length	M	G.F.I. RECEPTACLE. MOUNT AS INDICATED ON PLAN AT CABINET LOCATION. MOUNT AT STANDARD HEIGHT IN CLASSROOM AREAS.
E	2 Cat6 data cables terminated in 2 port faceplate	N	
F		P	DOUBLE GANG DEEP MUD RING. LOCATE AT STANDARD HEIGHT. PROVIDE 1" CONDUIT ANCHORED TO FRAMING FROM MUD RING TO ABOVE CEILING. NO HARD CONNECTIONS AT MUD RING. PROVIDE PULL STRING.
F1		Q	
G		R	SINGLE GANG DEEP MUD RING. LOCATE AT STANDARD HEIGHT. PROVIDE 1" CONDUIT ANCHORED TO FRAMING FROM MUD RING TO ABOVE CEILING. NO HARD CONNECTIONS AT MUD RING. PROVIDE PULL STRING.
H	J-BOX ONLY (DATA OUTLET) – 3/4" CONDUIT STUBBED ABOVE CEILING.	S	SINGLE GANG DEEP MUD RING AT STANDARD HEIGHT. PROVIDE 1" CONDUIT ANCHORED TO FRAMING FROM MUD RING TO ABOVE CEILING. NO HARD CONNECTION AT MUD RING. PROVIDE PULL STRING.
J	STANDARD DUPLEX OUTLET LOCATION. LOCATE OUTLETS AS INDICATED ON THE PLAN.	T	
J1	STANDARD SURGE PROTECTED DUPLEX OUTLET. LOCATE OUTLETS AS INDICATED ON THE PLAN.	U	
K		V	PROVIDE SINGLE GANG BOX WITH CEILING MOUNTING BRACKET AT CENTER OF ROOM IN T-BAR CEILING.
K1		W	PROVIDE 4X4 BACKING POST AT CENTER OF ROOM FOR DISTRICT PROVIDED MONITOR BRACKET.
		X	
		Y	WALL MOUNTED SURGE PROTECTED DUAPLEX OUTLET. LOCATE AT STANDARD WALL OUTLET HEIGHT.



STD 30x32 TEACHING WALL

TYPICAL CLASSROOM DETAIL (K)

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STATE OF CALIFORNIA

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email : malcomy@jmpe.net
www.jmpe.net

REGISTERED PROFESSIONAL ENGINEER
MALCOM YOUNG
ELECTRICAL
EXP. 12/31/24
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

No	Date	Item
	00.00.08	DESCRIPTION
	02-07-24	REVISIONS
1	07-11-24	ADDENDA 2

FIRE ALARM DETAILS

E-005

[redacted]

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E (Created 11/19) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.		
Project Name: MT. VERNON ELEMENTARY SCHOOL (TYPICAL FOR BLDGS. B, C, D, & E)	Report Page:	Page 1 of 6
Project Address: 2161 PATOMAC AVE. BAKERSFIELD, CA	Date Prepared:	10/27/22

A. GENERAL INFORMATION

01	Project Location (city)	BAKERSFIELD	04	Total Conditioned Floor Area (ft^2)	5,000
02	Climate Zone	13	05	Total Unconditioned Floor Area (ft^2)	
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	

☐ Office ☐ Retail ☐ Warehouse ☐ Hotel/Motel ☑ School ☐ Support Areas
☐ Parking Garage ☐ High-Rise Residential ☐ Relocatable ☐ Healthcare ☐ Other (write in):

B. PROJECT SCOPE

Table Instructions: Include any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations. WARNING: Changing the Calculation Method in this table will result in the deletion of data previously input. If you need to change the calculation method, please open a new form or use "Save As".

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft^2)	Calculation Method	Area (ft^2)
☑ New Lighting System	Area Category	5,000		
☐ Altered Lighting System				
Total Area of Work (ft^2)	5,000			

C. COMPLIANCE RESULTS

Table Instructions: 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.	Allowed Lighting Power per §140.6(b) (Watts)							Adjusted Lighting Power per §140.6(a) (Watts)				Compliance Results
	01	02	03	04		05		06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	Total Allowed (Watts)	≥	Total Designed (Watts)	Adjustments PAF Control Credits §140.6(a)2 (-)	=	Total Adjusted (Watts) *Includes Adjustments	05 Must be ≥ 08 §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)				(See Table F)	(See Table P)			
Conditioned:		3,264.95			=	3,264.95	≥	2,649		=	2,649	COMPLIES
Unconditioned:					=		≥			=		

Table Continued

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E (Created 11/19) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: MT. VERNON ELEMENTARY SCHOOL (TYPICAL FOR BLDGS. B, C, D, & E)	Report Page:	Page 2 of 6
Project Address: 2161 PATOMAC AVE. BAKERSFIELD, CA	Date Prepared:	10/27/22

Controls Compliance (See Table H for Details)	COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)	Not Applicable

D. EXCEPTIONAL CONDITIONS

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

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS

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

F. INDOOR LIGHTING FIXTURE SCHEDULE

Table Instructions: Include all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How Wattage is determined	Total number luminaires	Exempt per §140.6(a)3	Design Watts	Field Inspector Pass	Fail
A	LED 2X4 TROFFER	☐	☐	43	Mfr. Spec[2]	60	☐	2,580	☐	☐
B	LED STRIP	☐	☐	23	Mfr. Spec[2]	3	☐	69	☐	☐
							Total Designed Watts CONDITIONED SPACES:	2,649		

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

G. MODULAR LIGHTING SYSTEMS

This Section Does Not Apply

H. INDOOR LIGHTING CONTROLS (Not Including PAFs)

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E (Created 11/19) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: MT. VERNON ELEMENTARY SCHOOL (TYPICAL FOR BLDGS. B, C, D, & E)	Report Page:	Page 3 of 6
Project Address: 2161 PATOMAC AVE. BAKERSFIELD, CA	Date Prepared:	10/27/22

*Table Instructions: Please include lighting controls for conditioned and unconditioned spaces in this table. When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
Mandatory Demand Response §110.12(c)	Shut-Off Controls §130.1(c)	Field Inspector Pass	Fail
Not Required ≤ 10,000 SF	See Area/Space Level Controls	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Skylit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector Pass	Fail
TYP. CLASSROOM	Classroom, Lecture, Training, Vocational	Manual ON/ OFF	Dimmer	Vacancy	NA	NA	☐	☐	☐
RESTROOMS	Restroom	Manual ON/ OFF	NA: ≤ 80% LP (alt only)	Vacancy	NA	NA	☐	☐	☐

*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.
EX: Conference 1: Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)2

13 — Plan Sheet Showing Daylit Zones:

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Table Instructions: Complete the table for each area complying using the Complete Building or Area Category Methods per §140.6(b). Indicate if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft^2)	Area (ft^2)	Allowed Wattage (Watts)	Additional Allowances / Adjustment: Area Category	PAF
TYP. CLASSROOM	Classroom, Lecture, Training, Vocational	0.7	299	209.3	☐	☐
RESTROOM	Restroom	0.65	4,701	3,055.65	☐	☐
		TOTAL:	5,000	3,264.95	See Tables J or P for detail	

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E (Created 11/19) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: MT. VERNON ELEMENTARY SCHOOL (TYPICAL FOR BLDGS. B, C, D, & E)	Report Page:	Page 4 of 6
Project Address: 2161 PATOMAC AVE. BAKERSFIELD, CA	Date Prepared:	10/27/22

J. ADDITIONAL LIGHTING ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM
This Section Does Not Apply

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE
This Section Does Not Apply

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY
This Section Does Not Apply

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING
This Section Does Not Apply

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS
This Section Does Not Apply

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE
This Section Does Not Apply

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))
This Section Does Not Apply

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS
This Section Does Not Apply

R. 80% LIGHTING POWER FOR ALTERATIONS - CONTROLS EXCEPTIONS
This Section Does Not Apply

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)
This Section Does Not Apply

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E (Created 11/19) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: MT. VERNON ELEMENTARY SCHOOL (TYPICAL FOR BLDGS. B, C, D, & E)	Report Page:	Page 5 of 6
Project Address: 2161 PATOMAC AVE. BAKERSFIELD, CA	Date Prepared:	10/27/22

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://ww2.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

YES	NO	Form/Title	Field Inspector Pass	Fail
●	○	NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐
○	●	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐
○	●	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	☐	☐
○	●	NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐	☐
○	●	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why 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

YES	NO	Form/Title	Field Inspector Pass	Fail
○	●	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐
○	●	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐	☐
○	●	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐	☐
○	●	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF).	☐	☐
○	●	NRCA-ENV-03-F - Must be submitted for daylighting design power adjustment factors (PAF).	☐	☐

STATE OF CALIFORNIA

Indoor Lighting

NRCC-LTI-E (Created 11/19) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: MT. VERNON ELEMENTARY SCHOOL (TYPICAL FOR BLDGS. B, C, D, & E)	Report Page:	Page 6 of 6
Project Address: 2161 PATOMAC AVE. BAKERSFIELD, CA	Date Prepared:	10/27/22

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete

Documentation Author Name:	JOHN MALONEY P.E.	Documentation Author Signature:	
Company:	JMPE	Signature Date:	10/27/22
Address:	627 OLIVE STREET	CEA/ HERS Certification Identification (if applicable):	
City/State/Zip:	SANTA BARBARA, CA 93101	Phone:	805-569-9216

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 identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.**
4. **The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.**
5. **I will ensure that a completed signed copy of this Certificate of Compliance 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:	JOHN MALONEY P.E.	Responsible Designer Signature:	
Company :	JMPE	Date Signed:	10/27/22
Address:	627 OLIVE STREET	License:	E013083 06-23
City/State/Zip:	SANTA BARBARA, CA 93101	Phone:	805-569-9216

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CAMPUS HVAC SYSTEM UPGRADE

Mt Vernon Elementary School
2161 Potomac Ave. Bakersfield. CA. 93307
Bakersfield City School District

ARCHITECT

LICENSED ARCHITECT — JAMES PATRICK FOGARTY — No. C-19670 — REN 11-30- — STATE OF CALIFORNIA

JAMES PATRICK FOGARTY, AIA
ARCHITECT C-19670

CONSULTANT

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REGISTERED PROFESSIONAL ENGINEER — JOHN MALONEY — No. E013083 — EXP. 06/30/2025 — ELECTRICAL — STATE OF CALIFORNIA

PROJECT INFO

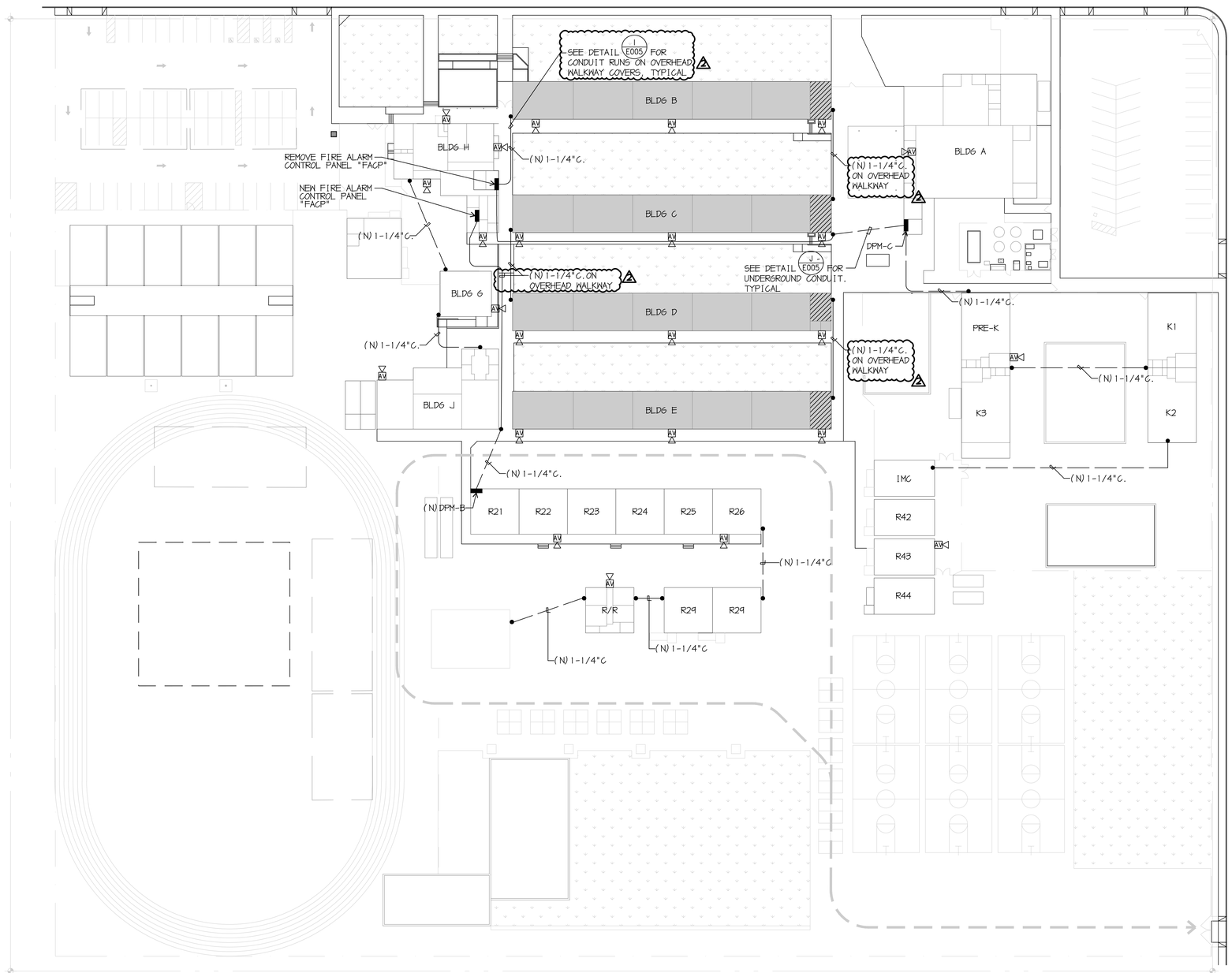
Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

No	Date	Item
	00.00.08	DESCRIPTION

INDOOR T24

E-006



FIRE ALARM SITE PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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REGISTERED PROFESSIONAL ENGINEER
JAMES M. EDISON
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EXP. 09/30/2025
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STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

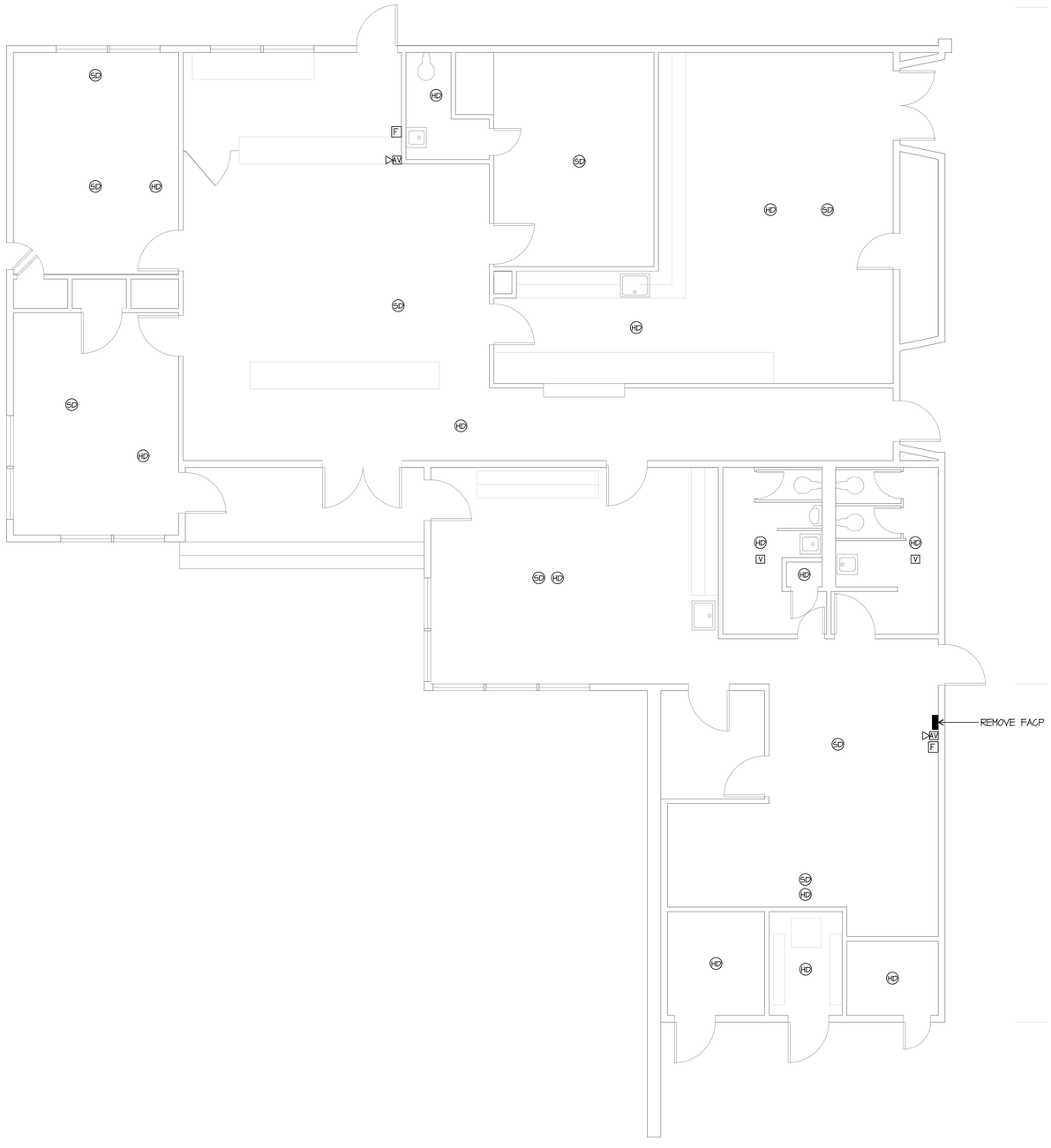
No	Date	Item
	00.00.08	DESCRIPTION
	02-07-24	REVISIONS
1	07-11-24	ADDENDA 2

FIRE ALARM
SITE PLAN

E100

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



BUILDING H FIRE ALARM DEMOLITION PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

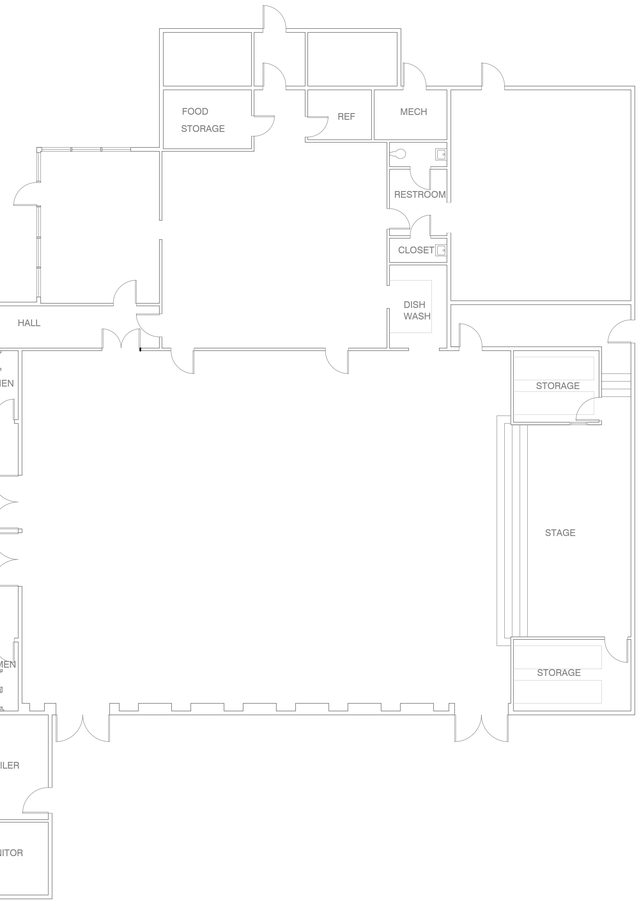
No	Date	Item
	00.00.00	DESCRIPTION

BLD. H FIRE ALARM
DEMO SITE PLAN

E101

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



BUILDING A FIRE ALARM DEMOLITION PLAN

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

NORTH

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EXP. 09/30/2024
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-120659

REVISIONS

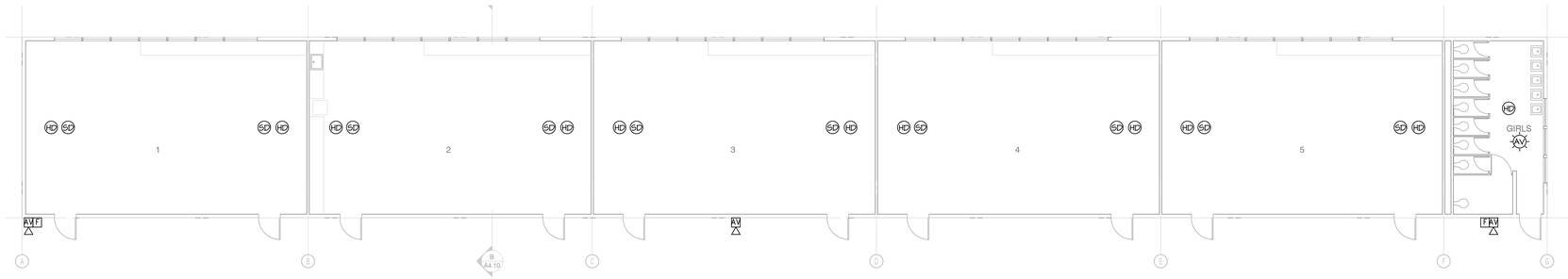
No	Date	Item
	00.00.00	DESCRIPTION

BUILDING A FIRE ALARM DEMO PLAN

E102

FIRE ALARM DEMOLITION NOTES

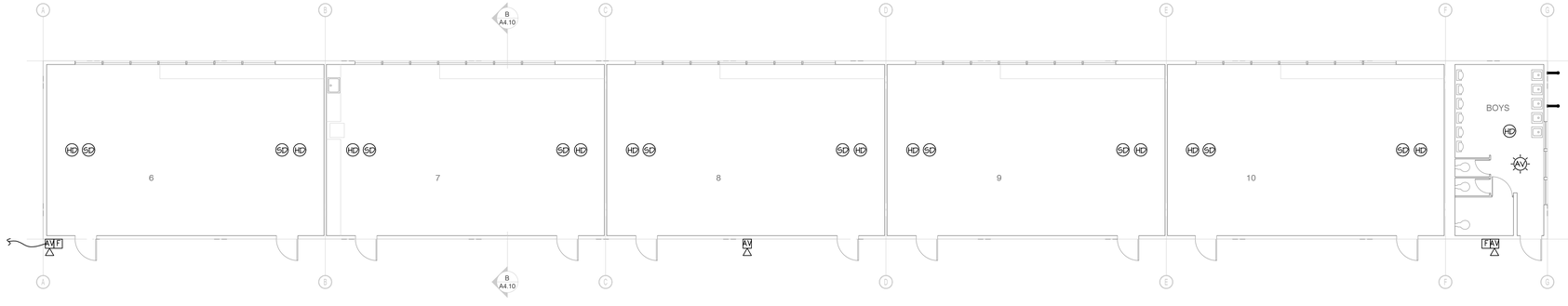
1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



BUILDING B FIRE ALARM DEMOLITION PLAN

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

NORTH



BUILDING C FIRE ALARM DEMOLITION PLAN

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

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PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

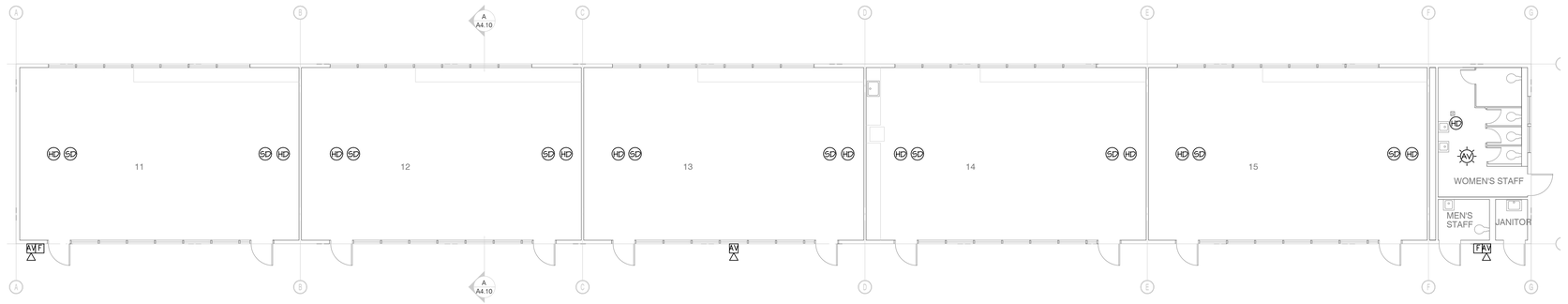
No	Date	Item
1	00.00.00	DESCRIPTION

BLD. B&C FIRE ALARM DEMO SITE PLAN

E103

FIRE ALARM DEMOLITION NOTES

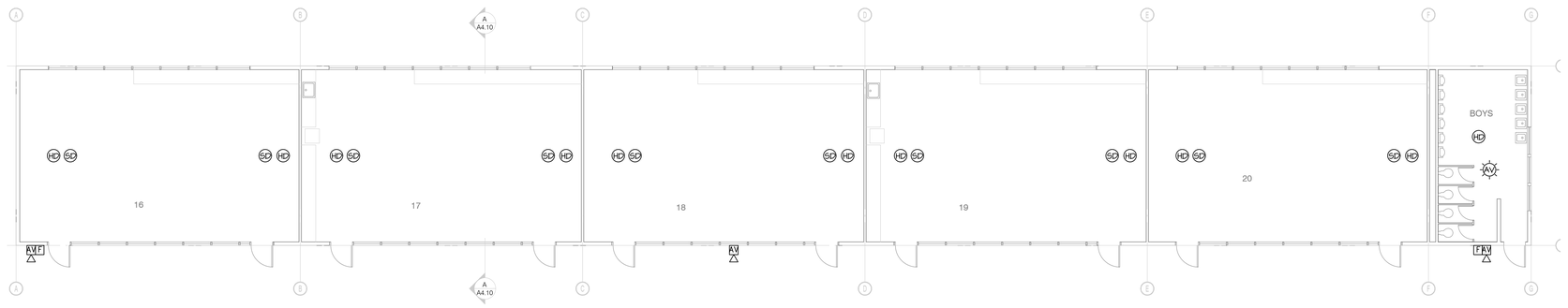
1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



BUILDING D FIRE ALARM DEMOLITION PLAN

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

NORTH



BUILDING E FIRE ALARM DEMOLITION PLAN

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

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STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

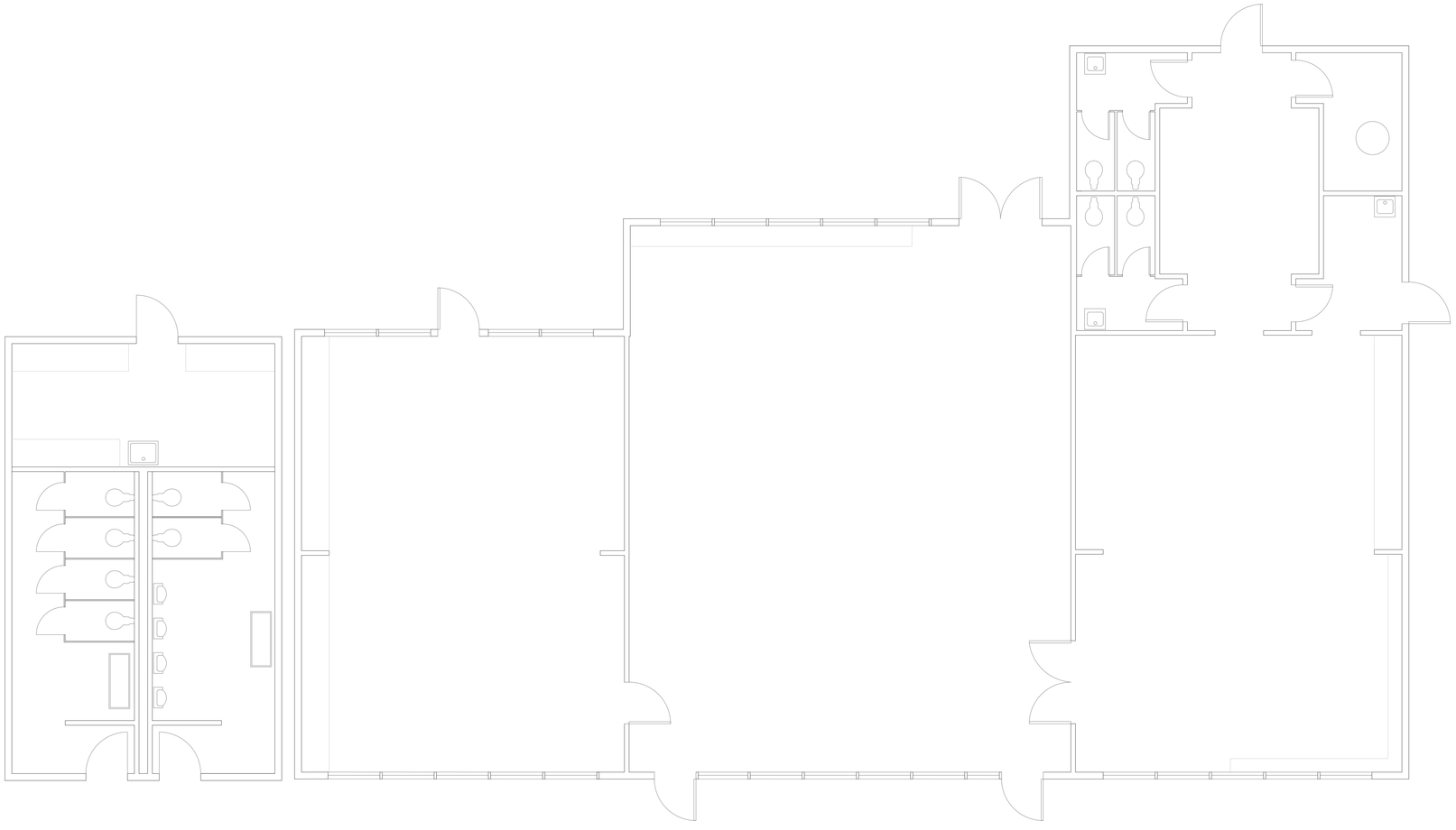
No	Date	Item
1	00.00.00	DESCRIPTION

BUILDING D&E FIRE ALARM DEMO SITE

E104

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



BUILDING J FIRE ALARM DEMOLITION PLAN

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

NORTH

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ELECTRICAL
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

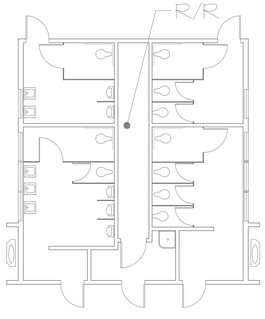
No	Date	Item
1	00.00.00	DESCRIPTION

BUILDING J FIRE ALARM DEMO PLAN

E105

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



R21-R26, R45, R28, R29 AND R/R FIRE ALARM DEMOLITION PLAN

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

NORTH

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ARCHITECT C-19670

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EXP. 09/30/2024
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

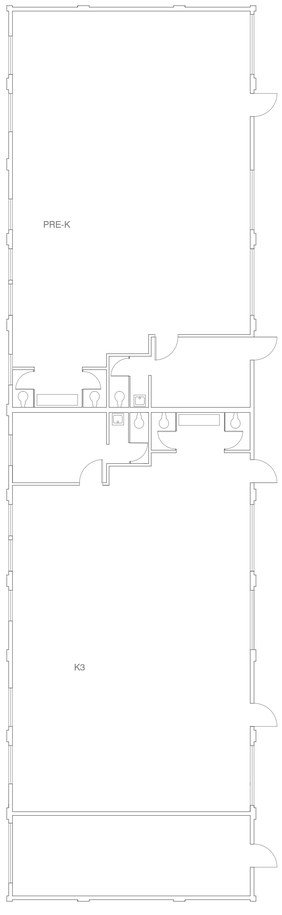
No	Date	Item
1	00.00.00	DESCRIPTION

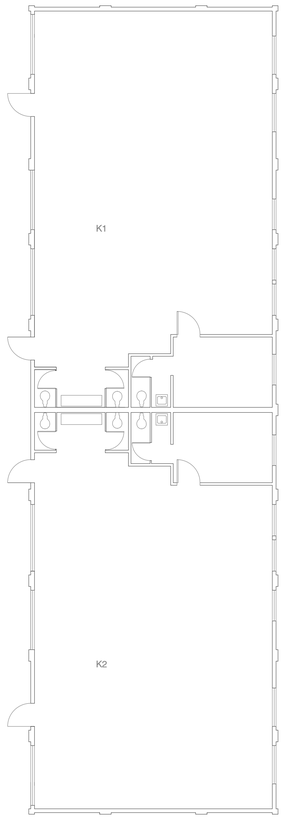
R21-R26, R45, R28, R29 & R/R FIRE ALARM DEMO PLAN

E106

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.





PRE-K + KINDERGARTEN FIRE ALARM DEMOLITION PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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EXP. 06/30/2025
ELECTRICAL
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

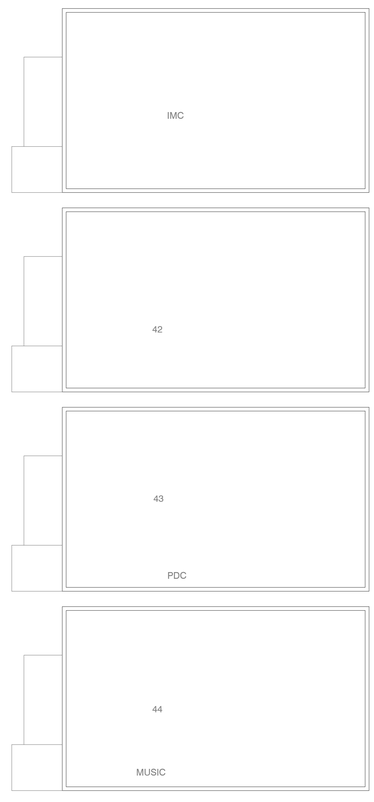
No	Date	Item
1	00.00.00	DESCRIPTION

PRE-K + KINDERGARTEN FIRE ALARM DEMOLITION PLAN

E107

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



R42-R44 & IMC BUILDING FIRE ALARM DEMOLITION PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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No. E13083
EXP. 12-31-2024
ELECTRICAL
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

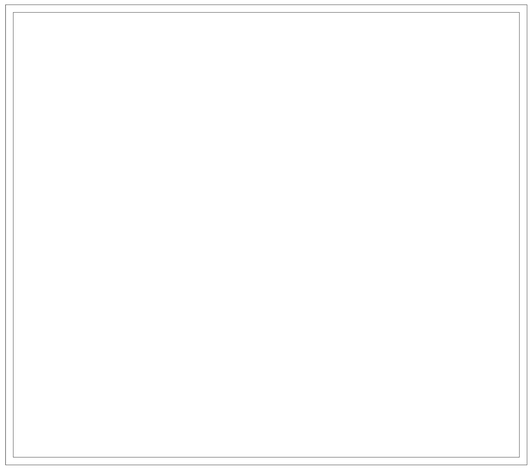
No	Date	Item
1	00.00.00	DESCRIPTION

R42-R44, IMC BLDG FIRE ALARM DEMOLITION PLAN

E108

FIRE ALARM DEMOLITION NOTES

1. REMOVE ALL EXISTING FIRE ALARM DEVICES COMPLETE.



BUILDING G FIRE ALARM DEMOLITION PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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REN 11-30-
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No. E13083
EXP. 09/30/2024
ELECTRICAL
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-120659

REVISIONS

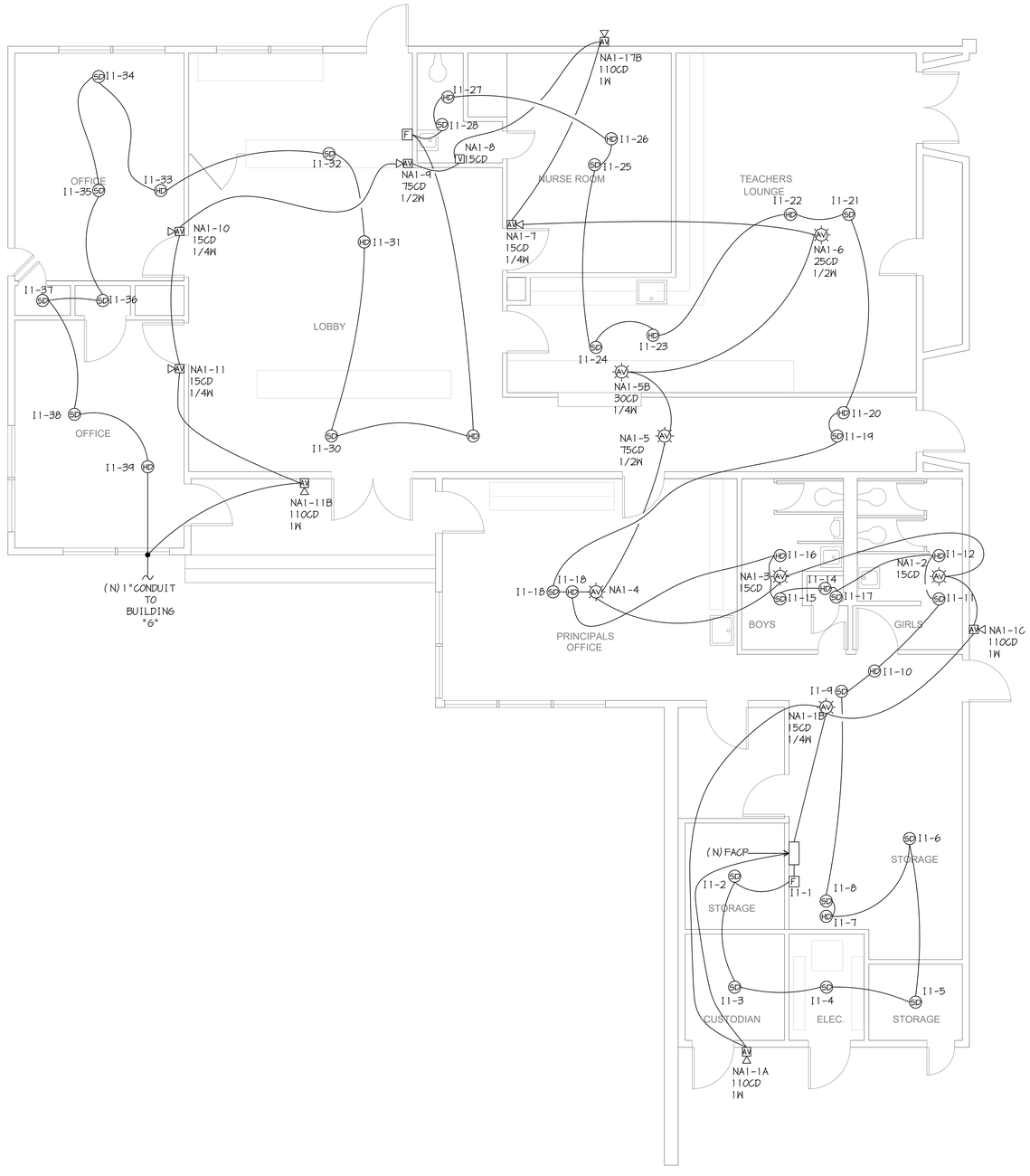
No	Date	Item
1	00.00.00	DESCRIPTION

BUILDING G FIRE ALARM DEMOLITION PLAN

E109

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. F/E005 △2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



BUILDING H FIRE ALARM PLAN

SCALE: 1/4" = 1'-0" 0 1 2 4 8

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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Bakersfield City School District

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LICENSED ARCHITECT JAMES PATRICK FOGARTY No. C-19670 REN 11-30- STATE OF CALIFORNIA

JAMES PATRICK FOGARTY, AIA
ARCHITECT C-19670

CONSULTANT

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REGISTERED PROFESSIONAL ENGINEER EDWARD C. TYRCHA EXP. 09/30/2025 STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

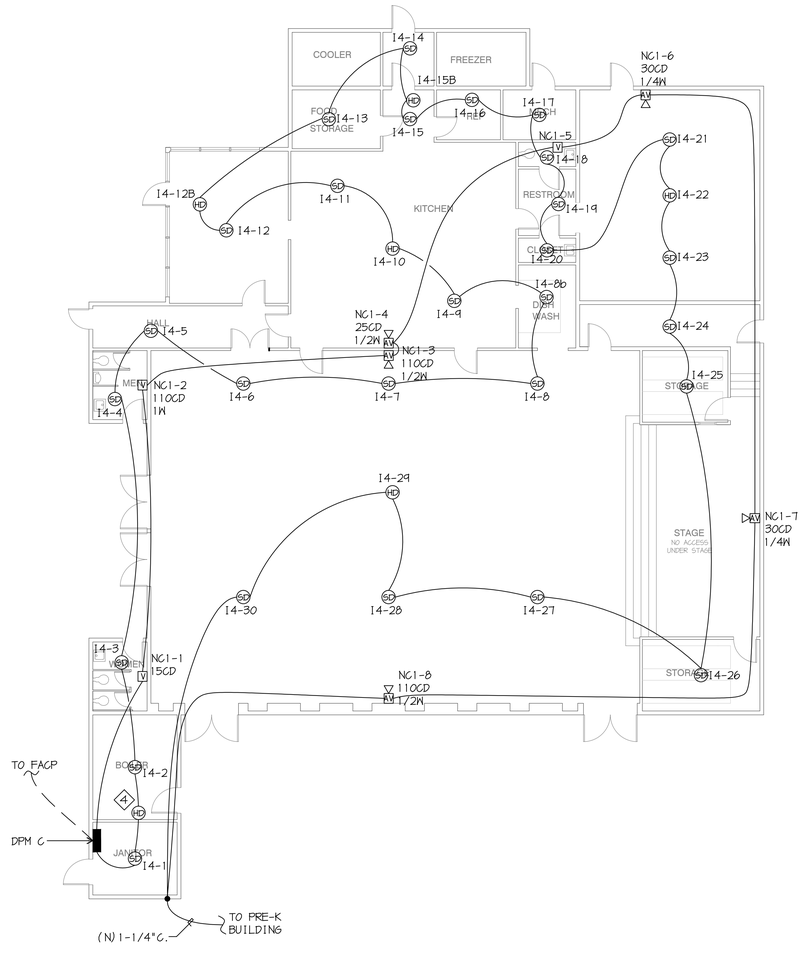
No	Date	Item
	00-00-00	DESCRIPTION
	02-07-24	REVISIONS
△1	07-11-24	ADDENDA 2

BUILDING H FIRE ALARM SITE PLAN

E201

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. (F/E005) △2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



BUILDING A FIRE ALARM PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

Mt Vernon Elementary School

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REGISTERED PROFESSIONAL ENGINEER
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EXP. 06/30/2025
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STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

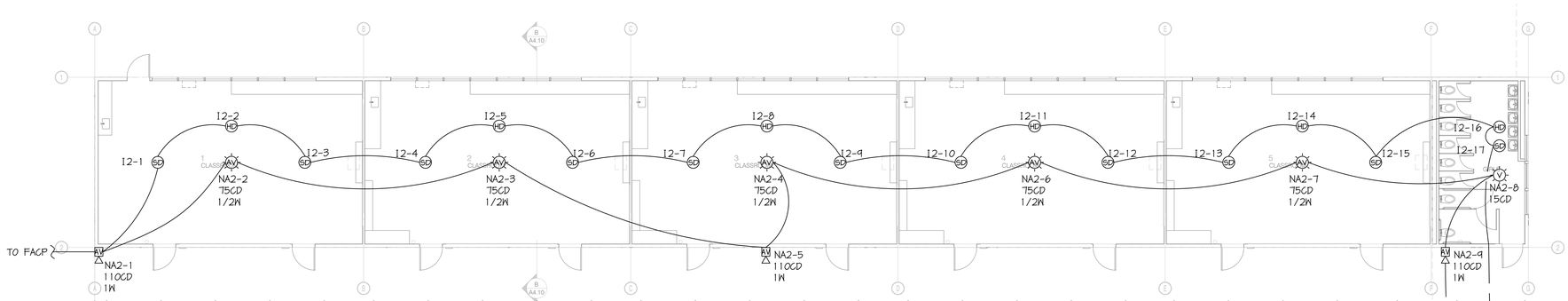
No	Date	Item
	00.00.08	DESCRIPTION
	02-07-24	REVISIONS
△2	07-11-24	ADDENDA 2

BUILDING A FIRE ALARM PLAN

E202

FIRE ALARM NOTES

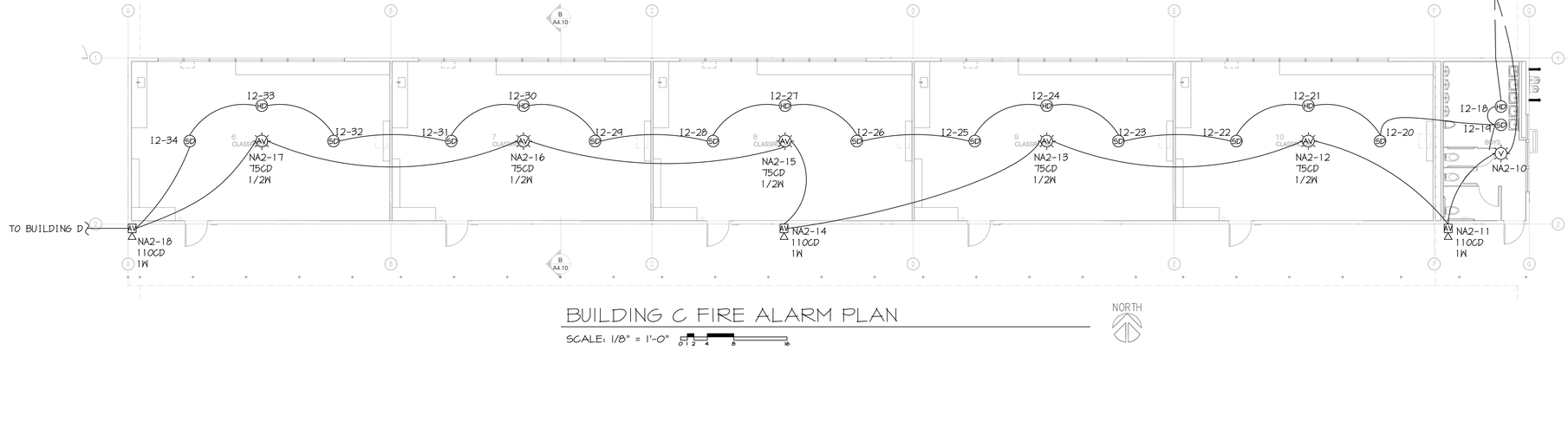
1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. (F/E005) 2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



BUILDING B FIRE ALARM PLAN

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

NORTH



BUILDING C FIRE ALARM PLAN

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

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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EDITH
EXP. 12/31/2024
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STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

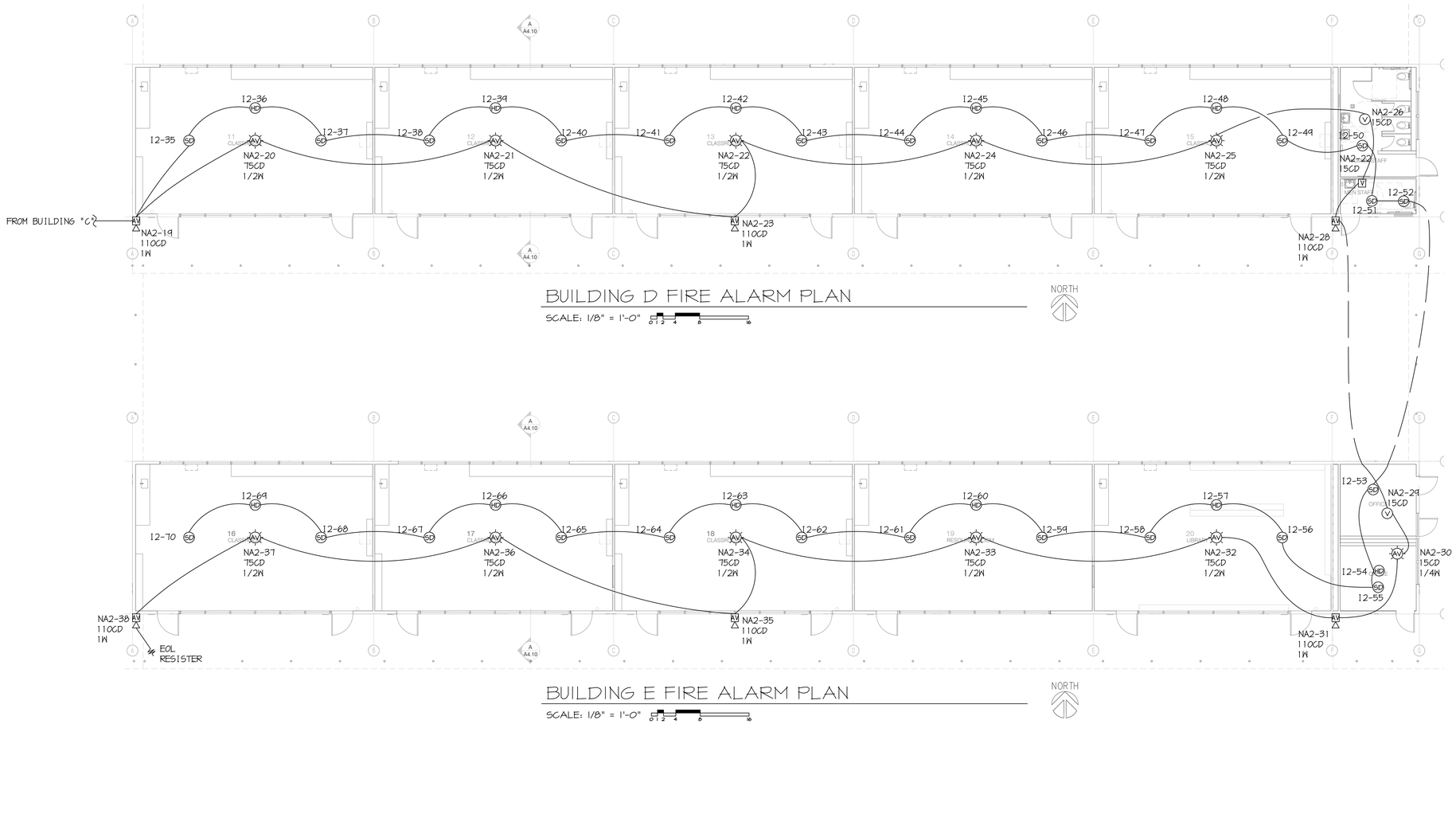
No	Date	Item
1	00.00.08	DESCRIPTION
2	02-07-24	REVISIONS
3	07-11-24	ADDENDA 2

BUILDING B&C FIRE ALARM PLAN

E203

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. F/E005 △2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



BUILDING D FIRE ALARM PLAN

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

NORTH

BUILDING E FIRE ALARM PLAN

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

NORTH

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PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

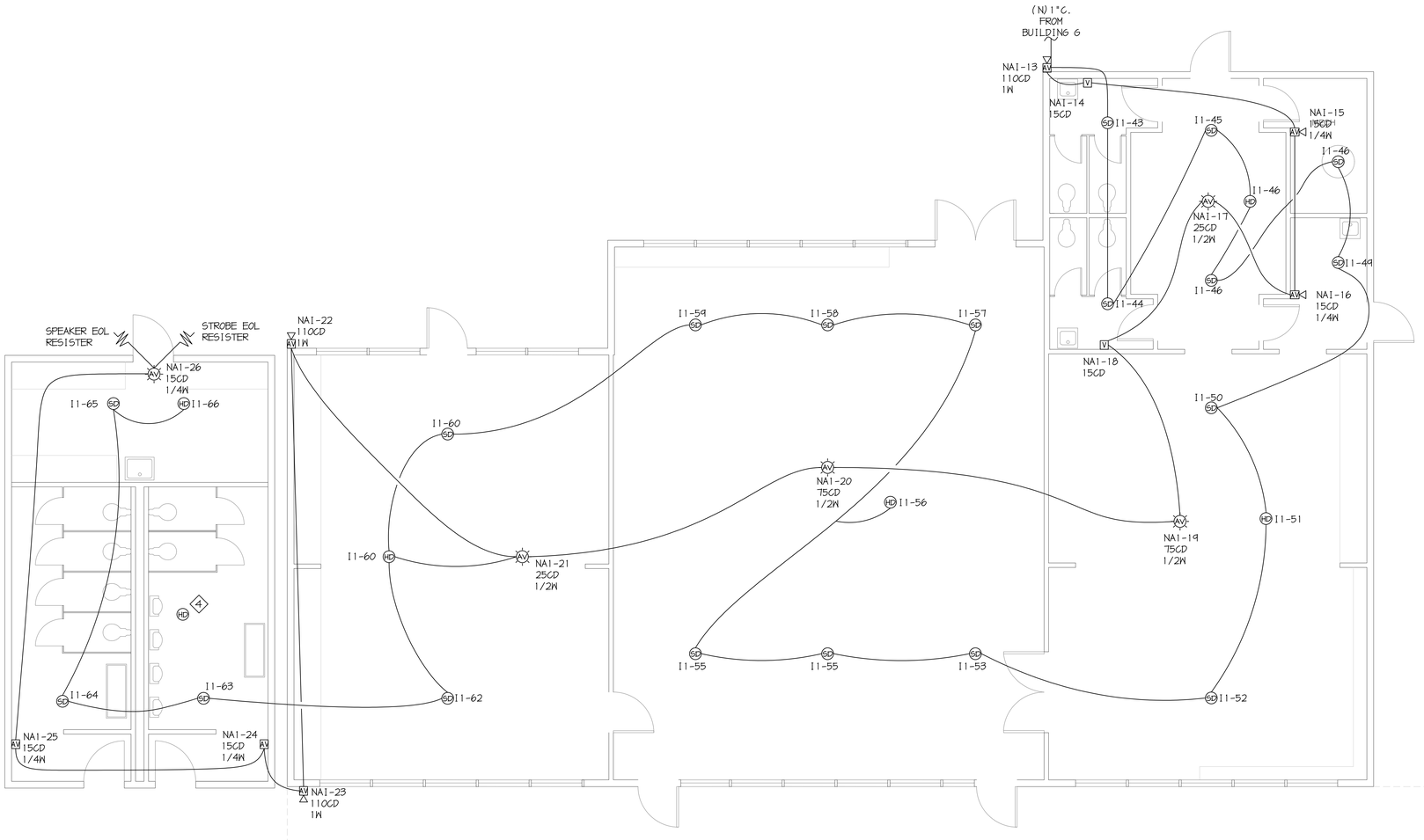
No	Date	Item
1	00.00.00	DESCRIPTION
2	02-07-24	REVISIONS
3	07-11-24	ADDENDA 2

BUILDING D&E FIRE ALARM PLAN

E204

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. F/E005 △2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



BUILDING J FIRE ALARM PLAN

SCALE: 1/4" = 1'-0" (0 1 2 4 8)

NORTH

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REGISTERED PROFESSIONAL ENGINEER MALCOLM E. MALONEY No. E013083 EXP. 06/30/2025 ELECTRICAL STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

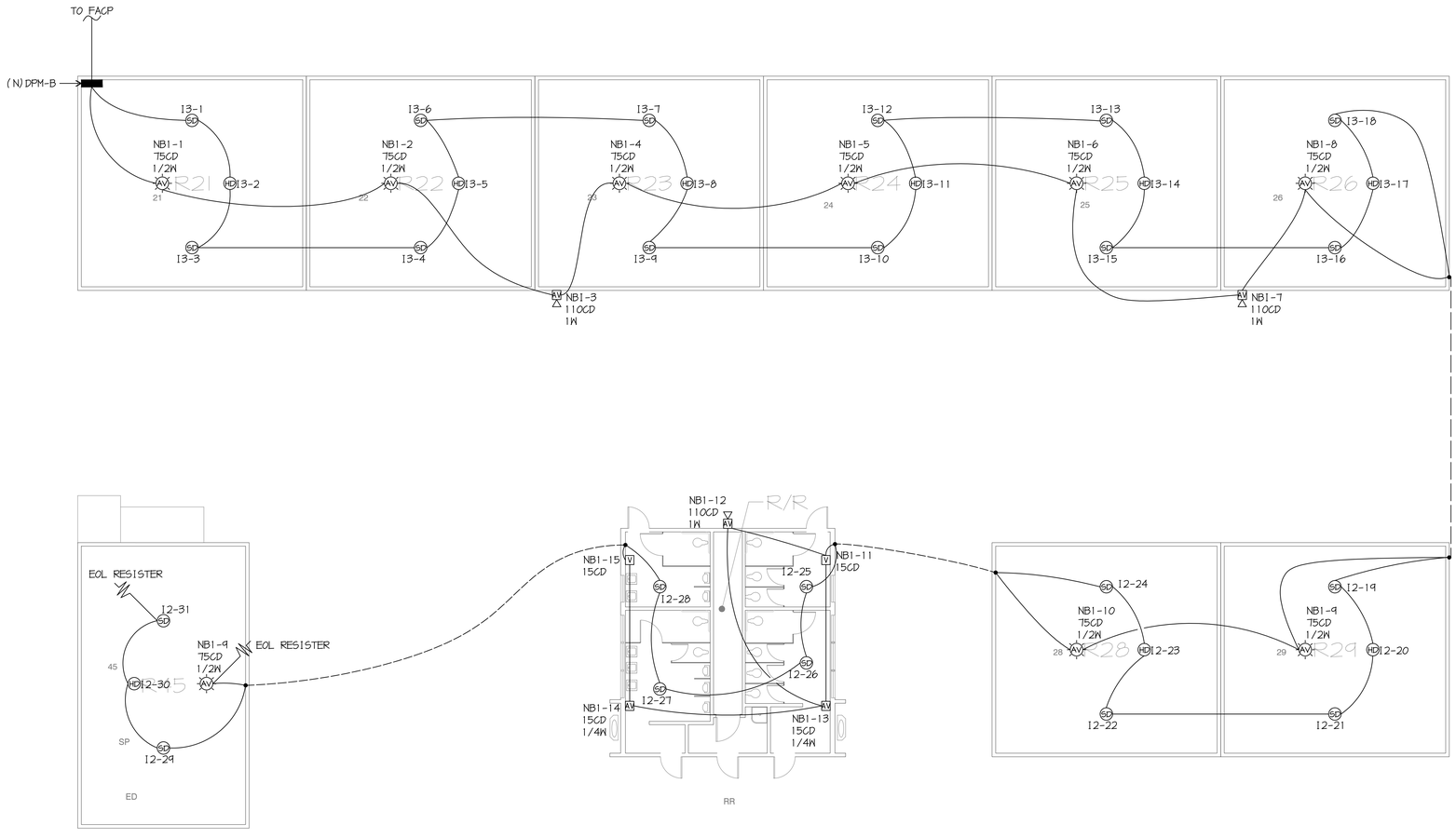
No	Date	Item
3	00.00.08	DESCRIPTION
2	02-07-24	REVISIONS
1	07-11-24	ADDENDA 2

BUILDING J
FIRE ALARM PLAN

E205

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. (F/E005) 2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



R21-R26, R45, R28, R29 AND R/R FIRE ALARM PLAN

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

NORTH

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PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

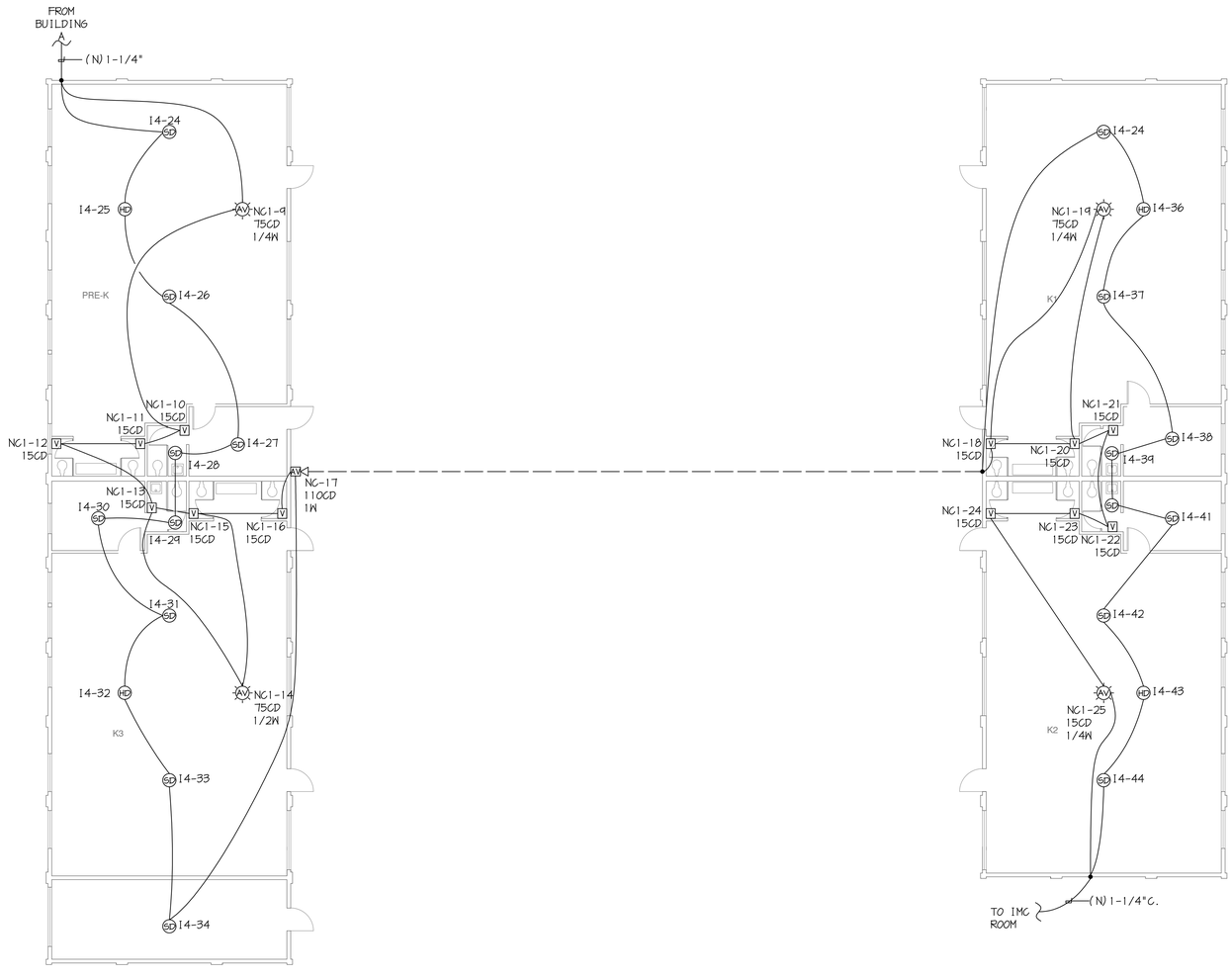
No	Date	Item
1	00.00.08	DESCRIPTION
2	02-07-24	REVISIONS
3	07-11-24	ADDENDA 2

R21-R26, R45, R28, R29 & R/R FIRE ALARM PLAN

E206

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. (F/E005) 2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
3. ALL CONDUIT SHALL BE CONCEALED, WITHIN BUILDINGS



PRE-K + KINDERGARTEN FIRE ALARM PLAN

SCALE: 1/8" = 1'-0" 0 1 2 4 8 16

NORTH

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EXP 6/30/2025
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

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1	00.00.00	DESCRIPTION
2	02-07-24	REVISIONS
3	07-11-24	ADDENDA 2

PRE-K + KINDERGARTEN FIRE ALARM PLAN

E207

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. (F/E005) △2
2. COORDINATE EXACT LOCATION OF DETECTORS BASED ON FIELD CONDITIONS.
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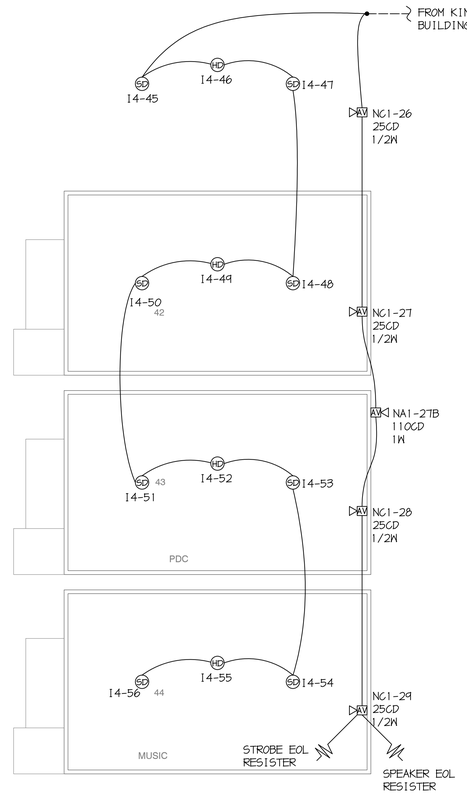

R42-R44, IMC BUILDING FIRE ALARM PLAN

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

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ELECTRICAL
STATE OF CALIFORNIA

PROJECT INFO

Project No	566-0015
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DSA File No	15-6
DSA No	03-122659

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1	00.00.00	DESCRIPTION
2	02-07-24	REVISIONS
3	07-11-24	ADDENDA 2

R42-R44, IMC BLDG FIRE ALARM PLAN

E208

[redacted]

FIRE ALARM NOTES

1. REUSE EXISTING FIRE ALARM CONDUIT WHERE PRACTICABLE. PAINT EXISTING FA CONDUIT TO BE REUSED RED. WHERE (N)CONDUIT IS REQUIRED, INSTALL RED CONDUIT, SEE DETAIL. F/E005 (2)
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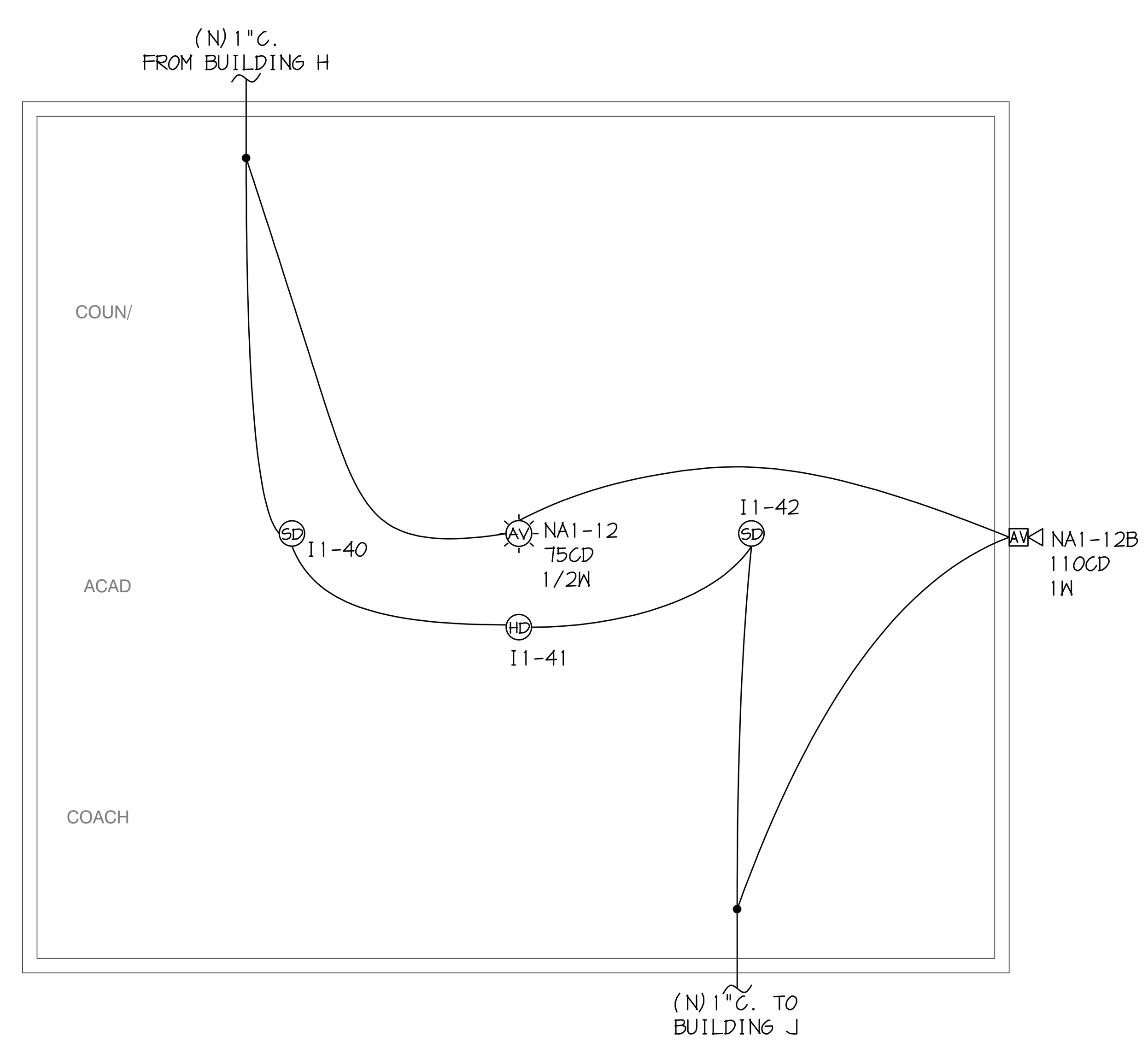

BUILDING G FIRE ALARM PLAN

SCALE: 1/4" = 1'-0" 0 1 2 4 8

NORTH

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CAMPUS HVAC SYSTEM UPGRADE

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PROJECT INFO

Project No	566-0015
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DSA File No	15-6
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REVISIONS

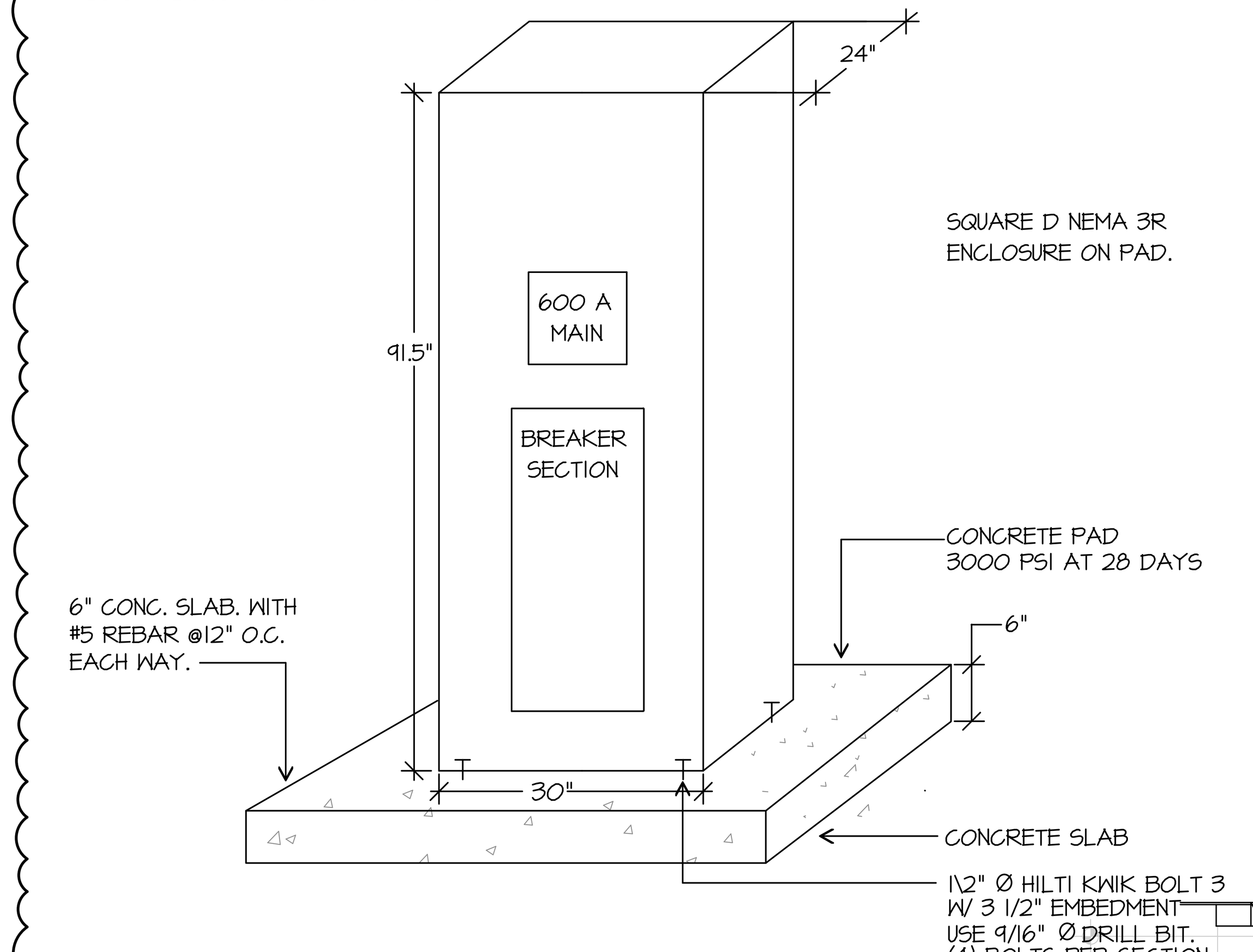
No	Date	Item
*	00.00.08	DESCRIPTION
1	02-07-24	REVISIONS
2	07-11-24	ADDENDA 2

BUILDING G FIRE ALARM PLAN

E209

[redacted]

NOTES:
1. FOR OUTDOOR PANEL MOUNTING, CONCRETE PAD SHALL BE 6" WIDER THAN PANEL HOUSING. TOP OF SLAB SHALL BE 2" ABOVE ADJACENT GRADE.

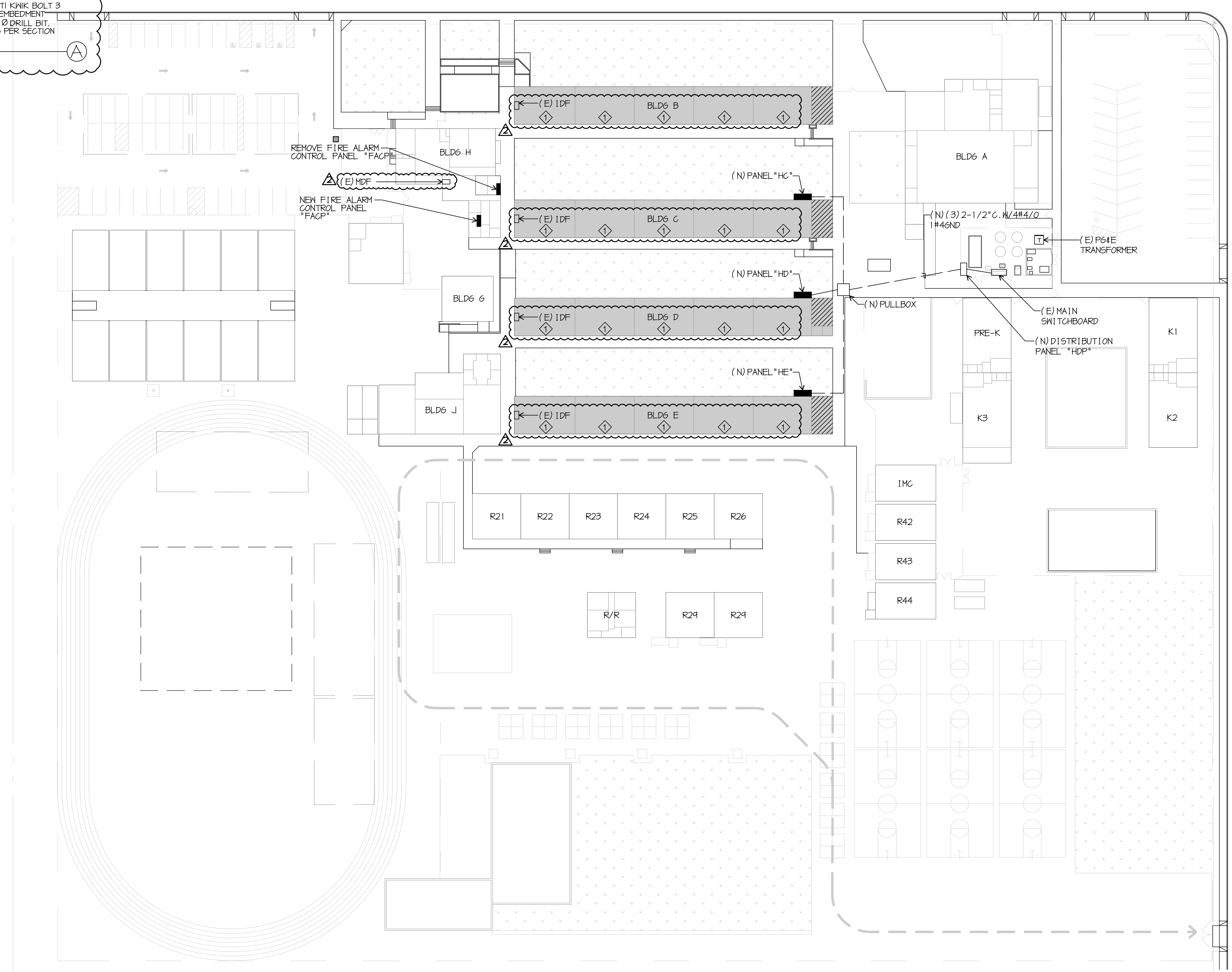


DISTRIBUTION PANEL "PH" MOUNTING DETAIL (A)

SCALE: NONE

ELECTRICAL NOTES

(1) SEE DETAIL K/E-005 FOR TYPICAL CLASSROOM WORK. RECONNECT ALL ELECTRICAL WORK TO EXISTING CLASSROOM CIRCUITS.



ELECTRICAL SITE PLAN

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

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CAMPUS HVAC SYSTEM UPGRADE

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PROJECT INFO

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	02-07-24	REVISIONS
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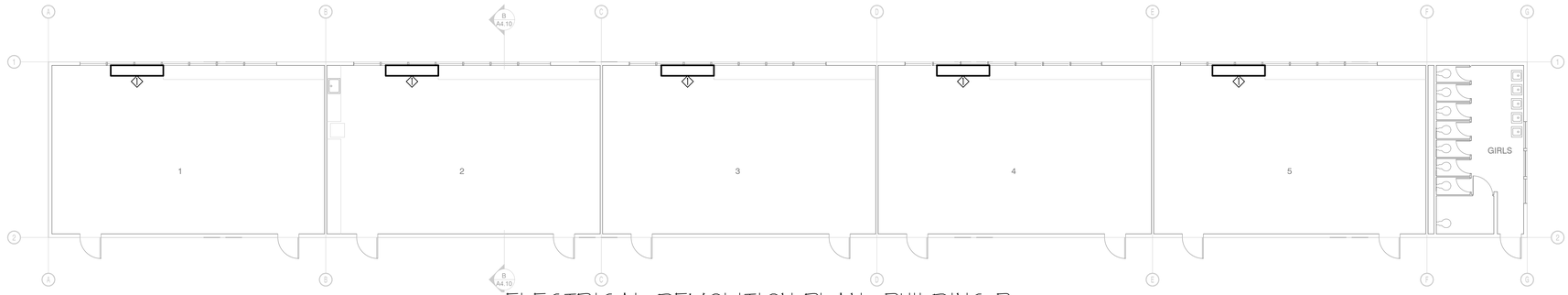
ELECTRICAL SITE PLAN

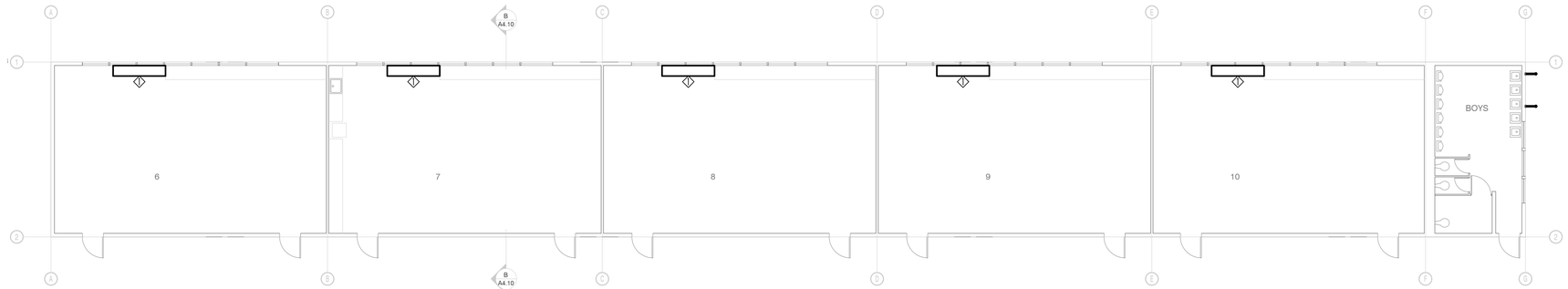
E-300

ELECTRICAL NOTES

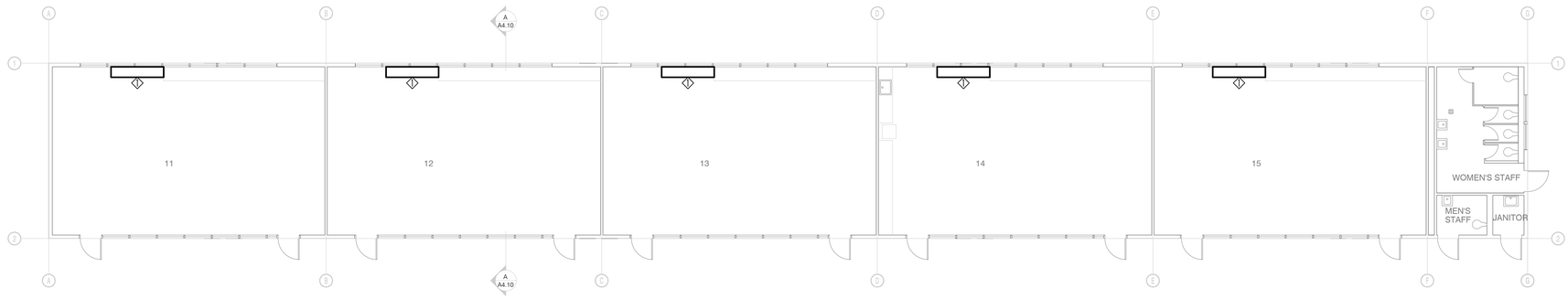
1. UNIT VENTILATORS TO BE REMOVED. ALL CONDUCTORS TO BE REMOVED BACK TO PANEL.



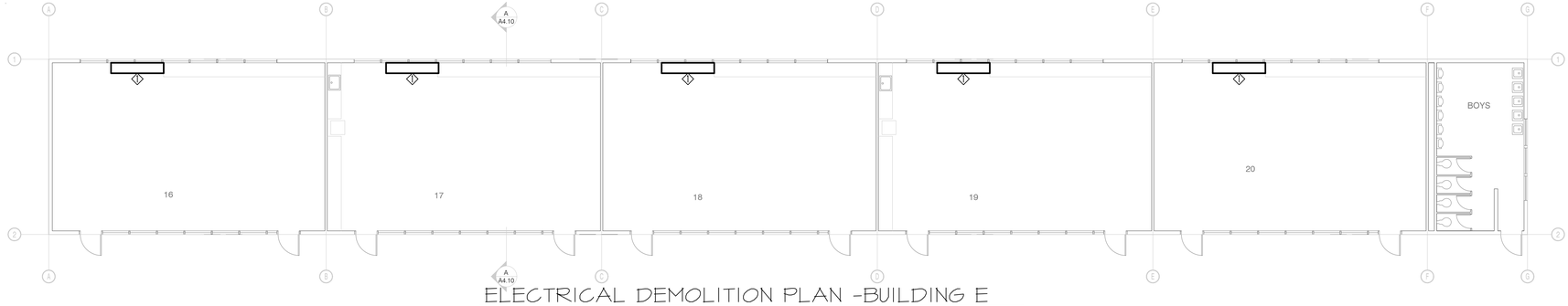
ELECTRICAL DEMOLITION PLAN -BUILDING B



ELECTRICAL DEMOLITION PLAN -BUILDING C



ELECTRICAL DEMOLITION PLAN -BUILDING D



ELECTRICAL DEMOLITION PLAN -BUILDING E

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CAMPUS HVAC SYSTEM UPGRADE

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EXP. 08/31/2024
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STATE OF CALIFORNIA

PROJECT INFO

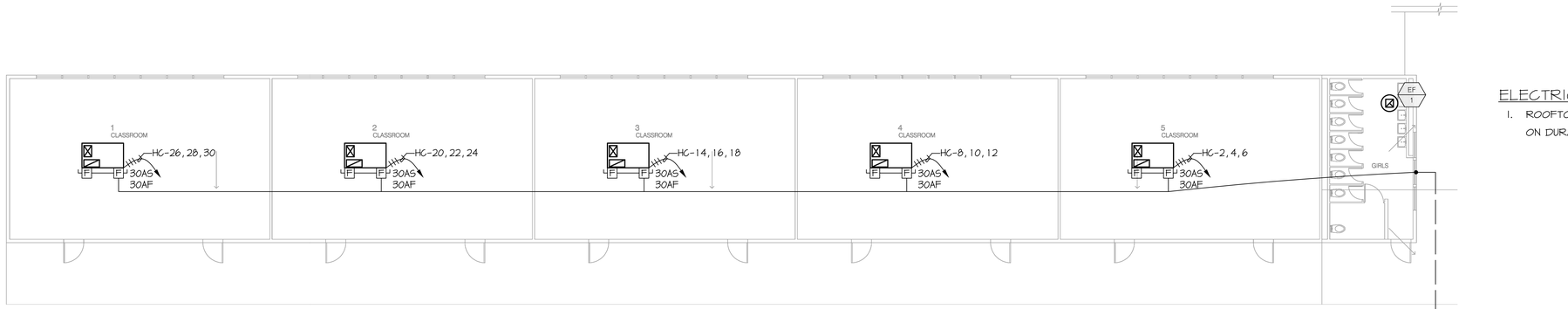
Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

No	Date	Item
	00.00.00	DESCRIPTION

ELECTRICAL DEMOLITION PLANS

E301



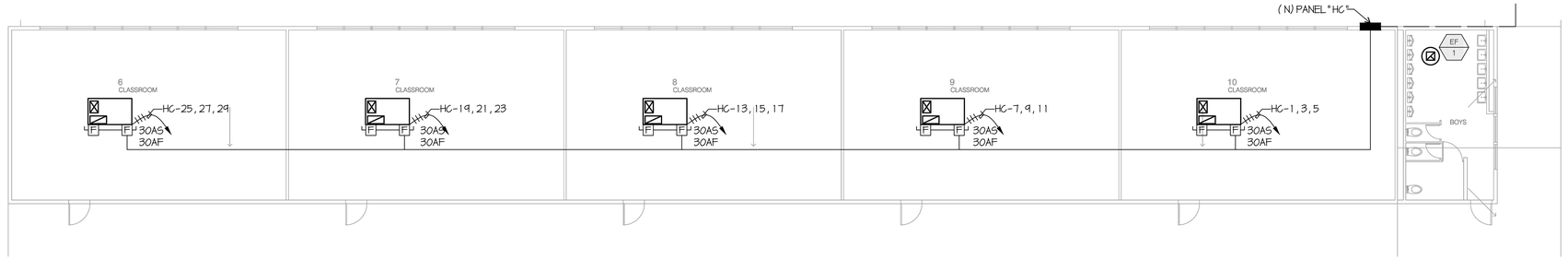
ELECTRICAL ROOF PLAN-BUILDING B

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

ELECTRICAL NOTES

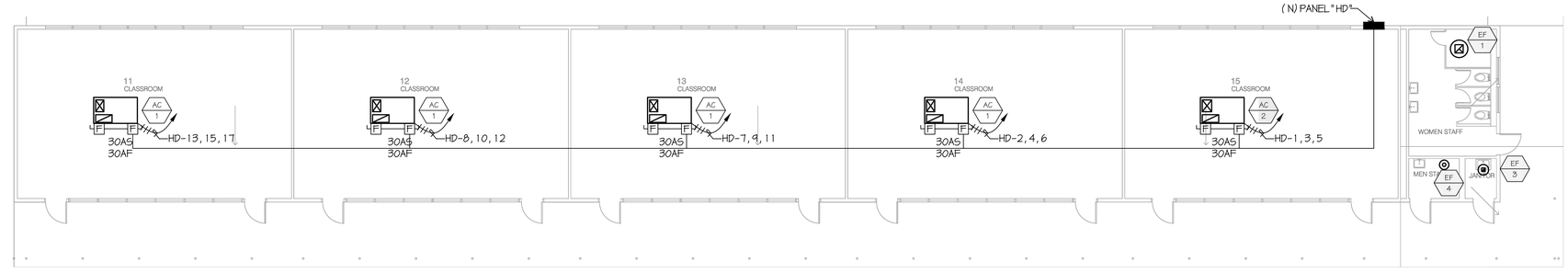
1. ROOFTOP CONDUIT TO BE INSTALLED ON DURA-BLOCK. SEE DETAIL I/E-005

SAW CUT AND TRENCH SEE ARCH SET FOR PATCH BACK DETAIL. 2



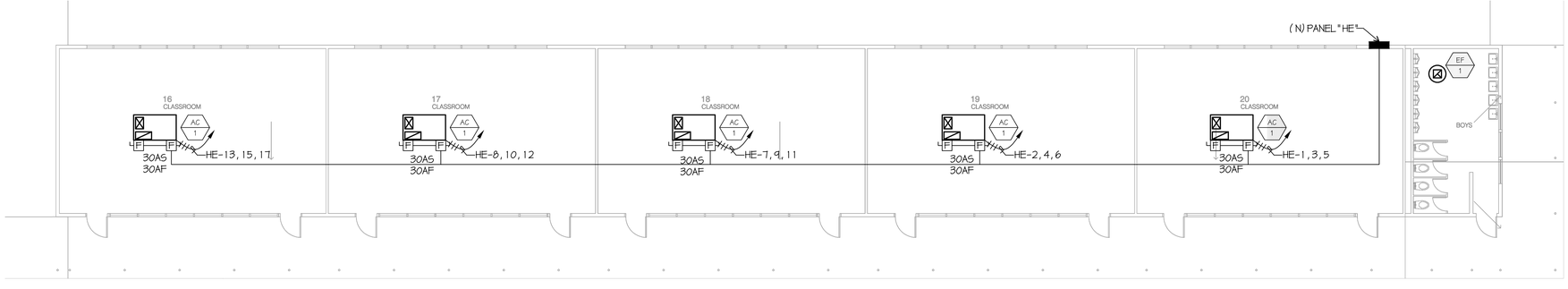
ELECTRICAL ROOF PLAN-BUILDING C

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



ELECTRICAL ROOF PLAN-BUILDING E

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



ELECTRICAL ROOF PLAN-BUILDING E

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

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PROJECT INFO

Project No	566-0015
Date	10.12.23
DSA File No	15-6
DSA No	03-122659

REVISIONS

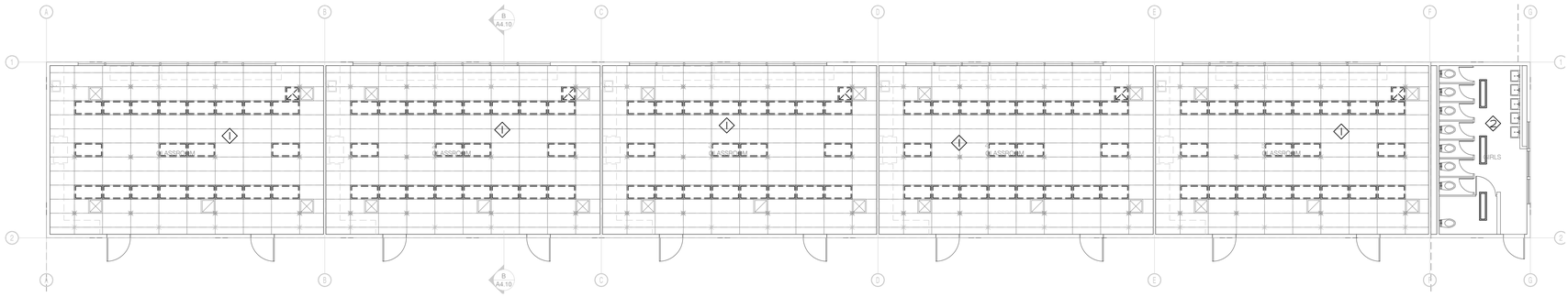
No	Date	Item
	00.00.00	DESCRIPTION
	02-07-24	REVISIONS
1	07-11-24	ADDENDA 2

ELECTRICAL ROOF PLAN

E303

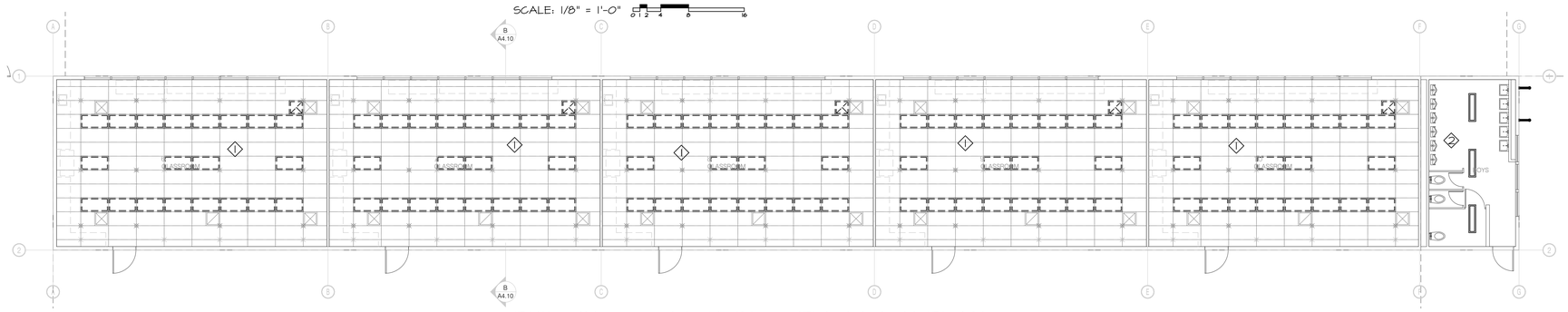
LIGHTING DEMOLITION NOTES

1. REMOVE EXISTING LIGHTING COMPLETE
2. EXISTING LIGHTING TO REMAIN IN THIS SPACE



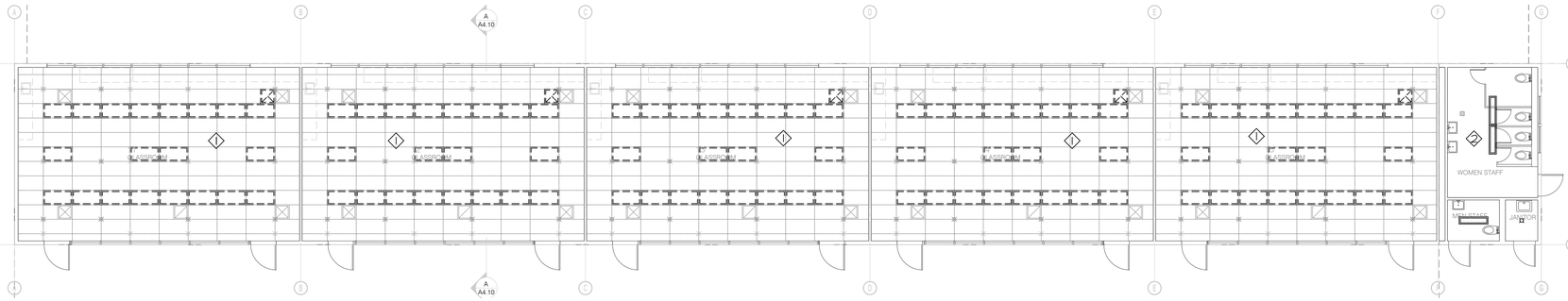
BUILDING B - LIGHTING DEMOLITION PLAN

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



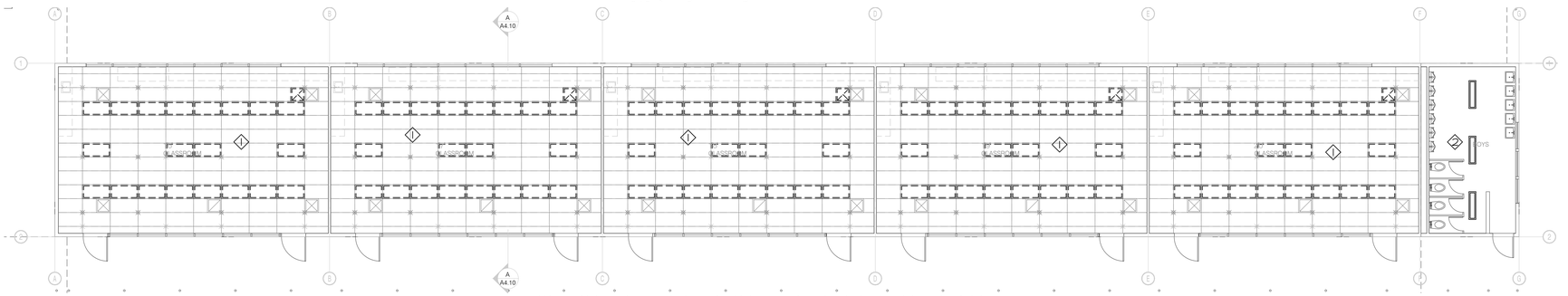
BUILDING C - LIGHTING DEMOLITION PLAN

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



BUILDING D - LIGHTING DEMOLITION PLAN

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



BUILDING E - LIGHTING DEMOLITION PLAN

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

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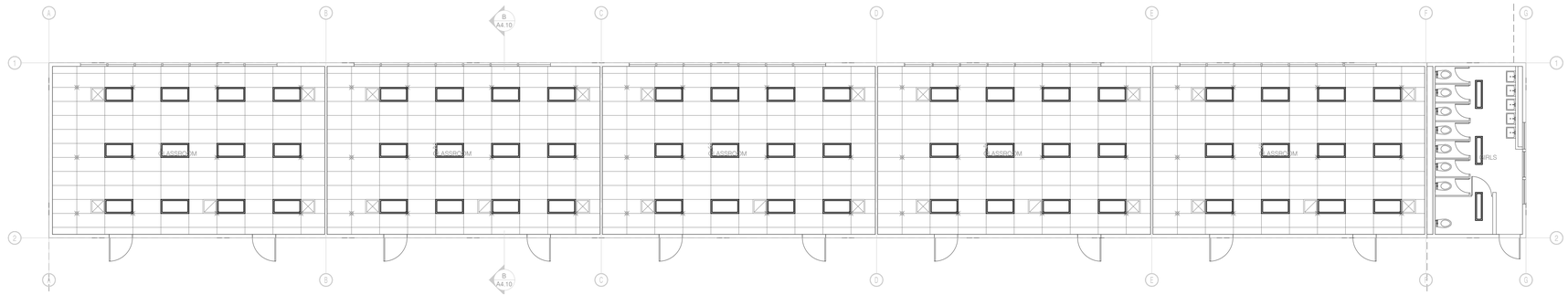
BLDGS A,B,C,D LIGHTING DEMOLITION PLANS

E500

LIGHTING DEMOLITION NOTES

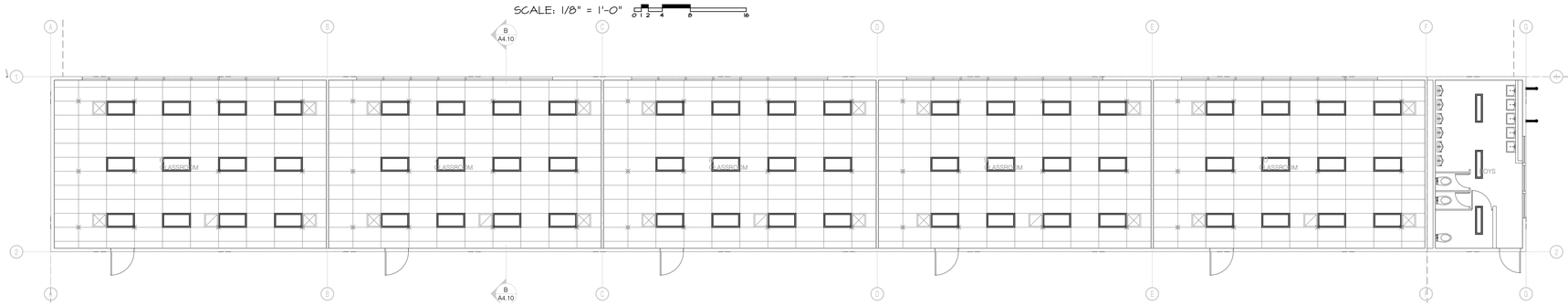
1 CONNECT NON LIGHTS TO EXISTING CIRCUIT&CONTROL

2 SUPPORT LIGHT FIXTURES PER A / E5.10



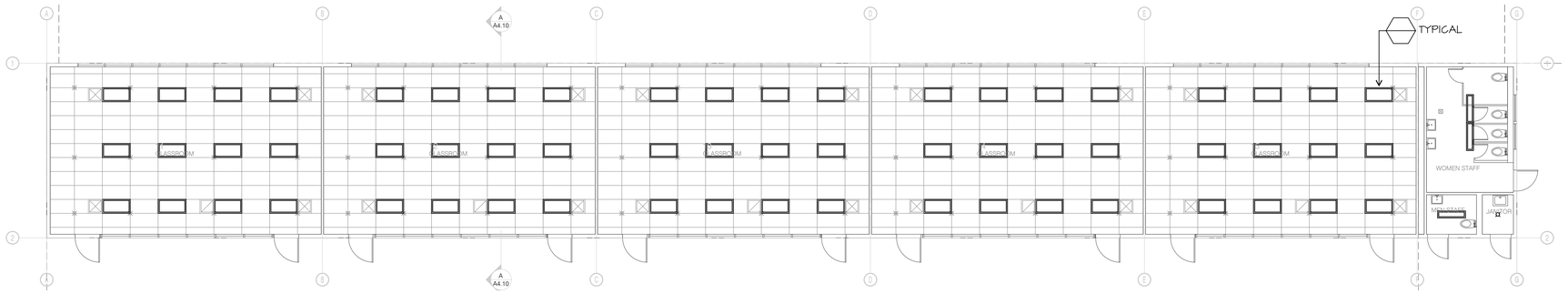
BUILDING B - LIGHTING PLAN

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



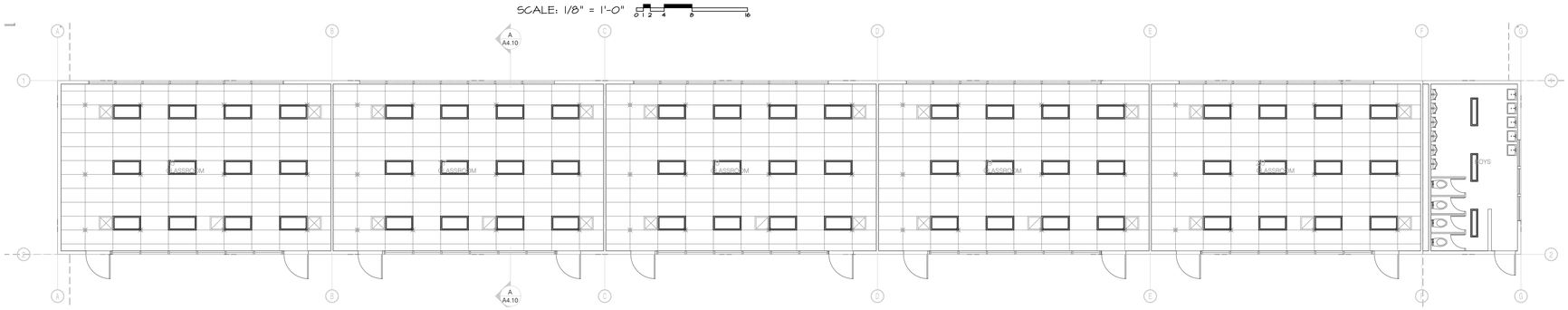
BUILDING C - LIGHTING PLAN

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



BUILDING D - LIGHTING PLAN

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



BUILDING E - LIGHTING PLAN

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

[redacted]

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BLDGS A,B,C,D LIGHTING PLANS

E510