



January 7, 2021

ADDENDUM NO. 3

TO THE CONTRACT DOCUMENTS

FOR

PACIFIC HIGH SCHOOL – MODERNIZATION

FOR THE

SAN BERNARDINO CITY UNIFIED SCHOOL DISTRICT

777 North F Street

San Bernardino, CA 92410

DSA No. 04-118035 File No. 36-H7 RCA Job No. 1-78-21

NOTICE TO BIDDERS

This Addendum forms a part of the Contract and modifies the original documents DSA Approved on January 16, 2020.

It is intended that all work affected by the following modifications shall conform with related provisions and general conditions of the contract of the original drawings and specifications. Modify the following items wherever appearing in any drawing or sections of the specifications. Acknowledge receipt of Addendum No. 3 in the space provided on the Bid Form. Failure to do so may subject bidder to disqualification.

GENERAL

- Item No. 3.1 General Items:
 - 3.1.1 Contractor's Pre-Qualification List, will be available for bidder reference, after January 5, 2021, at District's website <https://sbcusdfacilities.com/transforming-schools/bid-opportunities/>
 - 3.1.2 Reference Front End Bid Documents, a revised **Summary of Work** will be available for bidder reference at Crisp Imaging public plan room website www.crispimg.com

CHANGES TO THE SPECIFICATIONS

- Item No. 3.2 Reference 27 51 00 – Integrated Communications System and Wireless Clocks:
 - 3.2.1 Current Bogen Multicom IP system specified, is being phased out, and replaced with a new Nyquist system. Replace section in its entirety per attached revised Section 27 51 00.

CHANGES TO THE DRAWINGS

- Item No. 3.3 Reference New Sheet D-1.5:
 - 3.3.1 Revise limits of demolition work to include utility trenches required for new electrical conduit, per clouded areas of attached new sheet D-1.5

- Item No. 3.4 Reference New Sheet AS-2.5:
3.4.1 Revise limits of new work to include utility trenches required for new electrical conduit, per clouded areas of attached new sheet AS-2.5
- Item No. 3.5 Reference Sheet A2-7.3:
3.5.1 Keynote 11.828, revise to read:
 "PEG DRYING RACK, O.F.C.I. **SEE SPEC SECTION 12 35 53.19**"
3.5.2 Keynote 11.829, revise to read:
 "FLAMMABLE STORAGE CABINET, SELF-CLOSING, **C.F.C.I. SEE SPEC SECTION 11 53 00**"
- Item No. 3.6 Reference Sheet A3-7.5:
3.6.1 Keynote 11.829, revise to read:
 "FLAMMABLE STORAGE CABINET, SELF-CLOSING, **C.F.C.I. SEE SPEC SECTION 11 53 00**"
- Item No. 3.7 Reference Sheet A4-7.2:
3.7.1 Keynote 11.829, revise to read:
 "FLAMMABLE STORAGE CABINET, SELF-CLOSING, **C.F.C.I. SEE SPEC SECTION 11 53 00**"
- Item No. 3.8 Reference Sheet ID1.1:
3.8.1 Revise material location per clouded areas of attached revised sheet ID1.1
- Item No. 3.9 Reference Sheet E1.11:
3.9.1 Revise site plan to include low voltage conduit pathways and pull boxes for connecting low voltage to future MDF relocation, per clouded areas of attached revised sheet E1.11
- Item No. 3.10 Reference Sheet E1.12:
3.10.1 Revise site plan to include low voltage conduit pathways and pull boxes for connecting low voltage to future MDF relocation and extended conduits for future construction phases, per clouded areas of attached revised sheet E1.12
- Item No. 3.11 Reference Sheet E1-1.1:
3.11.1 See clouded areas of attached revised sheet E1-1.1
 1. Revised 1:4 Multiplexer to 1:4 HDMI splitter
 2. Revised plan notes to incorporate newly added audio amplifiers.
 3. Added plan note to indicate audio amplifier to shut down classroom audio when fire alarm is activated.
 4. Revised plan notes 4 and 5 for new Bogen clock and intercom/PA system.
- Item No. 3.12 Reference Sheet E2-1.1:
3.12.1 See clouded areas of attached revised sheet E2-1.1
 1. Revised 1:4 Multiplexer to 1:4 HDMI splitter
 2. Revised plan notes to incorporate newly added audio amplifiers.
 3. Added plan note to indicate audio amplifier to shut down classroom audio when fire alarm is activated.
 4. Revised plan notes 4 and 5 for new Bogen clock and intercom/PA system.
- Item No. 3.13 Reference Sheet E3-1.1:
3.13.1 See clouded areas of attached revised sheet E3-1.1
 1. Revised 1:4 Multiplexer to 1:4 HDMI splitter
 2. Revised plan notes to incorporate newly added audio amplifiers.
 3. Added plan note to indicate audio amplifier to shut down classroom audio when fire alarm is activated.
 4. Revised plan notes 4 and 5 for new Bogen clock and intercom/PA system.
- Item No. 3.14 Reference Sheet E4-1.1:
3.14.1 See clouded areas of attached revised sheet E4-1.1
 1. Revised 1:4 Multiplexer to 1:4 HDMI splitter
 2. Revised plan notes to incorporate newly added audio amplifiers.

3. Added plan note to indicate audio amplifier to shut down classroom audio when fire alarm is activated.
4. Revised plan notes 4 and 5 for new Bogen clock and intercom/PA system.

Item No. 3.15 Reference Sheet E5-1.1:

3.15.1 See clouded areas of attached revised sheet E5-1.1

1. Revised 1:4 Multiplexer to 1:4 HDMI splitter
2. Revised plan notes to incorporate newly added audio amplifiers.
3. Added plan note to indicate audio amplifier to shut down classroom audio when fire alarm is activated.
4. Revised plan notes 4 and 5 for new Bogen clock and intercom/PA system.

Item No. 3.16 Reference Sheet E9.11:

3.16.1 Add New Detail 8, for connecting classroom audio amplifiers. See clouded areas of attached revised sheet E9.11

Item No. 3.17 Reference Sheet EFA0.02:

3.17.1 Add New Detail 7, for connecting control relay to PAM relay that will control the classroom audio amplifiers for shut down of AV audio when fire alarm is activated. See clouded areas of attached revised sheet EFA0.02

Item No. 3.18 Reference Sheet EFA0.10:

3.18.1 Added control relays to fire alarm block diagram for monitoring PAM relays. Calculations need not be updated since SLC loop was originally calculated as fully loaded. See clouded areas of attached revised sheet EFA0.10

Item No. 3.19 Reference Sheet EFA1-1.1:

3.19.1 See clouded areas of attached revised sheet EFA1-1.1

1. Added control relay for monitoring new classroom audio
2. Added junction boxes in each classroom for connecting control relay to PAM relays at audio amplifiers
3. Added plan notes for new control relays and PAM relays

Item No. 3.20 Reference Sheet EFA2-1.1:

3.20.1 See clouded areas of attached revised sheet EFA2-1.1

1. Added control relay for monitoring new classroom audio
2. Added junction boxes in each classroom for connecting control relay to PAM relays at audio amplifiers
3. Added plan notes for new control relays and PAM relays

Item No. 3.21 Reference Sheet EFA3-1.1:

3.21.1 See clouded areas of attached revised sheet EFA3-1.1

1. Added control relay for monitoring new classroom audio
2. Added junction boxes in each classroom for connecting control relay to PAM relays at audio amplifiers
3. Added plan notes for new control relays and PAM relays

Item No. 3.22 Reference Sheet EFA4-1.1:

3.22.1 See clouded areas of attached revised sheet EFA4-1.1

1. Added control relay for monitoring new classroom audio
2. Added junction boxes in each classroom for connecting control relay to PAM relays at audio amplifiers
3. Added plan notes for new control relays and PAM relays

Item No. 3.23 Reference Sheet EFA5-1.1:

3.23.1 See clouded areas of attached revised sheet EFA5-1.1

1. Added control relay for monitoring new classroom audio
2. Added junction boxes in each classroom for connecting control relay to PAM relays at audio amplifiers
3. Added plan notes for new control relays and PAM relays

ATTACHMENTS

Exhibits N/A

Specifications 27 51 00

Sketches N/A

Sheets D-1.5, AS-2.5, ID1.1, E1.11, E1.12, E1-1.1, E2-1.1, E3-1.1, E4-1.1, E5-1.1, E9.11, EFA0.02, EFA0.10, EFA1-1.1, EFA2-1.1, EFA3-1.1, EFA4-1.1, EFA5-1.1

END OF ADDENDUM NO. 3

Roger Clarke, Principal

#C-21340

**SECTION 01 11 00
SUMMARY OF WORK**

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Summary of the Work of these Contract Documents for the construction of:

PROJECT: Modernization at Pacific High School

Architect: Ruhnau Clarke Architects

Contact: Juan Cantoran

Email: bids@ruhnaucclarke.com

1.02 GENERAL

- A. Work under this Contract includes furnishing all labor, materials, services and transportation which is required for completion of the Project at F20-08 Pacific High School - Modernization in accordance with the Contract Documents.
- B. The Contract Time for completion shall be that shown in the Construction Progress Schedule.
- Once the CONTRACTOR has received a notice to proceed, the CONTRACTOR shall complete the work **within 780 Calendar Days** from the date listed on the Notice to Proceed. It is expressly understood that time is of the essence.
- C. At the F20-08 Pacific High School Modernization, some of the work may be performed within a portion of an active school campus. All work shall be conducted in a manner that does not impact the health and safety of school staff, students, site workers and project personnel, adjacent property owners, and/or the general public. Contractor shall at all times employ safety practices and environmental controls which take into consideration the fact that work is being performed on an active school campus. All work shall be performed in a manner which maximizes safety.
- D. Contract Drawings: The Drawings provided with and identified in the Project Manual are the Drawings referenced in the Agreement.
1. The location, extent and configuration of the required construction and improvements are shown and noted on Drawings.
 - a. The Drawings are referenced in the Agreement.
 - b. An index of Drawings is included in the set of Drawings.
 2. Drawings are arranged into series according to design discipline. Such organization and all references to trades, subcontractor, specialty contractor or supplier shall not control the Contractor in dividing the Work among subcontractors or in establishing the extent of the Work to be performed by any trade.

3. Where the terms "as shown", "as indicated", "as noted", "as detailed", "as scheduled", or terms of like meaning, are used in the Drawings or Specifications, it shall be understood that reference is being made to the Drawings referenced in the Agreement.
 4. Where reference to the word "plans" is made anywhere in Drawings, Specifications and related Contract Documents, it shall be understood to mean the Drawings referenced in the Agreement.
- E. Contractor's Safety Performance Requirement: SBCUSD places safety and safe work practices at a premium, especially in regard to operations on active District campuses.
- F. All work shall be performed in a manner that minimizes impact to the environment, minimizes waste and maximizes the amount of salvageable material recovered throughout the project(s).
- G. All work shall be performed in a manner that minimizes noise and vibration impacts to the adjacent classrooms, school operations and surrounding neighborhood. In some cases, loud or high vibration activities may have to be rescheduled to accommodate school instructional or testing activities. Such activities may require work on weekends, during holiday breaks, or other times when the campus is not occupied. Cost of rescheduling and of off hours' work shall be at Contractor's expense. Holiday break periods for the 2020-21 & 2021-22 school year are as follows:
- | | |
|-----------------------------|-------------------|
| • Winter Recess | 12/21/20-1/08/21 |
| • Dr Martin Luther King Jr. | 1/18/21 |
| • Lincoln's Birthday | 2/8/21 |
| • Washington's Birthday | 2/15/21 |
| • Spring recess | 3/22/21-4/2/21 |
| • Memorial Day | 5/31/21 |
| • Summer Break | 6/7/21 – 7/26/21 |
| • Independence Day | 7/5/21 |
| • Labor Day | 9/6/21 |
| • Veterans Day | 11/11/21 |
| • Thanksgiving | 11/22/21-11/26/21 |
| • Winter Recess | 12/20/21-1/7/22 |
| • Dr Martin Luther King Jr. | 1/17/22 |
| • Lincoln's Birthday | 2/14/22 |
| • Washington's Birthday | 2/21/22 |
| • Spring recess | 3/2/22-4/1/22 |
| • Memorial Day | 5/30/22 |
| • Summer break | 6/2/22-TBD |
- H. All work shall be performed in a manner that protects existing infrastructure, landscaping, furnishings, equipment, and other structures or items designated to remain.
- I. All work shall be performed in a manner that meets the District's expectation for safe work execution, as well as adherence to schedule and project budget.

- J. Contractor's designated trailer site mobilization and laydown area: Prior to mobilization, document the site conditions and ensure irrigation is working as intended. Provide the existing conditions documentation in submittal format for information purposes. Upon demobilization of the Contractor's trailer site and laydown area, ensure the site is restored to original condition, including lawn, irrigation, fencing and all other items affected by the construction activities.

1.03 SUMMARY SCOPE OF WORK

The complete Scope of Work shall be as detailed in project contract documents, exhibits and attachments, project General Conditions, RFP documents and attachments, project drawings and specifications. A brief summary of the Scope of Work is provided below:

A. Site Work:

Site work at the F20-08 Pacific High School - Modernization campus includes:

all new underground site utilities, hardscape, landscape, and other features indicated on the drawings & specifications.

B. Buildings:

Work on campus buildings includes The Scope of the work includes but is not limited to the modernization of eight (8) existing classroom buildings at the District's Pacific High School campus. These classroom buildings are Occupancy Type-Educational Group E, Construction Type V-B, with an Automatic Fire Sprinkler system at three (3) buildings and are primarily wood & steel construction. The classroom programs range from science, labs, math, English, history etc. Included is new building construction, interior improvements

Move Management and Coordination:

The General Contractor shall provide the following move management and coordination during the life of the project:

1. Provide staff to plan, manage and coordinate moves with school staff and Owner's Representative.
2. Provide all necessary movers, supplies, storage facilities (limit to three (3) 50' containers), furniture breakdown and assembly, if needed, to move furnishings to and from various locations at Pacific High School.
3. The modernization of classroom buildings will be phased consisting of 3 wings/buildings at a time, involving approximately 22 classrooms at each phase of modernization.
4. Each phase will be moved out, modernized per contract documents, then moved back. Upon occupancy, these buildings/wings/classrooms will be fully functioning classrooms/buildings.
5. Please refer to the Modernization Move Matrix in Exhibit #01 A & B
6. Refer to Supplemental Conditions for phasing plan and coordination with other Contractor(s).

C. COVID-19 Safety

All Contractor employees, subcontractors and visitors shall be required to comply with SBCUSD **COVID-19 Safety Plan** (see *RFP Division 00 Attachment 13* -

COVID-19 Safety Plan) prior to entering any SBCUSD campus, jobsite or work location

- D. Per Spec Section 01 52 13: Construction Manager, District, Owner, Project Inspector, Architect and Engineer's office shall be provided by the Contractor approximately 390 calendar days after NTP.

1.04 BIDDER'S INVESTIGATIONS

A. Bidder's Investigation:

Bidder shall visit site and become familiar with site conditions at the project site.

1. Bidder may, at Bidder's own expense and prior to bidding, make soil surveys and investigations Bidder considers necessary, following written notification to and approval by the District representative.
2. Bidder assumes risk that soil and underground conditions may be other than that indicated in soil investigation data.

B. Procedures:

1. Obtain authorization from authorized District Representative prior to start of borings or subsurface investigations.
2. Immediately upon completion of Bidder's subsurface investigation, return site areas affected by investigations to condition existing prior to start of Bidder subsurface investigations as directed by District Representative.

1.05 WORK COMPONENTS

The following work components are required by the Contract, Technical Specifications and Bid Proposal Exhibits and text of this RFP:

A. Activities Prior to Start of On-site Work:

1. Obtain ALL permits necessary to perform the scope of work.
2. Prepare and file all required notifications, including but not limited to South Coast Air Quality Management District (SCAQMD) Rule 1403 required notifications. SCAQMD Notifications must be filed at least 10 days before the start of work.
3. Submit and fully adhere to Contractor's health and safety plan in full compliance with CalOSHA, SCAQMD, and project specifications. Site work may not proceed until this plan is delivered to and accepted by District.
4. District has contracted a survey of asbestos, lead-based paint and other hazardous wastes to confirm presence of these materials. (See survey reports – Attached in Specifications).
5. Identify and procure the services of licensed waste haulers and properly permitted Waste Disposal/Management Facilities for the transportation and disposal of all material generated during hazardous materials abatement and demolition activities.

6. Submit a detailed work schedule for the project for review and acceptance by District.

B Hazardous Material Abatement and/or Mitigation:

A recent hazardous materials survey was conducted at the Pacific High School campus by Converse Consultants. Findings are summarized in their report of date, 7/27/2018 and August 8, 2018, "**Hazardous Materials Survey Report.**"

Hazardous material abatement and/or mitigation activities are to include abatement of, but are not limited to, the following materials as listed in the report:

1. Asbestos Containing Materials (ACMs): Asbestos was detected in the following locations identified in the report.
2. Lead-Based Paint (LBP) and Lead containing items: Lead was detected above concentrations greater than 1.0 mg/cm² in the report.
3. Other Hazardous Materials:
 - a. Any and all existing fluorescent light bulbs that will be impacted by demolition and or renovation activities should be removed, disposed of or recycled as Mercury containing waste. All such light tubes should be handled and containerized properly, in a manner to prevent breaking and potentially releasing mercury.
4. Contractor shall be responsible for the all required employee training, regulatory agency notifications, jobsite signage as well as proper removal and disposal of any/all hazardous materials designated to be removed or that are encountered in the course of the project(s).
5. Any/all hazardous materials abatement work completed while campus is occupied shall be completed between the hours of 4:00 p.m. and 7:00 a.m., or during holidays, weekends or other days when school is not in session.

C. Campus Systems to Remain Operational

1. All campus systems and utilities shall remain operational throughout the project, including but not limited to:
 - a) Electrical service
 - b) Water
 - c) Irrigation
 - d) Storm drains
 - e) Sewer
 - f) Natural gas
 - g) Telephone
 - h) Data (Ethernet, Wi-Fi and or cable service)
 - i) Public Address System
 - j) Campus synchronized clocks & bells
 - k) Security system(s)

- l) including cameras, sensors, and electronic strikes
- 2. Fire Alarm Systems shall remain operational.

In the event of any alarm condition, or if required for testing or fire drill procedures, Contractor shall allow District and/or fire personnel immediate access to fire alarm control panel(s).

Contractor is responsible to provide fire watch if necessary.
- 3. Campus synchronized clock and bells system shall remain operational.

In the event that campus administration staff need to adjust clock or bell schedules, Contractor shall allow District personnel access to the bell system control panel(s).
- 4. The campus public address amplifier shall remain operational.
- 5. Data switches, equipment and data cabling from Electrical Room to other campus buildings shall remain operational throughout the duration of the project.

D. Demolition

- 1. All employees engaged in selective demolition activities shall be instructed regarding the contents of the Contractor's Health & Safety Plan(s).
- 2. Any/all demolition shall be performed in a manner that emphasizes and maximizes the safety of students, staff, area residents as well as project personnel and support staff.
- 3. Demolition shall be performed in a manner that does not encroach upon or cause damage to adjacent properties and structures.
- 4. Demolition shall be performed in a manner that facilitates safe and efficient handling and load out of materials for disposal.
- 5. The sequence of Demolition, material stockpiling, loadout, transport, and disposal shall be performed in a manner that promotes a smooth workflow to meet schedule milestones.
- 6. Contractor shall take measures to protect in place adjacent trees and landscaping designated to remain.

E. Construction

- 1. All employees engaged in construction activities shall be instructed regarding the contents of the Contractor's Health & Safety Plan(s).
- 2. Any/all construction shall be performed in a manner that emphasizes and maximizes the safety of students, staff, area residents as well as project personnel and support staff.
- 3. Any/all construction shall be performed in full compliance with project plans, specifications, and documents.
- 4. Any/all construction shall be performed in full compliance with regulatory requirements.

1.06 SEQUENCING OF WORK

- A. Proper regulatory notifications must be filed and Health & Safety plans be submitted, and permits be secured prior to commencing site work. Proof of filing of regulatory agency notifications will be required prior to start of work.
- B. Installation of perimeter fencing and screening must be completed prior to initiation of other site activities.
- C. Hazardous Materials Abatement work must be completed, inspected and approved by the District representative and/or District consultant prior to the start of any demolition.
- D. The modernization of classroom buildings will be phased consisting of 3 wings/buildings at a time, involving approximately 22 classrooms at each phase of modernization.
- E. Contractor to provide adequate fencing to secure the construction area in phases and provide safe path of travel for students and staff.

1.07 PERMITS, LICENSES AND FEES

A. Permits:

- 1. For Work included in the Contract, Contractor shall obtain all permits from authorities having jurisdiction including but not limited to City of San Bernardino, serving utility companies and other state and local regulatory agencies.
- 2. District will reimburse Contractor for amount charged for such permits, without mark-up.

B. Licenses and certifications:

- 1. Contractor shall obtain and pay all licenses and certifications associated with project demolition, abatement and construction activities, such as business licenses, contractors' licenses and vehicle and equipment licenses.
- 2. All costs for licenses shall be included in the Contract Sum.

C. Assessments:

- 1. District will pay all assessments and utility service connection fees. Costs of assessments shall not be included in the Contract Sum.

D. Test and Inspection Fees:

- 1. Contractor shall pay all fees charged by authorities having jurisdiction and from serving utility companies and agencies, for tests and inspections conducted by those authorities, companies and agencies.
- 2. District will reimburse Contractor for actual amount of such fees, without mark-up.

END OF SECTION

SECTION 27 51 00
INTEGRATED COMMUNICATIONS SYSTEM AND WIRELESS CLOCKS

GENERAL SCOPE

1. Install new Bogen Nyquist E7000 Series Educational System. Upon completion of the work, the integrated communications system shall be complete with all the capabilities of the latest San Bernardino City Unified School District standards for integrated communications systems as noted in this specification. All provisions for a complete and operable system and tied in with the VoIP Telephone System, if being installed under a separate specification section shall be included under this scope of work. All Telephone Equipment including System Headend, Handsets and cabling are not part of this specification section.
2. The Contractor shall furnish all labor, materials, appliances, tools, equipment, facilities transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Section, complete as shown on the applicable Contract Drawings and/or specified herein.
3. Any material and/or equipment necessary for the proper operation of the system, which is not specified or described herein, shall be deemed part of this Specification.
4. The Integrated Communications System specified herein shall be interfaced with the site telephone system and existing campus analog intercom system for a complete unified site intercom/classpassing system and operation.
5. Contractor shall coordinate with the Owner or his representative to ascertain the required number of telephone to intercom circuit interfaces (minimum of four).

QUALIFICATIONS

1. This specification is based on the equipment of manufacturer(s) who have been approved by the Owner and the Manufacturer(s) herein named shall be considered as meeting the requirements of this specification.
2. The equipment manufacturer shall be a United States manufacturer, who has been regularly engaged in the manufacture of communication systems for at least twenty (20) years.
3. Equipment provided for this project shall be the product of **Bogen Communications, Inc., Engineered Systems Division**. No substitutions shall be approved.
4. All equipment shall conform to applicable codes and ordinances.
5. All equipment shall bear the label of a Nationally Recognized Testing Laboratory (NRTL) such as Intertek Testing Services NA, Inc. (ITSNA - formerly ETL) or Underwriters Laboratories Inc. (UL) and be listed by their re-examination service.
6. System Supplier/Installer:
 - a. The system shall be provided and installed by the Manufacturer's Authorized Distributor who is trained and certified by the Manufacturer in the proper installation, programming, service and maintenance of the system.
 - b. Contact Bogen Communications, Inc., Engineered Systems Division (480) 892-7614 for the local authorized distributor.
 - c. Shall hold a valid State of California Contractor's License, C-7 and C-10.
 - d. Shall show satisfactory evidence, upon request, that he maintains a fully equipped service organization capable of furnishing adequate inspection, service and maintenance of the system. The System Supplier/Installer shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.
 - e. Shall be prepared to offer a service contract for the maintenance of the system beyond the warranty period.

- f. Shall be an established communications and electronics contractor that has and currently maintains a locally run and operated business within 50 miles of the jobsite.
- g. Shall perform the entire installation consisting of: wiring, device connection terminations, programming, in-services and warranty repair.
- h. Shall be a Low voltage systems Contractor, normally engaged in the business of sound reinforcement / intercom systems installation.
- i. Shall designate one person to act as the project manager having total responsibility for communications and project technical integrity. This project manager shall have a minimum of five (5) years of experience as a supervisor and installer of the systems specified herein.

RELATED SPECIFICATIONS

1. The conditions of the General Contract (General, Supplementary, and other Conditions) and the Division 1 - General Requirements specifications are hereby made a part of this Section.
 - a. Basic Electrical Materials and Methods
 - b. Wiring Methods
 - c. Building Wire and Cable
 - d. Raceways and Boxes
 - e. Cabinets and Enclosures
 - f. Master Clock
 - g. Telephone System

RELATED WORK BY OTHERS

1. All conduits with pull cords, all electrical pull boxes, grounding rods, terminal cabinets, backboards and all outlet boxes shall be provided and installed by the Division 26 Electrical Contractor. Coordinate as necessary for proper installation. Specialty boxes shall be provided by the system Supplier/Installer and shall be installed by the Division 26 Electrical Contractor.
2. All 120VAC power conductors and conduits associated with power circuits to all low voltage system equipment locations shall be provided and installed by the Division 26 Electrical Contractor.
3. An insulated stranded copper ground wire shall be provided from each equipment rack to the building grounding system, in compliance with CEC Article 250, by the Division 26 Electrical Contractor.
4. Labeling of pull boxes and terminal cabinets shall be provided and installed by the Division 26 Electrical Contractor.

APPLICABLE CODES & STANDARDS

1. Most Current Building Standards Administrative Code, Part 1, Title 24, California Code of Regulations
2. Most Current California Building Code (CBC) Part 2, Title 24, California Code of Regulations (International Building Code, Volumes 1 & 2 with California Amendments)
3. Most Current California Electrical Code (CEC) Part 3, Title 24, California Code of Regulations (2016 National Electrical Code with California Amendments)
4. Most Current California Fire Code (CFC) Part 9, Title 24, California Code of Regulations (International Fire Code with California Amendments)

SUBSTITUTIONS

1. No substitutions shall be approved.

SUBMITTALS

1. Within thirty-five (35) calendar days after the date of the award of the contract, the Contractor shall submit to the Architect for review one electronic Submittal Package. The Submittal Package shall consist of the following sections, with each section separated with index tabs.
 - a. Title Page

- b. Project Title
- c. Project address
- d. Architect's name and address
- e. Contractor's name and address
- f. Index of Submittal Contents
- g. Each Section of the Submittal Package shall be numbered chronologically and shall be summarized in the Index.
- h. Certifications
 - i. Index of Certification Section Contents
 - ii. Valid State of California Contractors License
 - iii. Manufacturer's Certifications
 - iv. Authorized Distributor
 - v. Factory Trained Technician
- i. Project List
 - i. A substantial list (minimum of 20) of completed projects equal in scope to that specified herein.
- j. Contact information shall be made available upon request.
- k. Product Data
- l. Index of Equipment Data Sheets
- m. Manufacturer's Data Sheets including cable types
- n. Applicable Listings and Approvals

PRODUCTS

1. Nyquist NQ-E7030 Analog Station Bridge
 - a. 24 station support
 - b. 120W of total available power; max. 40W per any individual port
 - c. 25 Volt Speakers(s)
 - d. Analog Call Switch(s)
 - e. Software programmable configuration and operation
 - f. Rack mounted, wall mounted, or shelf mounted
 - g. CAN Bus 2.0 interface for future support for NQ-E7020 DCS
2. Nyquist NQ-P0100 Matrix Mixer Pre-amplifier
 - a. No less than four Line/Microphone Level Inputs used for:
 - b. CD Player
 - c. AM/FM Tuner
 - d. Push-to-Talk Paging Microphone
 - e. MP3 Player
 - f. Digital AES/EBU (AES3) input
 - g. Line Level output to drive external amplifier
 - h. Software programmable configuration and operation
 - i. Push-to-Talk Channel
 - j. Push-to-Talk Type
 - k. Push-to-Talk Zone
 - l. Mixer Channels
 - m. Mixer Channels Wall or shelf mounted
3. Nyquist NQ-E7010 Input/Output Controller
 - a. Eight Dry Contact Inputs
 - b. Eight Open Collector Outputs

- c. Software programmable configuration and operation including:
- d. Contact Type
- e. Extension
- f. Name
- g. Close Interval
- h. Actions including:
 - i. Audio
 - j. Alarm
 - k. Announcement
 - l. Disable-Audio
 - m. Other
 - n. Tone
 - o. Enable-Audio
 - p. Action ID
 - q. Zones
- r. Close Extension
- s. Dashboard Type
- t. Dashboard Title
- u. Dashboard Scope
- v. Dashboard Text
- w. Dashboard Style
- x. Email
- y. Wall or shelf mounted

4. Nyquist Station Equipment

- a. NQ-T1100 VoIP Admin Phone – Color Touch Display (aka Admin Station)
- b. NQ-T1000 VoIP Staff Phone – LCD Display (aka Staff Station)
- c. NQ-S1810WT VoIP Wall Baffle Speakers with talkback
- d. NQ-S1810CT VoIP Ceiling Speakers with talkback
- e. NQ-E7020 Digital Call Switch
- f. CSD2X2U Drop-In Ceiling Speaker
- g. CA15C or CA21B Analog Call Switch

5. Optional Equipment

- a. Telephony interface device(s) for FXO/FXS analog port connectivity

6. COMPONENTS AND DESCRIPTIONS

- a. The Nyquist E7000 Series Educational System is a software-based VoIP paging and intercom system.
- b. The Nyquist E7000 Series Educational System must be capable of supporting existing Bogen Multicom 2000 and Bogen Quantum Multicom IP wiring, 25 volt speakers and analog call-switches, and equivalent competitive systems utilizing the existing architectural numbering scheme. The VoIP capabilities of the Nyquist system will enable the support of the features across the various Nyquist appliances within the facility. The following sections define how the system handles each of the features in the system. Systems that do not allow the reuse of existing wiring or numbering scheme shall not be deemed acceptable. Systems that do not allow appliances to be seamlessly integrated via the LAN are not considered equal.

7. Nyquist E7000 Server Software Controller

- a. The Nyquist E7000 server software shall be installed on a dedicated dealer supplied server. An unlimited number of facilities can be networked into a Nyquist-based District.
 - b. Minimum Nyquist Server Requirements
 - i. Debian Linux OS (AMD 64-bit version) release 8.4.x – 8.8.0
 - ii. Quad-core Intel-based processor running at 3.0 GHz or higher
 - iii. 8 GB RAM
 - iv. One 250 GB disk drive
 - v. Redundant Array of Independent Disks (RAID) is recommended for redundancy and high availability.
 - vi. NIC 10/100/1000 MB Ethernet port
 - vii. One or more PCI/PCI Express (PCIe) slots if telephony network connectivity other than, or in addition to, SIP trunking
 - viii. One or more PCI/PCIe type third-party telephony interface cards (for example, FXO, FXS, etc.) if telephony network connectivity other than, or in addition to, SIP trunking
8. Audio shall be transmitted between the server and the Nyquist appliances using the customer supplied LAN/WAN using both G.722 and Opus 48k audio encoding and streaming technology to deliver High Definition audio quality. Systems that do not use G.722 and Opus for audio encoding and streaming shall not be deemed equivalent.
9. The Nyquist server software and Nyquist appliances software shall be upgradeable via the Nyquist Web UI.
10. It shall be possible for a Nyquist facility to make “station-to-station” calls and “remote facility” All-Call pages to a single facility or to all Nyquist facilities in a district via the Nyquist Web UI or an Admin Station. Systems that require remote viewing software or other application software to be installed/loaded on to additional servers or PCs to make station-to-station calls and remote facility All-Call or district paging shall not be considered equivalent.
11. The Nyquist server software is designed to handle all facility and district-wide communications, including but not limited to, inter-facility intercom calling and paging, district-wide Emergency All-Call and local facility point-to-point calls. Via the Nyquist Web UI, every facility shall be configured with the IP addresses of all the other remote facilities within the district.
12. Nyquist can support an unlimited number of facilities; however, the maximum number of simultaneous remote facility intercom calls supported is based on the actual performance of the WAN and the Nyquist Server CPU load.
13. The voice quality of the facility calls may vary based on the WAN conditions. The maximum network bandwidth that All-Call and Zone Paging uses is 64 kbps (Multicast G.722), and intercom calls use 128 kbps (unicast, G.722).

14. The system shall facilitate the repetitive playing of Normal or Emergency audio tones or announcements directed to a Paging Zone until stopped by the Nyquist user via the Web UI, an Admin Station, or a dry contact closure connected to the Nyquist I/O Controller NQ-E7010.
15. A built-in Master Clock shall be included to automatically control class change bells or other time-based signals. The Master Clock shall have an unlimited number of Events that may be programmed into any of the unlimited number of Schedules, and unlimited number of Holidays. The schedules shall be nameable for easy selection when assigning schedules to days or overriding a schedule.
16. Network Time Synchronization. The system shall be capable of periodically updating/synchronizing the processor's time with a Network Time Server running Network Time Protocol (NTP) via the school's LAN network. Systems that do not provide Network Time Synchronization will not be deemed equivalent. The Nyquist server can be the NTP server for other devices on the LAN such as IP clocks and other IP devices.
17. Nyquist Server Application
 - a. The Nyquist software is installed onto the server, and upon boot-up, users can log in to the Nyquist server application via a web browser that supports WebRTC. Systems that require Com Port redirect software, client PC application, software or serial-to-Ethernet adapters for user access are not deemed equal. Communications between the server and the Web UI(s) shall be via secure Hyper Text Transfer Protocol (HTTPS) connections (i.e., https://).
 - b. The Nyquist Web UI shall be configured with four different default user access levels, based on four unique user roles. Systems that do not provide unlimited access levels and unlimited user roles are not considered equal.
 - c. The four default roles shall be: admin, optech, operator, and user. These roles provide a starting point/example for administrators to create additional roles.
 - d. Only a user assigned the admin role shall be able to provide access to users, giving them the ability to create, delete, edit, and view system parameters.
 - e. Only an Administrator shall have the ability to adjust roles and Class of Service (CoS) of users. The roles determine if users can view the definable data objects that can include configuration, alarms, and performance data and if users can perform certain operations based on the user's role and station's CoS. All changes to roles and CoS are effective immediately, without the need to restart the browser or reboot the server.
 - f. The Nyquist Web UI Dashboard shall provide full administrative capabilities to manage/operate the following system features:
 - i. Calling/Paging – User can initiate a call by accessing the directory or by dial pad and can receive calls, make Zone Page and All-Call Page, make a Prepending Page, Emergency All-Call paging.
 - ii. Call Forwarding

- iii. District Calling/Paging – Used for District Facility Page, District All-Call, and District Emergency All-Call.
 - iv. Tones/Announcements – Used to play Tones, Announcements, and Alarms.
 - v. View This Week’s Schedule – Used to show the current interactive Bell Schedule.
 - vi. Audio Distribution – Used for entire facility or Audio Zones
 - vii. Enable or Disable Audio – Used to place the Nyquist system into Page Exclusion mode (i.e., “mute” the system) when a contact closure is supplied from the fire alarm panel. Systems that do not provide this capability are deemed not equal.
18. Systems that require application software to be installed on a PC to manage the above features shall not be considered equivalent.
19. To facilitate installation and configuration of the system, additional Web UI menus are required. The menus shall only be visible to users with the correct roles and CoS. The navigation menus found on the Web UI shall be as follows:
- a. System Parameters – Allow installers to adjust core system parameters.
 - b. Zones – Allow installers to create and modify Paging, Time, and Audio Zones.
 - c. Schedules – Allow installers and administrators to create bell schedules for the facility, predefine alternative schedules to run, prevent the bells from ringing on a holiday, and schedule an announcement to play. The system shall allow an unlimited number of schedules to operate simultaneously within a facility.
 - d. Admin Groups – Allow the installer to create, modify, and delete software groupings of admin phones that can ring when a station calls in with a call switch.
 - e. CoS Configuration – Allow the installer to create, modify, and delete CoS groups that control station access to the following features: Call-in Level, Zone Paging, All-Call Paging, Emergency All-Call, Inter-Facility Call/Page, Audio Distribution, Remote Pickup, Join Conversation, Call Forwarding, Walking Class of Service, External Call Routing, Call Transfer/3-way Calling, Manually Activate Tone Signals, Call Any Station, Manage Recording, Monitor Calls, Monitor Locations, Conference Admin, Conference User, Voicemail, Record Calls, Activate Alarm Signals, Disable Audio, Enable Audio, Allow Callee Auto-answer, District Paging, and Inter-Facility Features.
 - f. Stations – Allow the installer to set up, modify, and delete stations; set up Page Exclusion; view Station Status; and add New Stations.
 - g. Bridge Devices – Allow the installer to configure the Nyquist ASBs.
 - h. Audio – Allow the installer to upload and manage Announcements, Playlists, Songs, and Tones. The system must support the uploading of both MP3 and WAV files and make Audio file management simple for users. Systems that limit the size of Audio files shall not be considered equal.
 - i. Users – Allow the installer to manage users by giving them the proper roles and assign extensions if needed.
 - j. Roles – Allow the installer to grant users rights to Create, Delete, Edit, Restart Server, Sort Menu, Systems Update, Manage, Import/Export, Restore, Settings, or View.
 - k. Facilities – Allow the installer to set up the district wide facilities for remote paging and calling.
 - l. Outside Lines – Allow the installer to set up FXS and FXO ports for inbound and outbound system calling.

- m. SIP Trunks – Allow the installer to set up SIP trunks into the facility for inbound or outbound calling.
- n. Call Details – Allow the installer to review the historical system activities that can be used for incident investigation or system troubleshooting.
- o. System Backup/Restore – Allow the installer to preform system backups or restores and allow the backups to be schedule to run automatically.
- p. System Logs – Allow the installer to view and export Server, Nyquist-Intercom, and Web Server logs that can be used for troubleshooting and technical assistance.
- q. Paging Exclusions – Allow the installer to view and edit stations that are excluded from paging.
- r. Firmware – Update firmware for Nyquist speakers and appliances.
- s. Help – Provide information about the system, online help topics, and System Administrator Manual.
- t. Systems that do not provide these menus as a minimum shall not be considered equal.

20. Nyquist NQ-E7030 Analog Station Bridge

- a. The Nyquist NQ-E7030 ASB allows facilities with existing Multicom or Quantum or compatible intercom systems to upgrade to Nyquist. Each ASB supports up to 24 speakers and call switches with 120 Watts of embedded 25 Volt power. The ASB is designed to drive any combination of 25 Volt speakers and horns. Features Include:
 - i. 10/100 Ethernet
 - ii. 24 station interface - Supports connections to as many as 24 individual 25 Volt speakers with one 25 Volt speaker connection per interface
 - iii. 24 dry contact closure-type analog Call Switch connections
 - iv. Half-duplex talkback using speaker as pickup
 - v. CAN Bus 2.0 Interface for future NQ-E7020 DCS support and other accessory devices
 - vi. 120W of available power across all 24 channels; maximum 40W per channel
 - vii. 2 x RGB full spectrum LED status indicators
 - viii. USB 2.0 host port, type A connector (future use)
 - ix. Universal mains supply (100VAC – 240VAC)
 - x. The Nyquist NQ-E7030 ASB shall be rack, wall, or shelf mountable and shall include the required mounting bracket hardware.

21. Nyquist NQ-P0100 Matrix Mixer Pre-Amplifier (MMPA)

- a. The Nyquist NQ-P0100 MMPA is designed to bring external audio into the Nyquist system. The MMPA interfaces with a local sound system by accepting one or more local audio sources, mixing them, and outputting them to either, a) the network for Audio Distribution, or b) the MMPA's line level output that can then be inserted into an external amplifier to drive local sound system in gyms, cafeterias, auditoriums, etc. The MMPA supports the following:
 - i. Four software selectable MIC or Line Input channels via three XLR connectors and four sets of screw-terminals. Any single input channel shall be capable of being configured to support a Push-to-Talk microphone (for example, Bogen

DDU-250). Channel-1 can be configured as a digital AES/EBU (AES3) input. Line/Monitor output – The MMPA becomes a station on the Nyquist system, allowing users to call it directly or to include it in any of the Page, Time, or Audio Zones.

- ii. The MMPA shall support the following features: Line-Level output to drive input on a local amplifier; One USB 2.0 host port (Type-A connector) for future use; 2 x RGB full spectrum LED status indicators.
- iii. The MMPA is powered by Universal mains supply (100VAC – 240VAC).
- iv. The MMPA shall be wall or shelf mountable and shall include the required mounting bracket hardware.
- v. The dealer shall supply a minimum of one Nyquist MMPA that allows for up to four user-configurable audio inputs. The MMPA shall support Line, MIC, and digital AES/EBU (AES3) input sources. The system shall support an unlimited number of MMPAs.

22. Nyquist NQ-E7010 Input/Output Controller

- a. The Nyquist NQ-E7010 I/O Controller is designed to accept contact closure inputs and activate open-collector outputs to drive relay coils.
- b. PoE Class-1; IEEE 802.3af compliant with Optional 48VDC 15W power supply
- c. Eight Dry Contact Closure Inputs that can be used with Fire Alarm Override Relays, external event triggers (for example, Lockdown Buttons, etc.)
- d. Eight Relay Driver Outputs (Open-Collector) for use with Clock Correction (Sync Pulse), response to contact closure inputs, etc.
- e. USB 2.0 host port, Type-A connector (future use)
- f. 2 x RGB full spectrum LED status indicators
- g. The Nyquist NQ-E7010 I/O Controller shall support wall or shelf-mounting options and shall include the required mounting bracket hardware.
- h. The Nyquist NQ-E7010 I/O Controller shall be designed for wall or shelf mounting.

23. Nyquist VoIP Admin Phone – Color Touch Display (Admin Station)

- a. The Nyquist Admin Station shall have the following features:
 - i. 7" 800 x 480-pixel color display with backlight
 - ii. Touch screen display for one touch operation
 - iii. Full-duplex hands-free speakerphone with AEC
 - iv. Call hold, mute
 - v. Redial, call return, auto answer
 - vi. PoE (802.3af) Class-3 support
 - vii. Headset with EHS support
 - viii. Dual Gigabit Ethernet ports
 - ix. Desk Mountable
 - x. Optional Wall mount capable
 - xi. The Nyquist Admin Station display panel shall show the time of day and day of week, the current bell schedule(s), and the station numbers and call-in priority of staff stations that are calling in. Depending upon the system programming,

an Admin Station shall display menus to activate Zone Paging, All-Call Paging, Emergency All-Call Paging, District All-Call paging, alarm signals, and external functions.

- xii. The Admin Station shall be capable of calling either the loudspeaker or Staff Station at each classroom location.
- xiii. The Admin Station shall display the classroom number of any station that calls 911. This allows front-office administrators to direct emergency personnel to the correct physical location in the building when they arrive. If a system is not connected to outside phone lines, then 911 calls can be routed to a designated station within the facility. The system shall automatically record all 911 calls made from any station. The 911 call recording shall begin as soon as 911 is dialed and continue until the call is terminated. Recorded calls shall be maintained on the system for later playback review and/or retrieval by authorized personnel and/or authorities. Systems that do not provide this feature will not be deemed equal.

24. Nyquist NQ-T1000 Staff VoIP Phone – LCD Display (Staff Station)

a. Nyquist Staff Station shall have the following features:

- i. 132 x 64-pixel graphical LCD with backlight
- ii. Two-port 10/100M Ethernet Switch
- iii. Full-duplex hands-free speakerphone with AEC
- iv. Call hold, mute
- v. Redial, call return, auto answer
- vi. PoE (802.3af) Class-3 support
- vii. Dual-color (red or green) illuminated LEDs for line status information
- viii. Two 10/100M Ethernet ports
- ix. Wall or desk mountable

b. The classroom Staff Station shall be capable of the following features depending on how the station CoS is configured:

- i. Emergency intercom call – Staff Stations shall be capable of making an Emergency intercom call, which is then routed to the assigned Admin Station. This requires the display of the architectural number and call in level on the Admin Station. Systems that do not provide this feature are not equivalent.
- ii. Speed dial
- iii. Toggle audio distribution on and off
- iv. Call Forward activation and deactivation for All-Calls/Busy/No Answer/Busy or No Answer
- v. Conference Calling
- vi. Transfer Call
- vii. Dial Administrative station– Staff Stations can allow the user to dial the station number to call to the Admin phone or its associated speaker. The call shall be routed to the Admin Station showing the architectural number that is calling.
- viii. Emergency All-Call – An emergency page shall be broadcasted to all the stations in the facility.
- ix. Place Outside Call

- x. Remote Answer
- xi. Single-Zone/All-Station Page
- xii. Call Waiting Tone for Outside Calls – It shall be possible to feed the call waiting tone to the Administrative Phone during a conversation.
- xiii. Transfer call from VoIP speaker in classroom down to an associated Staff Station
- xiv. Transfer call from analog speaker in classroom down to an associated Staff Station
- xv. Transfer call from VoIP Staff Station in classroom up to an associated VoIP speaker
- xvi. Transfer call from Staff Station in classroom up to an associated analog speaker

25. Nyquist NQ-S1810CT VoIP Ceiling Speaker with Talkback and NQ-S1810WT VoIP Wall Baffle Speaker with Talkback

- a. The VoIP speakers shall not require traditional intercom wiring or transformer taps to manually set or adjust volume. Simply connecting them via Cat 5 to a PoE Switch or PoE Injector on the system's network should allow them to be ready to program into the system. Volume is controlled via the Nyquist Web UI. All Nyquist audio appliances shall use a wideband Opus codec for Audio Distribution. Use of the Opus codec, along with G.722, allows for High Definition audio. Nyquist VoIP speakers shall be equipped with a digital MEMS microphone to achieve superior talkback audio. VoIP Speakers that utilize the speaker as the microphone shall not be considered equal.
- b. The NQ-S1810WT VoIP Wall Baffle Speaker with Talkback design facilitates mounting the speaker up to four different ways:
 - i. 2x2 Wall Mount
 - ii. Box Mount
 - iii. Corner Mount
 - iv. Tilted Mount
- c. The VoIP Speakers provide CAN Bus 2.0 Interface support for the NQ-E7020 DCS.
- d. The VoIP Speakers shall be PoE IEEE 802.3af compliant. VoIP speakers may be placed up to 100 meters (328 Feet) from a PoE switch or PoE Injector.
- e. Software provides adjustable audio output level.
- f. DHCP with Option 66 is supported for easy network deployment.
- g. The VoIP Speakers provide VLAN support.
- h. The VoIP Speakers are pre-assembled for faster installation.
- i. Each VoIP Speaker includes a 10 Watt integrated power amplifier.
- j. Each VoIP Speaker has a digital MEMS microphone to support talkback.

26. Nyquist NQ-E7020 Digital Call Switch

- a. The Nyquist DCS has been exclusively designed for use with Nyquist appliances equipped with a CAN Bus 2.0 Interface. The CAN Bus 2.0 interface provides power and signal, and multiple DCSs can connect to each CAN Bus 2.0 interface. The DCS fits into a Single Gang/ Low Voltage installation using standard 'decora-plate' covers (supplied).

- b. The DCS is a capacitive touch button design, so it doesn't have any moving parts to wear out. The behavior of this switch is software definable. Systems that require membrane or mechanical rocker style call switches that can wear out over time shall not be acceptable.
- c. Normal call initiation involves touching the DCS one time. When a user touches the button on the DCS once, one of the three LED segments will light up green, a normal call will be placed, and the light will start blinking green. This is the indication that the Normal call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones and that the phone or phones are ringing.
- d. Urgent call initiation involves touching the DCS one time. When a user touches the button on the DCS once, one of the three LED segments will light up yellow, an Urgent call will be placed, and the light will start blinking yellow. This is the indication that the Urgent call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones.
- e. Emergency call initiation involves touching the DCS one or three times depending on station programming. When a user touches the button on the DCS once or three times within three seconds, all three LED segments will light up red, an Emergency call will be placed, and the light will start blinking red. This is the indication that the Emergency call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones.
- f. Single Press Emergency Call, if programmed, involves touching the DCS one time. When a user touches the button once, all three LED segments will light up red on the DCS, an Emergency call will be placed, and the light will start blinking red. This is the indication that the Emergency call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones.
- g. Normal and Urgent calls can easily be upgraded to an Emergency call after the DCS is flashing by touching the button on the DCS one time. The Normal or Urgent call will be canceled and an Emergency call will be placed.
- h. Privacy Mode – Pressing and holding the button on the DCS for four seconds will place the speaker into Privacy Mode. As the user continually touches the DCS button, all LED segments will turn purple; when all three LED segments are lit purple, the speaker is in Privacy Mode. If a call comes into the classroom when the station is in Privacy Mode, the microphone will be disabled; the user in the classroom can touch the DCS once and it will allow talkback. Once the call ends, the classroom will need to manually return the speaker into Privacy Mode, if desired. The user can disable Privacy Mode without placing a call by pressing and holding the button on the DCS for four seconds. As the user continually touches the DCS, all LED segments will turn blue. When all three LED segments are lit blue, the speaker is no longer in Privacy Mode. Systems that require mechanical or membrane switches to achieve Privacy Mode shall not be considered equal.
- i. The colors specified above are created by three RGB full spectrum LED segments to provide installers and users with visual status and feedback when installing and using the DCS. When the DCS is being installed and the power is connected before the signal, the LED will light red. It will also light red if the speaker in the classroom stops communicating with the Nyquist Server, indicating a problem with the station.
- j. In addition to providing visual call status indications, a call confirmation audio file shall be played on the associated loudspeaker when a call is placed via a DCS. The three call-in levels shall have distinct audio confirmation messages:

- i. Call Placed
- ii. Urgent Call Placed
- iii. Emergency Call Placed
- iv. Emergency Link Transfer – If an Emergency call is unanswered by the VoIP Admin Phone and the Emergency Link Transfer is active, the Emergency call will be forwarded to the loudspeaker associated with the Emergency Link Station. Any station equipped with a loudspeaker can be programmed as the Emergency Link Station. Systems that do not provide Emergency Link Transfer shall not be considered equal.

27. Bogen Analog Call Switch CA-15C

- a. The momentary Call Switch shall be capable of placing a combination of Normal/Urgent/Emergency Calls based on the software configuration of the Call Switch.
- b. Normal/Emergency call configuration: Making a Normal call in this mode involves pressing the button on the Call Switch once. A call is then placed to the designated Admin Station. An Emergency call involves pressing the call switch at least four times. The Emergency call is then routed to the designated Admin Station. In both scenarios, the calling station number and call-in level (Normal or Emergency) are displayed on the Admin Station or on a group of Admin Stations. Additionally, Emergency calls can be routed to an alternative Admin Station or Emergency Link.
- c. Urgent/Emergency call configuration: Making an Urgent call in this mode involves pressing the button on the Call Switch once. A call is then placed to the designated Admin Station. An Emergency call involves pressing the button on the Call Switch at least four times. The Emergency call is then routed to the designated Admin Station. In both scenarios, the calling station number and call-in level (Urgent or Emergency) are displayed on the Admin Station or on a group of Admin Stations. Additionally, Emergency calls can be routed to an alternative Admin Station or Emergency Link.
- d. Emergency Only call configuration: Making an Emergency call in this mode involves pressing the Emergency call switch with Call Level Emergency one time. The call is then switched to the Admin Station. This requires the display of the station number and call-in level on the Admin Station or on a group of Admin Stations. Additionally, Emergency calls can be routed to any Admin Station, including Emergency Link.
- e. Emergency Link Transfer - If an Emergency call goes unanswered by the Admin Station and the Emergency link transfer is active, the Emergency call will be forwarded to the loudspeaker associated with the Emergency Link Station. Any station equipped with a loudspeaker can be programmed as the Emergency Link Transfer. Systems that do not provide Emergency Link Transfer shall not be considered equal.
- f. In addition to the mechanical click of a Call Switch button press, a call confirmation audio file shall be played on the associated loudspeaker when a call is placed. The three call-in levels shall have distinct audio confirmation messages:
 - i. Call Placed
 - ii. Urgent Call Placed
 - iii. Emergency Call Placed

28. Additional Loudspeakers for use with the Nyquist ASB

- a. Classroom Speakers shall be Bogen:
 - i. Ceiling Mounted Speakers: CSD2X2U Drop-In Ceiling Speaker
 - ii. Ceiling Mounted Speakers: S810T725PG8U Ceiling Speaker
 - iii. Wall Baffle Speakers: MB8TSQ/SL Metal Box Speaker
- b. Hallway Speakers shall be Bogen:
 - i. Ceiling Mounted Speakers: CSD2X2U Drop-In Ceiling Speaker
 - ii. Ceiling Mounted Speakers: S810T725PG8U Ceiling Speaker
 - iii. Wall Baffle Speakers: MB8TSQ/SL Metal Box Speaker
- c. Outdoor/Gym/Locker Room Speakers shall be Bogen:
 - i. FMH15T mounted in BBSM6 surface-mounted vandal-resistant enclosure/BBFM6 flush-mounted vandal-resistant enclosure with FMHAR8 adapter ring and SGHD8 heavy duty grille
- d. KFLDS30T Wide Dispersion Re-entrant Horn Loudspeakers
 - i. Common Area Speakers shall be Bogen:
 - 1. OCS1 Orbit Ceiling Speakers
 - 2. OPS1 Orbit Pendant Speakers

SYSTEM CAPABILITIES

1. The communication system shall be a Bogen Nyquist E7000 Series Educational System and shall provide a comprehensive communications network between administrative areas and staff locations throughout the facility.
2. The system shall provide no less than the following features and functions:
3. Software-based, state-of-the-art, Voice over IP (VoIP) paging and intercom solution.
4. The system shall provide a Web User Interface (Web UI) shall allow users to configure and control the system, in accordance with their assigned User Role, from any Web browser enabled PC, Mac, Android or iOS tablet or mobile device.
5. Amplified-voice communication with analog loudspeakers shall use a shielded audio pair when connected to an ASB.
6. The system shall support any combination of the following VoIP phone station types: NQ-T1100 Administrative VoIP Phone – Color Touch Display (Admin Station) or NQ-T1000 Staff VoIP Phone – LCD Display (Staff Station).
7. All VoIP phone station types shall utilize the same type of field wiring.
8. There shall be no limit to the number of Admin Stations that can be connected to a facility. Systems that require different head-end equipment to make Admin Stations function, or systems that limit the number of Admin or Staff Stations shall not be deemed acceptable.
9. Future station alterations shall only require the Station Type to be changed in system programming. Alterations shall not require field wiring or system head-end alterations, unless an analog station device is being replaced by a VoIP station device or vice-versa.
10. The system shall be a global non-blocking system. The system shall be capable of unlimited amplified intercom paths per facility. Two amplified intercom paths shall be provided with each ASB for its complement of 24 stations. All hardware, etc., required to achieve the necessary number of amplified-voice intercom channels for this system shall be included in this submittal. ASB amplified-voice intercom channels shall provide voice-activated switching. Systems requiring the use of a push-to-talk switch on administrative telephones shall not be acceptable. There shall be an automatic level control for return speech during amplified-voice communications. The intercom amplifier shall also provide control over the voice switching sensitivity and delay times of the VOX circuitry on the ASB.

11. The system shall provide 911 Dial-Through via outside FXO/FXS lines or SIP trunks to ensure that one or more lines are always available for 911 calls. The 911 Dial-Through is available to any properly configured station (via CoS). When a station dials 911, the 911 call is processed as follows:
12. Call routes to an Emergency Group where the call can be answered.
13. The 911 CO lines can be pre-configured and reserved. If the 911 reserved lines are busy, the normal CO lines will be connected to route the 911 calls. If all the normal CO lines are busy, then one of the ongoing calls shall be disconnected and the 911 call shall be placed.
14. When 911 is dialed from any station, its designated Admin Station or Admin Group will receive a message that the station has dialed 911.
15. The system shall automatically record all 911 calls made from any station. The 911 call recording shall begin as soon as 911 is dialed and shall continue until the call is terminated. Recorded calls shall be maintained on the system for later playback review and/or retrieval by authorized personnel and/or authorities.
16. It is of highest importance that Emergency calls from stations receive prompt attention. Therefore, it is important that there be an alternative destination in case the Emergency call does not get answered at the primary location. Details are as follows:
17. Staff-generated Emergency calls shall be treated as the second highest system priority. Therefore, all Emergency calls shall announce at the top of the call queue of their respective Admin Station or Admin Group. Should that Emergency call go unanswered for 15 seconds, the call shall be re-routed to an alternative speaker station. Then, a tone will prompt the caller to make a verbal call for help and announces to the Emergency link station "Emergency." During the transfer, the original administrative telephone shall continue to ring the distinctive Emergency Ring. Should the Emergency Transfer-to-Station have an associated Admin Station, it will also ring for the Emergency call.
18. The Emergency Transfer-to-Station shall be software configurable.
19. Systems failing to transfer unanswered Emergency calls or failing to immediately connect to the designated Admin Station shall not be deemed as equal.
20. There shall be a Facility Wide Emergency All-Call feature. The Emergency All-Call shall be accessed from designated Admin Stations or the Nyquist Dashboard or by the activation of an external contact closure that shall give a microphone input Emergency status. The Emergency All-Call function shall have the highest system priority and shall override all other loudspeaker-related functions including Time Tones, Normal All-Call or Zone Pages, or Audio Distribution.
21. Considering that Emergency calls are to be treated with the highest level of concern, systems that do not regard Emergency All-Call with the highest priority shall not be deemed as equal.
22. Upon touching the Directory icon, a menu shall appear on the Admin Station display prompting the user to select the desired menu.
23. The Emergency All-Call shall capture the highest-level system priority and shall be transmitted over all speakers in the facility. It shall also be capable of activating an external control output, which can be used to activate external relays to automatically override volume controls, local sound systems, or strobe circuits.
24. Systems without Emergency All-Call or systems with All-Call that cannot be activated by external means or that do not capture complete system priority or activate an external relay, shall not be acceptable.
25. There shall be unlimited Alarm Tones (four by default). Each may be accessed by dialing *91 and the two-digit tone number from any Admin Station, SIP Trunk, or FXO/FXS system interface. These Alarm Tones are separate from the Time Tones. Users shall be able to add an unlimited number of Alarm Tones to the system by uploading MP3 or WAV files. Systems that do not Systems that do not allow the user to upload MP3 and WAV files to customize the Alarm

- Tones or need to use external alarm/tone generators or special software or have less than four Emergency Alarm Tones shall not be acceptable.
26. Upon touching the Directory icon on an Admin Station, a menu shall appear on the display prompting the user to select from the sub-menus. The Alarms sub-menu is the first available. This precludes the user from having to memorize complicated key sequences to access Alarm Tones.
 27. There shall be unlimited I/O Controller relay driver outputs accessible and controllable by properly authorized users via an Administrative Web UI. These outputs remain set until accessed and reset. Users shall have the ability to review the status of each relay driver output. Users shall be prompted through fields via a plain English menu, precluding users from having to remember any dialing sequences to control this feature. The system shall support an unlimited number of I/O Controllers, and each I/O Controller shall be able to interact with any and all other I/O Controllers on the system (i.e., an input on one I/O Controller can trigger an output on one or more different I/O Controllers). Systems that require the user to remember complicated dialing schemes or prompt the user via cryptic commands shall not be acceptable.
 28. The I/O Controller can create a contact closure when the following operations are performed in the system:
 - a. 911 call placed
 - b. Audio Distributed
 - c. Alarm is played
 - d. Announcement is played
 - e. All-Call preformed
 - f. District All-Call performed
 - g. District-Emergency-All-Call
 - h. Emergency-Call
 - i. Emergency-All-Call
 - j. Audio-Disabled
 - k. Page
 29. The system shall provide software controlled and programmable control outputs for external relay activation for use with strobe lights, magnetic locks, card access systems, motion detectors, cameras, or any low-voltage, dry contact creating device. Systems using dedicated security stations for control of external functions shall not be acceptable.
 30. The system shall be capable of interfacing to PSTN/PBX/iPBX via both FXO/FXS line and SIP trunk connectivity.
 31. The system shall be capable of providing each facility (i.e., (i.e., Nyquist location) an unlimited number of incoming FXO/FXS or SIP trunk lines that can be designated by the user to ring the designated Day Admin or Night Admin. Where an Admin Station is designated to receive outside line calls, the incoming call's Caller ID information shall appear on the display. The system shall also provide the ability to make outside line calls from Admin Stations. This ability shall be programmable for each Admin Station and there shall be an unlimited number of CoSs available to assign to any station.
 32. The system shall be capable of supporting DID, DISA, and Security DISA functions.
 33. The system shall provide a password-protected Security DISA feature that shall only be accessible from authorized Police, Fire, Emergency personnel, or an off-premise security office that monitors the facility's security system. The Security DISA feature shall function as follows: Upon dialing the Security DISA phone number, the caller will receive a dial tone from the system, after which he or she must enter the assigned Security DISA passcode on the dial pad. Upon confirmation, the system will present the dial tone again and will allow the authorized personnel to dial any station/classroom on the system and monitor the activity without any

- pre-announce tone or privacy beep. This will allow the authorized personnel to audibly assess the situation and determine what actions need to be taken.
34. All DISA and Security DISA calls shall be automatically recorded by the system for later playback review and/or retrieval by authorized personnel and/or authorities.
35. The system shall provide for field-programmable three-, four-, five-, or six-digit architectural station numbers.
36. There shall be an automatic level control for return speech during amplified-voice communications.
37. Each station loudspeaker shall be assignable to all or any combination of Paging, Time, and/or Audio Zones. Systems that do not provide unlimited Paging, Time, and/or Audio Zones shall not be acceptable.
38. There shall be unlimited schedules with unlimited programmable events per facility. Each event shall sound one user-selected tone or external audio source. It shall be possible to assign each schedule to a day of the week or to manually change schedules from an authorized user via a web-based UI. Systems that do not provide unlimited schedules, events, and tones, or that require software to be installed on a PC to perform these functions shall not be acceptable.
39. The system shall provide multiple concurrent schedules per facility/location to accommodate split facilities (for example., combined Elementary and Middle School, combined Middle and High School, etc.).
40. The system must be capable of providing Class Change Music to be played from an external audio source or audio files that are stored in playlists on the system during class change periods or whenever a facility wants music to be played in an area (i.e., (i.e., one or more Time Zones) on an automated schedule.
41. Each event shall be able to be directed to any one or more of the unlimited Time Zones.
42. Each of the unlimited Time Zones shall have a programmable, customizable Preannounce Tone and volume control that is unique unto itself.
43. Each event shall play any of the Normal tones or external audio. Each event may utilize a different tone. For example, the system shall be capable of sending the gymnasium, shop classes, and pool a separate, unique time tone to indicate “clean up.” Minutes later, the entire facility can be sent a different time tone to indicate class change.
44. Each of the unlimited Time Tones may be manually activated by selected VoIP Admin Phones or via an authorized user with access to the Web UI. These tones shall remain active as long as the telephone remains off-hook or until canceled from the keypad or the Nyquist Web UI.
45. Systems that do not provide an unlimited number of schedules or do not provide automatic activation of schedules shall not be acceptable.
46. Internal Master Clock shall be included, allowing an unlimited number of events per facility. Systems that do not provide an internal master clock or that must supply an external master clock to meet these specifications shall not be acceptable.
47. The Nyquist E7000 is capable of synchronizing with an NTP server and automatically adjusting the Daylight Savings Time for any time zone in the world. The server that the Nyquist E7000 application is running on can also be used as an NTP server for other systems on the LAN (for example, IP Clocks and control systems).
48. There shall be a Zone Page/All-Call Page feature that is accessible by selected Admin Phones and FXO/FXS or SIP connection to the PSTN or PBX/iPBX.
49. There shall be an option to play a pre-announce tone at any loudspeaker selected for voice paging.

50. There shall be a voice-intercom feature that is accessible by CoS authorized staff phones, all Admin VoIP phones, and Admin Web UIs.
51. There shall be a privacy beep played every 15 seconds at any selected loudspeaker to indicate that an intercom call is in progress.
52. There shall be a pre-announce tone played at any selected loudspeaker for intercom call communication.
53. For special applications, the privacy and pre-announce tone signals shall be capable of being disabled during system initialization.
54. There shall be a switch over to private telephone communications should the person at the classroom loudspeaker pick up his or her Staff Station and dial *3 to transfer the call down to the associated classroom Staff Station.
55. There shall be various levels of telephonic communication accessible by all Admin Stations and Staff Stations.
56. Staff Stations must be capable of being programmed to ring one Admin Station during day hours and a different Admin Station during night hours. Day and Night start hours shall be configurable. Staff Stations shall be capable of being assigned to any Admin station. Systems that limit the number and assignment of staff call-ins to an Admin Station shall not be acceptable.
57. Each VoIP speaker or ASB speaker equipped with a call switch (analog or digital) shall be configurable as one of three call-in types, as follows:
 - a. Normal/Emergency
 - b. Urgent/Emergency
 - c. Emergency
58. Call buttons programmed for access Normal / Emergency or Urgent / Emergency shall be able to initiate an Emergency call by repeated flashing of the phone's hook switch, or repeated pressing of the DCS or the Call Switch. Systems that require additional switches and/or conductors to initiate an Emergency call, shall not be acceptable.
59. Normal and Urgent calls shall be placed into the queue for the designated Admin Station or Admin Web UI.
60. Each Admin Station call queue shall first be sorted per call priority (for example, Emergency, then Urgent, and then Normal). Calls are sorted within each priority level on a first-in, first-out basis. When a call is answered, it shall automatically be removed from the queue. Systems that do not sort calls per priority and order received shall not be acceptable.
61. The display shall simultaneously display a minimum of three intercom calls pending.
62. Additional calls beyond three shall be indicated by a scrolling option on the right-hand side of the screen thus prompting the user that additional calls are waiting.
63. It shall be possible to answer any incoming call by picking up the handset while it is ringing. It shall not be necessary to press any buttons to answer a call unless the call has dropped into the queue.
64. Staff Stations
 65. Staff Stations shall receive a dial tone upon going off-hook. Outgoing calls are made by dialing the desired station. Incoming calls can be directed to the telephone or to the associated loudspeaker for a hands-free reply. There shall be a switchover from loudspeaker to private telephone communication when a person picks up the handset, dials *3, and presses Enter/OK.
 66. Staff Stations shall be programmable for any type of system access, provided by or restricted by the following CoS options:
 - a. Call-in Level
 - b. Zone Paging

- c. All-Call Paging
 - d. Emergency All-Call
 - e. Inter-Facility Call/Page
 - f. Audio Distribution
 - g. Remote Pickup
 - h. Join Conversation
 - i. Call Forwarding
 - j. Walking Class of Service
 - k. External Call Routing
 - l. Call Transfer/3-way Calling
 - m. Manually Activate Tone Signals
 - n. Call Any Station
 - o. Manage Recordings
 - p. Monitor Calls
 - q. Monitor Locations
 - r. Conference Admin
 - s. Conference User
 - t. Voicemail
 - u. Record Calls
 - v. Activate Alarm Signals
 - w. Disable Audio
 - x. Enable Audio
 - y. Allow Callee Auto-answer
 - z. District Paging
 - aa. Inter-Facility Features
 - bb. Manage Output Contacts
67. Staff Stations shall be able to make a Normal call to any Admin Station by dialing the Admin Station's extension number. Staff Stations shall also be able to initiate an Emergency Call by dialing ****. Emergency Calls shall ring the Designated Day/Night Admin Station. The system shall provide for each station to have a Personal Identification Number (PIN). By dialing the PIN at any system telephone, the administrator shall have access to Emergency paging regardless of the restrictions on the particular phone being used.
68. Admin Stations
69. Admin Stations shall receive a dial tone upon going off-hook. Outgoing calls are made by dialing the desired stations. Incoming calls can be directed to the telephone or to the associated loudspeaker for a hands-free reply. There shall be an automatic switchover from loudspeaker to private telephone communication should the person pick up his or her handset.
70. The display shall normally show the time of day and day of week, bell schedule name, and the numbers of a minimum of three stations calling-in, along with the call-in status of each station (Normal, Urgent, Emergency). The Admin Station's display shall indicate the station number being dialed from the Admin Station.
71. The display shall also provide user-friendly menu selections to assist the operator when using the Nyquist system. Displays shall be in English for maximum ease-of-use. Systems that require the operator to memorize long lists of operating symbols or control codes shall not be acceptable.
72. Admin Stations shall be programmable for any type of system access, providing or restricting the following CoS options:
- a. Call-in Level

- b. Zone Paging
- c. All-Call Paging
- d. Emergency All-Call
- e. Inter-Facility Call/Page
- f. Audio Distribution
- g. Remote Pickup
- h. Join Conversation
- i. Call Forwarding
- j. Walking Class of Service
- k. External Call Routing
- l. Call Transfer/3-way Calling
- m. Manually Activate Tone Signals
- n. Call Any Station
- o. Manage Recordings
- p. Monitor Calls
- q. Monitor Locations
- r. Conference Admin
- s. Conference User
- t. Voicemail
- u. Record Calls
- v. Activate Alarm Signals
- w. Disable Audio
- x. Enable Audio
- y. Allow Callee Auto-answer
- z. District Paging
- aa. Inter-Facility Features
- bb. Manage Output Contacts

- 73. Program selection and its distribution or cancellation shall be accomplished from a designated Admin Station with the assistance of the menu display system. Distribution and cancellation shall be to any one or combination of speakers, any Audio Zone or Audio Zones, or All Zones. It shall be possible to provide an unlimited number of program channels for the user to pick from.
- 74. It shall be possible via an Admin Station to manually initiate any of the unlimited Normal Tones or Emergency Tones. The Tones shall be separate and distinctly different from the Alarm Tones. The Tone selected shall be capable of being played one time, continuously until it is canceled, or until the administrative display phone is placed back on-hook.
- 75. Each Admin Station shall maintain a unique queue of all stations calling that Admin VoIP phone.
- 76. VoIP Wall Baffle and VoIP Ceiling Speakers shall be configurable as one of two station types: 1) VoIP Speaker Only, or 2) VoIP Speaker with DCS.
- 77. The Bogen Nyquist VoIP speakers are powered via PoE. Use an 802.3af compliant PoE network switch port or PoE Injector to power these speakers. One PoE network switch port or PoE Injector is required per VoIP speaker.
- 78. VoIP speakers can be equipped with a DCS that can be programmed as a Normal/Emergency, Urgent/Emergency, or Emergency Only and shall be able to initiate an Emergency call by touching the DCS one, two, or three times depending on the CoS and current call state of the DCS. If the station is authorized for Privacy Mode, the users can touch and hold for 4 seconds to enable Privacy Mode or hold for four seconds to disable Privacy Mode. Systems that require mechanical, membrane, or an additional number of switches to initiate an Emergency call, shall not be acceptable.

79. Emergency Calls from VoIP Speaker with DCS shall have priority over the Normal and Urgent calls in the queue on the Admin Stations and will show up at the top of the list. Systems that do not provide priority for Emergency Call shall not be acceptable.
80. Normal and Urgent calls shall be logged into queue for the designated Admin Stations.
81. Admin Stations shall ring for when they receive a call, and then the call will be removed from the queue when the call is answered or when the Admin Queue times out (default is 30 minutes).
82. Each queue call shall first be sorted by call priority (Emergency, then Urgent, and then Normal). Calls are sorted within each priority level on a first-in, first-out basis. When a call is answered, it shall automatically be removed from the queue. Systems that do not sort calls by priority and order received, shall not be acceptable. The display shall simultaneously show a minimum of three staff calls pending. Additional staff calls beyond three shall be indicated by an arrow pointing down thus prompting the Admin user that additional calls are waiting.
83. It shall be possible to answer any incoming call simply by picking up the handset while it is ringing. It shall not be necessary to hit any buttons to answer a call unless the call has dropped into the queue.
84. System programming shall be from an authorized Nyquist Admin User via any web browser. A valid username and password shall be required to gain access to the following programmable functions:
85. System Parameters – Allow installers to adjust core system parameters.
86. Zones – Allow installers to create and modify Paging, Time, and Audio Zones.
87. Schedules – Allow installers and administrators to create Bell Schedules for the facility, predefine alternative schedules to run. Holiday Events prevent the bells from ringing on a school holiday. The system shall allow an unlimited number of schedules to operate simultaneous within a facility.
88. Admin Groups – Allow the installer to create, modify, and delete software groupings of admin phones that can ring when a station calls in with a call switch.
89. CoS Configuration – Allow the installer to create, modify, and delete CoS groups that can have the following features defined: Call in Level, Zone Paging, All-Call Paging, Emergency All-Call, Inter-Facility Call/Page, Audio Distribution, Remote Pickup, Join Conversation, Call Forwarding, Walking Class of Service, External Call Routing, Call Transfer/3-way Calling, Manually Activate Tone Signals, Call any Station, Manage Recording, Monitor Calls, Monitor Locations, Conference Admin, Conference User, Voicemail, Record Calls, Activate Alarm Signals, Disable Audio, Enable Audio, Allow Callee Auto-answer, District Paging, and Inter-Facility Features.
90. Stations – Allow the installer to set up, modify, delete stations, set up Page Exclusion, view stations' status, and add a station.
91. Bridge Devices – Allow the installer to install the Nyquist ASBs.
92. Audio – Allow the installer to upload and manage Announcements, Playlists, Announcements, Songs, and Tones. The must support the uploading of both MP3 and WAV files making Audio file management simple for users. Systems that limit the size of Audio files shall not be considered equal.
93. Users – Allow the installer to manage users by giving them the proper Role and assign an Extension if needed.
94. Roles – Allow the installer to limit user to the following: create, delete, edit, restart server, sort menu, systems update, manage, import/export, restore, settings, or view.
95. Facilities – Allow the installer to set up the district wide facilities for remote paging and calling.

96. Outside Line – allow the installer to set up FXS and FXO ports for inbound and outbound system calling.
97. SIP Trunks – allow the installer to set up SIP trunks into the facility for inbound or outbound calling.
98. Call Details – allow the installer to review the historical system activities that can be used for incident investigation or system troubleshooting.
99. System Backup/Restore – allow the installer to preform system backup or restores and allow the backups to be schedule to run automatically.
100. System Logs – allow the installer to view and export Server, Nyquist-Intercom, and Web Server logs that can be used for trouble shooting and technical assistance.
101. Paging Exclusions – allow the installer to view and edit station that are excluded from paging.
102. Firmware – is used to update Nyquist appliances.
103. Help –Provides information about the system, online help topics, and System Administrator Manual.
104. Systems not capable of supporting web-based configuration and control, or require plugins or dedicated application software, shall not be deemed as equal.
105. Systems that require a Serial-to-Ethernet converter, or require additional application software on a PC for configuration and/or control shall not be deemed as equal.
106. Admin Group
107. Admin Stations can be placed into Admin Groups, which are used if incoming calls are not answered by the assigned Admin Station or the Day or Night Admin associated with the Admin Station. Admin Groups act as an always answer feature by providing an alternate list of Admin Stations. If an incoming call is not answered by the assigned Admin Station within 30 seconds for normal calls or 15 seconds for emergency calls, all Admin Stations in the Admin Group will ring.
108. If Call Forwarding is enabled at the Admin Station, Nyquist tries the forwarded extension. If that station does not answer or is busy, the call timeout is reduced to 15 seconds. After 15 seconds, the call rolls over to the Admin Group.
109. If an Emergency level call receives no answer, the Admin Group will ring if the Day Admin or Night Admin does not answer.
110. Admin Stations can be assigned to multiple Admin Groups. A Day or Night Admin can also be assigned to one or more Admin Groups.
111. Call Detail Reporting
112. The Call Details feature allows the viewing and/or printing of detail records of every call in a facility in a call log format. Calls include scheduled announcements, paging, and internally and externally made or received telephone calls.
113. System Backup/Restore
114. The system backup feature allows users with access to back up the system database, voicemail, and recordings.
115. The system restore allows users with access to perform a system restore of previously backed up database, voicemail, and/or recordings.
116. The installer also can set up an automatic backup that can be performed daily, weekly, or monthly.
117. System Log Files
118. A log file records either events or messages that occur when software runs and is used when troubleshooting the system. The following parts of the Nyquist system generate log files:
119. Server (This provides access to the Debian Linux OS server log files.)
120. Intercom (This provides access to the Intercom application server log files.)

- 121. Web Server (This provides access to the web server log files.)
- 122. From the web-based UI, system logs can be viewed directly or exported via download to a PC, Mac, or Android device and then copied to removable media or attached to an email to technical support.
- 123. Paging Exclusions
- 124. For school testing and exams, the administrators shall be able to put stations into Page Exclusion mode. During this time, the stations will only receive Emergency All-Call pages – not music, tones, or All-Calls. Emergency pages will still be heard at the station even if that station is set to exclude paging.

AUXILIARY SYSTEMS

1. CLOCK SYSTEM

- a. Main transmitter shall be Primex OneVUE Series. Provide repeaters as required. Wireless Analog Classroom clocks shall be 14155 - 12" inch round, battery operation, surface mount type. All clocks shall be 14155 series exclusively manufactured by Primex Wireless to match existing standards throughout the school district. Wireless Analog Gymnasium, Multipurpose Rooms and Library clocks shall be 16" inch round, battery operation, surface mount. Clocks installed in the Gymnasium shall include wire guards. All clocks shall be Primex Wireless series exclusively manufactured by Primex Wireless to match existing standards throughout the school district. All wireless clocks will be interfaced with the Primex Wireless transmitter and utilize Network Time Server for synchronization of bell and clocks.

WIRE AND CABLE

- 1. All wire and cables shall be new and unused. All wire and cable shall be enclosed in conduit unless otherwise noted. Wire not installed in equipment racks, not portable, or not installed in conduit shall meet all applicable codes.

PROTECTION

- 1. The contractor shall provide all necessary transient protection on the AC power feed and on all station lines leaving or entering the building. The contractor shall note in his system drawings, the type and location of these protection devices as well as all wiring information. Such devices are not to be installed above the ceiling

TERMINAL CABINETS & JUNCTION BOXES

- 1. All terminal cabinet and junction boxes are to be provided and installed by the Division 26 Prime Contractor. This contractor and the prime contractor shall coordinate mounting locations prior to install.

DIVISION OF WORK

- 1. While all work included under this specification is the complete responsibility of the contractor, the division of actual work listed following shall occur.
- 2. All conduits with pull cords, all electrical pull boxes, grounding rods, all outlet boxes, terminal cabinets, backboards, etc., which form part of the rough-in work shall be provided and installed completely by the Division 26 Contractor. Coordinate as necessary for proper installation.
- 3. The balance of the system, including installation of initiating devices, notification appliances and equipment, making all connections, etc., shall be performed by the System Supplier/Installer.

4. All 120VAC power conductors and conduits associated with power circuits to all low voltage system equipment locations shall be provided and installed by the Division 26 Contractor.
5. An insulated stranded copper ground wire shall be provided from each equipment rack to the building grounding system, in compliance with CEC Article 250, by the Division 26 Electrical Contractor. Labeling of pull boxes and terminal cabinets shall be provided and installed by the Division 26 Electrical Contractor.

INSTALLATION

1. All work shall be completed in strict accordance with all applicable codes and ordinances, by a qualified Manufacturer's Authorized Distributor.
2. Cable/Wire
 - a. All cable/wire for the communications system shall be new.
 - b. System cable/wire and equipment installation shall be in accordance with good engineering practices as established by the Electronics Industries Alliance (EIA) and the California Electrical Code (CEC). Wiring shall meet all applicable electrical codes. All cable/wire shall test free from all grounds and shorts.
 - c. All #22AWG and #24AWG connections throughout the system shall be made by spring tension clip "punch block", Siemon type 66 terminals or equal. Conductors #20AWG and larger shall be terminated on barrier screw terminals.
 - d. All communication system cable/wire shall be labeled at all points of termination. All labeling shall be based on the room numbers as provided by the Owner or his representative.
3. Protection and dressing of cables:
 - a. Cables mounted on backboards and within equipment racks, etc., shall be grouped and securely attached to the backboard or enclosure in horizontal and vertical bundles in a neat workmanlike manner using Thomas & Betts "Ty-Rap", Panduit cable mounts and Allen-Tel cable management or equal. Edge protection material ("cat-track") shall be installed on edges of holes, lips of ducts or any other point where cables or harnesses cross metallic edge.
4. Shielding:
 - a. Cable shielding shall be connected to common ground at point of lowest audio level and shall be free from ground at any other point. Cable shields shall be terminated in same manner as conductors.
5. Underground cables
 - a. Any cable/wire pulled through manholes or pull boxes located below grade shall be continuous with no splices. The cable/wire shall be intact with no cuts in the protective outer jacket.
6. Cable/Wire Terminations
 - a. All splices in above ground junction boxes shall be made on terminal strips.

SYSTEM START-UP

1. All start-up programming and system commissioning shall be performed by a manufacturer's trained and certified technician.

SYSTEM VERIFICATION

1. Subsequent to system start-up the system installer shall, at a minimum, verify that the following features are functioning properly.
2. Two way talk-back
3. All call paging
4. Emergency call-in, if applicable

5. Call switches, if applicable
6. Verification of call station identifications with room numbers provided by the Owner or his representative.

ACCEPTANCE TESTING

1. The system installer shall, in the presence of the Inspector of Record (IOR), perform 100% testing as noted in System Verification above.

DOCUMENTATION

1. Provide the following directly to the Supervisor of Technology Service.
 - a. Provide a printed copy of all field programming for all components in system.
 - b. Provide one copy of all diagnostic software with copy of field program for each unit.
 - c. Provide one copy of all service manuals, parts list, and internal wiring diagrams of each component of system.
 - d. Provide one copy of all field wiring runs, location and end designation of system.

MANUFACTURER'S FIELD SERVICES

1. The contractor shall, at the owner's request, make available a service contract offering continuing factory authorized service of this system after the initial warranty period.
2. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.

IN SERVICE TRAINING

1. Provide complete "in service" instructions of system operation to school personnel. Assist in programming of telephone system.
2. The Contractor shall instruct personnel designated by the Owner in the proper use, basic care and maintenance of the system beyond the warranty period.
3. The contractor shall provide a minimum of eight hours of in-service training with this system. These sessions shall be broken into segments, which will facilitate the training of individuals in the operation of this system. Operators Manuals and Users Guides shall be provided at the time of this training.

FACTORY TRAINING & CERTIFICATION

1. The manufacturer shall provide factory certified training to two (2) technicians employed by the school district. These technicians shall be trained and certified as manufacturers certified technicians capable of performing any work on the system after the installation of the system.
2. All cost for training including travel, lodging, meals and per diem shall be included in the installing contractors base bid price for this section.

GUARANTEE AND WARRANTY

1. Guarantee all parts, labor, and workmanship furnished under this contract for the minimum period of twelve months from the date of substantial completion, or first formal use by the Owner, whichever is last to occur. During the warranty period, report to the site and repair or replace any defective materials or workmanship without cost to the Owner. Non-emergency Warranty service shall be rendered within 24 hours after request by the Owner. Emergency service shall be provided within 8 hours of request by owner. Equivalent replacement equipment shall be temporarily provided when immediate on-site repairs cannot be made. Where warranties on individual pieces of equipment exceed twelve months, the guarantee period shall be extended to the warranty period of the particular items.
2. After completion of the work the Contractor shall submit a Certificate of Warranty, stating start-up and expiration dates and conditions of the warranty, for signature of both participating parties. Incremental warranties for completed portions of the work may be negotiated at the discretion of the Owner, if delays occur beyond the control of the Contractor.

EQUIPMENT MANUFACTURER'S REPRESENTATIVE

1. All work described herein to be done by the manufacturer's authorized representative shall be provided by a documented factory authorized representative of the basic line of equipment to be utilized.
2. As further qualification for bidding and participating in the work under this specification the manufacturer's representative shall hold a valid C-10 Contractor's License issued by the Contractor's State License Board of California. The manufacturer's representative shall have completed at least twenty (20) projects of equal scope, giving satisfactory performance and have been in the business of furnishing and installing sound systems of this type for at least ten (10) years. The manufacturer's representative shall be capable of being bonded to assure the owner of performance and satisfactory service during the guarantee period.
3. The manufacturer's representative shall provide a letter with submittals from the manufacturer of all major equipment stating that the manufacturer's representative is an authorized distributor. This letter shall also state the manufacturer guarantees service performance for the life of the equipment, and that there will always be an authorized distributor assigned to service the area in which the system has been installed.
4. The contractor shall furnish a letter from the manufacturer of the equipment, which certifies that the equipment has been installed according to factory intended practices, that all the components used in the system are compatible and that all new portions of the systems are operating satisfactorily. Further, the contractor shall furnish a written unconditional guarantee, guaranteeing all parts and all labor for a period of one (1) year after final acceptance of the project by the owner.

END OF SECTION



CONSULTANT BRANDING

1. REMOVE EXISTING LANDSCAPE/HARDSCAPE AS REQUIRED TO INSTALL NEW CONDUIT. SEE NEW ELECTRICAL DRAWINGS FOR MORE INFORMATION.

1. REMOVE EXISTING LANDSCAPE/HARDSCAPE AS REQUIRED TO INSTALL NEW CONDUIT. SEE NEW ELECTRICAL DRAWINGS FOR MORE INFORMATION.

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1

(E) BUILDING TO BE MODERNIZED
(SEE MODERNIZATION PLANS FOR MORE INFO.)

(E) BUILDING TO REMAIN (NO WORK)

(E) BUILDING AND ITS FOUNDATIONS AND UNDERGROUND UTILITIES TO BE REMOVED

(E) CONCRETE PAVING TO BE REMOVED.
RE-GRADE AND PREPARE FOR NEW WORK.

(E) ASPHALT PAVING, PARKING STRIPING/PLAYFIELD STRIPING TO BE REMOVED.
RE-GRADE AND PREPARE FOR NEW WORK.

(E) LANDSCAPE TO BE REMOVED.
RE-GRADE AND PREPARE FOR NEW WORK.

—X— (E) CHAINLINK FENCE TO REMAIN

—X—X— (E) CHAINLINK FENCE TO BE REMOVED

 (E) METAL GATE TO BE REMOVED

☞☞ (E) LIGHT POST TO BE REMOVED

LEGEND

I.T.S.	
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2

NOT USED

3

NOT USED

4

ENLARGED SITE PLAN - EXISTING/DEMO.

$1'' = 10' - 0''$	10
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PROJECT No. : 1-78-21

1/6/2021 4:46 PM

DRAWN BY: _____ CHECKED BY: _____

ISSUE No. _____	DATE _____	DESCRIPTION _____	REVISION No. _____	DATE _____	DESCRIPTION _____
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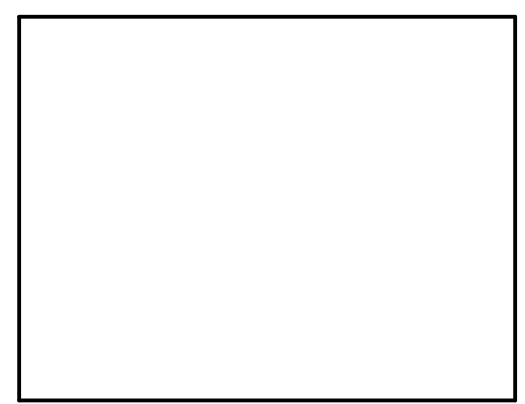
**PACIFIC HIGH SCHOOL
MODERNIZATION**

PACIFIC HIGH SCHOOL
1020 PACIFIC STREET SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED SCHOOL DISTRICT

ENLARGED SITE PLAN
EXISTING / DEMO

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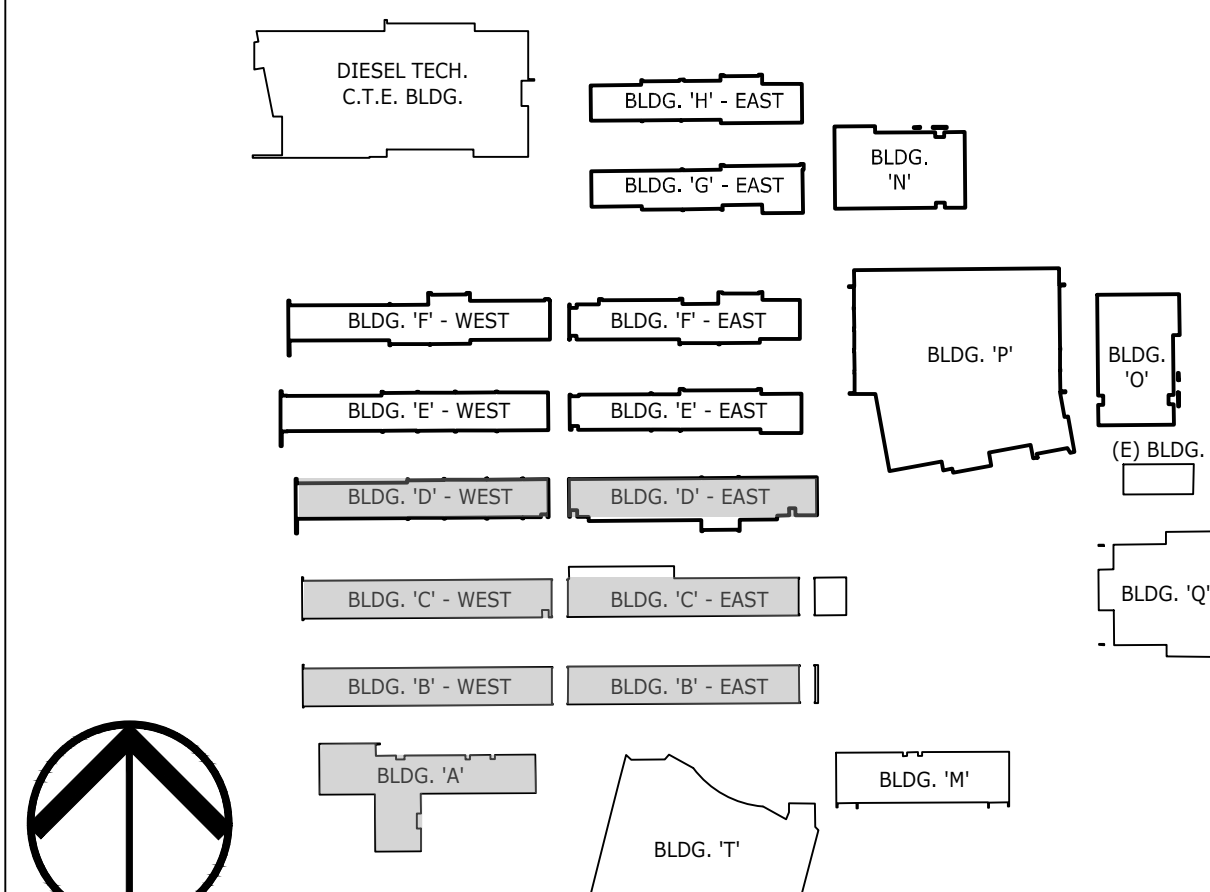


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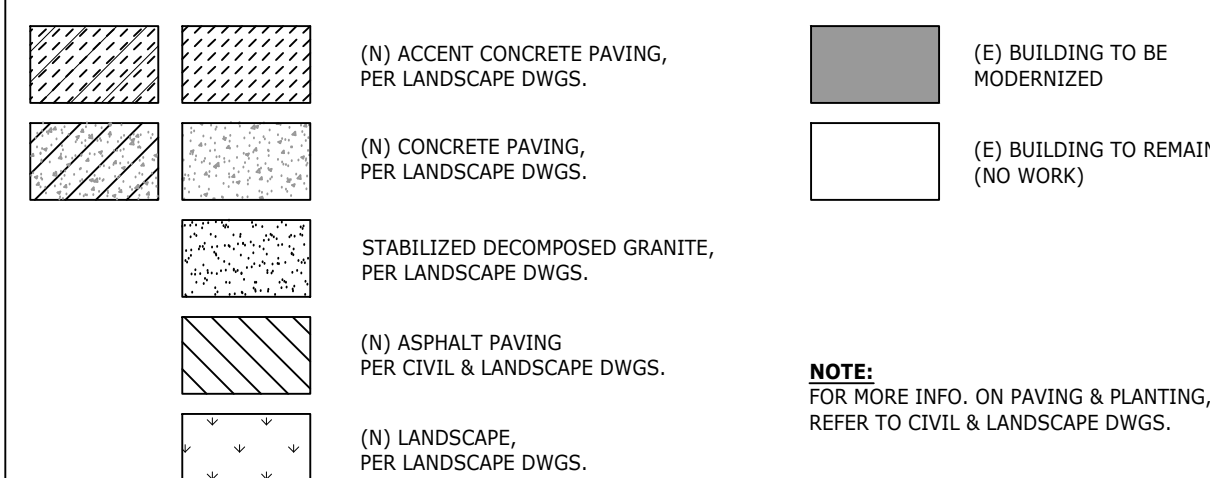
CONSULTANT BRANDING

- 2.23 SITE WORK
- 2.23 NEW ACCESSIBLE H₂O DRINKING FOUNTAIN WITH BOTTLE FILLER, PER DETAIL. LANDSCAPE DRAWINGS
- 2.38 NEW ACCESSIBLE DIRECTIONAL SIGN
- 2.69 NEW SITE FURNISHINGS, PER LANDSCAPE DRAWINGS.
- 2.70 NEW CHAINLINK FENCE ON TOP OF EXISTING SITE WALL.
- 2.71 NEW CONCRETE NEW STOPS
- 2.72 EXISTING WALL TO REMAIN.
- 2.73 NEW ACID NEUTRALIZATION TANK, PER PLUMBING DRAWINGS
- 2.74 EXISTING PAVING TO REMAIN PROTECT IN PLACE
- 2.75 NEW LANDSCAPE/HARDSCAPE AS REQUIRED TO INSTALL NEW CONCRETE.
SEE NEW ELECTRICAL DRAWINGS FOR MORE INFORMATION. MATCH EXISTING GRADES.
3. CONCRETE
- 3.1 NEW C.I.P. CONCRETE SEAT WALL PER LANDSCAPE DRAWINGS.
- 3.1 NEW C.I.P. CONCRETE STAIRS PER LANDSCAPE DRAWINGS.
- 3.5 NEW CONCRETE RETAINING WALL.
- 3.11 NEW C.I.P. CONCRETE RAMP PER CIVIL & LANDSCAPE DRAWINGS.

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AS-2.5

PACIFIC HIGH SCHOOL MODERNIZATION:

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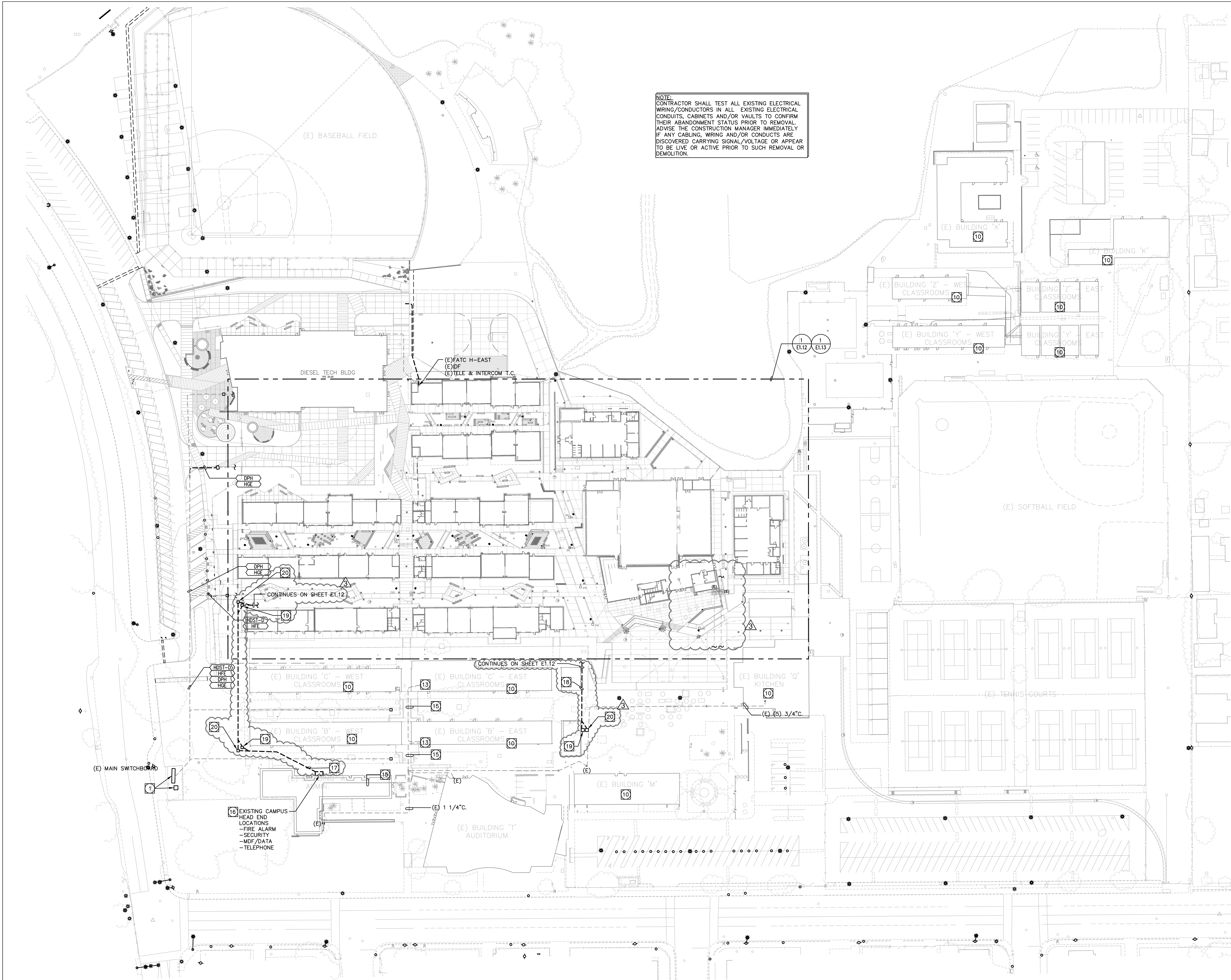
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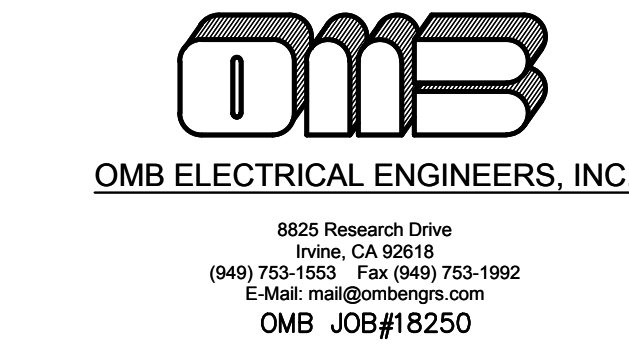
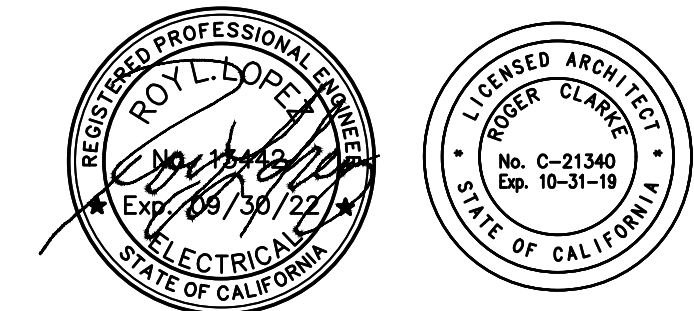
PACIFIC HIGH SCHOOL

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NOTE:
CONTRACTOR SHALL TEST ALL EXISTING ELECTRICAL
WIRING/CONDUCTORS IN ALL EXISTING ELECTRICAL
CONDUITS, CABINETS AND/OR VAULTS TO CONFIRM
THEIR ABANDONMENT STATUS PRIOR TO REMOVAL.
ADVISE THE CONSTRUCTION MANAGER IMMEDIATELY
IF ANY CABLING, WIRING AND/OR CONDUITS ARE
DISCOVERED CARRYING SIGNAL/VOLTAGE OR APPEAR
TO BE LIVE OR ACTIVE PRIOR TO SUCH REMOVAL OR
DEMOLITION.



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PLAN NOTES:

- EXISTING CAMPUS MAIN SERVICE BOARD, 3000A, 277/480V, 3P, 4W, WP NEMA 3R AND UTILITY COMPANY TRANSFORMER (SCE# 5480515) TO REMAIN. SAFE OFF BUILDING FEEDS PER DEMOLITION SCOPE.
- EXISTING BUILDING AND STRUCTURE TO BE REMOVED COMPLETE, INCLUDING ALL CONNECTORS OF BUILDING POWER AND LOW VOLTAGE SYSTEMS. SHUT OFF AND DISCONNECT POWER, INCLUDING THE DE-PGRAMMING OF LOW VOLTAGE SYSTEMS AT HEAD END LOCATIONS AND PULL OUT CONDUCTORS FEEDING BUILDING/STRUCTURE BACK TO SOURCE. COORDINATE LOW VOLTAGE SYSTEM WORK WITH DISTRICT. INCLUDE REMOVAL OF BOXES, FITTINGS, SUPPORTS AND REMOVAL OF BELOW GRADE UTILITIES AND GROUND SERVING BUILDINGS.
- PROVIDE 4'X6'DEPTH AS REQUIRED INTERCEPT BOX WITH SPRING ASSISTED BOLT DOWN LID LABELED 'COMM'.
- PROVIDE (6) 3" O. & 2" O. FROM INTERCEPT BOX TO FUTURE MDF.
- EXISTING LIGHT POLE AND FOOTING REMAIN, PROTECT IN PLACE.
- EXISTING BUILDING TO BE MODERNIZED. REFERRED TO BUILDING PLANS, FOR INFORMATION.
- PROVIDE (6) 2" O. AND (2) 3" O. WITH LOW VOLTAGE CABLING PER SPECIFICATIONS BETWEEN BUILDINGS.
- NOT USED.
- EXISTING MODULAR BUILDING, INCLUDING ALL POWER, LIGHTING AND CONTROLS, AND LOW VOLTAGE BUILDING SERVICES TO REMAIN, PROTECT IN PLACE. RECONNECT EXISTING SERVICES.
- EXISTING BUILDING, INCLUDING ALL POWER, LIGHTING AND CONTROLS, AND LOW VOLTAGE BUILDING SERVICES TO REMAIN, PROTECT IN PLACE.
- NOT USED.
- NOT USED.
- EXISTING LOW VOLTAGE CLOSET IN CORRIDOR WITH TERMINALS FOR CATV, TELEPHONE, FIBER PULL THROUGH, FIRE ALARM, SECURITY TO REMAIN, PROTECT IN PLACE.
- EXISTING CANOPY STRUCTURE BETWEEN BUILDINGS TO BE REMOVED. DISCONNECT SERVICES TO BUILDING D&F EAST & WEST AND PULL CONDUCTORS (LOW VOLTAGE) OUT BACK TO SOURCE. SAFE OF ALL LIGHTING AND CONTROL WEST AND POWER CIRCUITS FOR BUILDING MODERNIZATION BUILDING TO BE REFEED.
- EXISTING UNDERGROUND LV SYSTEM PATHWAYS TO REMAIN. PROTECT IN PLACE. PULL IN NEW SYSTEM CONDUCTORS FEEDING BUILDINGS. REMOVE/PULLOUT UNUSED CABLING TO MAKE SPACE FOR NEW CABLING AND PULL IN NEW.
- MODIFY EXISTING HEAD END AS REQUIRED TO SERVE THE NEW CONSTRUCTION. PROVIDE ADDITIONAL HARDWARE, CONNECTIONS, PROGRAMMING, WIRING ETC. AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
- CONTRACTOR TO PROVIDE (114" O. DATA, (112" O. INTRUSION, (112" O. FA & (112" O. SPARE.
- CONTRACTOR TO PROVIDE (613" O. FOR LOW VOLTAGE AND (112" O. FOR FIRE ALARM.
- CONTRACTOR TO PROVIDE 4' X 4' X DEPTH AS REQUIRED PULL BOX WITH DRIVE OVER RATED BOLT DOWN LID LABELED LOW VOLTAGE.
- CONTRACTOR TO PROVIDE 11" X 17" X DEPTH AS REQUIRED PULL BOX WITH DRIVE OVER RATED BOLT DOWN LID LABELED FIRE ALARM.

GENERAL NOTES

- THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS.
- THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT SITE PRIOR TO SUBMITTING BID. ALL DEMOLITION, ALTERATION, EXTENSION, RELOCATION, REHABILITATION WORK SHALL BE INCLUDED IN CONTRACT. NO ADDITIONAL ALLOWANCE OR CHANGE ORDERS WILL BE ACCEPTED.
- NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED, OR NOT INDICATED ON "AS-BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS BEING REMOVED.
- CONTRACTOR IS RESPONSIBLE TO RELOCATE OR REMOVE FROM WALLS, CEILINGS, FLOOR SPACES, ETC. ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT AS PART OF THIS WORK. CONTRACTOR SHALL IDENTIFY AND MAINTAIN CIRCUIT CONTINUITY REQUIRED FOR ALL EXISTING DOWNSTREAM BUILDINGS, SYSTEMS, OUTLETS, FIXTURES, EQUIPMENT ETC. SCHEDULED TO REMAIN.
- CAREFULLY PROTECT ALL EXISTING WALLS, TRIMS, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON OR

1 ELECTRICAL SITE PLAN - POWER/SIGNAL

Scale : 1" = 50'-0"

PROJECT No. : 1-78-21
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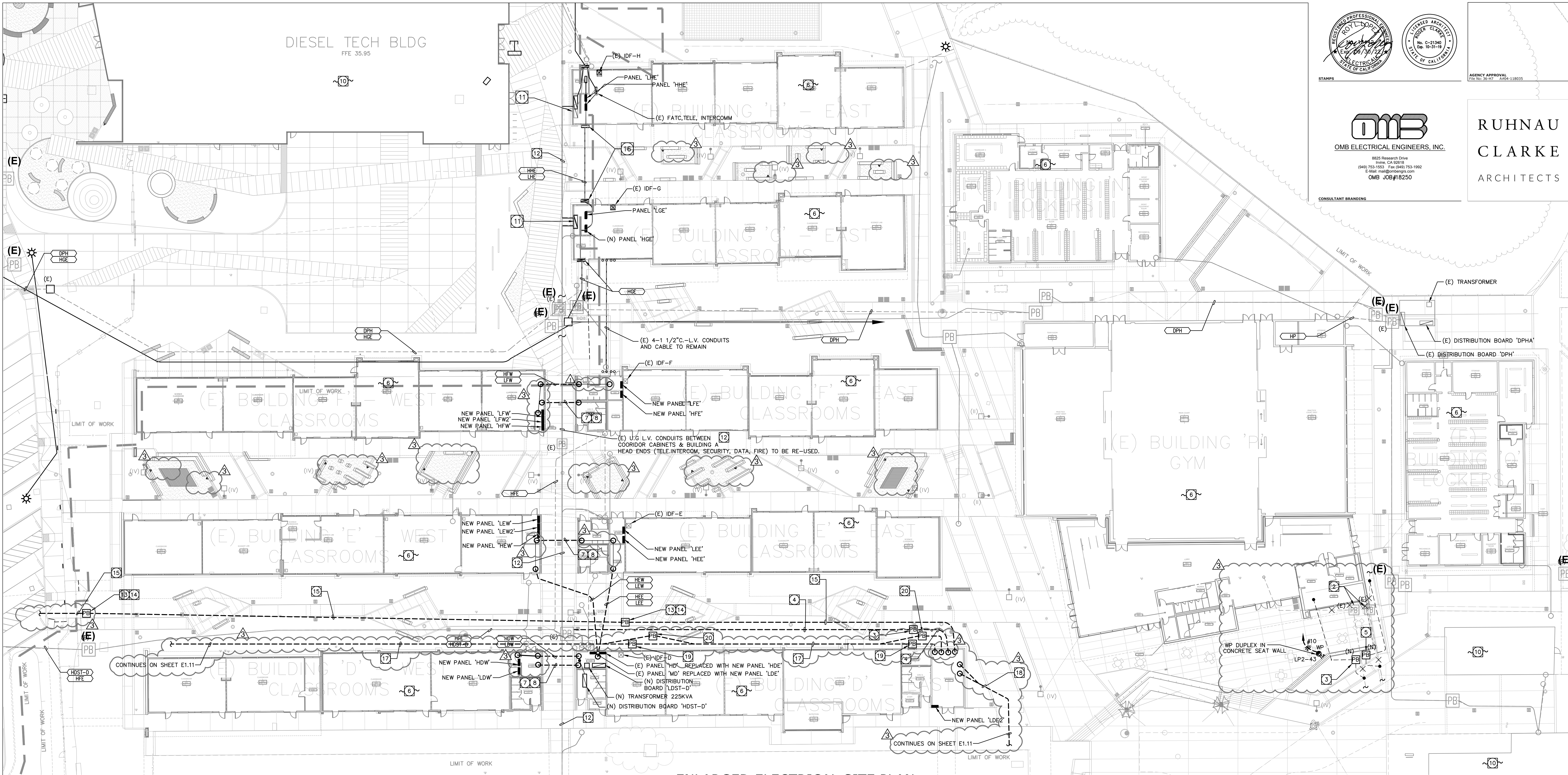
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PACIFIC HIGH SCHOOL
MODERNIZATION
PACIFIC HIGH SCHOOL
1020 PACIFIC STREET SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED SCHOOL DISTRICT

ELECTRICAL SITE PLAN -
POWER/SIGNAL

E1.11



1 ENLARGED ELECTRICAL SITE PLAN
Scale : 1" = 20'-0"

PLAN NOTES:

- 13 PROVIDE 2'X3'XDEPTH AS REQUIRED PULL BOX PER TELEPHONE COMPANY REQUIREMENTS DOWN LID LABELED 'TELE'.
- 14 PROVIDE 2'X3'XDEPTH AS REQUIRED PULL BOX PER CATV COMPANY REQUIREMENTS DOWN LID LABELED 'TELE'.
- 15 (2) PROVIDE 4"X4" (TELEPHONE)
(2) 4"X4" (CATV)
- 16 WP NEMA 3R PULL BOX FOR FEEDER PANEL. MOUNT ON WALL AS HIGH AS POSSIBLE. 12"X 6"X 6"
- 17 CONTRACTOR TO PROVIDE (1)4"X4" DATA, (1)2"X4" INTRUSION, (1)2"X4" FIRE ALARM & (2)2"X4" SPARE.
- 18 CONTRACTOR TO PROVIDE (6)3"X4" LOW VOLTAGE & (1)2"X4" FIRE ALARM.
- 19 CONTRACTOR TO PROVIDE 4' X 4' X 4" DEPTH AS REQUIRED PULL BOX FOR LOW VOLTAGE.
- 20 CONTRACTOR TO PROVIDE 11" X 17" X 4" DEPTH AS REQUIRED PULL BOX FOR FIRE ALARM.

- 1 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX(ES) TO LIGHT FIXTURES/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS, ROUTE #10 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.
- 2 EXISTING PULL BOX TO BE DEMOLISHED. INTERCEPT ALL CONDUIT. PULL OUT CABLEING AND EXTEND CONDUIT TO NEW PULL BOX AS REQUIRED. PULL IN NEW CABLEING AND RECONNECT ALL SYSTEMS.
- 3 PROVIDE 3'X3'XDEPTH AS REQUIRED INTERCEPT BOX WITH SPRING ASSISTED BOLT DOWN LID AND LABELING. VERIFY LOCATION WITH CIVIL/LANDSCAPE/ARCH PRIOR TO ROUGH IN.
- 4 PROVIDE (6) 3"X4" & 2"X4" FROM INTERCEPT BOX TO FUTURE MDF.
- 5 PROVIDE 6'X3'XDEPTH AS REQUIRED INTERCEPT BOX WITH SPRING ASSISTED BOLT DOWN LID AND LABELING. VERIFY LOCATION WITH CIVIL/LANDSCAPE/ARCH PRIOR TO ROUGH IN.
- 6 EXISTING BUILDING TO BE MODERNIZED. REFERRED TO BUILDING PLANS, FOR INFORMATION.
- 7 PROVIDE (6) 2"X4" AND (2) 3"X4" WITH LOW VOLTAGE CABLEING PER SPECIFICATIONS BETWEEN BUILDINGS.
- 8 EXISTING CANOPY STRUCTURE BETWEEN BUILDINGS TO BE REMOVED. DISCONNECT SERVICES TO BUILDING D,E & F EAST & WEST AND PULL CONDUCTORS (LOW VOLTAGE) OUT BACK TO SOURCE. SAFE OF ALL LIGHTING AND CONTROL, WEST AND POWER CIRCUITS FOR BUILDING MODERNIZATION BUILDING TO BE REFEED.
- 9 NOT USED.
- 10 EXISTING BUILDING, INCLUDING ALL POWER, LIGHTING AND CONTROLS, AND LOW VOLTAGE BUILDING SERVICES TO REMAIN, PROTECT IN PLACE.
- 11 EXISTING LOW VOLTAGE CLOSET IN CORRIDOR WITH TERMINALS FOR CATV, TELEPHONE, FIBER PULL THROUGH, FIRE ALARM, SECURITY TO REMAIN, PROTECT IN PLACE. INTERCEPT AND EXTEND CONDUIT TO NEW IDF LOCATIONS.
- 12 EXISTING UNDERGROUND LV SYSTEM PATHWAYS TO REMAIN. PROTECT IN PLACE. PULL IN NEW SYSTEM CONDUCTORS FEEDING BUILDINGS. REMOVE/PULLOUT UNUSED CABLEING TO MAKE SPACE FOR NEW CABLEING AND PULL IN NEW.

GENERAL NOTES

8. DO ALL DRILLING, CUTTING, ETC. REQUIRED TO DEMOLISH ELECTRICAL WORK AS INDICATED. PROVIDE BLANK COVER PLATE ON ALL OUTLETS EXPOSED BY REMOVAL OF FIXTURE OR DEVICES.
9. ALL PENETRATIONS OR OPENING THROUGH WALLS, CEILING, FLOORS, ETC., SHALL BE SEALED (OR RESEALED) TO MAINTAIN THE RATING OF STRUCTURE.
10. ALL REMOVED MATERIALS AND EQUIPMENT WHICH IS SALVAGED MATERIALS SHALL REMAIN IN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE THEM AND PROTECT FROM DAMAGED. DISPOSE OF ALL HAZARDOUS MATERIAL PER GUIDELINE OF THE STATE OF CALIFORNIA, DEPARTMENT OF HEALTH SERVICES AND OTHER AGENCIES HAVING JURISDICTION.
11. WHERE ELECTRICAL DEVICES ARE TO BE REMOVED/DEMOLISHED, ALL CONDUCTORS SHALL BE REMOVED BACK TO SOURCE PANEL, TERMINAL CABINET OR RACK/HEAD END EQUIPMENT. ALL EXPOSED CONDUIT AND BOXES SHALL BE REMOVED COMPLETE. CONCEALED CONDUIT IN WALLS OR BELOW GRADE SHALL BE ABANDON IN PLACE. PROVIDE BLANK COVERS FOR ABANDON BOXES.
12. WHERE BELOW GRADE CONDUIT IS TO BE ABANDON IN PLACE, REMOVE ALL SYSTEM CONDUCTORS BACK TO SOURCE, EXPOSE CONDUIT BELOW SLAB OR GRADE, CUT, CAP AND MARK IN PLACE LOCATION OF CONDUIT END AND IDENTIFY CONDUIT AS SPARE AT OTHER END.
1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS.
2. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT SITE PRIOR TO SUBMITTING BID. ALL DEMOLITION, ALTERATION, EXTENSION, RELOCATION, REHABILITATION WORK SHALL BE INCLUDED IN CONTRACT. NO ADDITIONAL ALLOWANCE OR CHANGE ORDERS WILL BE ACCEPTED.
3. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED, OR NOT INDICATED ON "AS-BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS BEING REMOVED.
4. CONTRACTOR IS RESPONSIBLE TO RELOCATE OR REMOVE FROM WALLS, CEILINGS, FLOOR SPACES, ETC. ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT AS PART OF THIS WORK. CONTRACTOR SHALL IDENTIFY AND MAINTAIN CIRCUIT CONTINUITY REQUIRED FOR ALL EXISTING DOWNSTREAM BUILDINGS, SYSTEMS, OUTLETS, FIXTURES, EQUIPMENT ETC. SCHEDULED TO REMAIN.
5. CAREFULLY PROTECT ALL EXISTING WALLS, TRIMS, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON OR AROUND FINISHED SURFACES AND AREAS, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED DUE TO THIS WORK OR THE INSTALLATION OF NEW WORK.
6. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE. ALL WORK TO BE COORDINATED WITH CONSTRUCTION MANAGER, ARCHITECT.



AGENCY APPROVAL
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**RUHNA
CLARKE**
ARCHITECTS

CONSULTANT BRANDING

PLAN NOTES

- 1 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX(ES) TO RECEPTACLE/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS. ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.
- 2 AV INPUTS LOCATED AT TEACHER'S DESK. PROVIDE (1) 2-GANG BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING WITH FACEPLATE FOR (1) HDMI INPUT AND (1) 3.5MM INPUT. REFER TO DETAIL 8/E9.11 FOR ADDITIONAL REQUIREMENTS AND INFORMATION. PROVIDE (1) 45 BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING FOR FUTURE TECHNOLOGY UPGRADES.
- 3 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL-MOUNTED TV INDICATED AT 48".
- 4 BOGEN IP INTERCOM/PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 5 (N) BOGEN IP 12" CLOCK. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 6 CLASSROOM AV SPEAKER CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 7 EXTERIOR FLUSH IN WALL WEATHERPROOF GFCI RECEPTACLE WITH LOCKABLE WHILE-IN USE METALLIC COVER.
- 8 DATA DROPS FOR POE WIRELESS ACCESS POINT.
- 9 EXTERIOR PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 10 FUTURE CCTV CAMERA PROVIDE WEATHER-PROOF JUNCTION BOX WITH BLANK FACE PLATE AND 1" CONDUIT WITH PULL STRING TO NEAREST IDF. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 11 REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.50 FOR FEEDER INFORMATION.
- 12 PROVIDE 34"X5" PLUS CONTROL CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 13 AUDIO AMPLIFIER TO BE INTERFACED WITH FIRE ALARM THROUGH PAM RELAY. LOCATE AMP ADJACENT TO HDMI SPLITTER IN CEILING AT TEACHER'S DESK. CONNECT TO SAME CIRCUIT AS TV FOR POWER. CONNECT AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 14 INTRUSION DETECTION MOTION SENSOR. CONNECT TO EXISTING CAMPUS SYSTEM AS REQUIRED. PROVIDE ALL CONDUIT, CABLING, ACCESSORIES, POPPITS AND PROGRAMMING REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 15 INTRUSION DETECTION SYSTEM DOOR CONTACT - (COORDINATE DOOR CONTACT TYPE PER DOOR).
- 16 CONTRACTOR TO INSTALL JUNCTION BOX FOR HAND DRYER. USE #10 CONDUCTORS. VERIFY EXACT LOCATION PRIOR TO ROUGH IN.
- 17 RECEPTACLE, DATA, AND AV CONNECTIONS FOR MOBILE CART PROJECTOR INDICATED AT 15" AFF TO BOTTOM OF BOX. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 18 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL MOUNTED SHORT THROW PROJECTOR. VERIFY LOCATION PRIOR TO ROUGH-IN.

BLDG. D EAST - ELECTRICAL POWER/SIGNAL PLAN

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

BLDG. D WEST - ELECTRICAL POWER/SIGNAL PLAN

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

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PACIFIC HIGH SCHOOL MODERNIZATION

PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED

**BUILDING D
ELECTRICAL
POWER/SIGNAL PLAN**

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17821

PACIFIC HIGH SCHOOL MODERNIZATION:



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**RUHNA
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CONSULTANT BRANDING

PLAN NOTES

- 1 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOXES TO RECEPTACLE/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS. ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.
- 2 AV INPUTS LOCATED AT TEACHER'S DESK. PROVIDE (1) 2-GANG BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING WITH FACEPLATE FOR (1) HDMI INPUT AND (1) 3.5MM INPUT. REFER TO DETAIL 8/E9.11 FOR ADDITIONAL REQUIREMENTS AND INFORMATION. PROVIDE (1) 4S BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING FOR FUTURE TECHNOLOGY UPGRADES.
- 3 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL-MOUNTED TV INDICATED AT 48". VERIFY LOCATION PRIOR TO ROUGH-IN.
- 4 BOGEN IP INTERCOM PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 5 (N) BOGEN IP 12" CLOCK. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 6 CLASSROOM AV SPEAKER. CONNECT AS REQUIRED FOR FULLY OPERATIONAL SYSTEM.
- 7 EXTERIOR FLUSH IN WALL WEATHERPROOF GFCI RECEPTACLE WITH LOCKABLE WHILE-IN USE METALLIC COVER.
- 8 DATA DROPS FOR POE WIRELESS ACCESS POINT.
- 9 EXTERIOR PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 10 FUTURE CCTV CAMERA PROVIDE WEATHER-PROOF JUNCTION BOX WITH BLANK FACE PLATE AND 1" CONDUIT WITH PULL STRING TO NEAREST IDF. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 11 CONNECT TO LAB OVERHEAD SERVICE DISTRIBUTION AS REQUIRED. CONNECT OVERHEAD PER MANUFACTURER'S REQUIREMENTS. REFER TO PLUMBING SHEET P2-1.3 AND P2-1.4 FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 12 PROVIDE (2) CAT6 CABLES AND ROUTE TO NEAREST IDF. REFER TO PLUMBING SHEET P2-1.3 AND P2-1.4 FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 13 REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.60 FOR FEEDER INFORMATION.
- 14 PROVIDE 3/4" PLUS CONTROL CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 15 AUDIO AMPLIFIER TO BE INTERFACED WITH FIRE ALARM THROUGH PAM RELAY. LOCATE AMP ADJACENT TO HDMI SPLITTER IN CEILING AT TEACHER'S DESK. CONNECT TO SAME CIRCUIT AS TV FOR POWER. CONNECT AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 16 INTRUSION DETECTION MOTION SENSOR. CONNECT TO EXISTING CAMPUS SYSTEM AS REQUIRED. PROVIDE ALL CONDUIT, CABLING, ACCESSORIES, POPPITS AND PROGRAMMING REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 17 RECEPTACLE, DATA, AND AV CONNECTIONS FOR MOBILE CART PROJECTOR INDICATED AT 15" AFF TO BOTTOM OF BOX. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 18 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL MOUNTED SHORT THROW PROJECTOR. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 19 DISCONNECT FOR INSTA HOT. CONNECT AS REQUIRED PER MANUFACTURER'S REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 20 INTRUSION DETECTION SYSTEM DOOR CONTACT - (COORDINATE DOOR CONTACT TYPE PER DOOR).
- 21 PROVIDE 120V, 20A/1P CIRCUIT AND CONNECT TO GOGGLE CABINET AS REQUIRED. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 22 NOT USED.
- 23 CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN.

BLDG E EAST - ELECTRICAL POWER/SIGNAL PLAN

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

BLDG E WEST - ELECTRICAL POWER/SIGNAL PLAN

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

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PACIFIC HIGH SCHOOL MODERNIZATION

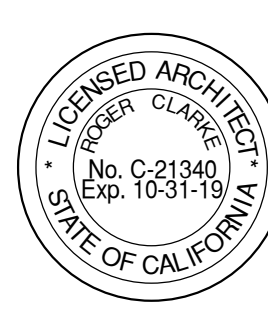
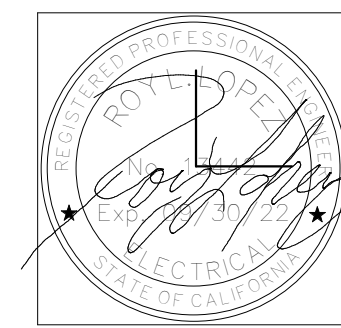
PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED SCHOOL

**BUILDING E
ELECTRICAL
POWER/SIGNAL PLAN**

E2-1.1

17-8-21

PACIFIC HIGH SCHOOL MODERNIZATION:



AGENCY APPROVAL
10/16/2021 11:00:20 AM



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PLAN NOTES

- EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX(ES) TO RECEPTACLE/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS. ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.
- AV INPUTS LOCATED AT TEACHER'S DESK. PROVIDE (1) 2-GANG BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING WITH FACEPLATE FOR (1) HDMI INPUT AND (1) 3.5MM INPUT. REFER TO DETAIL 8EB.11 FOR ADDITIONAL REQUIREMENTS AND INFORMATION. PROVIDE (1) 4S BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING FOR FUTURE TECHNOLOGY UPGRADES.
- RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL-MOUNTED TV INDICATED AT 48". VERIFY LOCATION PRIOR TO ROUGH-IN.
- BOGEN IP INTERCOM/PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- (N) BOGEN IP 12" CLOCK. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- CLASSROOM AV SPEAKER CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- EXTERIOR FLUSH IN WALL WEATHERPROOF GFCI RECEPTACLE WITH LOCKABLE WHILE-IN USE METALLIC COVER.
- DATA DROPS FOR POE WIRELESS ACCESS POINT.
- EXTERIOR PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- FUTURE CCTV CAMERA PROVIDE WEATHER-PROOF JUNCTION BOX WITH BLANK FACE PLATE AND 1" CONDUIT WITH PULL STRING TO NEAREST IDF. VERIFY LOCATION PRIOR TO ROUGH-IN.
- CONNECT TO LAB OVERHEAD SERVICE DISTRIBUTION AS REQUIRED. CONNECT OVERHEAD PER MANUFACTURER'S REQUIREMENTS. REFER TO PLUMBING SHEET P3-1.3 FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- PROVIDE (2) CAT6 CABLES AND ROUTE TO NEAREST IDF. REFER TO PLUMBING SHEET P3-1.3 FOR ADDITIONAL REQUIREMENTS. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
- REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.50 FOR FEEDER INFORMATION.
- PROVIDE 34°C. PLUS CONTROL CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- AUDIO AMPLIFIER TO BE INTERFACED WITH FIRE ALARM THROUGH PAM RELAY. LOCATE AMP ADJACENT TO HDMI SPLITTER IN CEILING AT TEACHER'S DESK. CONNECT TO SAME CIRCUIT AS TV FOR POWER. CONNECT AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7EFA0.02 FOR ADDITIONAL INFORMATION.
- INTRUSION DETECTION MOTION SENSOR. CONNECT TO EXISTING CAMPUS SYSTEM AS REQUIRED. PROVIDE ALL CONDUIT, CABLING, ACCESSORIES, POPPITS AND PROGRAMMING REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- RECEPTACLE, DATA, AND AV CONNECTIONS FOR MOBILE CART PROJECTOR INDICATED AT 15" AFF TO BOTTOM OF BOX. VERIFY LOCATION PRIOR TO ROUGH-IN.
- RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL MOUNTED SHORT THROW PROJECTOR. VERIFY LOCATION PRIOR TO ROUGH-IN.
- DISCONNECT FOR INSTA HOT. CONNECT AS REQUIRED PER MANUFACTURER'S REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- INTRUSION DETECTION SYSTEM DOOR CONTACT - (COORDINATE DOOR CONTACT TYPE PER DOOR). INTRUSION DETECTION SYSTEM DOOR CONTACT - (COORDINATE DOOR CONTACT TYPE PER DOOR).
- PROVIDE 120V, 20A CIRCUIT AND CONNECT TO GOGGLE CABINET IS REQUIRED. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
- NOT USED.
- CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN. CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN.

BLDG. F EAST- ELECTRICAL POWER/SIGNAL PLAN

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

BLDG. F - WEST ELECTRICAL POWER/SIGNAL PLAN

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

PROJECT No. :17821
1/6/2021 11:00:20 AM

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PACIFIC HIGH SCHOOL MODERNIZATION

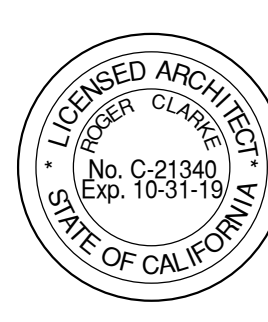
PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED

BUILDING F
ELECTRICAL
POWER/SIGNAL PLAN

E3-1.1

17821

PACIFIC HIGH SCHOOL MODERNIZATION:



AGENCY APPROVAL
File No: 36-H7-4304-11803



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E-Mail: mail@ombengis.com
OMB JOB#18250

CONSULTANT BRANDIN

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PLAN NOTES

- 1 REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.50 FOR FEEDER INFORMATION.
- 2 PROVIDE 3/4" C. PLUS CONTROL CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 3 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOXES) TO RECEPTACLE/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS. ROUTE #10 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.

② ELECTRICAL ROOF PLAN

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

PLAN NOTES

- 1 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX(ES) TO RECEPTACLE DEVICES IN AREA WITH SAME CIRCUIT NUMBERS, ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.
- 2 A/5 INPUTS LOCATED AT TEACHER'S DESK. PROVIDE (1) 2-GANG BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING WITH FACEPLATE FOR (1) HDMI INPUT AND (1) 3.5MM INPUT. REFER TO DETAIL 9E8.11 FOR ADDITIONAL REQUIREMENTS AND INFORMATION. PROVIDE (1) 4X BOX WITH 1 1/4" UP TO 6" ABOVE ACCESSIBLE CEILING FOR FLOOR TECHNOLOGY UPGRADES.
- 3 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL-MOUNTED TV INDICATED AT 48". VERIFY LOCATION PRIOR TO ROUGH-IN.
- 4 BOGEN IN INTERCOMPA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 5 (N) BOGEN IN 12" CLOCK. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 6 CLASSROOM AV SPEAKER CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 7 EXTERIOR FLUSH IN WALL WEATHERPROOF GFCI RECEPTACLE WITH LOCKABLE WHILE-IN USE METALLIC COVER.
- 8 DATA DROPS FOR POE WIRELESS ACCESS POINT.
- 9 EXTERIOR PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 10 FUTURE CCTV CAMERA PROVIDE WEATHER-PROOF JUNCTION BOX WITH BLANK FACE PLATE AND 1" CONDUIT WITH PULL STRING TO NEAREST IDF. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 11 CONNECT TO LAB OVERHEAD SERVICE DISTRIBUTION AS REQUIRED. CONNECT OVERHEAD PER MANUFACTURER'S REQUIREMENTS. REFER TO PLUMBING SHEET P4-1.2 FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 12 PROVIDE (2) CAT6 CABLES AND ROUTE TO NEAREST IDF. REFER TO PLUMBING SHEET P4-1.2 FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 13 REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.50 FOR FEEDER INFORMATION.
- 14 PROVIDE 3/4", PLUS CONDUIT, CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REEPLY MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 15 AUDIO AMPLIFIER TO BE INTERFACED WITH FIRE ALARM THROUGH PAM RELAY. LOCATE AMP ADJACENT TO HORN SPLITTER IN CEILING AT TEACHER'S DESK. CONNECT TO SAME CIRCUIT AS TV FOR POWER. CONNECT AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7EFA0.02 FOR ADDITIONAL INFORMATION.
- 16 INTRUSION DETECTION MOTION SENSOR. CONNECT TO EXISTING CAMPUS SYSTEM AS REQUIRED. PROVIDE ALL CONDUIT, CABLE, ACCESSORIES, POPPITS AND PROGRAMMING REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 17 RECEPTACLE, DATA, AND AV CONNECTIONS FOR MOBILE CART PROJECTOR INDICATED AT 18" AFF TO BOTTOM OF BOX. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 18 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL MOUNTED SHORT THROW PROJECTOR. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 19 DISCONNECT FOR INSTA HOT. CONNECT AS REQUIRED PER MANUFACTURER'S REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 20 INTRUSION DETECTION SYSTEM DOOR CONTACT - (COORDINATE DOOR CONTACT TYPE PER DOOR).
- 21 PROVIDE 120V, 25A CIRCUIT AND CONNECT TO GOOGLE CABINET AS REQUIRED. VERIFY EXISTING LOCATION PRIOR TO ROUGH-IN.
- 22 CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5.0N SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN. CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5.0N SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN.

ELECTRICAL POWER/SIGNAL PLAN

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

PROJECT No. :17821
1/6/2021 11:49:01 AM

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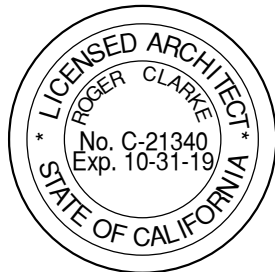
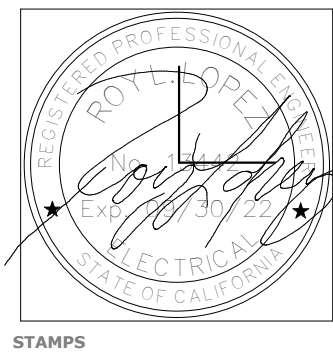
PACIFIC HIGH SCHOOL MODERNIZATION

**PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED**

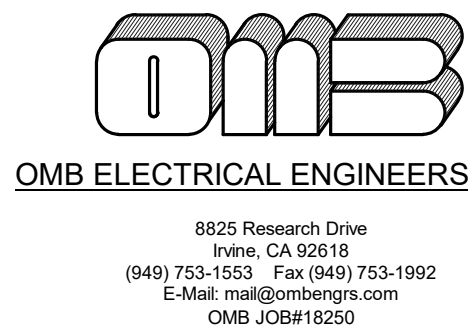
BUILDING G
ELECTRICAL
POWER/SIGNAL PLAN

E4-1.1

17821



AGENCY APPROVAL
1/16/2021 12:25:00 PM



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PLAN NOTES

- 1 REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.50 FOR FEEDER INFORMATION.
- 2 PROVIDE 3/4"Ø, PLUS CONTROL CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 3 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX(ES) TO RECEPTACLE/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS. ROUTE #10 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.

2 ELECTRICAL ROOF PLAN

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

PLAN NOTES

- 1 EXTEND AND CONNECT CIRCUITING FROM JUNCTION BOX(ES) TO RECEPTACLE/DEVICES IN AREA WITH SAME CIRCUIT NUMBERS. ROUTE #12 CONDUCTORS (MINIMUM) THROUGHOUT, UNLESS OTHERWISE NOTED. PROVIDE JUNCTION BOXES AS REQUIRED.
- 2 AV INPUTS LOCATED AT TEACHER'S DESK. PROVIDE (1) 2-GANG BOX WITH 1 1/4"Ø UP TO 6" ABOVE ACCESSIBLE CEILING WITH FACEPLATE FOR (1) HDMI INPUT AND (1) 3.5MM INPUT. REFER TO DETAIL 8/E9.11 FOR ADDITIONAL REQUIREMENTS AND INFORMATION. PROVIDE (1) 48 BOX WITH 1 1/4"Ø UP TO 6" ABOVE ACCESSIBLE CEILING FOR FUTURE TECHNOLOGY UPGRADES.
- 3 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL-MOUNTED TV INDICATED AT 48". VERIFY LOCATION PRIOR TO ROUGH-IN.
- 4 BOGEN IP INTERCOM/PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 5 (N) BOGEN IP 12" CLOCK. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 6 CLASSROOM AV SPEAKER CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 7 EXTERIOR FLUSH IN WALL WEATHERPROOF GFCI RECEPTACLE WITH LOCKABLE WHILE-IN USE METALLIC COVER.
- 8 DATA DROPS FOR POE WIRELESS ACCESS POINT.
- 9 EXTERIOR PA SPEAKER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 10 FUTURE CCTV CAMERA PROVIDE WEATHER-PROOF JUNCTION BOX WITH BLANK FACE PLATE AND 1" CONDUIT WITH PULL STRING TO NEAREST IDF. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 11 CONNECT TO LAB OVERHEAD SERVICE DISTRIBUTION AS REQUIRED. CONNECT OVERHEAD PER MANUFACTURER'S REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 12 PROVIDE (2) CAT6 CABLES AND ROUTE TO NEAREST IDF.
- 13 REFER TO MECHANICAL/PLUMBING EQUIPMENT CONNECTION ON SHEET E0.50 FOR FEEDER INFORMATION.
- 14 PROVIDE 3/4"Ø, PLUS CONTROL CONDUCTORS TO RESPECTIVE CONTROL DEVICE. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 15 AUDIO AMPLIFIER TO BE INTERFACED WITH FIRE ALARM THROUGH PAM RELAY. LOCATE AMP ADJACENT TO HDMI SPLITTER IN CEILING AT TEACHERS DESK. CONNECT TO SAME CIRCUIT AS TV FOR POWER. CONNECT AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 16 INTRUSION DETECTION MOTION SENSOR. CONNECT TO EXISTING CAMPUS SYSTEM AS REQUIRED. PROVIDE ALL CONDUIT, CABLING, ACCESSORIES, POPPITS AND PROGRAMMING REQUIRED FOR A FULLY OPERATIONAL SYSTEM.
- 17 RECEPTACLE, DATA, AND AV CONNECTIONS FOR MOBILE CART PROJECTOR INDICATED AT 12" AFF TO BOTTOM OF BOX. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 18 RECEPTACLE, DATA, AND AV CONNECTIONS FOR WALL MOUNTED SHORT THROW PROJECTOR. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 19 DISCONNECT FOR INSTA HOT. CONNECT AS REQUIRED PER MANUFACTURER'S REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH-IN.
- 20 INTRUSION DETECTION SYSTEM DOOR CONTACT - (COORDINATE DOOR CONTACT TYPE PER DOOR).
- 21 PROVIDE 120V, 20A CIRCUIT AND CONNECT TO GOGGLE CABINET AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
- 22 CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN. CONNECT SMOKE FIRE DAMPER AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH-IN.

1 ELECTRICAL POWER/SIGNAL PLAN

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

PROJECT No. :17821
1/6/2021 12:25:00 PM

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PACIFIC HIGH SCHOOL MODERNIZATION

PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED

BUILDING H
ELECTRICAL
POWER/SIGNAL PLAN

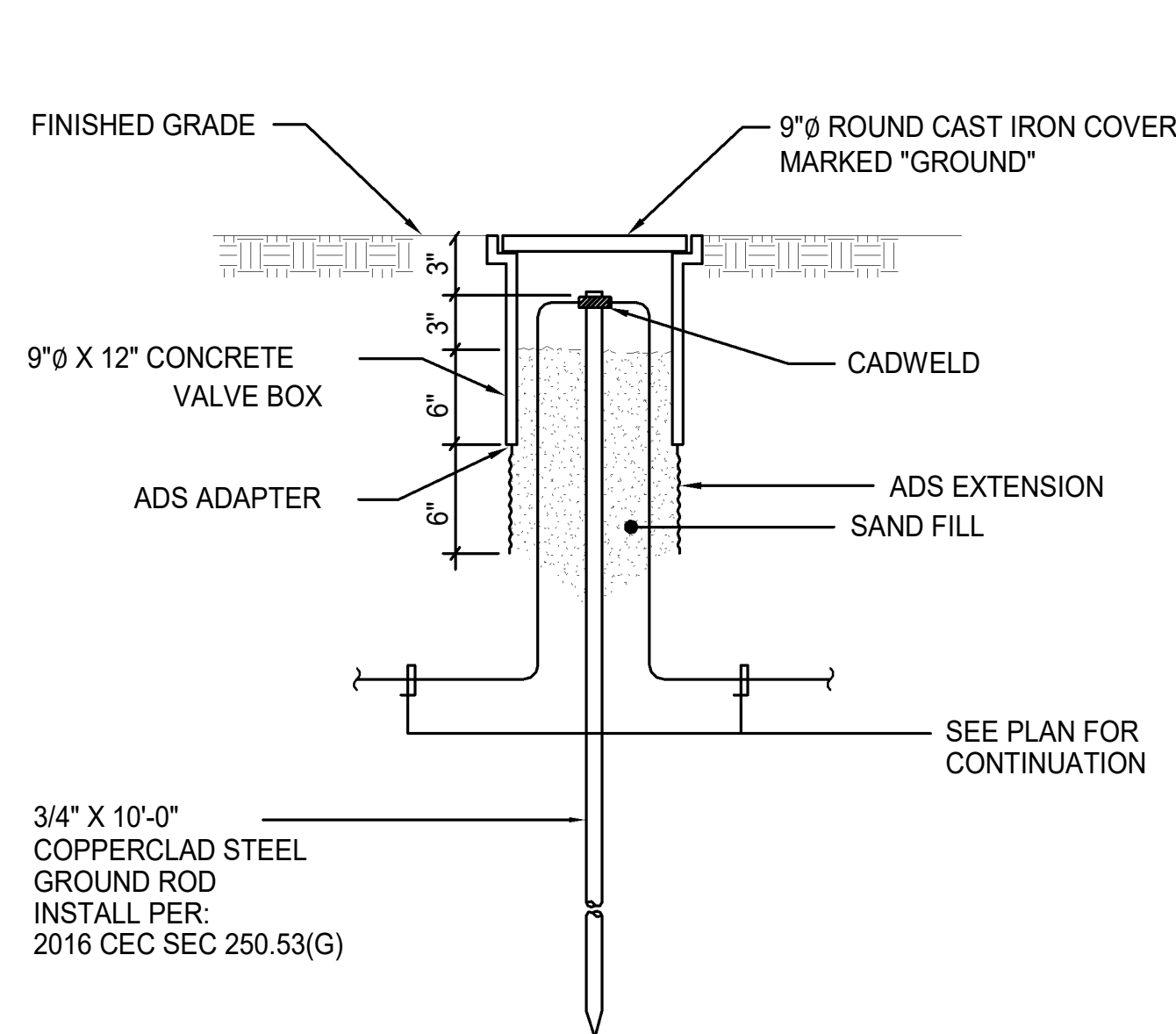
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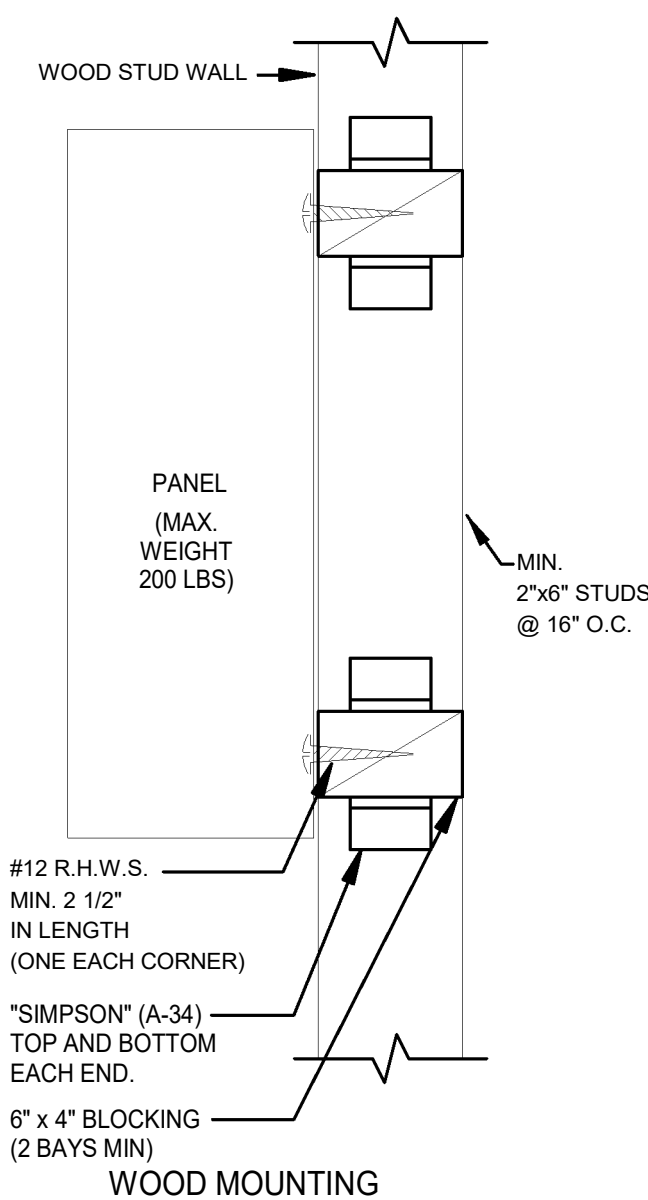
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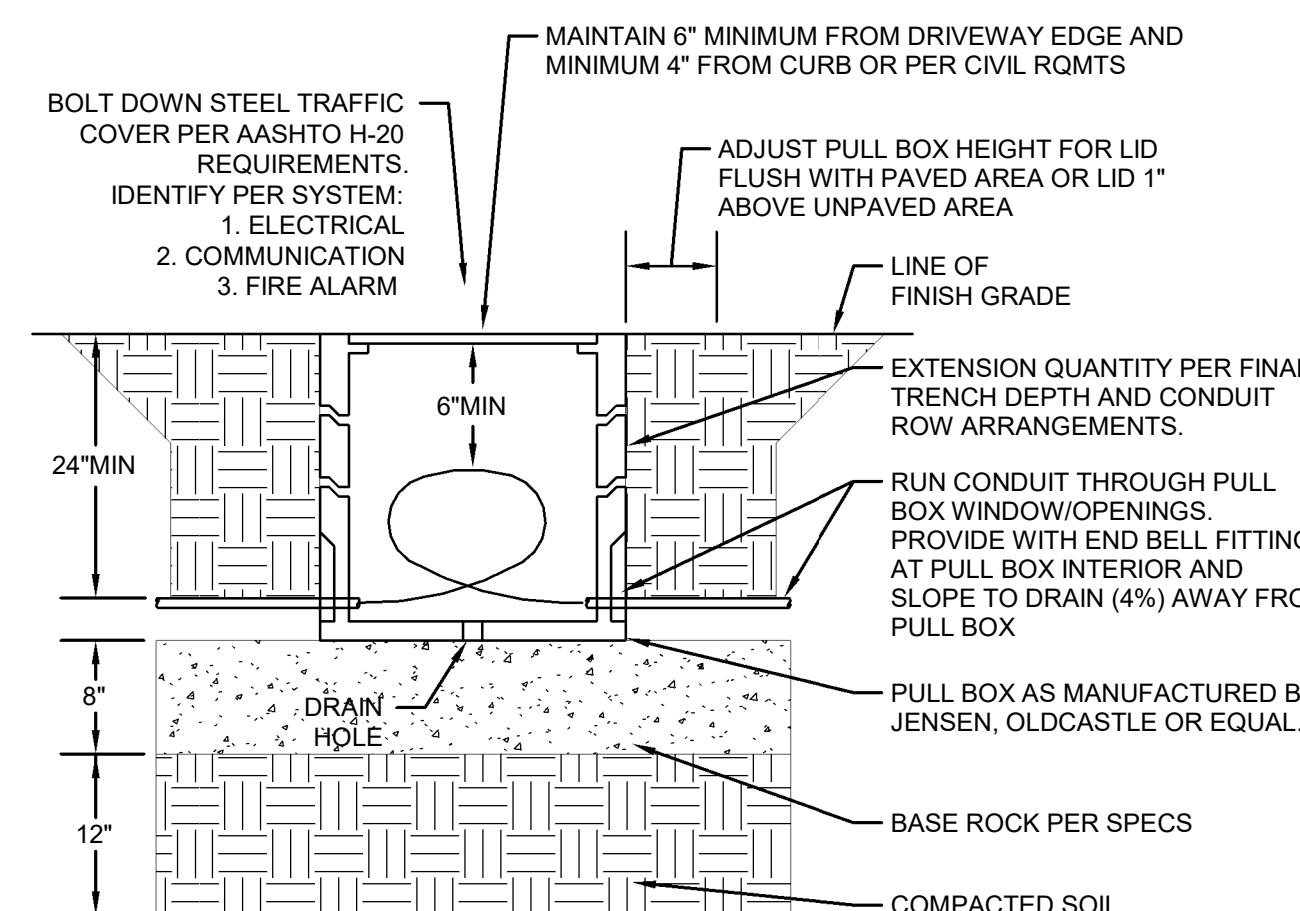
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4 GROUND WELL DETAIL
N.T.S.

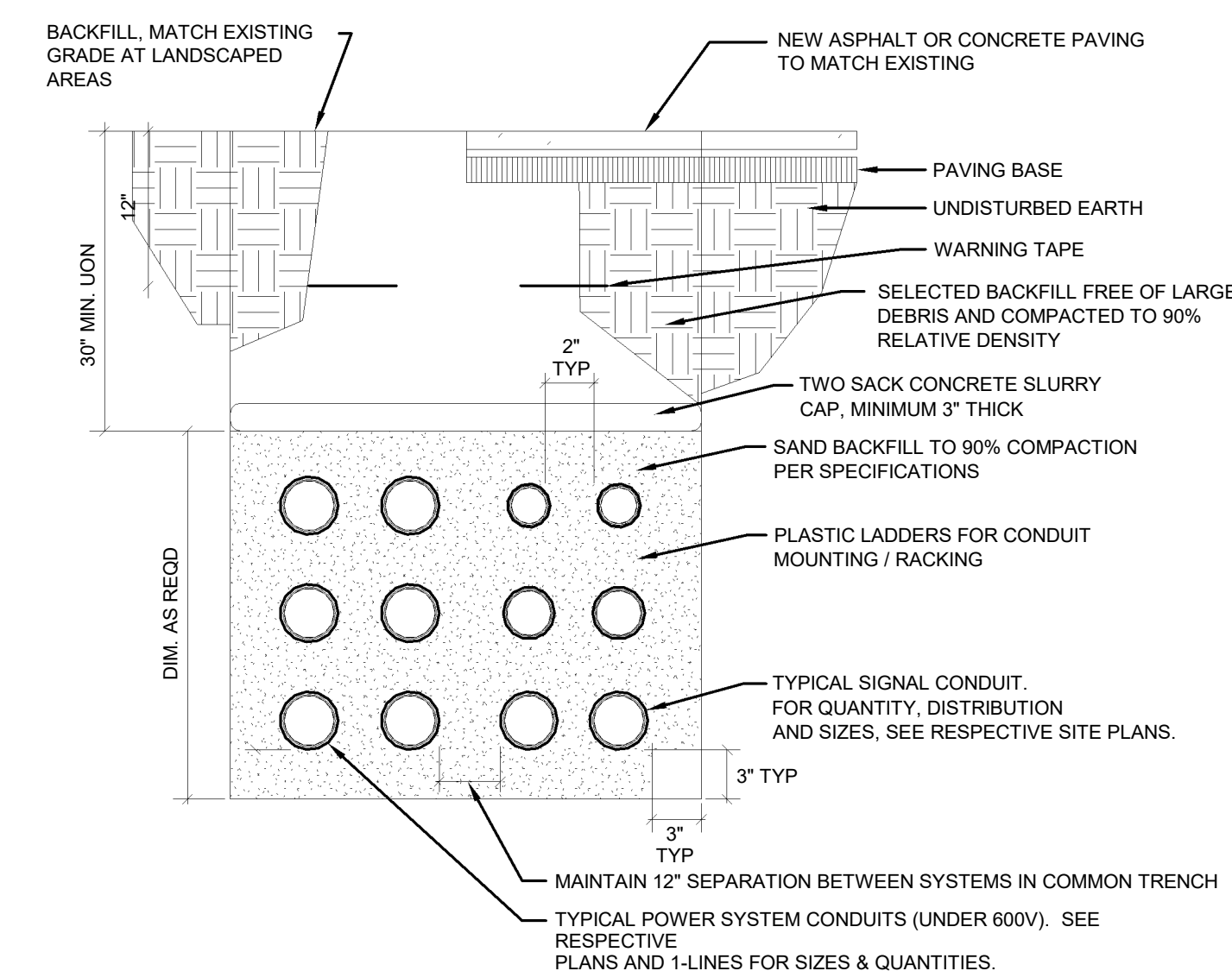


3	SURFACE/ATS MOUNTED PANELS DETAILS
	N.T.S.



PULL BOX NOTES

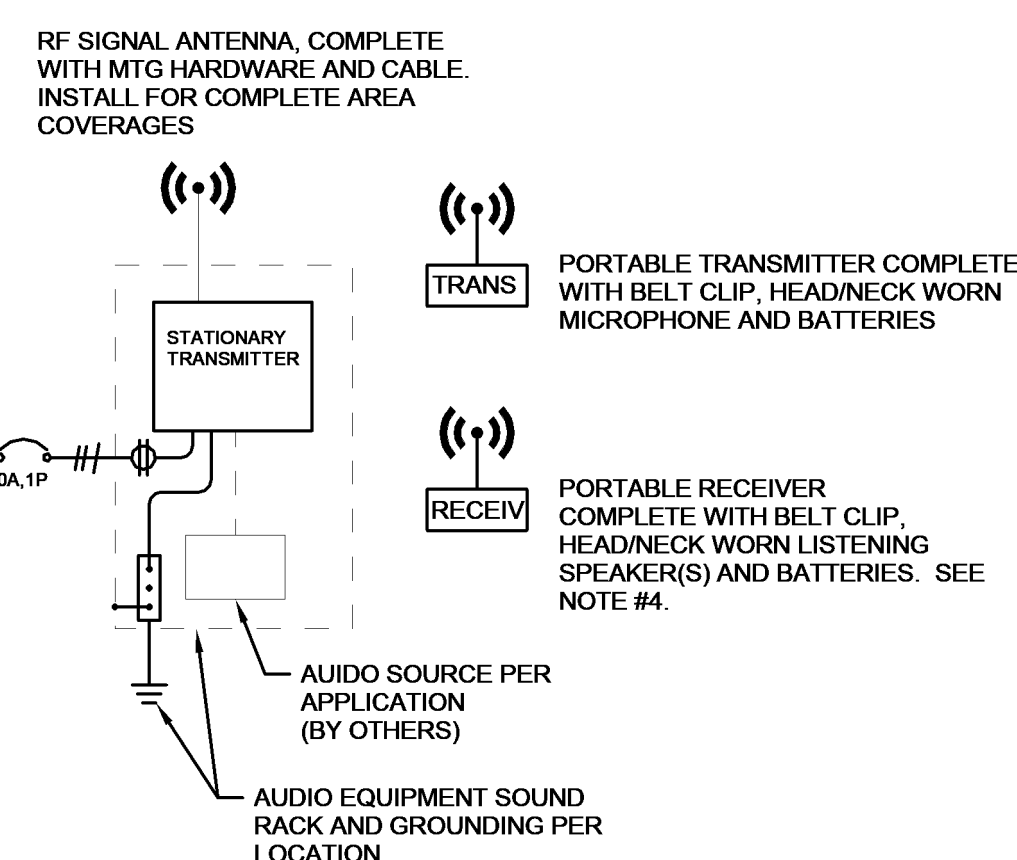
1. ALL GRAVEL SHALL BE SET ON A MINIMUM 6" BOX BASES WITH 1/2" DIAMETER GRAVEL.
2. PROVIDE WATERTIGHT SPLICES AND CAPS FOR POWER CONDUCTORS. SPLICES AND CAPS FOR COMMUNICATION CONDUCTORS ARE NOT ACCEPTABLE WITHOUT PRIOR ENGINEER/OWNER APPROVAL.
3. ALL CONDUCTORS SHALL BE CONTINUOUS WITH SERVICE LOOPS PROVIDED IN PULL BOXES.
4. PROVIDE SEALING GEL IN ALL CONDUITS TO PROTECT CONDUCTORS AND TO EMPTIFY SPARE CONDUITS. THE GEL SHALL BE INSERTED IN THE CONDUIT TO A DEPTH OF 6" AND FLUSH WITH THE END OF THE CONDUIT.
5. PROVIDE IDENTIFYING TAGS ON ALL POWER AND COMMUNICATION CONDUCTORS IN PULLBOXES.
6. PROVIDE IDENTIFICATION ON CONCRETE COVER STATING "ELECTRICAL" OR "COMMUNICATION".
7. PROVIDE BOLTS AND TAMPERPROOF SCREWS TO SECURE COVER.
8. MINIMUM BOX SIZE SHOWN. SIZE BOX PER NEAREST COMMENT.



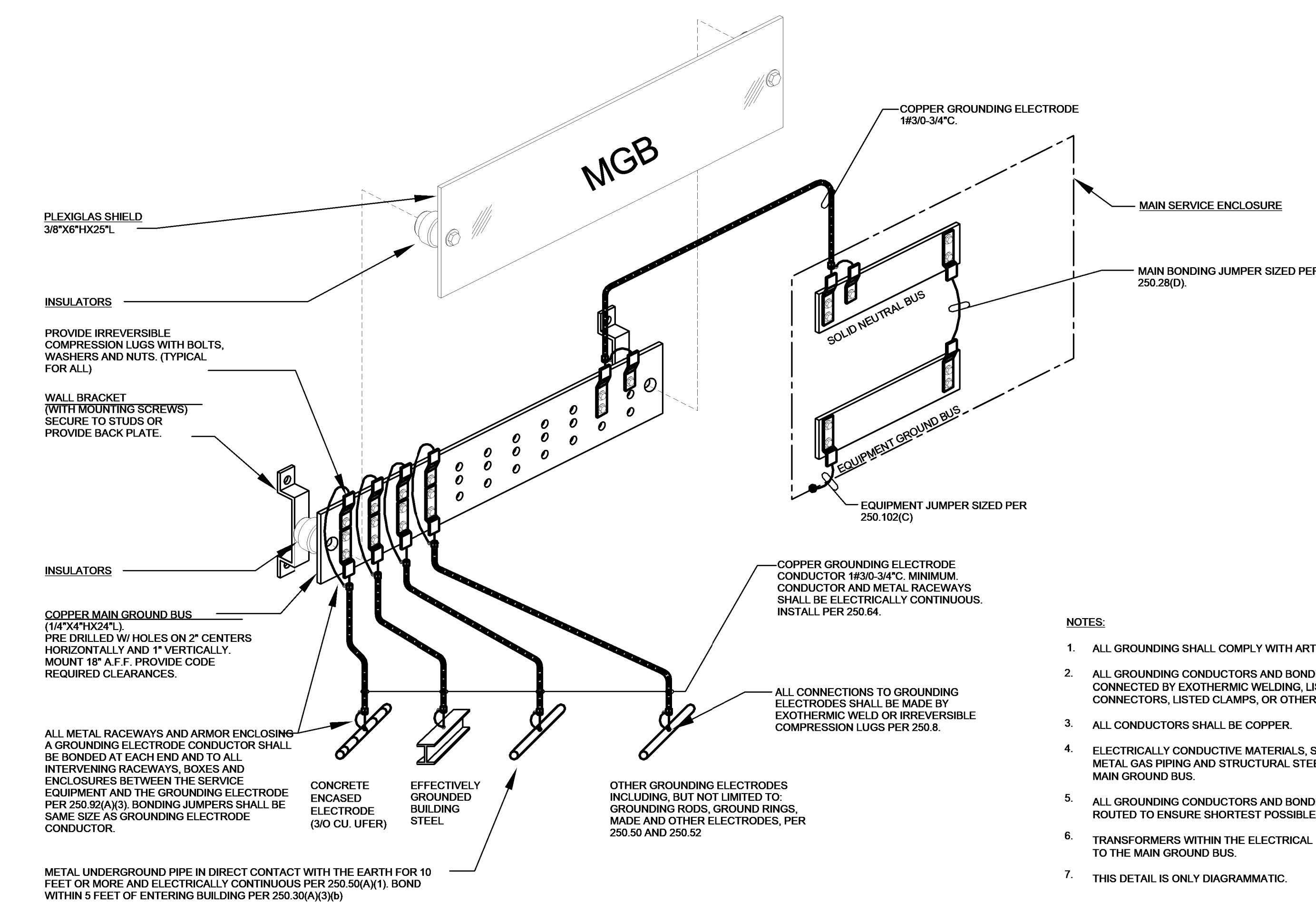
1. PROVIDE ALL TRENCH SHORING AS REQUIRED BY CODE AND LOCAL AHJ.
2. CONTRACTOR SHALL CLOSELY COORDINATE HIS TRENCHING (EXACT LOCATION AND DEPTHS) WITH THAT OF OTHER TRADES IN ORDER TO MINIMIZE INSTALLATION CONFLICTS WITH OTHER BELOW GRADE UTILITIES. CONTRACTOR SHALL ADJUST OVERALL DEPTH OF COVER OF ELECTRICAL DUCT BANKS ADDITIONAL ANY REQUIRED SLOPING OF OTHER UTILITIES. ALL COORDINATION FOR SUCH INSTALLATIONS SHALL BE MADE WITH NO ADDITIONAL COSTS TO THE OWNER.

1 TYPICAL TRENCH DETAIL (CONCRETE CAP)
N.T.S.

1. SYSTEMS SHALL BE MANUFACTURED BY LISTEN TECHNOLOGIES, OR APPROVED EQUAL BY WILLIAMS SONS OR PHONICOR. MFR CAN PROVIDE REFERENCE PROJECT ASSISTIVE LISTENING SYSTEM SPECIFICATIONS WHERE APPLICABLE.
2. CONTRACTOR SHALL PROVIDE ALL NECESSARY HARDWARE AND COMPONENTS OR A COMPLETE AND OPERABLE SYSTEM FOR EACH LOCATION SHOWN ON ARCHITECTURAL PLANS AND WHERE REQUIRED.
3. ASSISTIVE LISTENING SYSTEMS SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING AND SHALL COMPLY WITH CBC SECTION 11B-07.10.
4. THE MINIMUM NUMBER OF RECEIVERS TO BE PROVIDED SHALL BE EQUAL TO 4% OF THE TOTAL NUMBER OF SEATS OR LISTED OCCUPANCY, WHICHEVER IS GREATER, BUT IN NO CASE BE LESS THAN TWO (2). 25% MINIMUM OF THE PROVIDED RECEIVERS MUST BE LESS THAN TWO (2). SHALL BE HEARING-AID COMPATIBLE IN ACCORDANCE WITH CBC SECTION 11B-06.3.
5. IF THE SYSTEM PROVIDED IS LIMITED TO SPECIFIC AREAS OR SEATING, THEN SUCH AREAS OR SEATS SHALL BE WITHIN A 50-FOOT VIEWING DISTANCE OF, AND HAVE A COMPLETE VIEW OF, THE STAGE, PLAYING, OR PRESENTATION AREA (CBC SECTION 11B-19.4.4).
6. CONTRACTOR TO PROVIDE ADDITIONAL REMOTE ANTENNAS/AS, AND ASSOCIATED ACCESSORIES/HARDWARE AS REQUIRED FOR COMPLETE COVERAGE WITHIN ENTIRE INTENDED SYSTEM COVERAGE AREA.
7. CONTRACTOR TO PROVIDE TWO (2) RECHARGEABLE BATTERIES (MANUFACTURER RECOMMENDED) FOR EACH PORTABLE TRANSMITTER AND RECEIVER PROVIDED AS PART OF SYSTEM.
8. PROVIDE ALL ASL SIGNAGE IN THE QUANTITIES AND LOCATIONS AS INDICATED ON ARCHITECTURAL PLANS.

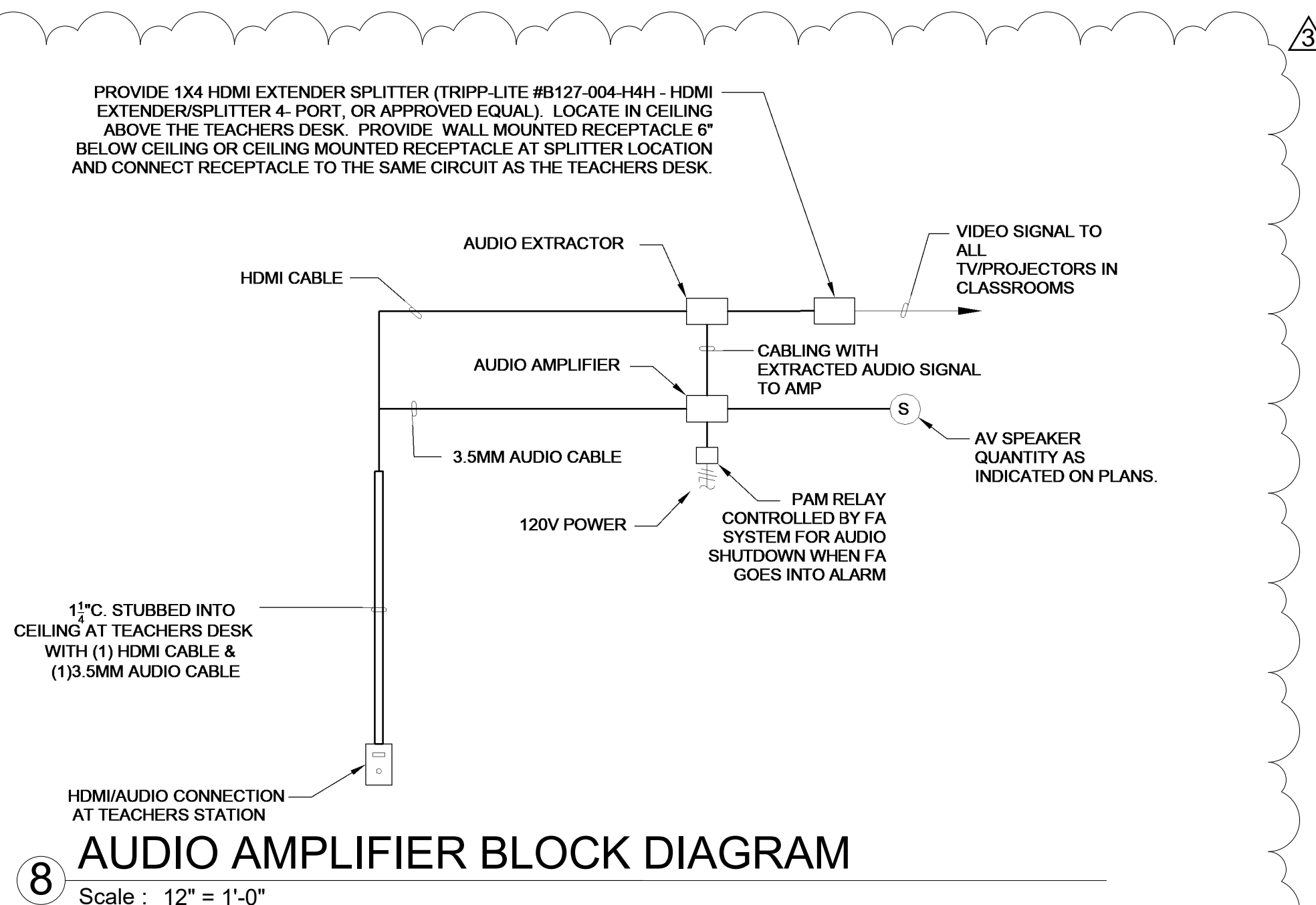


6 ASSISTIVE LISTENING SYSTEM (ALS) DIAGRAM
N.T.S.

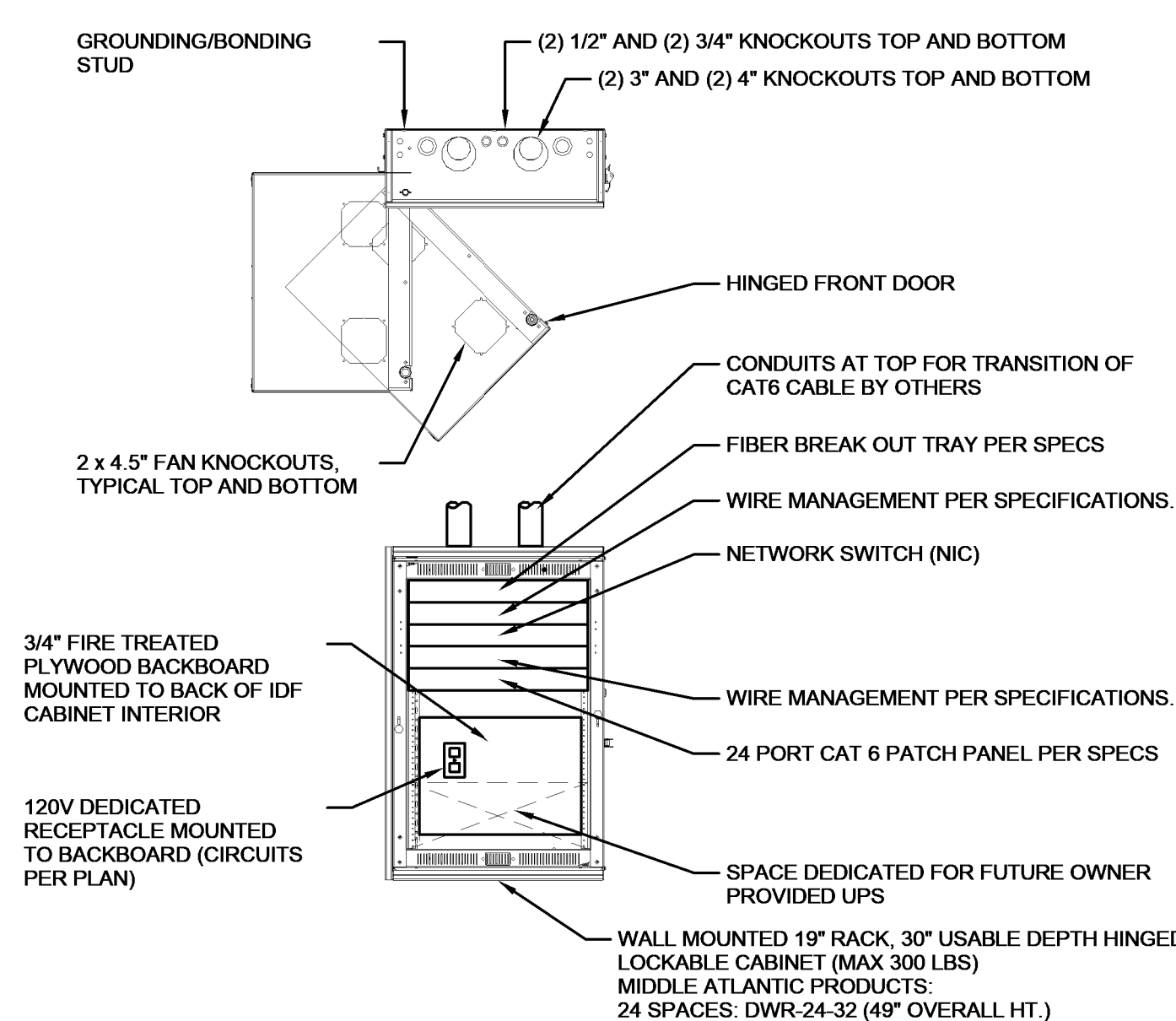


- NOTES:**
1. ALL GROUNDING SHALL COMPLY WITH ARTICLE 250.
 2. ALL GROUNDING CONDUCTORS AND BONDING JUMPS SHALL BE CONNECTED BY EXOTHERMIC WELDING, LISTED MEANS CONNECTORS, LISTED CLAMPS, OR OTHER LISTED DEVICES.
 3. ALL CONDUCTORS SHALL BE COPPER.
 4. ELECTRICALLY CONDUCTIVE MATERIALS, SUCH AS METAL WATER PIPING, METAL GAS PIPING AND STRUCTURAL STEEL SHALL BE BONDED TO THE MAIN GROUND BUS.
 5. ALL GROUNDING CONDUCTORS AND BONDING JUMPS SHALL BE ROUTED TO ENSURE SHORTEST POSSIBLE CONDUCTOR LENGTH.
 6. TRANSFORMERS WITHIN THE ELECTRICAL ROOM SHALL BE GROUNDED TO THE MAIN GROUND BUS.
 7. THIS DETAIL IS ONLY DIAGRAMMATIC.

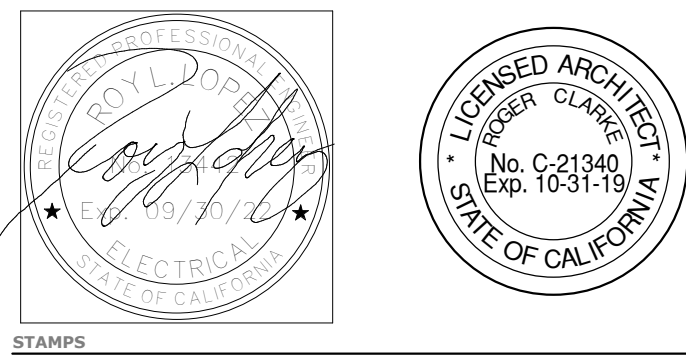
5 SERVICE ENTRANCE GROUND DETAIL
N.T.S.



8 AUDIO AMPLIFIER BLOCK DIAGRAM



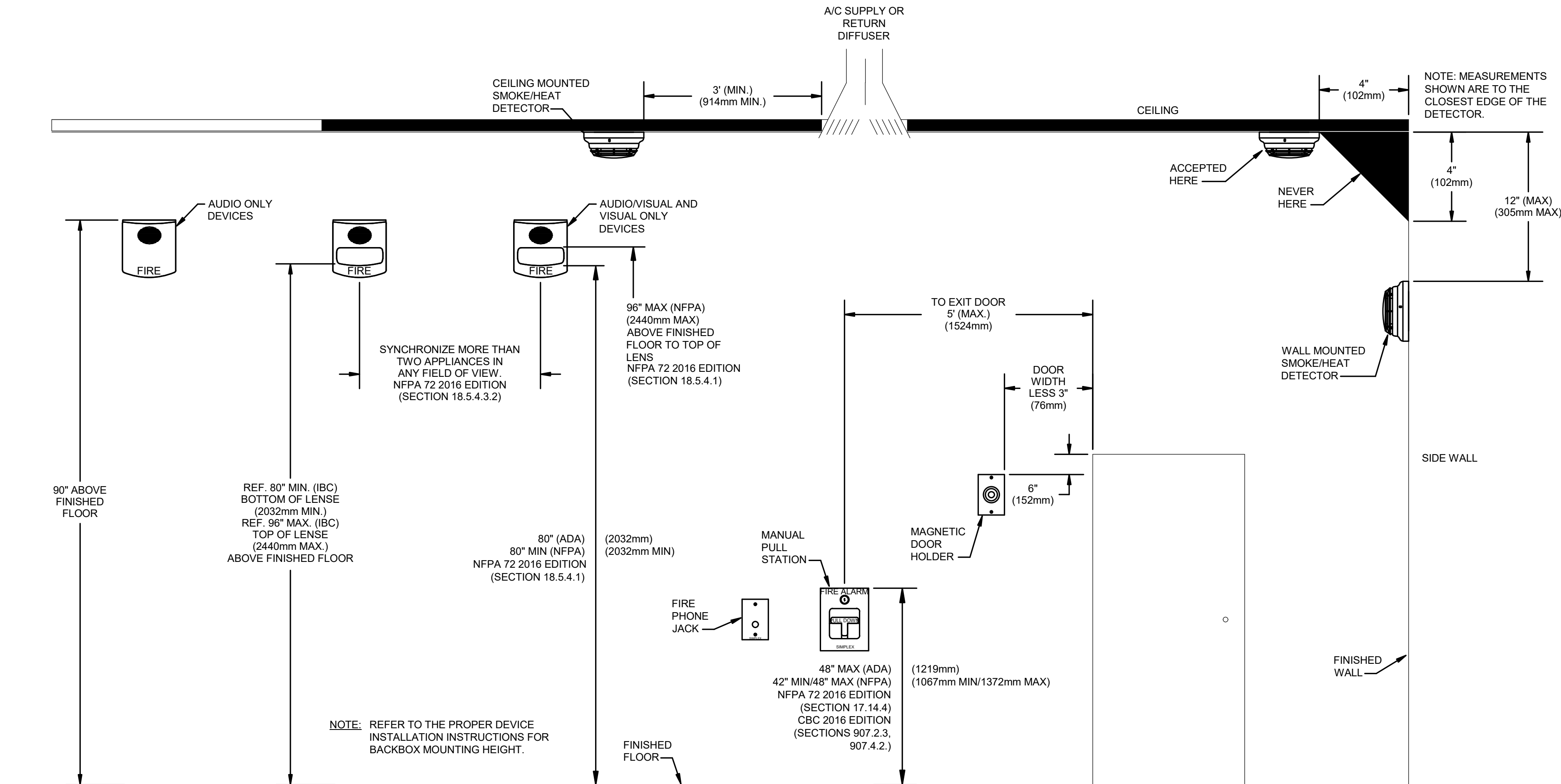
7 IDF DETAIL
N.T.S.



OMB
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8825 Research Drive
Irvine, CA 92618
(949) 753-1533 Fax (949) 753-1892
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OMB JOB#18250

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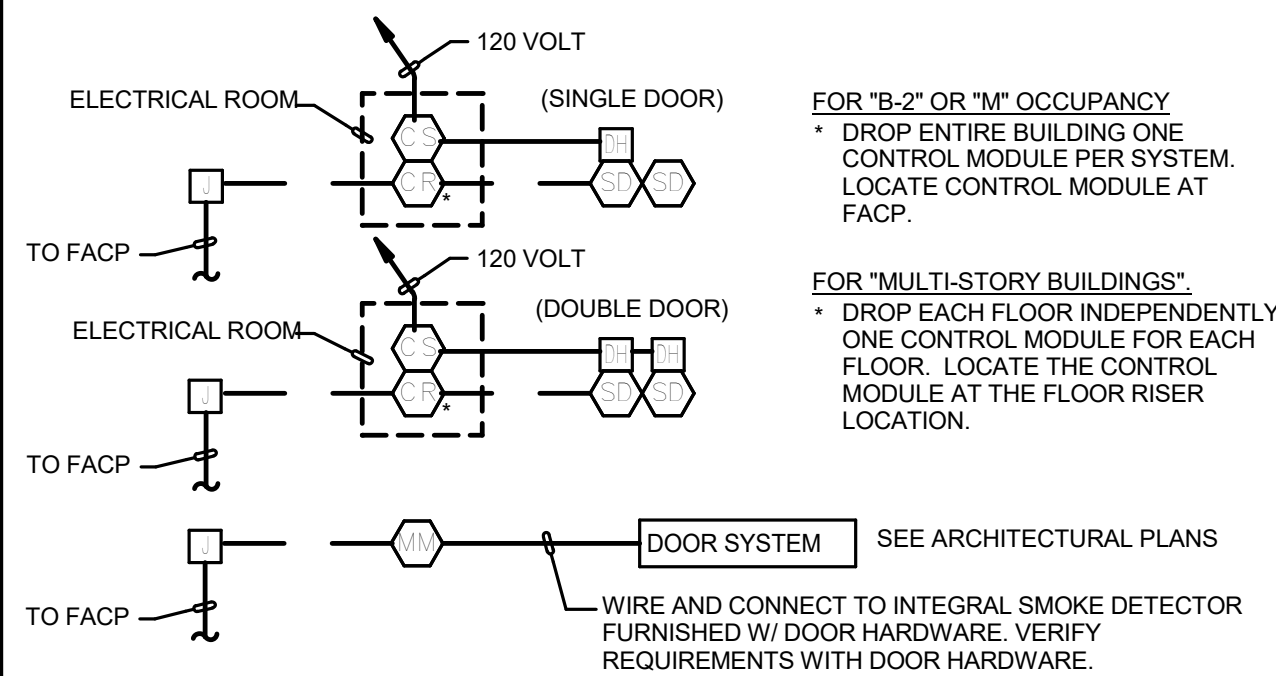
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ARCHITECTS



TYPICAL DEVICE MOUNTING DETAIL

N.T.S.

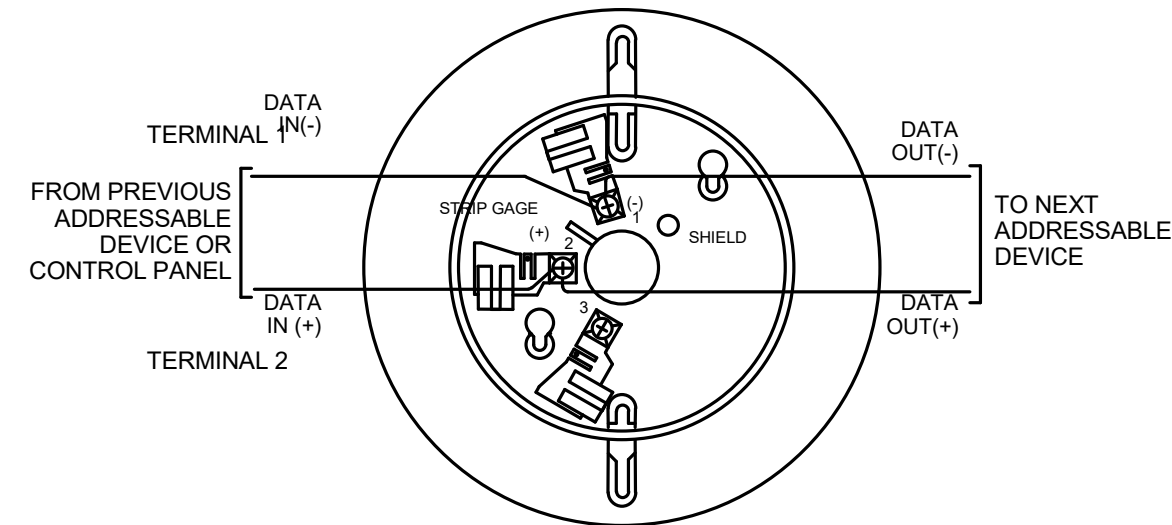
01



MAGNETIC HOLD OPEN DOORS SCHEMATIC

N.T.S.

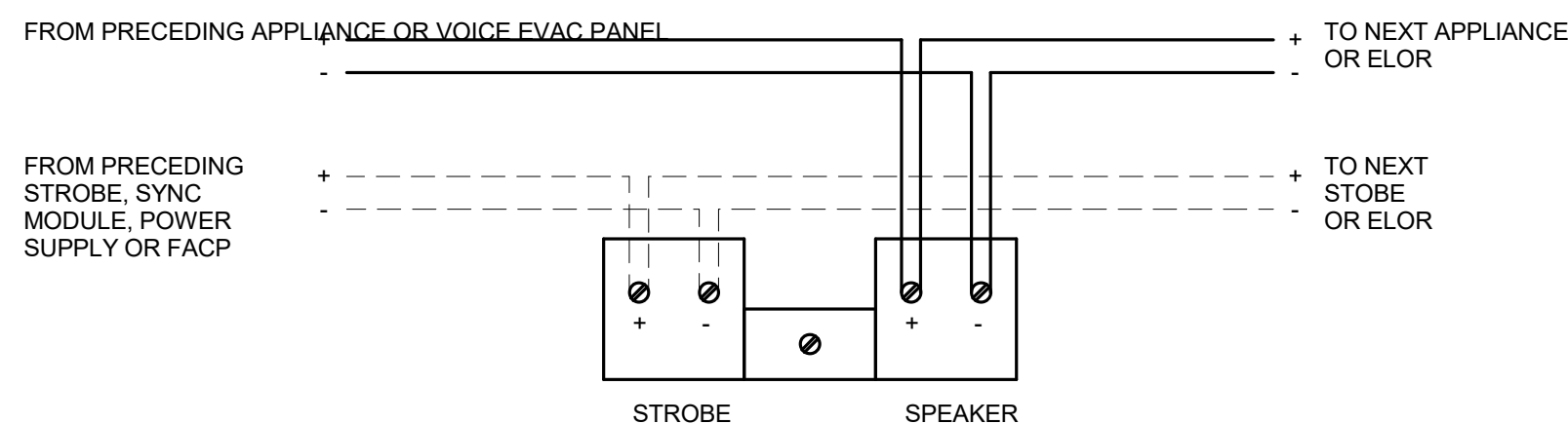
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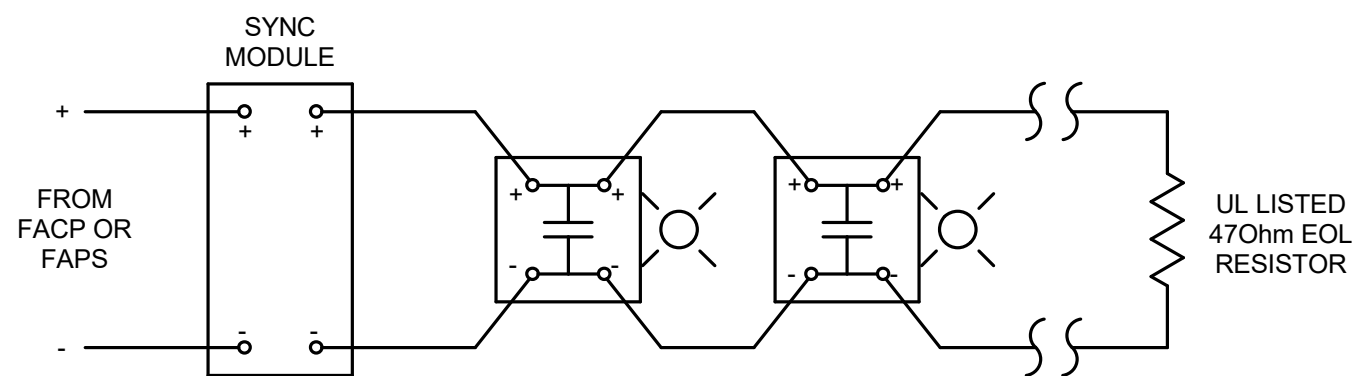
ADDRESSABLE DETECTOR BASE

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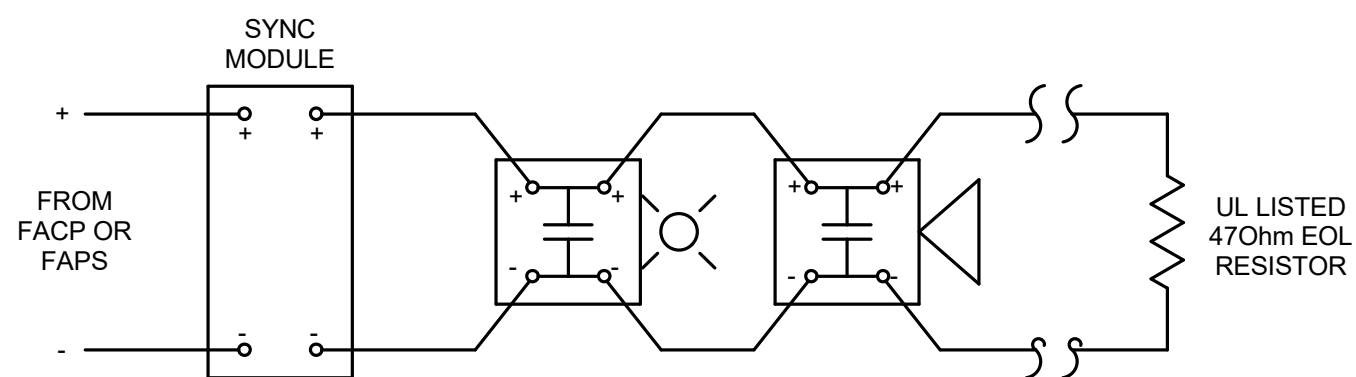
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COMBINATION SPEAKER/VISUAL APPLIANCE



STROBE APPLIANCE CIRCUIT



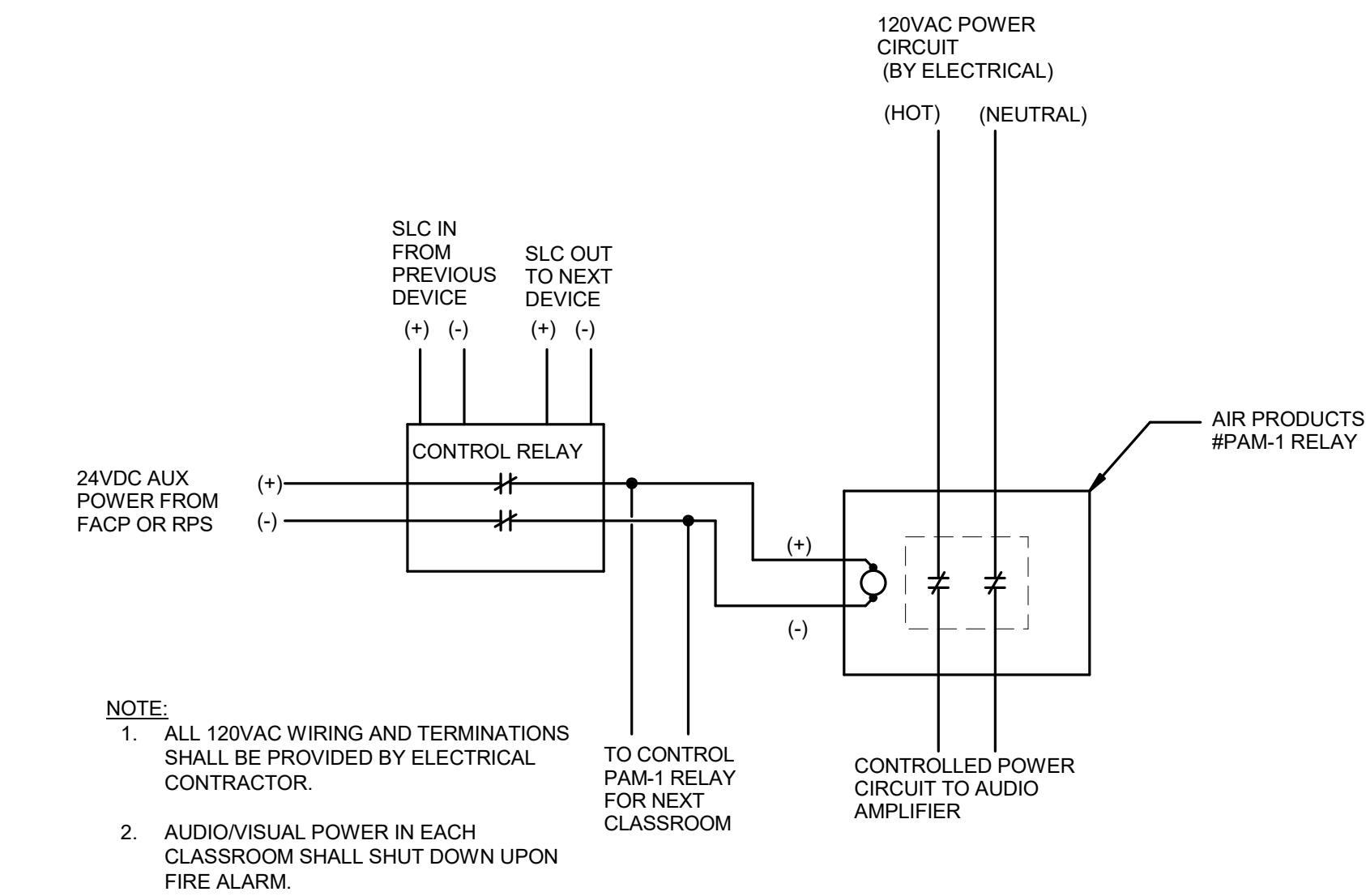
HORN OR HORNSTROBE APPLIANCE CIRCUIT

**FIRE ALARM SYSTEM
COMPLETE SUBMITTAL**

NOTIFICATION APPLIANCES

N.T.S.

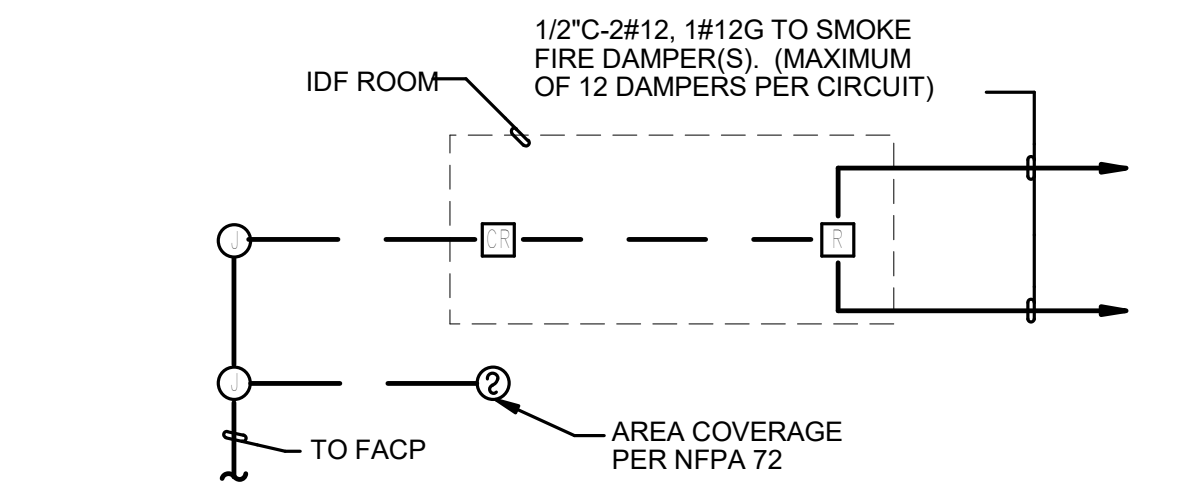
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TYPICAL CLASSROOM AUDIO/VISUAL CONTROL WIRING DIAGRAM

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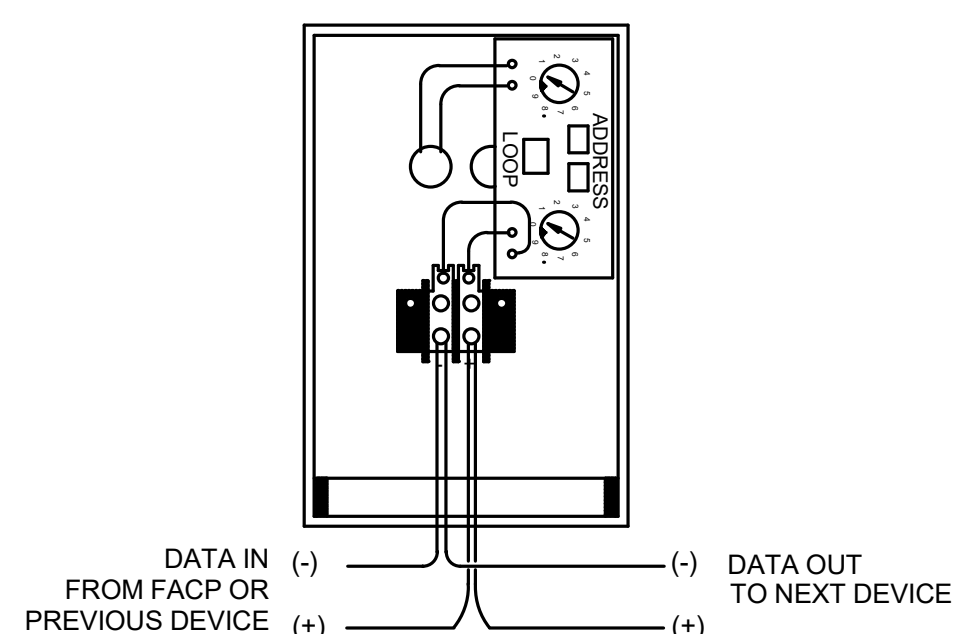
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SMOKE FIRE DAMPER SCHEMATIC

N.T.S.

05



ADDRESSABLE MANUAL PULL STATION

N.T.S.

03

PROJECT No. :17821
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PACIFIC HIGH SCHOOL MODERNIZATION

PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED

FIRE ALARM - DETAILS

EFA0.02

PACIFIC HIGH SCHOOL MODERNIZATION: 01/25/2019

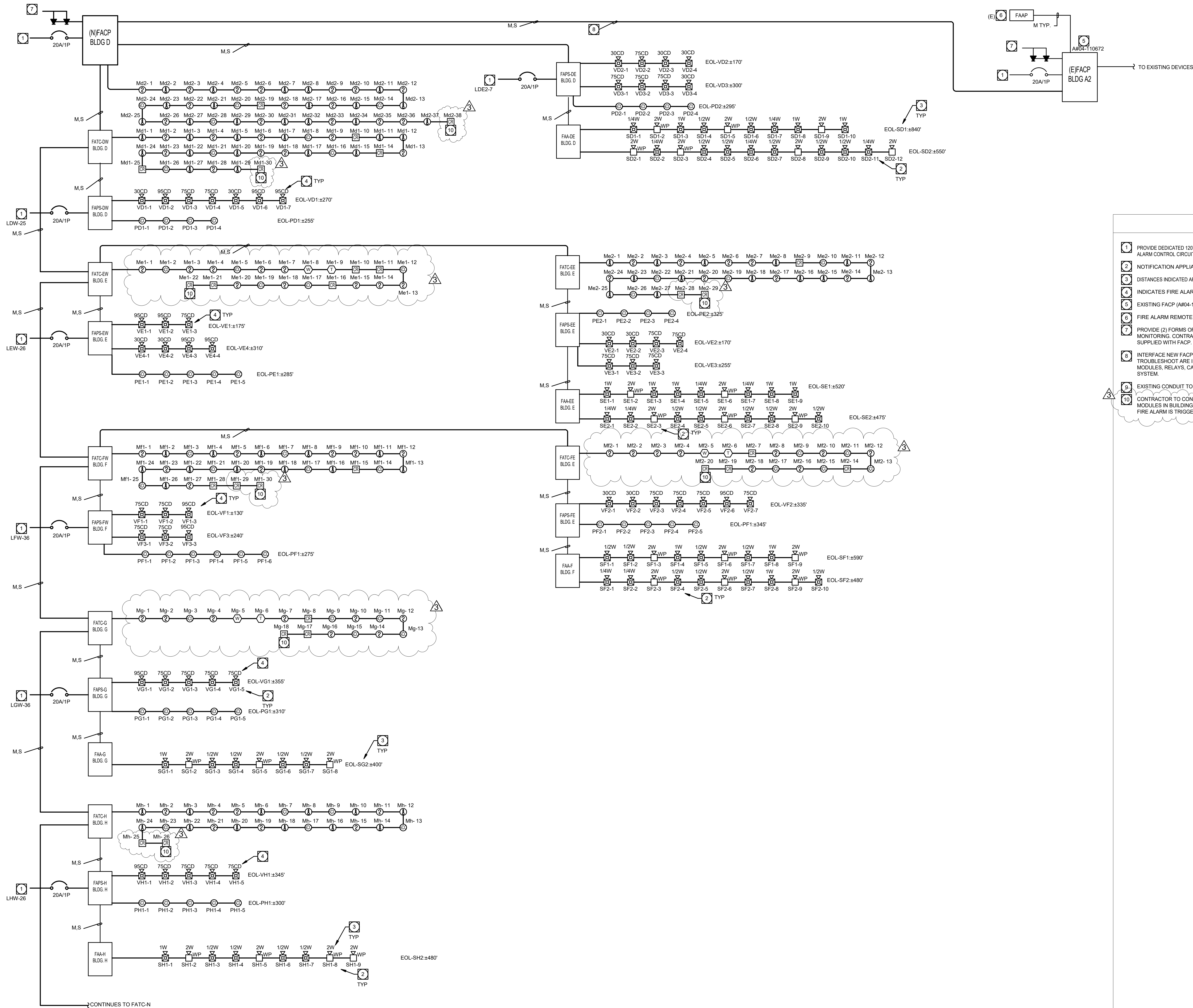


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E-Mail: omb@ombengr.com
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CONSULTANT BRANDING

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AGENCY APPROVAL
12/11/2021 11:00:35



SHEET NOTES

- 1 PROVIDE DEDICATED 120V CIRCUIT WITH LOCK ON DEVICE AND RED INDICATOR HANDLE. IDENTIFY CIRCUIT AS "FIRE ALARM CONTROL CIRCUIT" (NFPA 72 10.5.5.2)
- 2 NOTIFICATION APPLIANCE CIRCUIT NUMBER, INDICATED FOR CLARITY.
- 3 DISTANCES INDICATED ARE TO END OF LINE (EOL) DEVICE
- 4 INDICATES FIRE ALARM DEVICE CANDELA RATING.
- 5 EXISTING FACP (A#04-110672) TO REMAIN AND PROTECT IN PLACE.
- 6 FIRE ALARM REMOTE ANNUNCIATOR PANEL.
- 7 PROVIDE (2) FORMS OF COMMUNICATION (1) DEDICATED TELEPHONE LINES FOR FIRE ALARM SYSTEM MONITORING. CONTRACTOR TO PROVIDE UDAC (UNIVERSAL DIGITAL ALARM COMMUNICATOR) WHEN NOT SUPPLIED WITH FACP. (1) CELLULAR SERVICE CONNECTION.
- 8 INTERFACE NEW FACP WITH EXISTING FACP(A#04-110672) SUCH THAT THEY ALARM SIMULTANEOUSLY AND TROUBLESHOOT ARE INDICATED ON BOTH. PROVIDE FIBER COMMUNICATION BETWEEN FACPS. PROVIDE ALL MODULES, RELAYS, CABLING, CONDUIT, PROGRAMMING, ETC. FOR A FULLY OPERATIONAL FIRE ALARM SYSTEM.
- 9 EXISTING CONDUIT TO BE REUSED. PULLOUT OLD CABLING AND PULL IN NEW AS REQUIRED.
- 10 CONTRACTOR TO CONNECT CONTROL RELAY TO PAM RELAY IN EACH CLASSROOM. CONNECT ALL PAM MODULES IN BUILDING TO CONTROL RELAY FOR SHUT DOWN OF CLASSROOM AV AUDIO AMPLIFIER WHEN FIRE ALARM IS TRIGGERED. REFER TO DETAIL 7EFA0.02 FOR ADDITIONAL INFORMATION.

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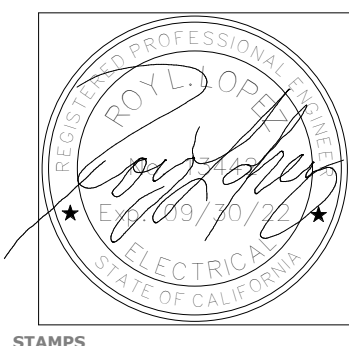
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PACIFIC HIGH SCHOOL MODERNIZATION

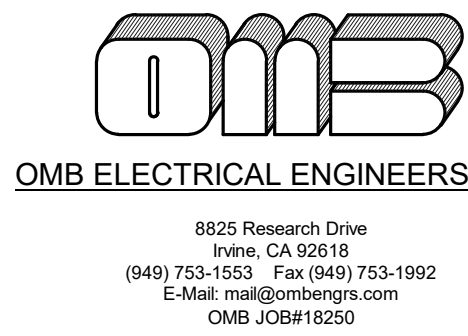
PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
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**FIRE ALARM - BLOCK
DIAGRAM**

EFA0.10



AGENCY APPROVAL
10/10/2021 9:36:31 AM



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PLAN NOTES

- 1 FIRE ALARM PROVIDE 3/4"C-2#12,1#12g TO BUILDING PANELBOARD. PROVIDE DEDICATED 20A/1P CIRCUIT BREAKER WITH RED INDICATOR. MATCH RATING OF EXISTING DEVICES. PROVIDE ALL REQUIREMENTS MOUNTING HARDWARE.
- 2 CONTRACTOR TO CONNECT CONTROL RELAY TO AUDIO AMPLIFIER PAM RELAY IN EACH CLASSROOM TO SHUT DOWN ALL AUDIO WHEN FIRE ALARM IS ACTIVATED. CONNECT ALL CLASSROOM AMPLIFIERS IN BUILDING AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 3 PROVIDE JUNCTION BOX FOR PAM RELAY AT AUDIO AMPLIFIER FOR AUDIO SHUTDOWN WHEN FIRE ALARM SYSTEM IS ACTIVATED. VERIFY LOCATION PRIOR TO ROUGH IN.

BLDG. D ELECTRICAL FIRE ALARM PLAN - EAST

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

BLDG. D ELECTRICAL FIRE ALARM PLAN - WEST

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

PROJECT No. :17821		
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PACIFIC HIGH SCHOOL MODERNIZATION

PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED

BUILDING D FIRE
ALARM PLAN

EFA1-1.1



AGENCY APPROVAL
17-08-21 11:03:55

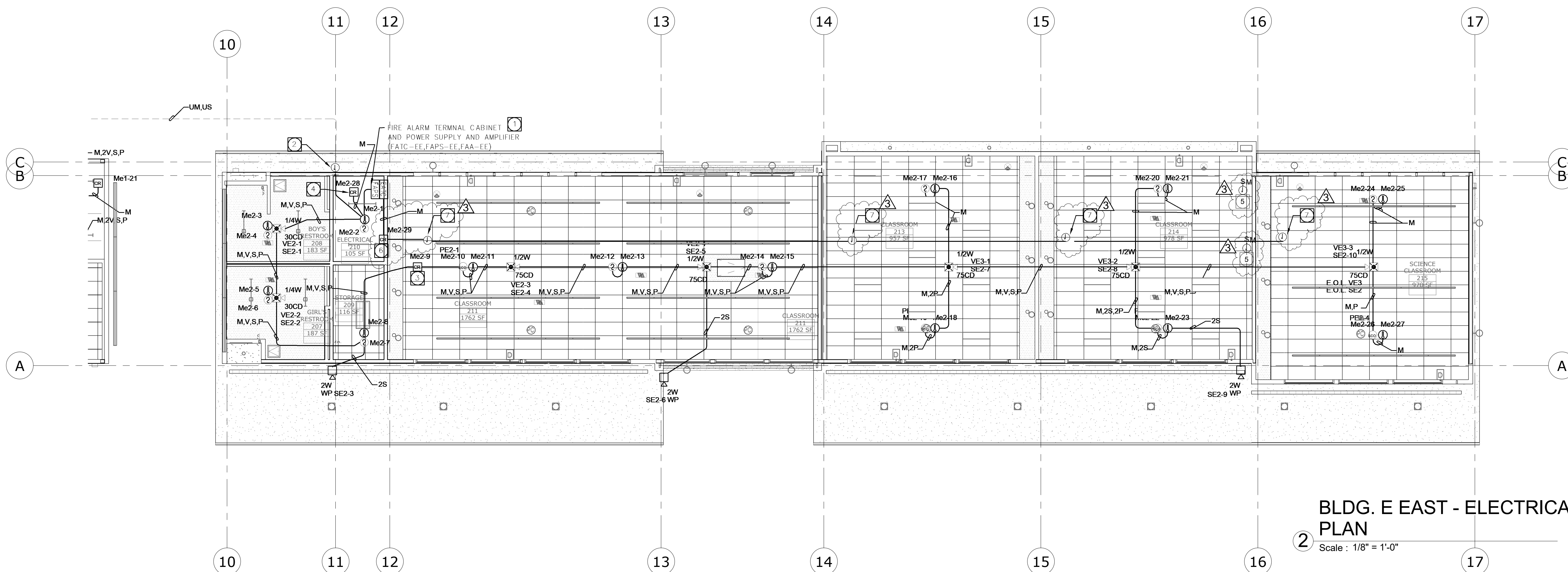
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E-Mail: omb@ombengineers.com
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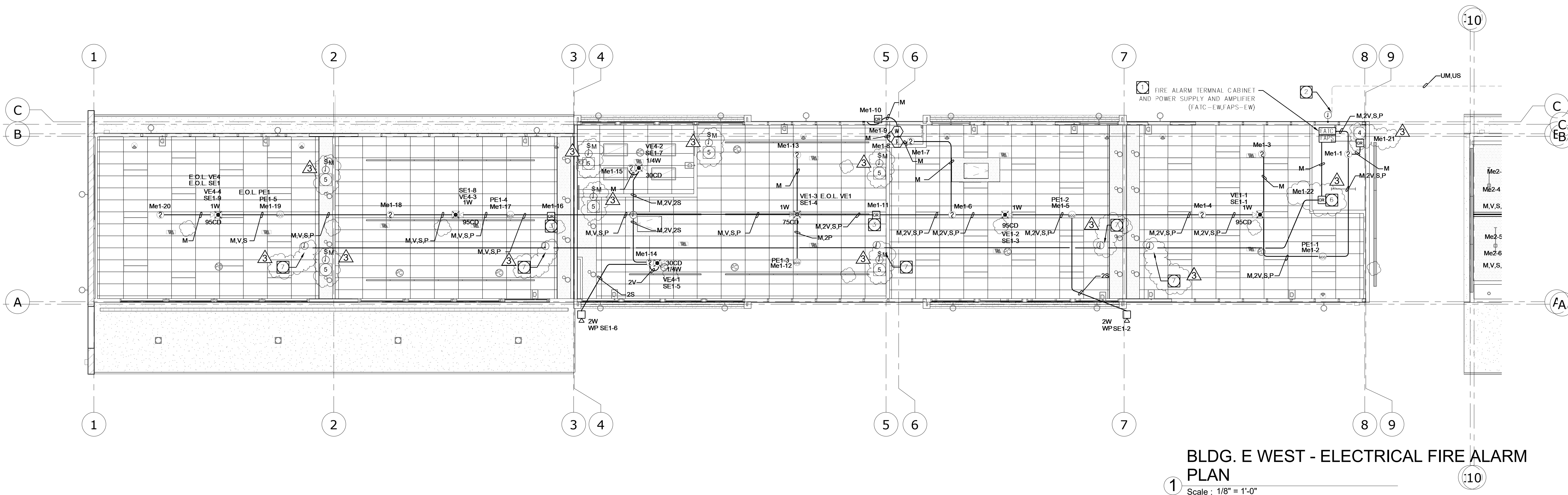
PLAN NOTES

- 1 FIRE ALARM PROVIDE 3/4"x2-1/2"x12-1/16" TO BUILDING PANELBOARD. PROVIDE DEDICATED 20A/1P CIRCUIT BREAKER WITH RED INDICATOR. MATCH RATING OF EXISTING DEVICES. PROVIDE ALL REQUIREMENTS MOUNTING HARDWARE.
- 2 PROVIDE 8"x8"x6" NEMA 3R TERMINAL CABINET FOR FIRE ALARM.
- 3 CONTROL RELAY.
- 4 CONTROL RELAY FOR SMOKE FIRE DAMPER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH IN.
- 5 SMOKE FIRE DAMPER. REFER TO POWER PLANS FOR CIRCUITING INFORMATION. REFER TO MECHANICAL FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH IN.
- 6 CONTRACTOR TO CONNECT CONTROL RELAY TO AUDIO AMPLIFIER PAM RELAY IN EACH CLASSROOM TO SHUT DOWN ALL AUDIO WHEN FIRE ALARM IS ACTIVATED. CONNECT ALL CLASSROOM AMPLIFIERS IN BUILDING AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 7 PROVIDE JUNCTION BOX FOR PAM RELAY AT AUDIO AMPLIFIER FOR AUDIO SHUTDOWN WHEN FIRE ALARM SYSTEM IS ACTIVATED. VERIFY LOCATION PRIOR TO ROUGH IN.



BLDG. E EAST - ELECTRICAL FIRE ALARM
PLAN

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



BLDG. E WEST - ELECTRICAL FIRE ALARM
PLAN

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

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PACIFIC HIGH SCHOOL MODERNIZATION

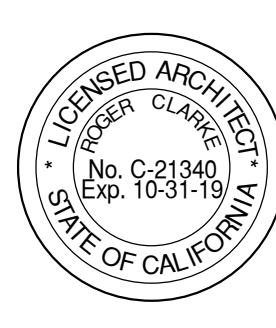
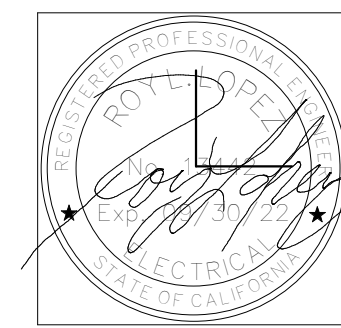
PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
SAN BERNARDINO CITY UNIFIED SCHOOL

**BUILDING E FIRE
ALARM PLAN**

EFA2-1.1

17-8-21

PACIFIC HIGH SCHOOL MODERNIZATION:



AGENCY APPROVAL
10/10/2021 11:00:24 AM

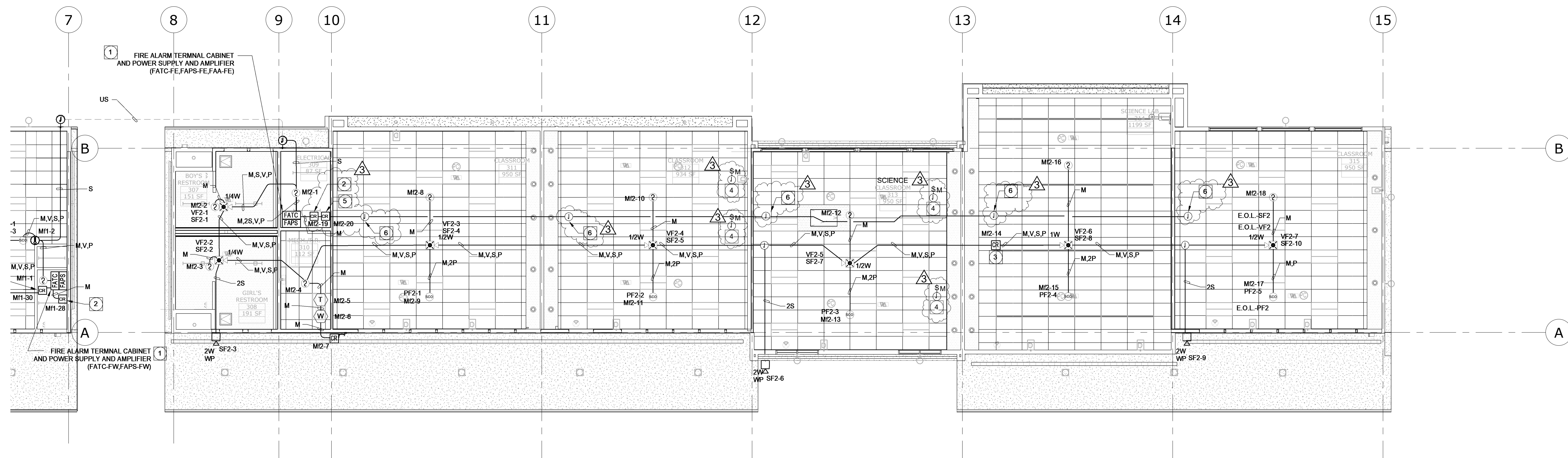
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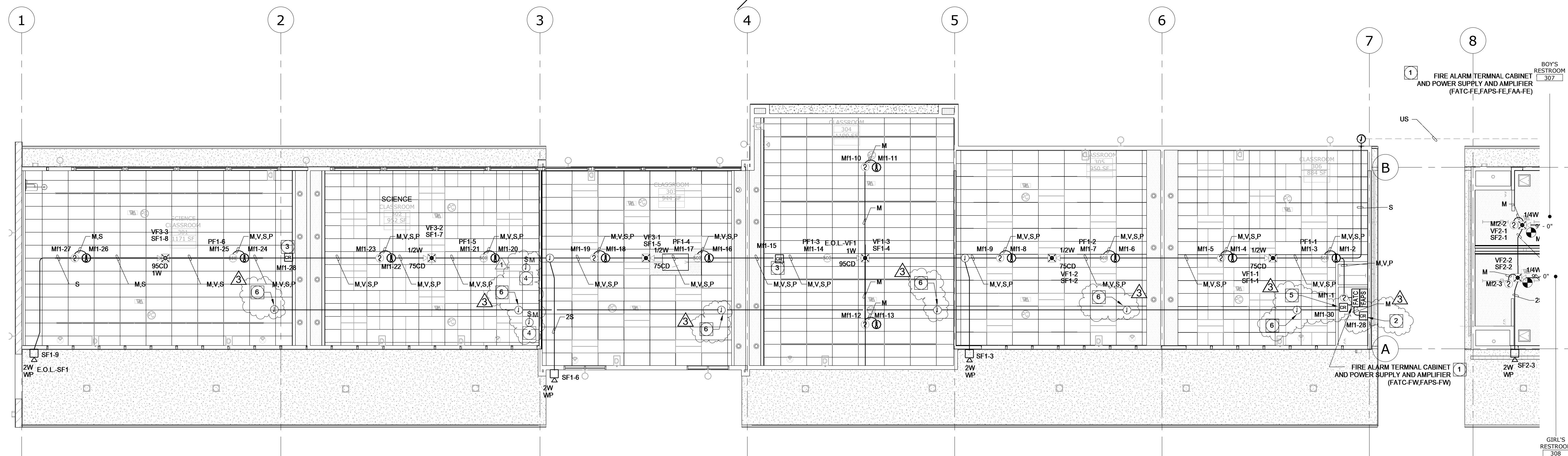
PLAN NOTES

- 1 FIRE ALARM PROVIDE 3/4" C-2#12, 1#12g TO BUILDING PANELBOARD. PROVIDE DEDICATED 20A/1P CIRCUIT BREAKER WITH RED INDICATOR. MATCH RATING OF EXISTING DEVICES. PROVIDE ALL REQUIREMENTS MOUNTING HARDWARE.
- 2 CONTROL RELAY FOR SMOKE FIRE DAMPER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH IN.
- 3 CONTROL RELAY.
- 4 SMOKE FIRE DAMPER. REFER TO POWER PLANS FOR CIRCUITING INFORMATION. REFER TO MECHANICAL FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH IN.
- 5 CONTRACTOR TO CONNECT CONTROL RELAY TO AUDIO AMPLIFIER PAM RELAY IN EACH CLASSROOM TO SHUT DOWN ALL AUDIO WHEN FIRE ALARM IS ACTIVATED. CONNECT ALL CLASSROOM AMPLIFIERS IN BUILDING AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 6 PROVIDE JUNCTION BOX FOR PAM RELAY AT AUDIO AMPLIFIER FOR AUDIO SHUTDOWN WHEN FIRE ALARM SYSTEM IS ACTIVATED. VERIFY LOCATION PRIOR TO ROUGH IN.



BLDG. F EAST - ELECTRICAL FIRE ALARM PLAN

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



BLDG. F WEST - ELECTRICAL FIRE ALARM PLAN

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

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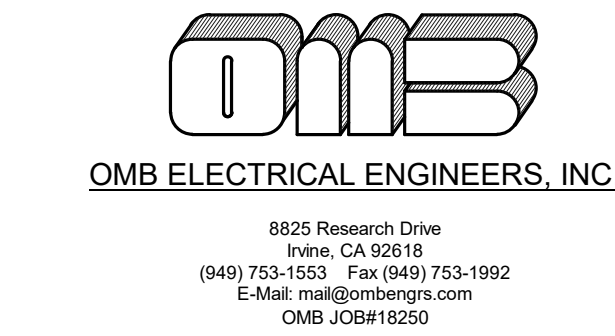
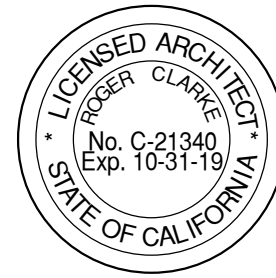
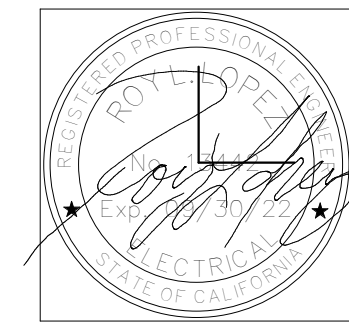
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PACIFIC HIGH SCHOOL MODERNIZATION

PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
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**BUILDING F FIRE
ALARM PLAN**

EFA3-1.1

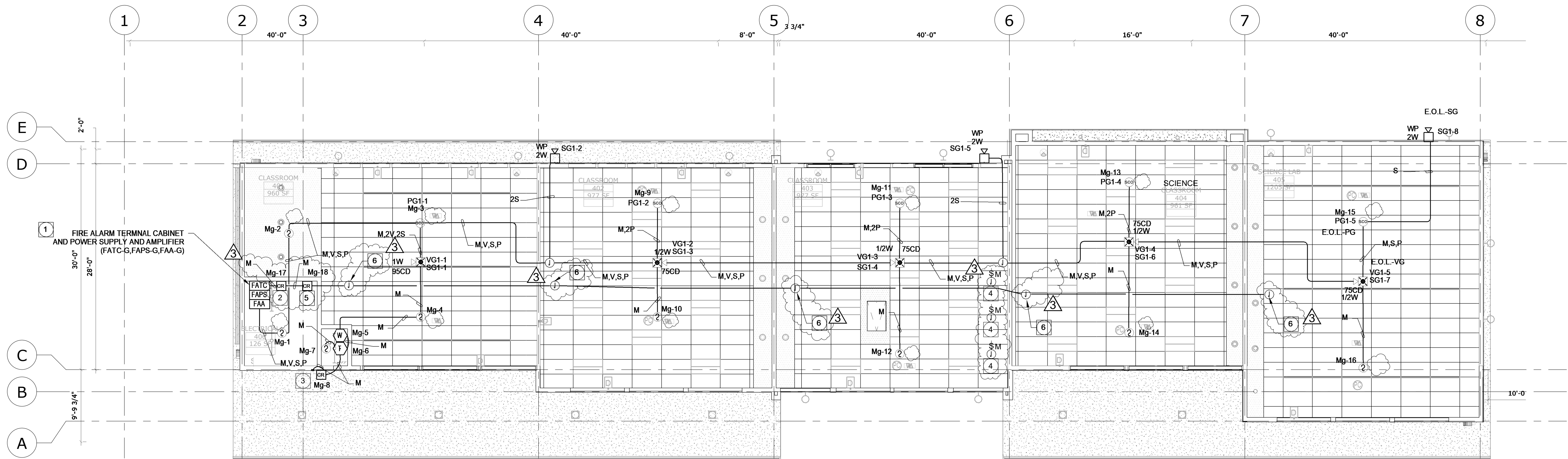


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PLAN NOTES

- 1 FIRE ALARM PROVIDE 3/4"C-2#12, 1#12g TO BUILDING PANELBOARD. PROVIDE DEDICATED 20A/1P CIRCUIT BREAKER WITH RED INDICATOR. MATCH RATING OF EXISTING DEVICES. PROVIDE ALL REQUIREMENTS MOUNTING HARDWARE.
- 2 CONTROL RELAY FOR SMOKE FIRE DAMPER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH IN.
- 3 CONTROL RELAY.
- 4 SMOKE FIRE DAMPER. REFER TO POWER PLANS FOR CIRCUITING INFORMATION. REFER TO MECHANICAL FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH IN.
- 5 CONTRACTOR TO CONNECT CONTROL RELAY TO AUDIO AMPLIFIER PAM RELAY IN EACH CLASSROOM TO SHUT DOWN ALL AUDIO WHEN FIRE ALARM IS ACTIVATED. CONNECT ALL CLASSROOM AMPLIFIERS IN BUILDING AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 6 PROVIDE JUNCTION BOX FOR PAM RELAY AT AUDIO AMPLIFIER FOR AUDIO SHUTDOWN WHEN FIRE ALARM SYSTEM IS ACTIVATED. VERIFY LOCATION PRIOR TO ROUGH IN.



1 ELECTRICAL FIRE ALARM PLAN
Scale : 1/8" = 1'-0"

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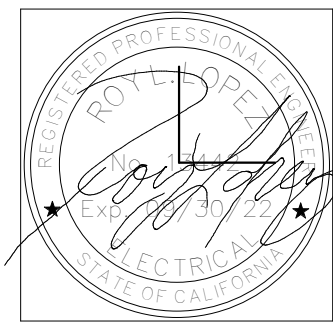
PACIFIC HIGH SCHOOL MODERNIZATION

PACIFIC HIGH SCHOOL
1020 PACIFIC ST SAN BERNARDINO, CA 92404
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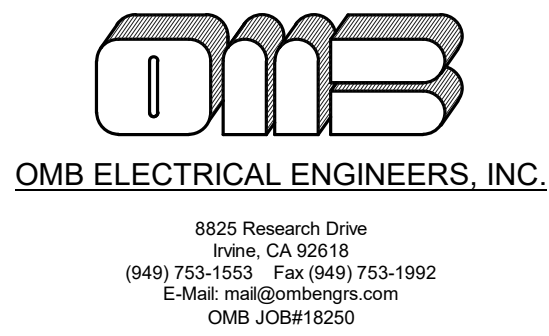
BUILDING G FIRE
ALARM PLAN

EFA4-1.1

PACIFIC HIGH SCHOOL MODERNIZATION:



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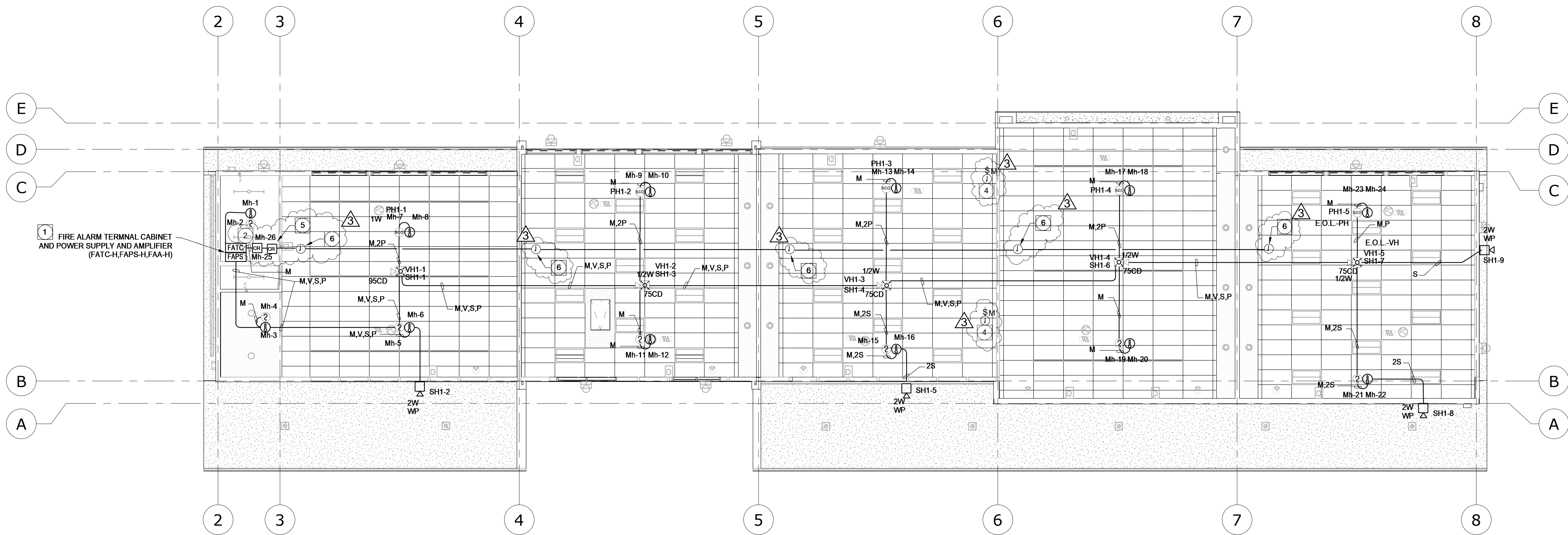


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PLAN NOTES

- 1 FIRE ALARM PROVIDE 3/4"X2-1/2"X12-1/4" TO BUILDING PANELBOARD. PROVIDE DEDICATED 20A/1P CIRCUIT BREAKER WITH RED INDICATOR. MATCH RATING OF EXISTING DEVICES. PROVIDE ALL REQUIREMENTS MOUNTING HARDWARE.
- 2 CONTROL RELAY FOR SMOKE FIRE DAMPER. CONNECT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 5 ON SHEET EFA0.02 FOR ADDITIONAL INFORMATION. VERIFY LOCATION PRIOR TO ROUGH IN.
- 3 CONTROL RELAY.
- 4 SMOKE FIRE DAMPER. REFER TO POWER PLANS FOR CIRCUITING INFORMATION. REFER TO MECHANICAL FOR ADDITIONAL REQUIREMENTS. VERIFY LOCATION PRIOR TO ROUGH IN.
- 5 CONTRACTOR TO CONNECT CONTROL RELAY TO AUDIO AMPLIFIER PAM RELAY IN EACH CLASSROOM TO SHUT DOWN ALL AUDIO WHEN FIRE ALARM IS ACTIVATED. CONNECT ALL CLASSROOM AMPLIFIERS IN BUILDING AS REQUIRED FOR FULLY OPERATIONAL SYSTEM. REFER TO DETAIL 7/EFA0.02 FOR ADDITIONAL INFORMATION.
- 6 PROVIDE JUNCTION BOX FOR PAM RELAY AT AUDIO AMPLIFIER FOR AUDIO SHUTDOWN WHEN FIRE ALARM SYSTEM IS ACTIVATED. VERIFY LOCATION PRIOR TO ROUGH IN.



1 ELECTRICAL FIRE ALARM PLAN
Scale : 1/8" = 1'-0"

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1/6/2021 12:25:02 PM

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SAN BERNARDINO CITY UNIFIED

BUILDING H FIRE
ALARM PLAN

EFA5-1.1

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