

ADDENDUM

Addendum No: **003**
Date: 03/03/2021

Project: Brown Early Childhood Center
520 W 5th St, Portales, NM 88130

Project No: 18-0032
PSFA Project No: K-18-011 & S-20-008
RFP No: 20-21-0001

From: Formative Architecture
209 Gold Ave SW
Albuquerque, NM 87102

To: All Prospective Bidders and Plan Holders



This Addendum forms a part of the Procurement Documents and modifies the Procurement Documents issued by Formative Architecture and dated 12/10/2019. Acknowledge receipt of this Addendum on the Price Proposal Form. Failure to do so may subject the offeror to disqualification. All other provisions of the Procurement Documents shall remain unchanged. This Addendum contains a total of fifty-seven (57) 8 ½"x11" pages, twenty-two (22) 24" x 36" pages.

1. RFP REQUIREMENTS:

- 1.1. RFP DEADLINE AND LOCATION REMAIN UNCHANGED. FINAL ADDENDUM DATE CHANGED
- 1.2. **REQUEST FOR PROPOSAL**
 - 1.2.1. **REVISE** Section II. A Sequence Of Events. Date of Release of Last Addenda Prior to Submission of Proposal to read "**MARCH 5, 2021**"

2. SPECIFICATIONS:

- 2.1. 23 0500 COMMON WORK REQUIREMENTS FOR HVAC – Revised Section 23 0500 is attached and made part of this Addendum
 - 2.1.1. **CHANGE** filter to MERV-13.
- 2.2. 23 7413 PACKAGED OUTDOOR CENTRAL STATION AIR HANDLEING UNITS – Revised Section 23 7413 is attached and made part of this Addendum
 - 2.2.1. **CHANGE** filter to MERV-13.
- 2.3. 27 1500 COMMUNICATIONS HORIZONTAL CABLING – Revised Section 27 1500 is attached and made part of this Addendum
 - 2.3.1. **CHANGE** requirement of all category 6 cable to small diameter category 6a.

3. DRAWINGS:

- 3.1. AE101A - FLOOR PLAN - AREA A - BID LOT #1 - Revised Sheet AE101A is attached and made part of this Addendum.
 - 3.1.1. **ADD** interior elevation tag to floor plan.
- 3.2. AE221 – INTERIOR ELEVATIONS - Revised Sheet AE221 is attached and made part of this Addendum.
 - 3.2.1. **ADD** Interior Elevation drawing 'E5'
 - 3.2.2. **REVISE** Material Tags on drawing 'C5'
 - 3.2.3. **ADD** Keynote '061000.08' to Reference Keynotes

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- 3.3. AE341 – WALL SECTION DETAILS - Revised Sheet AE341 is attached and made part of this Addendum.
 - 3.3.1. **REVISE** Detail 'A4'
- 3.4. M-701 – MECHANICAL SCHEDULES - Revised Sheet M-701 is attached and made part of this Addendum.
 - 3.4.1. **CHANGE** filter to MERV-13.
 - 3.4.2. **REVISE** Static Pressure.
- 3.5. ED100 – ELECTRICAL DEMOLITION FLOOR PLAN – OVERALL - Revised Sheet ED100 is attached and made part of this Addendum.
 - 3.5.1. **REVISE** bid lot #4 boundary and note.
- 3.6. ES100 – ELECTRICAL SITE PLAN - Revised Sheet ES100 is attached and made part of this Addendum.
 - 3.6.1. **REVISE** bid lot #4 boundary and note.
 - 3.6.2. **ADD** keynotes ES11 and ES12 to panels L1C and existing panel FS.
- 3.7. EP100B – POWER FLOOR PLAN – AREA B - Revised Sheet EP100B is attached and made part of this Addendum.
 - 3.7.1. **ADD** keynote ED05 to existing MDP location.
- 3.8. EP101A – POWER FLOOR PLAN – AREA A – BID LOT #1 - Revised Sheet EP101A is attached and made part of this Addendum.
 - 3.8.1. **ADD** keynote EP17 and power to bottle filler.
- 3.9. EP101B – POWER FLOOR PLAN – AREA B – BID LOT #1 - Revised Sheet EP101B is attached and made part of this Addendum.
 - 3.9.1. **ADD** keynote ED05 to existing MDP location.
 - 3.9.2. **REVISE** keynote EP17 and add power to new bottle filler.
 - 3.9.3. **ADD** keynote EP30 to existing bottle filler.
- 3.10. E-501 – ELECTRICAL DETAILS - Revised Sheet E-501 is attached and made part of this Addendum.
 - 3.10.1. **REVISE** unistrut mounted disconnect detail C5.
- 3.11. ED601 – ELECTRICAL DEMOLITION ONE-LINE DIAGRAM - Revised Sheet ED601 is attached and made part of this Addendum.
 - 3.11.1. **REVISE** bid lot #4 boundary and note.
- 3.12. E-601 – ELECTRICAL ONE-LINE DIAGRAM - Revised Sheet E-601 is attached and made part of this Addendum.
 - 3.12.1. **REVISE** bid lot #4 boundary and note.
- 3.13. E-602 – GROUNDING & FIRE ALARM RISER DIAGRAMS - Revised Sheet E-602 is attached and made part of this Addendum.
 - 3.13.1. **ADD** note to fire alarm riser diagram – bid lot #1.
- 3.14. E-702 – ELECTRICAL PANEL SCHEDULES - Revised Sheet E-702 is attached and made part of this Addendum.
 - 3.14.1. **REVISE** notes in panels L1A1 and L1B1.
 - 3.14.2. **REVISE** circuit 79 in panel L1A1 and circuit 35 in panel L1B1.
- 3.15. TS101 – TECHNOLOGY SITE PLAN - Revised Sheet TS101 is attached and made part of this Addendum.
 - 3.15.1. **ADD** keynote “6. PROVIDE ONE RUN OF OSP GAMECHANGER CABLE, PAIGE #258330804, TRANSITION TO BLUE PLENUM GAMECHANGER CABLE WHILE IN PLENUM SPACE, PAIGE #258300336. PROVIDE PLENUM RATED TRANSITION, IN-CEILING CONNECTOR ASSEMBLY COMMSCOPE #760244061. PROVIDE POE+ LIGHTNING CATEGORY 6A PROTECTORS ON BOTH ENDS, DITEK #DTK-MRJPOE. SLACK AND COIL 5-FT IN HAND HOLES.”
- 3.16. T-100A – TECHNOLOGY SYSTEMS FLOOR PLAN - AREA A - Revised Sheet T100A is attached and made part of this Addendum.
 - 3.16.1. **REVISE** general note “F. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.”
 - 3.16.2. **REVISE** general note “G. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT

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- LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE-ALARM (RED).”
- 3.16.3. **REVISE** general note L, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.16.4. **REVISE** keynote T01, T06, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.16.5. **REVISE** keynote T14, to reuse existing headend.
 - 3.16.6. **ADD** existing camera locations and future camera locations.
 - 3.16.7. **CHANGE** one cable tray from 18”x2” to 24”x2” due to category 6a requirements.
- 3.17. T-100B – TECHNOLOGY SYSTEMS FLOOR PLAN - AREA B - Revised Sheet T100B is attached and made part of this Addendum.
- 3.17.1. **REVISE** general note “F. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.”
 - 3.17.2. **REVISE** general note “G. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE-ALARM (RED).”
 - 3.17.3. **REVISE** general note L, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.17.4. **REVISE** keynote T01, T06, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.17.5. **REVISE** keynote “T15 EXISTING CAMERA, DATA OUTLETS, INTERCOM BOXES, AND SPEAKERS IN GYMNASIUM AND KITCHEN TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO CAMERA, DATA OUTLETS, SPEAKERS AND INTERCOM CALL SWITCH.”
 - 3.17.6. **ADD** existing camera locations and future camera locations.
- 3.18. T-101A – TECHNOLOGY SYSTEMS FLOOR PLAN - AREA A - BID LOT #1 - Revised Sheet T101A is attached and made part of this Addendum.
- 3.18.1. **REVISE** general note “F. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.”
 - 3.18.2. **REVISE** general note “G. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE-ALARM (RED).”
 - 3.18.3. **REVISE** general note L, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.18.4. **REVISE** keynote T01, T06, T17, T18, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.18.5. **REVISE** keynote T14, to reuse existing headend.
 - 3.18.6. **ADD** existing camera locations and future camera locations.
 - 3.18.7. **ADD** ceiling data to rooms 109 and 133
 - 3.18.8. **ADD** wall data to room 133 and 136
 - 3.18.9. **ADD** intercom and speaker to room 135
- 3.19. T-101B – TECHNOLOGY SYSTEMS FLOOR PLAN - AREA B - BID LOT #1 - Revised Sheet T101B is attached and made part of this Addendum.
- 3.19.1. **REVISE** general note “F. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.”
 - 3.19.2. **REVISE** general note “G. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE-ALARM (RED).”
 - 3.19.3. **REVISE** general note L, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.19.4. **REVISE** keynote T01, T06, T16, T17, T18, T22, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.19.5. **REVISE** keynote “T15 EXISTING CAMERA, DATA OUTLETS, INTERCOM BOXES, AND SPEAKERS IN GYMNASIUM AND KITCHEN TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO CAMERA, DATA OUTLETS, SPEAKERS AND INTERCOM CALL SWITCH.”
 - 3.19.6. **ADD** existing camera locations and future camera locations.

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- 3.19.7. **ADD** ceiling data to room 126
- 3.19.8. **ADD** wall data to room 128
- 3.20. T-401 – ENLARGED TECHNOLOGY PLANS - Revised Sheet T401 is attached and made part of this Addendum.
 - 3.20.1. **REVISE** general note “F. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.”
 - 3.20.2. **REVISE** general note “G. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE-ALARM (RED).”
 - 3.20.3. **REVISE** general note L, CATEGORY 6 CHANGE TO CATEGORY 6A.
 - 3.20.4. **REVISE** keynote “5. PROVIDE FIRE RATED PATHWAY STI EZ PATH 44+. PROVIDE (1) #EZP544W, (5) #EZD44S2, (5)#EZRCM44S. REFER TO OLD WORK INSTALLATION FOR ANY EXISTING CABLING IN EXISTING PATHWAYS.”
 - 3.20.5. **ADD** additional EZpath device due to requirement of category 6a cabling.
- 3.21. T-502 – TECHNOLOGY DETAILS - Revised Sheet T502 is attached and made part of this Addendum.
 - 3.21.1. **REVISE** detail A2 to provide long distance PoE Category Cable requirement.
- 3.22. T-601 – TECHNOLOGY DIAGRAMS - Revised Sheet T601 is attached and made part of this Addendum.
 - 3.22.1. **REVISE** general note “F. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.”
 - 3.22.2. **REVISE** general note “G. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE-ALARM (RED).”

4. PRIOR APPROVALS

NO PRIOR APPROVALS AT THIS TIME

5. RESPONSES TO QUESTIONS

- 5.1. **Question:** If possible, please clarify the location (for Bid Lot allocation) and size of the vaults detailed on A4/AE341.
Response: This sheet was supposed to be issued as part of Addendum 002. Refer to Sheet AE341 which has been reissued as part of this Addendum.

All other provisions of the Contract Documents shall remain unchanged. This addendum is hereby made a part of the Contract Documents to the same extent as those provisions contained in the original documents and all itemized listings thereof.

End of Addendum

SECTION 230500 - COMMON WORK REQUIREMENTS FOR HVAC

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. See General Conditions and Supplemental General Conditions.
- B. The requirements listed under General Conditions and Supplemental General Conditions and the General Requirements are applicable to this Section and all subsequent sections of this Division and form a part of the contract.
- C. See Division 2, Site Work for additional requirements regarding Trenching, Backfilling for buried piping.

1.2 INDEX OF SPEC SECTIONS FOR THIS DIVISION

23 0500	Common Work Requirements for HVAC
23 0504	Pipe and Pipe Fittings
23 0505	Piping Specialties
23 0523	Valves
23 0549	HVAC and Electrical Installation Coordination
23 0593	Testing, Adjusting and Balancing of Mechanical Systems
23 0700	Mechanical Systems Insulation
23 0810	Performance Assurance Contractor HVAC Systems
23 0900	Automatic Controls for HVAC Systems
23 3000	Air Tempering System and Equipment
23 7413	Packaged Outdoor Central Station Air Handling Units

1.3 DESIGN INTENT

MECHANICAL HVAC SYSTEM

New HVAC system will consist of a high SEER / high efficiency packaged rooftop air handling unit (RTU) with variable speed compressors and electronically commutated motor (ECM) fan motors, a full outside air dry bulb economizer “free cooling”, a direct expansion (DX) cooling coil, and a natural gas fired furnace heating section. Each RTU will provide heating, cooling, and provide minimum outside air ventilation during occupied times as required by ASHRAE 62.1 2007 for the number of occupants in each space. When outdoor ambient conditions are favorable, the use of outside air for cooling via the economizer will be utilized for energy reduction. Each RTU will be provided with a programmable thermostat.

Gymnasium

Existing HVAC system consists of two (2) packaged rooftop unit with DX cooling and gas heating. All HVAC systems are operational and in working condition. The supply and return air distribution system is ductwork located above the corridor ceiling to each zone sidewall air distribution. No new work is

anticipated in the gymnasium.

MDF, IDF & Electrical Rooms

MDF, IDF, and Electrical rooms (with transformer only) will be served by a dedicated HVAC split DX system.

Exhaust Requirements

All restrooms are exhausted at a rate of two cubic feet per minute per ft² or 16 air changes per hour per ASHRAE. A dedicated exhaust and/or purge exhaust system will be provided for each art classroom, special education, and nurse/cot area.

References:

The mechanical and electrical system design will adhere to the following codes to ensure safe and proper installation of the system.

Uniform Mechanical Code (UMC – 2012)

Uniform Plumbing Code (UPC - 2012)

International Building Code (IBC -2015)

National Fire Protection Association (NFPA - Latest Edition)

American Society of Heating, Refrigeration, Air Conditioning Engineers (ASHRAE)

Americans with Disabilities Act (ADA)

National Fire Protection Code & Life Safety NFPA

New Mexico Public School Facilities Authority (PSFA) Design Guidelines

State of New Mexico Electrical Code

Design Conditions:

Climatic:

- Location: Portales, New Mexico
- Elevation: 4,000 feet above sea level
- Winter 99.6% Design Dry-bulb: 11.7 F
- Summer 0.4% Design Dry-bulb/Wet-bulb: 97° F/63.4° F

Indoor Design Conditions:

Space	Winter (°F)	Summer (°F)	Relative Humidity (RH%)
General	72	75	N/A
Classrooms	72	75	N/A
Library	72	75	N/A
Office	72	75	N/A

Envelope Construction:

See Architectural.

Interior Loads:

People: 250 British thermal units per hour (Btu/hr) (sensible), 200 Btu/hr (latent). Space occupancy will be based on architectural furniture plans and ASHRAE standards where no information is available.

Ventilating and Indoor Air Quality Strategies:

Use ASHRAE Standard 62.1-2007 to meet ventilation and indoor air quality requirements.

Packaged Roof Top Unit will include a motorized minimum outside air damper and modulating outside air damper that will allow up to 100% outdoor air as part an economizer cycle. Full outside air will be used cooling when outdoor ambient conditions permit.

Provide filters capable of MERV 13 efficiency. Provide 2 extra/spare sets of Merv 13 Filters per unit.

Noise Requirements:

ADD #03_03/03/2021

Standard design per ASHRAE for normally occupied areas.

1.4 DEFINITIONS

- A. General: Terms will have meanings as defined in Webster's Eleventh New Collegiate Dictionary except as noted below.
- B. Entities
 - 1. Owner: Portales Public Schools
 - 2. Architect: Formative Architecture
 - 3. Engineer: Bridgers & Paxton
 - 4. Owner's Representative: The Owner will designate his representative after bid. The abbreviation "OR" may be used throughout these specifications to refer to the Owner's Representative.
 - 5. Owner's Agents: The Architect, Engineer, and others authorized to act on behalf of the Owner.
- C. Actions
 - 1. Supply: Procure and deliver to the site with all features as specified, required per code, and as required for proper installation. Include submittals, O&M manuals, operator instructions, and warranty.
 - 2. Install: Set in place in accordance with manufacturer's instructions, contract documents, and applicable codes and standards. Coordinate the installation with other disciplines,

- start, and demonstrate proper operation.
- 3. Furnish: Supply and install.
- 4. Provide: Supply and install.
- 5. Accepted: By the Owner's Representative except as noted.
- 6. Approved: By the Owner's Representative except as noted.
- 7. Review: By the Engineer except as noted.

D. Locations

- 1. Buried: Surrounded by soil or other material, either beneath the building or exterior to the building.
- 2. Exterior: Exposed to rain or snow. Examples include rooftop locations, spaces around cooling towers, pipe racks, etc.
- 3. Interior: Not exterior or buried. Examples include not only spaces within the heated envelope of the building, but also unheated attics, covered loading docks in which spaces are protected from rain and snow, utility tunnels, sheds, etc.
- 4. Finished Spaces: Interior spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct chases, unheated attics, spaces above ceilings, crawlspaces, and tunnels.
- 5. Exposed: Exposed to view. Examples include finished spaces mechanical equipment rooms, rooftops, etc.
- 6. Concealed: Not Exposed.

E. Other Definitions:

- 1. 24/7: 24 Hr/day, 7 days per week, year-round.
- 2. AHJ: Authorities having jurisdiction. The authorities having jurisdiction over this project are established by statute, and include governmentally designated building departments, the fire marshal, fire departments, etc. No attempt is made to list all such entities here; a qualified Contractor is expected to know and coordinate with the various authorities having jurisdiction.
- 3. FMS: Facility Management System
- 4. Local: Based no further from the job site than the Engineer is. For example, where the specifications call for a local factory authorized service agent, then on a daily basis that agent must be based in an office or warehouse located no further from the project site than the Engineer's office.
- 5. OAE: Or approved equal.

1.5 CODES AND PERMITS

- A. Perform all work in accordance with the 2015 International Building Code, the 2012 Uniform Plumbing Code, and the 2012 Uniform Mechanical Code, as adopted and interpreted by the State of New Mexico and the City of Los Alamos, and the National Fire Protection Association (NFPA Regulations), current adopted edition. Provide all materials and labor necessary to comply with rules, regulations and ordinances. Where the drawings and/or specifications indicate materials or construction in excess of code requirements, the drawings and/or specifications shall govern. Contractor shall hold and save the Owner and his agents free and harmless from liability of any nature or kind arising from the Contractor's failure to comply with codes and ordinances.

- B. Secure and pay for all permits necessary for performance of the work, including utility connections, extensions, meter pits and meter sets and tap fees for water, storm sewer, sanitary sewer and natural gas, unless otherwise specified herein.
- C. Comply with the requirements of, and the recommendations of:
 - 1. Applicable county and state mechanical, electrical, gas, plumbing, health and sanitary codes, laws and ordinances
 - 2. National Electrical Manufacturer's Association
 - 3. National Electrical Code
 - 4. Underwriters Laboratories
 - 5. American National Standards Institute
 - 6. American Society for Testing Materials
 - 7. Local utility companies
 - 8. National Fire Protection Association
 - 9. ASME Boiler and Pressure Vessel Codes
 - 10. Occupational Safety and Health Administration
 - 11. International Fire Code
 - 12. Midwest Insulation Contractors' Association (MICA)
 - 13. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
 - 14. American Society of Sanitary Engineering
 - 15. American Gas Association

1.6 PRIOR APPROVAL

- A. Refer to Division 1 for Prior Approval Requirements.
- B. Equipment manufacturers and service providers are listed within the specifications for the work specified in this division. For the items listed below, the specified manufacturers and providers are the only ones presently approved, and may be the only ones allowed:

Facility Management System
- C. Manufacturers and service providers who are not listed in these specs, and who offer equivalent or superior products or services, are invited to submit for approval prior to bid (prior approval). Submit two copies. Requests for prior approval must:
 - 1. Include the substitution request form at the end of this spec section.
 - 2. Include technical data sufficient for the Engineer to generally assess appropriateness for this project.
 - 3. Be submitted minimum ten days prior to the bid date in effect at the time of submission.
 - 4. Comply with any additional requirements per specification Division 1.
- D. Any additional prior approved alternate manufacturers and service providers will be published in an addendum prior to bid. Prior approval indicates that based on the information submitted it appears to the Engineer that the alternate might be capable of meeting the specifications and the design intent, and might be appropriate for the project. But prior approval does not guarantee this. Prior approved products and service providers must still go through the submittal process after award, and must still comply with the design intent and all specification requirements.

- E. Please do not request prior approval for products and service providers that are not listed above. Instead, for those items alternate manufacturers and alternate service providers may be submitted after bid in accordance with the submittal process, provided they meet or exceed the specifications and the indicated design intent.
- F. Prior approval (approval prior to bid) of alternate mechanical equipment suppliers and service providers is not required. Please do not request prior approval. Alternate manufacturers and service providers may be submitted after bid in accordance with the submittal process provided they meet or exceed the specifications and the indicated design intent.

1.7 DOCUMENT MANAGEMENT

- A. Contractor is required to the e-Builder document management system for RFIs and submittals. If used, Contractor shall provide and pay for licenses and training for the engineer's project personnel. The section below describes procedures for handling submittals if a web-based document management system is not used. If a web-based system is used, the procedures below shall be modified as appropriate.

1.8 SUBMITTALS

- A. See Division 1 and individual specification sections within this division for additional submittal requirements.
- B. Prior to purchasing materials, equipment and services, submit descriptive literature for review.
- C. See Division 1 and individual specification sections within this division for additional submission requirements. The following describes general submittal procedures. More specific procedures will be established after award. Whenever electronic files are to be submitted, e-mail them through normal channels. But if files are too large to e-mail, then submit them in quantities as described below.
 - 1. Submittal Schedule: See Division 1 for format and submittal procedure.
 - 2. Engineer will review one original submittal and one resubmittal for each item. If the Contractor fails to provide the required data or acceptable items with his second submittal, he will be charged for the Engineer's costs for the third and subsequent reviews.
 - 3. Required Information: Submit information to allow the Engineer to easily determine whether the submitted components comply with the general design intent. Include relevant descriptions of materials, features, performance, quality and dimensions. Cross out all features, options and accessories which will not be provided. It is assumed that all specified, indicated and/or required features will be provided unless specifically noted otherwise.
 - 4. Where specifications require a local factory authorized service agent, submit the name, address, and contact information for this agent. Include this information also in the O&M Manual.
- D. Review of Submittals: Engineer will review submittals for general conformance with the design intent.

1. Review of a separate item as such will not indicate review of the assembly in which the item functions.
2. Review of submittals shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents, nor for errors or omissions in the submittals; or for the accuracy of dimensions, the adequacy of connections, and the proper and acceptable fitting, execution, functioning and completion of the work.
3. Review will not relieve the Contractor of responsibility to comply with the contract requirements, or responsibility to ensure that equipment fits within the allotted space with required clearances for equipment operation, service and maintenance, including minimum clearances required by applicable codes, manufacturer's installation instructions and as necessary for proper clearance in front of all electrical panels as defined by the National Electric Code (NEC).
4. For commodity type items (plumbing fixtures, terminal units, registers, diffusers, etc), Engineer will review submittals for type only. Contractor to coordinate sizes and quantities.
5. Actions: Engineer will return submittals with one of the following actions:

NO EXCEPTIONS TAKEN	Contractor may proceed with the work as submitted
EXCEPTIONS AS NOTED	Contractor may proceed with the work and without resubmittal provided he complies with all exceptions noted in the submittal, and so states in a letter
REVISE AND RESUBMIT	Resubmit in accordance with the indicated comments
REJECTED	Resubmit in accordance with the contract documents
RETURNED WITHOUT ACTION	This submittal has not been reviewed, and therefore the Engineer is returning it with no direction to the Contractor.

E. Substitutions:

1. Unauthorized Substitutions: If substitute materials, equipment or systems are installed without prior review or if any work is installed in a manner which is not in conformance with the requirements of this specification and for which the Contractor has not received written authorization, remove such unauthorized work and install work in accordance with the contract documents at no change in contract amount.
2. Authorized Substitutions: Provide all accessories and features as required and coordinate substitutions with other disciplines. Bear any extra expenses resulting from the use of substitutions which affect adjoining or related work required in this division or other divisions of the work.
3. If the Contractor substitutes equipment for that indicated on the drawings, he shall prepare a 1/4 inch = 1foot installation drawing for each equipment room where a substitution is made, using dimensions of substituted equipment, and including piping, and electrical equipment requirements, to verify that equipment will properly fit within the space with adequate clearance for maintenance and replacement. Submit this drawing for review.

F. Schedule: Submit all submittals in a timely manner consistent with the requirements for completing the work covered by this contract within the prescribed contract time. Be aware that

there is risk in ordering components, fabricating work, and/or installing work prior to review. If the Contractor proceeds prior to review, and then the review comments required modifications to work which has begun or has been completed, then Contractor must comply with the review comments at no change in contract amount or schedule.

G. Shop Drawings

1. Submit shop drawings for
 - a. Mechanical equipment rooms and other spaces housing air handling equipment, heat transfer equipment, fluid handling equipment, machinery, etc.
 - b. Complete supply, return, and exhaust ductwork systems, both exposed and concealed.
 - c. Piping for HVAC, plumbing, and fire protection systems, both exposed and concealed.
2. Show the location and elevation of all equipment, ductwork and piping, as well as openings through slabs and walls. Include plans, elevations and sections as appropriate. Clearly show the manner in which the systems fit into the available space and relate to each other and to the building elements. Indicate required sleeves and openings in general construction elements. Indicate required clearances for operation, maintenance and replacement of operating devices and equipment. Drawings shall be of appropriate scale to facilitate coordination and understanding, but not smaller than 1/4 inch scale for floor plans and 1/4 inch scale for equipment rooms and chases.
3. Conflicts: The engineer has endeavored to work out conflicts in areas where the design is congested, but has not tried to show all required offsets to coordinate with the building construction and building systems, particularly in less congested areas. The intent is that the Contractor coordinate the design of the piping and ductwork distribution systems with the building construction and the various building systems, particularly in less congested areas. Provide experienced designers to perform such services and prepare shop drawings. Exercise good design practice in working out conflicts without compromising system operation or maintenance. Provide fittings, offsets, etc., as required. Contractor shall include this design effort and include the labor and materials for such fittings and offsets in his base bid. Except in extremely unusual circumstances, no additional costs will be allowed related to working out conflicts. Coordinate with other disciplines as required. Identify on the shop drawings those areas where redesign was necessary to resolve design conflicts.
 - a. In the event that the Contractor desires direction in resolving a design conflict or desires prior approval of a recommended approach to resolving a conflict, submit an RFI which identifies the conflict and suggests a recommended solution.
 - b. In resolving conflicts, gravity lines and larger distribution mains will generally have priority over pressurized lines and smaller lines as follows:
 - Plumbing waste and vent lines
 - Roof drains
 - Supply, return and exhaust ductwork
 - Fire sprinkler mains
 - Domestic hot and cold water
 - Fire sprinkler branch piping and sprinkler runouts
 - Miscellaneous special piping systems

4. Use of Engineer's CADD Files or BIM model: The Engineer will provide the Contractor CADD files or a BIM model of the design documents if the Contractor completes and submits the release form attached at the end of this spec section. These files show the general design intent and may be used as a starting point for the Contractor to begin his shop drawings and coordination effort, but the Contractor should not use them as a basis for ordering or fabrication. The normal submittal process still applies, regardless whether the Contractor elects to use the Engineer's CADD files or BIM model.

H. Submittals Required under this Specification Section:

1. Electrical Components: Motors, Motor Controllers, and Variable Speed Drives

I. Identification: Products used to identify equipment, ductwork, valves, piping, and control devices.

1. General Construction Components: Roof Curbs & Access doors.

1.9 DOCUMENTED COORDINATION EFFORT

- A. After shop drawings are reviewed, incorporate any review comments and then participate in a formal and documented coordination effort with the contractors and subcontractors for other divisions of the work. Show all piping systems and equipment on the ductwork drawings, and send electronic CADD files to the General Contractor and the subcontractors for plumbing, fire protection, electrical, and other disciplines. The other subcontractors will then add their work to the CADD files.
- B. Make full-size plots of the drawings. Participate in meetings with the GC and other subcontractors to review each area, identify conflicts, and resolve conflicts. Submit the resolutions to the Engineer for review. Maintain adequate space for operation, maintenance, and code-required clearances. Ensure that all subcontractors initial each plan to indicate that they have participated in the coordination effort.

1.10 MISCELLANEOUS PROVISIONS

A. Qualifications

1. All mechanics shall be skilled in their respective trade.
2. All welders shall be certified in accordance with the ASME Boiler Test Code, Section IX, latest issue.

B. Regulated Materials: Comply with all state, local and federal regulations regarding the storage, handling or disposal of oils, lubricants, cleaning agents, refrigerants, other liquids and gases, and hazardous materials.

C. Factory Identification: Provide all materials and equipment with labels sufficient to show compliance with these specifications and the performance requirements indicated on the drawings. All equipment shall carry a permanent label installed by the manufacturer stating that the equipment complies with ASHRAE/IESNA Std. 90.1.

- D. Hazardous Conditions: Protruding metal (bolts, steel angles, etc.) potentially hazardous to maintenance and operation personnel, shall be cut back and/or protected to reduce the risk of injury.
- E. Hazard Signs
 - 1. Provide a sign reading, "Hazardous Area - Authorized Personnel Only" on the doors to all equipment rooms, fan plenums, and similar areas containing moving or rotating parts, or other potentially hazardous environments.
 - 2. Provide a sign reading, "Confined Space - Entry by authorized personnel only by permit" for all confined spaces. Confined spaces shall be as designated by OSHA Standard 1910.146. This generally means a space that:
 - a. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
 - b. Has limited or restricted means for entry or exit (for example, tanks, vessels, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
 - c. Is not designed for continuous employee occupancy.
 - 3. Survey the final premises to determine where any potentially hazardous areas exist. If the Contractor feels that hazards exist which cannot be suitably provided for through the above typical methods, he shall forward in writing his concerns, and request for a decision concerning the referenced hazard, prior to the final inspection of the facilities.

1.11 GUARANTEE-WARRANTY

- A. See Division 1 for additional information on warranties. Warranties shall run for one year from substantial completion unless indicated otherwise.
- B. The following warranty shall be binding:

"The Contractor warrants that this installation is free from mechanical defects. Contractor agrees to replace or repair any part of the installation which may fail within a period of one year after the date established below, provided that such failure is due to defects in materials or workmanship, or to failure to follow the specifications and drawings. This warranty shall begin on the date set forth in the Certificate of Substantial Completion, AIA Form G704, or other such date as documented in writing by the Owner's Representative."
- C. The extent of guarantees or warranties by equipment and/or materials manufacturers will not diminish the requirements of the Contractor's warranty to the Owner.

PART 2 - PRODUCTS

2.1 PRODUCT GENERAL REQUIREMENTS

- A. General: Products supplied under Division 23 shall comply with the following except as noted

elsewhere.

- B. Products shall be new; shall be the product of manufacturers regularly engaged in the production of plumbing, heating, ventilating, air conditioning, and control system equipment; and shall be the manufacturer's latest design. Specs and equipment schedules establish expectations regarding standard of quality and operating intent.
- C. Hazardous or Environmentally Damaging Materials: Products shall not contain asbestos, mercury, PCBs, or other materials harmful to people or the environment.
- D. Products shall be suitable for the conditions under which they are installed and operated. Prior to or during the submittal phase advise the Owner's representative and the Engineer in writing regarding any concerns about the suitability of the specified products for the intended application or service. Request clarification if any question exists regarding the design intent.
- E. Performance Ratings: Unless otherwise noted, all scheduled equipment performance is based on an elevation of 7410 feet above sea level. Adjust manufacturer's ratings accordingly.
- F. Structural Soundness: Products shall have structural integrity appropriate to the component and its application. Bases shall be rigid and shall keep all components in proper alignment. Structural integrity shall be adequate for both rigging and final installation. Components shall not be loose, rattle, or vibrate unnecessarily in their final installed condition.
- G. Corrosion Resistance: Equipment shall be of materials inherently corrosion resistant, or shall be finished with a corrosion-resistant finish suitable for the location in which the equipment is installed.
- H. Touch-up: If the factory finish of any component is damaged prior to substantial completion, touch up to original condition per manufacturer's recommendations.
- I. Equipment Access Doors or Panels: Provide access doors and panels within equipment to ensure good access to all components requiring inspection, service or maintenance. Provide appropriate hardware. Equipment installed outdoors shall be weather-tight.
- J. Fans: Statically and dynamically balanced, shaft first critical speed shall be above operating speed at design conditions.
- K. Bearings: Grease lubricated or permanently lubricated.
- L. V-Belt Drives: All components sized for 150% of motor HP, multiple belts shall be matched, fixed sheaves for motors 20 Hp and larger, adjustable sheaves for lower HP motors, all safety components for OSHA compliance (e.g., belt guard or other safety provisions) motor mounted on adjustable base. Provide a replacement sheave for each fixed sheave after T&B is complete. Include belt data in O&M manual. Gates Rubber Co, or approved equal.
 - 1. Belt Guards: Rigidly constructed and attached, removable, galvanized steel, expanded mesh. Design to provide ready access to bearings.
- M. Couplings: Provide coupling guard.
- N. Motors and VFDs: See requirements described elsewhere in this spec section.

- O. Drive Lines (starter or VFD, motor, coupling and shaft or v-belt drive and pulleys, and driven equipment): Coordinate with all suppliers and ensure all components are compatible to work as a system.
- P. Coils: ARI rated, copper tubes mechanically expanded into aluminum fins, galvanized steel casing, drainable, pressure tested to 150% of working pressure but not less than 300 psi.
- Q. Cooling Coil Drain Pans: Provide for all cooling coils, galvanized or stainless steel, double pitched with piped outlet. For units with more than one coil stacked, provide intermediate drain pans piped to the main drain pan.
- R. Gas Burners: Natural gas fired, performance based on gas at 1000 Btu/SCF HHV but suitable for use with gas at 900 – 1050 Btu/SCF and 7 – 11 inches water column, factory installed and pressure tested gas train, all necessary safety and operating controls.
- S. Filter Frames: Galvanized steel, provide wherever filters are specified.
- T. Roof Curbs and Support Rails for Roof-Mounted Equipment: Roof curbs should generally be supplied with the equipment which the curb supports, and shall comply with the requirements of the National Roofing Contractors' Association. Match curb to the requirements of the supported equipment. The roof pitch is indicated on the architectural drawings. If roof pitch exceeds the recommendations of the equipment manufacturer, provide a curb that will level the equipment. Factory fabricated, minimum 14-inch, structurally adequate for the load supported, not less than welded 18-gauge (16-gauge or heavier for sizes more than 50-inches) galvanized steel with minimum 1-inch fiberglass insulation, 2 x 2 wood nailer, and with cant and step if required to match specified roof. Provide damper tray for un-ducted fan applications. Ship small curbs fully assembled; large curbs may be knocked down for shipment.
- U. Electrical & Controls: Except where specifically noted, electric service to each component listed on the equipment schedules will be through a single electrical feed at the voltage indicated on the equipment schedules. Include all components, cabling and conduits to distribute power to all components which are factory supplied and mounted. Provide transformer(s) if required to serve unit-mounted components requiring electric service at voltages different from the main electric service, including controls components. Provide secondary overcurrent protection. Provide terminal strips for field-installed control wiring. Provide unit-mounted, unit-specific wiring diagrams on durable paper, attached to inside of control panel door or otherwise affixed to the unit. All electrical components shall be UL Listed or Recognized. All factory-installed electrical work shall comply with the NEC unless the overall unit is listed by an organization acceptable to the AHJ, and listed to a standard acceptable to the AHJ.

2.2 ELECTRICAL COMPONENTS

- A. General: Except as noted, all electrical products and equipment shall comply with the requirements of this section, whether field installed or factory installed. See “Product General Requirements” and “Installation General Requirements” in Parts 2 & 3 of this spec section for additional requirements.

B. Motors

1. General: Except as noted motors shall be horizontal, open drip-proof, 4-pole, 1750 RPM, rated per NEMA MG-1, with fabricated steel or cast iron casing, motor terminal box adequately sized for conductors one-size larger than specified, SS nameplate per NEMA MG-1-20.60, connection diagram attached to motor, compression lugs for power feeds and ground conductor, grease lubricated sealed ball bearings or roller bearings with standard grease fitting zerk and relief tapping, factory lubricated, dynamically balanced to no more than 50% of the NEMA allowable vibration limits. For motors powering V-belt drives, provide a cast iron or steel base with slide rail and adjustable belt tension device. Install motors and equipment on foundations and align as required. 40 deg C rise and total temperature rise of 65 deg C ambient.
 - a. 3/4 hp and smaller: 115V, single phase, 60 Hz, split phase or permanent split capacitor (PSC), NEMA Type N or O, with built-in thermal overload protection.
 - 1) Multi-speed motors.
 - b. 1 hp and greater: 460 V, 3 phase, 60 Hz, squirrel cage induction type, NEMA design B, T-frame, with Class B or F insulation, lifting lugs, 150,000 hr L-10 bearings for direct-coupled applications, 50,000 hr L-10 bearings for belt-driven application with radial loads and pulley sizes per NEMA MG1-14.43. Service Factor: ODP motors shall be rated for 1.15 SF at 40°C or 1.0 SF at 65°C; TEFC motors shall be 1.0 SF.
 - 1) Two speed motors: Provide with two separate windings.
 - 2) Variable speed motors: Drive compatible per NEMA MG1-31, premium efficiency as specified below regardless of Hp, Class F insulation, minimum 5-year warranty.
2. Efficiency: Except as noted, motors shall be premium efficiency type, with nominal efficiencies not less than the following as per the Consortium on Energy Efficiency (CEE), and minimum power factor of 0.85:

HP	Open Drip-Proof (ODP)			Totally Enclosed Fan-Cooled (TEFC)		
	1200 RPM	1800 RPM	3600 RPM	1200 RPM	1800 RPM	3600 RPM
1	82.5	85.5	80.0	82.5	85.5	78.5
1.5	86.5	86.5	85.5	87.5	86.5	85.5
2	87.5	86.5	86.5	88.5	86.5	86.5
3	89.5	89.5	86.5	89.5	89.5	88.5
5	89.5	89.5	89.5	89.5	89.5	89.5
7.5	91.7	91.0	89.5	91.7	91.7	91.0
10	91.7	91.7	90.2	91.7	91.7	91.7
15	92.4	93.0	91.0	92.4	92.4	91.7

3. Approved Manufacturers: General Electric Energy Saver, Baldor Super-E, Marathon Series E, Reliance Electric XE, Westinghouse TEE II, Eaton/Cutler Hammer, Toshiba, Louis Allis, or approved equal.
4. If the Contractor proposes to furnish motors varying in horsepower and/or characteristics from those specified, he shall first submit his request for the change and shall then coordinate the change with all other parties (e.g. electrical contractor) and pay any costs associated with the change.

C. Motor Controllers

1. Single Phase Manual Starters to 1 Hp and 120-277 V: Cutler Hammer MS with indicating light.
2. 3-Phase: Full voltage, non-reversing, electro-mechanical, combination circuit breaker and motor controller, UL Listed, NEMA rated, 460V, 65,000 AIC, minimum 50 VA 24V controls transformer with secondary overcurrent protection, suitable for operation at -4°F to +149°F and specified voltage -15% to + 10%, adjustable solid state overloads initially set at Class 10, HOA switch, run indicator, two auxiliary contacts for remote monitoring of status, and enclosure for surface mounting. Cutler Hammer OAE.
 - a. Provide enclosure appropriate to the location:
 - 1) NEMA-1 for indoor dry locations.
 - 2) NEMA-3R for outdoors.
 - 3) NEMA-4 for wet applications.
 - 4) NEMA-12 for dusty locations.
 - 5) Explosion-proof – where required.
 - b. Motor controllers factory mounted and wired on AC units, boilers, etc, may be definite purpose, and need not have all the features specified here.

2.3 ELECTRICAL WIRING AND CONTROL EQUIPMENT

- A. Provide wiring and conduit as scheduled in Section 23 0549.
- B. Coordinate with all disciplines to ensure that all necessary components of control work are included and fully understood.

2.4 IDENTIFICATION

- A. Scope: Identify all equipment, ductwork, valves, piping, and control devices shown on the Drawings, identified in the equipment schedules, and indicated in these Specifications. Provide submittals for products and procedures used for identification.
- B. Equipment: For all mechanical equipment supplied or installed under Division 23, provide an equipment identification tag or stencil unit number onto the equipment. Stencils shall be minimum 3-inch height, dark contrasting color, of a material suitable for the application.
 1. For rooftop HVAC equipment, provide a permanently affixed, weather-resistant label to identify the areas served.
- C. Valves: Provide each valve with a stamped metal tag secured to the valve. Tag shall indicate the valve number, service and function. Provide two sets of prints of drawings showing floor plan for each floor with all valves accurately located and labeled. Drawings shall be neat and easily readable. Provide a typed valve chart, listing the valve number, size, location, function, normal operating position, for each valve. List valves by system, i.e., domestic cold water, hot water, chilled water, etc. Tags shall be stamped brass 1-1/2" diameter, and secured to valves by heavy copper figure eight hooks, braided stainless steel wire anchor, or other approved means.

- D. Ductwork: Identify ductwork at or near the fan with stenciled signs on insulated ductwork or engraved laminated plastic signs secured by rustproof screws on un-insulated ductwork. Sign shall identify air conditioning system or fan unit and area served.
- E. Piping
 - 1. Provide color-coded pipe labels indicating the service of the pipe and the direction of flow. Piping labels shall comply with ANSI Standard A13.1 regarding color coding and size of lettering. The following standardized color code scheme shall be used:
 - a. Yellow - Hazardous Materials.
 - b. Green - Liquid Materials of Inherently Low Hazard.
 - c. Blue - Gaseous Materials of Inherently Low Hazard.
 - d. Red - Fire Protection Materials.
 - 2. Labels shall be semi-rigid plastic identification markers. Labels shall "span-on" around pipe without the requirement for adhesive or bonding of piping sizes 3/4 inch through 5 inches. Labels for piping 6 inches and larger shall be furnished with **spring attachment** at each end of label. "SETMARK" Type SNA, 3/4 inch through 5 inch size and Type STR, 6 inches and larger, as manufactured by Seton Name Plate Corporation, Brady, or equivalent.
 - 3. Labels shall be vinyl material with permanent adhesive for application to clear dry pipe and/or insulation jacketing. Pressure sensitive pipe tape matching the background color of the label shall be placed over each end of the label and completely around the pipe.
 - 4. For retrofit projects the system names shall match existing.
 - 5. Attach pipe markers to lower quarter of the pipe on overhead horizontal runs and on the centerline of vertical piping where view is not obstructed.
 - 6. Provide the following labels, with ANSI/OSHA color and banding for all piping systems as shown on the Drawings and as listed below:

<u>Service/Legend</u>	<u>Letter Color</u>	<u>Background Color</u>	<u>Tape Banding Color</u>
Domestic Cold Water	White	Green	2" Green
Domestic Hot Water	Black	Yellow	2" Yellow
Domestic Hot Water Return	Black	Yellow	2" Yellow
Fire Protection Water	White	Red	2" Red
Fire Auto Sprinkler	White	Red	2" Red
Fire Dry Standpipe	White	Red	2" Red
Fire Wet Standpipe	White	Red	2" Red
Fire Comb. Standpipe	White	Red	2" Red
Roof Drain	White	Green	2" Green
Sanitary Sewer	White	Green	2" Green
Storm Sewer	White	Green	2" Green
Natural Gas	Black	Yellow	2" Black

7. Locations: Label pipes at the following points on each piping system:
 - a. Adjacent to each valve in piping system.
 - b. At every point of entry and exit where piping passes through a wall.
 - c. On each pipe riser and junction.
 - d. At a maximum interval of 20 feet on pipe lines exposed and concealed above accessible ceilings.
 - e. Adjacent to all special fittings (regulating valves, etc.) in piping systems.
 - f. At every access door.
 8. Underground Piping: Provide a continuous, preprinted, bright colored, plastic ribbon cable marker with each underground pipe regardless of whether encased. Locate directly over buried pipe, 6 inches to 8 inches below finished grade. Marker tape used in conjunction with buried plastic piping systems shall be special detector type.
- F. Control System Devices: All automatic controls, control panels, zone valves, pressure electric, electric pressure switches, relays and starters shall be clearly tagged and identified. Wording shall be identical to that on the control diagram in the Contract Drawings.

2.5 GENERAL CONSTRUCTION COMPONENTS

A. Roof Curbs and Equipment Support Rails

1. General: Factory fabricated, minimum 14-inch high, galvanized steel, configured to account for roof pitch where pitch exceeds 1/4-inch/ft or where required by manufacturer of supported equipment. Coordinate with roofer and provide cant and step if needed to match roof construction.
2. Roof Curbs: 1.5-inch fiberglass insulation with nominal 2" x 2" wood nailer. Provide damper tray where a damper is indicated. Thycurb TC, Greenheck, RPS, OAE.
3. Equipment Support Rails: Nominal 2" x 4" wood nailer. Thycurb TEMS, Greenheck, RPS, OAE.

B. Access Doors (ADs)

1. Access Doors by Div 08. Coordinate location of Access Doors with Division 08. Refer to Specification Section 08 3113.

2.6 MISCELLANEOUS PROVISIONS

- A. Flow Diagrams: Provide half-size prints of each system flow diagram, including air handling, steam, chilled water, heating water, domestic water, domestic HW, etc. Mount framed under plexiglass, and locate either on the associated AHU or on a nearby wall. Incorporate any as-built revisions.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL REQUIRMENTS

- A. Cooperation with Other Trades: Refer to other parts of these Specifications covering the work of other trades which must be carried on in conjunction with the mechanical work so that the construction operations can proceed without harm to the Owner from interference, delay, or absence of coordination. Be responsible for the size and location of all openings, foundations, etc.
- B. Trenching and Backfilling: Provide all excavation, trenching and backfilling required for the installation of the work of this division.
- C. Manufacturer's Instructions: Install all products in accordance with manufacturers' recommendations and the requirements of any applicable listings. If manufacturers' recommendations and/or requirements of applicable listings conflict with plans and specifications, report such conflicts to the Owner's Representative.
- D. Field Measurements: Verify all dimensions and conditions governing the work. Examine adjoining work on which the work of this Division is dependent, and report any deficiencies.
- E. Do not compromise the building structural, fire resistant construction or vapor barrier system. Supports for Equipment and Systems: Foundations and structural supports for equipment will generally be provided by others. The contractor for this division shall provide supplementary supports as required to support equipment, distribution systems, and other components installed under this division. Prior to installing mechanical work, examine foundations and supports to ensure they are adequate to properly support the equipment. Provide all necessary foundations, structures, supports, inserts, sleeves, etc, for installation of mechanical and plumbing equipment, ductwork and piping, etc. Coordinate installation of such devices with all disciplines. Verify that the devices and supports are adequate as intended and do not overload the building structure.
- F. Concealed or Buried Work: For work which is underground or which will be concealed by building construction, provide digital photographs to document the installation throughout the construction project, but not less than weekly. Include plans indicating where the photographs were taken. Notify the OR of when the work will be complete and provide OR a minimum five-day period to inspect the work after completion but prior to when it is backfilled or concealed by building construction.
- G. Access Doors: Provide as required for access to valves, dampers, controls, or other items for which access is required for either operation or servicing. The type of access door shall be as required by the room finish schedule.
- H. Alignment of Flexible Couplings: Flexible couplings between motors and driven equipment shall be aligned by a qualified service technician after the equipment is installed and ready for operation. Align equipment per manufacturer's recommendations under operating conditions and temperature. Provide written certification that each device has been so aligned.
- I. Lubrication: Provide all oil for the operation of all equipment until acceptance. Be responsible for all damage to bearings while the equipment is being operated by Contractor up to the date of

acceptance of the equipment. Protect all bearings and shafts during installation and thoroughly grease shafts to prevent corrosion. Bearings for items of mechanical equipment shall be marked at each bearing location as to whether the bearing is a sealed type or relubricable type unit.

- J. Tests: All tests shall be conducted in the presence of the designated and authorized Owner's Representative. Notify the Owner's one week in advance of all tests. Requirements for testing are specified under the sections covering the various systems. Provide all necessary equipment, materials, and labor to perform the required tests.
- K. Protection of Material and Equipment:
 - 1. Protect all work, materials and equipment furnished and installed under Division 23, whether incorporated in the building or not.
 - 2. All items of mechanical equipment shall be stored in a protected weatherproof enclosure prior to installation within the building, or shall be otherwise protected from the weather in a suitable manner as approved.
 - 3. Protect all work and be responsible for all damage done to property, equipment and materials. Coordinate material storage with the Owner's Representative.
 - 4. Pipe and duct openings shall be closed with caps or plugs, or covered to prevent lodgment of dirt or trash during the course of installation. Plumbing fixtures shall not be used by the construction forces. At the completion of the work clean and polish fixtures, equipment and materials prior to turning them over to the Owner.

3.2 DRAWINGS

- A. The drawings show the general arrangement of the piping, ductwork, equipment, etc. Follow them as closely as actual building construction and work of other trades will permit. Where discrepancies occur between Plans and Specifications, the more stringent shall govern. All Contract Documents shall be considered as part of the work. Because of the small scale of the drawings, it is not possible to indicate all offsets, fittings and accessories, which may be required, and no attempt has been made to do so. Rather, the drawings convey the general design intent. Investigate the structural and finish conditions affecting the work and arrange the work accordingly, providing fittings, valves, and accessories as required to meet such conditions. Show any such changes on the Record Drawings.
- B. Should any doubt or question arise in respect to the true meaning of the drawings or specifications, submit an RFI.
- C. Install equipment, piping, ductwork, and electrical systems with proper clearance for operation, service, and maintenance, including minimum clearances required by applicable codes, manufacturer's installation instructions, etc. Include proper clearance in front of and above electrical equipment as defined by the National Electric Code (NEC). Piping and ductwork systems shall not be routed through or above electrical equipment rooms, telecommunications rooms, elevator machine rooms, or electrical equipment spaces within mechanical equipment rooms.
- D. The unique design features of this project will necessitate that the contractor for this division provide greater than normal levels of coordination and cooperation with other disciplines.
- E. Arrange all concealed mechanical systems carefully to fit within the available space without

interference with adjacent structural and electrical systems. Make all necessary provisions for penetrations of piping and ductwork, including sleeves and blockouts in structural systems. The exact location of all exposed mechanical systems, including grilles, registers, and diffusers; access doors; sprinkler heads; piping and ductwork exposed within finished areas; and other equipment and devices as applicable, shall be coordinated with the Architect, who shall have final authority for the acceptance of the work as it relates to the aesthetic design for the facility.

3.3 EQUIPMENT SUPPLIED BY OTHERS

- A. Certain items of mechanical equipment as listed on the Drawings and/or Specifications will be furnished [under other sections of this Specification for mechanical rough-in and connection under Division 23, including plumbing, domestic water and waste, process cooling water, compressed air, exhaust, etc. All required mechanical services, including connection of such services to equipment shall be provided under Division 23.

3.4 INTERRUPTING SERVICES

- A. Coordinate the installation of all work within the building in order to minimize interference with the operation of existing building mechanical, plumbing, fire protection, and utility systems during construction. Connections to existing systems requiring the interruption of service within the building shall be carefully coordinated with the Owner to minimize system downtimes. Requests for the interruption of existing services shall be submitted in writing a minimum of two weeks before the scheduled date. Absolutely no interruption of the existing services will be permitted without written review and authorization.

3.5 CONCRETE BASES AND HOUSEKEEPING PADS

- A. Concrete bases and housekeeping pads shall be installed under all pieces of mechanical equipment unless specifically deleted by the Specifications or Drawings.
- B. Be responsible for the accurate dimensions of all pads and bases and furnish and install all vibration isolators, anchor bolts, etc.
- C. Provide concrete housekeeping pad foundations for all floor mounted equipment installed under this section unless otherwise shown on the Drawings. All concrete bases and housekeeping pads shall conform to the requirements specified under Division 3, Concrete, portions of these Specifications. Pad foundations shall be 4 inches high minimum, unless otherwise indicated on the Drawings. Chamfer edges shall be 1 inch. Faces shall be free of voids and rubbed smooth with carborundum block after stripping forms. Tops shall be level. Provide dowel rods in floor for lateral stability and anchorage.
- D. Equipment anchor bolts shall be set in a galvanized pipe or sheet metal sleeves 1 inch larger than bolt diameter. Anchor bolts shall be high strength steel J-shape. Anchor bolt design shall be arranged and paid for by the Contractor.
- E. Machinery bases, bed plates, sole plates, or vibration isolation units shall be carefully aligned, shimmed, leveled, and then grouted in place with commercial non-shrink grout. When a flexible coupling is employed as a part of the drive train, the coupling shall be aligned before

the machinery base is grouted.

3.6 PRESSURE RELIEF DEVICES

- A. Refrigerant pressure relief devices and fusible plugs shall be installed with piping to a safe location in accordance with ANSI/ASHRAE Standard 15. Discharge shall be to atmosphere at a location not less than 15 feet above the adjoining ground level and not less than 20 feet from any window, ventilation opening, or exit from any building. Discharge line sizing shall conform to ANSI/ASHRAE Standard 15-1994.
- B. Each discharge pipe shall be equipped with a drip leg capable of holding 1 gallon of liquid. The drip leg shall include a manual drain valve.

3.7 INSTALLATION CHECK

- A. An experienced, competent, and authorized representative of the equipment listed below shall visit the site of the work and inspect, check, adjust if necessary, and approve the installation for the equipment listed below. The equipment supplier's representative shall revisit the job site as often as necessary until all trouble is corrected and the equipment installation and operation is approved and accepted.
- B. Each equipment supplier's representative shall furnish a written report certifying that the equipment (1) has been properly installed and lubricated; (2) is in accurate alignment; (3) is free from any undue stress imposed by connecting piping or anchor bolts; and, (4) has been operated under full load conditions and that it has operated satisfactorily.
- C. Equipment requiring installation check includes the following:

- Domestic Hot Water Heaters
- Roof Top Units
- Facility Management System (See Specification Section 23 0900)

3.8 OPERATION PRIOR TO ACCEPTANCE

- A. Operation of equipment and systems for the benefit of the Owner prior to substantial completion will be allowed provided that a written agreement between the Owner and the Contractor has established warranty and other responsibilities to the satisfaction of both parties.
- B. Operation of equipment and systems for the benefit of the Contractor, except for the purposes of testing and balancing, will not be permitted without a written agreement between the Owner and the Contractor establishing warranty and other responsibilities.

3.9 OPERATION AND MAINTENANCE (O&M) INSTRUCTIONS

- A. At completion of the project provide two complete bound sets of the following documents, along with two CDs containing searchable PDFs of these documents. Organize bound information in a logical fashion with a table of contents and tabs for the different sections.

Organize PDFs in a logical fashion with bookmarks to assist the operating personnel in retrieving desired data. Provide minimum two 1-hour sessions to instruct Owner's facility personnel in how to find information in the bound O&Ms and the PDFs. Take attendance and submit the attendance list to the Owner's Representative. Include the following:

1. Approved Submittals.
 2. Test reports.
 3. O&M manuals and instructions covering all equipment supplied under this Division, with all non-applicable information crossed out. Clearly identify all required routine maintenance. Include parts lists.
 4. A master Lubrication Chart listing each piece of equipment, the recommended oil or grease, and the recommended frequency of lubrication.
 5. The names and addresses of at least one service agency capable of providing required maintenance for each item of equipment supplied.
 6. Complete temperature control diagrams including control descriptions, system sequence of operation, operating instructions, control system maintenance and calibration information, wiring diagrams, and all control setpoints. See Section 23 0900 for additional requirements.
- B. See Division 1 for additional requirements concerning manuals, manual distribution, and maintenance materials.
- C. Submit O&M manuals for review and distribution to the Owner not less than two weeks prior to the date scheduled for O&M instructions as specified.
- D. Demonstrate proper system operation to the owner's operating staff. Provide the services of the contractor and subcontractors (e.g., mechanical, T&B, temperature control, etc), as required to properly demonstrate system operation.
- E. Provide the necessary skilled labor and helpers to operate the mechanical systems and equipment for a period of 5 days of eight hours each. During this period, instruct the owner's facility staff fully in the operations, adjustment and maintenance of all equipment provided. Provide at least two weeks advanced notice, with a written schedule of each training session, the subject of the session, the Contractors' Representatives who plan to attend the session, and the time for each session. Take attendance and submit attendance sheets to the Owner's Representative.

3.10 RECORD DRAWINGS

- A. See Division 1, for additional requirements associated with Project Record Drawings.
- B. Maintain a full-size set of marked-up prints showing the installed location and arrangement of all work under this division, and in particular where changes were made during construction. Keep record drawings accurate and up-to-date throughout the construction period. Owner's Agents may request to review record drawings during construction and in conjunction with review and approval of monthly pay requests. Include copies of all addenda, RFIs, bulletins, and change orders neatly taped or attached to record drawing set. At the completion of the project send the Engineer full-size plans clearly showing all changes from the original design marked up in red so as to facilitate the Engineer incorporating these changes into the Engineer's CADD files. Forward record drawings to the Owner's Representative prior to submitting a

request for substantial completion.

3.11 SITE VISITS AND OBSERVATION OF CONSTRUCTION

- A. The Engineer may make periodic visits to the project site at various stages of construction in order to observe the progress and quality of various aspects of the work so as to determine if such work is proceeding in general accordance with the Contract Documents. This observation will not release the Contractor from his responsibility to supervise, direct, and control all construction work and activities. The Engineer has no authority over, or responsibility for means, methods, techniques, sequences, or procedures of construction or for safety precautions and programs, or for failure of the Contractor to comply with applicable laws, regulations, or codes.
- B. Prior to substantial completion, request that the Engineer provide a final observation visit. Complete the attached "Final Observation Checklist," and include it with this request. For any items that are not applicable, mark them "N/A."

3.12 PROJECT CLOSEOUT

- A. Submit written certification that all work complies with the specifications and applicable codes. Submit certifications and acceptance certificates including proof of delivery of record drawings, O&M manuals, spare parts required, and equipment warranties.

END OF SECTION 230500

Project: _____

Date Submitted: _____

General Contractor: _____

Date of Final Mechanical System: _____

Mechanical Contractor: _____

Observation Requested: _____

**CONTRACTOR'S MECHANICAL & PLUMBING CHECK LIST
(ALL APPLICABLE ITEMS MUST BE COMPLETED PRIOR TO FINAL OBSERVATION)**

In advance of requesting a final mechanical observation for installed mechanical systems, please check all items that have been completed. For all items not applicable to this project mark N/A.

PLUMBING/PIPING

- _____ 1. All plumbing fixtures are set, sealed and cleaned.
- _____ 2. All domestic and HVAC pipe systems are insulated.
- _____ 3. All pipe systems are identified with specified labels and directional arrows.
- _____ 4. Floor sinks and drain grates are cleaned and debris removed.
- _____ 5. Valve tags are installed.
- _____ 6. Special equipment (water softeners, water heaters, piping systems, etc.) have been checked and put into service.
- _____ 7. Medical gas systems have been checked and certified.
- _____ 8. Special piping systems have been cleaned and pressure tested.
 - _____ Fuel Handling _____ Process Piping
 - _____ Compressed Air _____ Nitrogen
 - _____ Natural Gas _____ Vacuum
 - _____ Other _____ Argon
 - _____ Medical Gas
 - _____ Other
- _____ 9. Limestone chips have been installed in acid dilution sumps.
- _____ 10. Plumbing/piping connections have been completed to Owner-furnished equipment and equipment furnished by other Contractors/Subcontractors.
- _____ 11. Exterior wall hydrants have been cleaned.
- _____ 12. Concrete collars have been installed at clean-out to grade, valve box, or other specified plumbing items.
- _____ 13. Drains and relief lines from plumbing and HVAC equipment have been installed and secured in a proper manner.
- _____ 14. All plumbing equipment and areas of equipment have been cleaned and debris removed.

- _____15. All plumbing equipment required by the Specifications has been identified and/or numbered.
- _____16. Domestic water systems sterilization has been completed.
- _____17. Refrigerant piping/system has been charged and tested.
- _____18. Strainers/suction diffusers have been cleaned.
- _____19. Backflow preventers have been tested.
- _____20. Air has been vented from all coils and systems.
- _____21. Water treatment systems have been charged and tested.

_____ Chilled Water	_____ Condenser Water
_____ Hot Water	_____ Steam/Condensate
- _____22. Ethylene glycol system has been charged with correct mixture and tested.
- _____23. Water systems have been cleaned (X) and pressure tested (P)

_____ Chilled Water	_____ Condenser Water
_____ Hot Water	_____ Non-potable Water
_____ Steam	_____ Domestic Hot Water
_____ Condensate	_____ Domestic Cold Water
_____ Fire Protection	_____ Acid Waste and Vent
_____ Sanitary Sewer and Vent	_____ Heat Recovery Piping
_____ Roof and Overflow Drains	_____ Other (list)
- _____24. PRVs have been adjusted (water, steam, gases).

FIRE PROTECTION

- _____1. Fire protection piping is completed.
- _____2. Fire protection system has been certified by the Fire Marshal's office.
- _____3. All electrical interlocks between the fire sprinkler components and the fire panel have been checked for operation.
- _____4. Spare sprinkler head, wrench and cabinet are installed.

HVAC - EQUIPMENT AND DUCTWORK

- _____1. All ductwork has been sealed and insulated.
- _____2. Return air paths and transfer openings have been verified.
- _____3. Air handlers have been cleaned inside and out and construction filters removed and replaced with final filters.

- _____4. All air handling equipment has been started and operated for the specified time.
- _____5. All equipment isolators have been adjusted for specified deflection.
- _____6. All VAV boxes, fan coils, or fan powered boxes are completed and operational.
- _____7. All pump shafts and couplings have been aligned.
- _____8. Ductwork, coils, housing, diffusers, registers and grilles have been cleaned.
- _____9. Boilers have been fired and certified by the supplier.
- _____10. Cooling towers have been started and inspected by the supplier.
- _____11. Chillers have been charged, started and certified for operation by the supplier.
- _____12. Fire dampers are accessible and fully operational.
- _____13. All HVAC equipment has been lubricated.
- _____14. HVAC equipment has been labeled in accordance with the Specifications.
- _____15. Duct pressure testing is complete and accepted.
- _____16. "HAZARDOUS AREA" signs installed where applicable.
- _____17. Belt guards installed where applicable.
- _____18. Variable frequency drives have been tested by the manufacturer's representative and certified to be in compliance with all of the specified requirements.
- _____19. Testing and balancing has been completed, and deficiencies noted have been corrected.
- _____20. Special systems have been started and tested, such as: Humidification, laboratory hoods, kitchen hoods, and Owner-furnished items.

TEMPERATURE CONTROLS

- _____1. Temperature control panels and devices have been labeled in accordance with the Specifications.
- _____2. All control dampers close completely and edge and blade seals form tight seal.
- _____3. All control valves have been piped as required by the Drawings.
- _____4. Controls systems are completed and all control points are operating and recording properly.
- _____5. All temperature control tubing and wiring is installed and secured in accordance with the Specifications and the electrical code.
- _____6. Smoke removal fans and/or smoke detectors have been tested for operation and shutdown.
- _____7. Freezestats have been tested ensuring fan shutdown and full damper closure.

- _____8. Operator training for temperature controls has taken place.
- _____9. Refrigerant sensors and equipment room shutdown have been tested.

GENERAL ITEMS

The following specified items have been submitted:

- _____1. Record Drawings (to be submitted prior to final payment to the Contractor).
- _____2. Operation and maintenance manuals.
- _____3. Manufacturer's representative installation check and certification submitted (see list of equipment, Section 23 0500).
- _____4. Testing and balancing reports.
- _____5. Test kits furnished to Owner.
 - _____ Flow Measuring Devices
 - _____ Flow Balance Valves
 - _____ Flow Control Devices
- _____6. Temperature control schematics and sequence of operation.
- _____7. Wall-mounted lubrication, valve, and temperature control charts have been installed.

DIVISION 23 SUBSTITUTION REQUEST FORM (SRF)

TO: BRIDGERS & PAXTON CONSULTING ENGINEERS

PROJECT: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section: _____ Page: _____ Paragraph/Line: _____ Specified Item: _____

Proposed Substitution: _____

Attach complete product description, drawings, photographs, performance and test data, and other information necessary for evaluation. Identify specific Model Numbers, finishes, options, etc.

1. Will changes be required to building design in order to properly install proposed substitutions? YES
NO

If YES, explain: _____

2. Will the undersigned pay for changes to the building design, including engineering and drawing costs, caused by requested substitutions? YES NO

3. List differences between proposed substitutions and specified item.

Specified Item

Proposed Substitution

4. Does substitution affect Drawing dimensions? YES NO

5. What affect does substitution have on other trades? _____

6. Does the manufacturer's warranty for proposed substitution differ from that specified? YES NO

If YES, explain: _____

7. Will substitution affect progress schedule? YES NO

If YES, explain: _____

8. Will maintenance and service parts be locally available for substitution? YES NO

If YES, explain: _____

9. Does proposed product contain asbestos in any form? YES NO

SUBMITTED BY: Firm: _____ Date: _____

Address: _____

Signature: _____ Telephone: _____

For Engineer's Use Only

Accepted _____ Not Accepted _____ Received Too Late _____

By: _____ Date: _____

Remarks: _____

CADD DATABASE LICENSE, INDEMNITY AND WARRANTY AGREEMENT

PROJECT: _____

LICENSE

1.1 LICENSE GRANT: Contractor is granted use of the CADD Database for the indicated project for the specific purpose of preparing submittal documents for this Project. No other use of the CADD Database is granted. Title to the CADD Database is not transferred to the Contractor.

1.2 COPYING RESTRICTIONS: Contractor may copy the CADD Database in whole or in part, but only for backup and archival purposes and for use by the Contractor's Subcontractors. Contractor agrees to ensure that any entities who receive a copy of the CADD Database from Contractor, either in whole or in part, comply with the terms and conditions of this agreement.

1.3 TRANSFER OF CADD DATABASE: Contractor safeguard the CADD Database from falling into the hands of any parties other than those indicated in Section 1.2 of this Agreement.

WARRANTY

2.1 DATABASE WARRANTY: Bridgers & Paxton (B&P) disclaims all warranties with regard to the database, including all implied warranties of fitness. B&P disclaims all obligations or liabilities for damages, including but not limited to, consequential damages rising out of or in connection with the use or performance of the database.

INDEMNITY

3.1 INDEMNITY: Contractor recognizes that the use of the database will be at the Contractor's sole risk and without any liability, risk or legal exposure by B&P. It shall be the Contractor's sole responsibility to verify dimensions in the drawings prior to using these database files for his intended purpose. Furthermore, the Contractor shall, to the fullest extent permitted by law, defend, indemnify and hold harmless Bridgers & Paxton from all claims, damages, losses, and attorney fees arising out of or resulting from the use of the database.

ACKNOWLEDGMENT

4.1 ACKNOWLEDGMENT: The Contractor acknowledges that (s)he has read this Agreement, understands it, and agrees to be bound by its terms and conditions.

CONTRACTOR'S REPRESENTATIVE

Signature: _____ Company Name: _____

Name: _____ Address 1: _____

Title: _____ Address 2: _____

Date: _____

SECTION 237413 - PACKAGED OUTDOOR CENTRAL STATION AIR HANDLING UNITS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes high efficiency packaged, outdoor, central-station air-handling unit (roof top unit) with the following components and accessories:
1. Direct-expansion cooling. ADD #03_03/03/2021
 2. Gas furnace.
 3. Economizer outdoor, Merv 13 filter, and return-air damper section.
 - a. Provide two extra / spare sets of Merv 13 Filters per unit.
 4. Exhaust fan or barometric relief hood.
 5. Supply fan
 6. Non Powered Service Receptacle (to be powered separately by division 26)
 7. Integral, space temperature controls.
 8. 14" tall roof curbs.

1.2 DEFINITIONS

- A. Outdoor-Air Refrigerant Coil: Refrigerant coil in the outdoor-air stream to reject heat during cooling operations and to absorb heat during heating operations. "Outdoor air" is defined as the air outside the building or taken from outdoors and not previously circulated through the system.
- B. Outdoor-Air Refrigerant-Coil Fan: The outdoor-air refrigerant-coil fan in RTUs. "Outdoor air" is defined as the air outside the building or taken from outdoors and not previously circulated through the system.
- C. RTU: Rooftop unit. As used in this Section, this abbreviation means packaged, outdoor, central-station air-handling units. This abbreviation is used regardless of whether the unit is mounted on the roof or on a concrete base on ground.
- D. Supply-Air Fan: The fan providing supply-air to conditioned space. "Supply air" is defined as the air entering a space from air-conditioning, heating, or ventilating apparatus.
- E. Supply-Air Refrigerant Coil: Refrigerant coil in the supply-air stream to absorb heat (provide cooling) during cooling operations and to reject heat (provide heating) during heating operations. "Supply air" is defined as the air entering a space from air-conditioning, heating, or ventilating apparatus.

1.3 SUBMITTALS

- A. Product Data: Include manufacturer's technical data for each RTU, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories.

- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 1. Wiring Diagrams: Power, signal, and control wiring.
- C. Field quality-control test reports.
- D. Operation and maintenance data.
- E. Warranty.

1.4 QUALITY ASSURANCE

- A. ARI Compliance:
 - 1. Comply with ARI 210/240 and ARI 340/360 for testing and rating energy efficiencies for RTUs.
 - 2. Comply with ARI 270 for testing and rating sound performance for RTUs.
- B. ASHRAE Compliance:
 - 1. Comply with ASHRAE 15 for refrigerant system safety.
 - 2. Comply with ASHRAE 33 for methods of testing cooling and heating coils.
 - 3. Comply with applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."
- C. ASHRAE/IESNA 90.1-2004 Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6 - "Heating, Ventilating, and Air-Conditioning."
- D. NFPA Compliance: Comply with NFPA 90A and NFPA 90B.
- E. UL Compliance: Comply with UL 1995.
- F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.5 WARRANTY

- A. Special Warranty: One Year warranty in which manufacturer/contractor agrees to replace components of RTUs that fail in materials, workmanship or installation within a one year period after owner occupancy.
 - 1. Warranty Period for Compressors: Manufacturer's standard, but not less than five years from date of Substantial Completion.

2. Warranty Period for Gas Furnace Heat Exchangers: Manufacturer's standard, but not less than 15 years from date of Substantial Completion.
3. Warranty Period for Solid-State Ignition Modules: Manufacturer's standard, but not less than three years from date of Substantial Completion.
4. Warranty Period for Control Boards: Manufacturer's standard, but not less than three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Carrier equipment no exceptions.
- B. Packaged units (3 to 5 Ton)
 1. General
 - a. The units shall be convertible airflow. The operating range shall be between 105°F and 0°F cooling as standard from the factory for units with microprocessor controls. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.
 2. Casing
 - a. Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8 inch, foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting, with forklift capabilities on three sides of the unit.
 3. Unit Top

- a. The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top.
4. Two-Inch Pleated Filters ADD #03_03/03/2021
 - a. Merv 13 filters. Provide two extra spare sets of Merv 13 Filters with each unit.
5. Compressors
 - a. All units shall have direct-drive and hermetic type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.
 - b. Crankcase heaters shall be included.
 - c. Two-stage compressor for light load cooling conditions.
6. Indoor Fan
 - a. The following units shall be equipped with (1-phase or high efficiency 3-phase) shall have multispeed, direct drive motors. All motors shall be thermally protected.
 - b. All motors shall be thermally protected. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).
7. Outdoor Fans
 - a. The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor shall be permanently lubricated and shall have built-in thermal overload protection.
8. Evaporator and Condenser Coils
 - a. Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin evaporator coil. Microchannel type condenser coil. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig.
9. IAQ removable, reversible, double-sloped condensate drain pan with through the base condensate drain.
10. Tool-less Hail Guards
 - a. Tool-less, hail protection coil guards for condenser coil protection.
11. Controls

- a. Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device.
12. Microprocessor controls provide for all 24V control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.
13. Clogged Filter/Fan Failure Switch
14. A dedicated differential pressure switch is available to achieve active fan failure indication and/or clogged filter indication. These indications will be registered with either a zone sensor with status indication lights or an Integrated Comfort™ System. This option is available for microprocessor controlled units.
15. Discharge Air Temperature Sensing
16. This option provides true discharge air temperature sensing in heating models. This sensor is a status indicator readable through Tracer™ or Tracker™. This option is available for microprocessor controlled units.
17. High Pressure Control
 - a. All units shall include High Pressure Cutout.
18. Phase monitor
 - a. Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.
19. Refrigerant Circuits
 - a. Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.
20. Gas Heating Section
 - a. The heating section shall have a progressive tubular heat exchanger design using stainless steel burners and corrosion resistant steel throughout. An induced draft combustion blower shall be used to pull the combustion products through the firing tubes. The heater shall use a direct spark ignition (DSI) system. On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat/zone sensor. Units shall be suitable for use with natural gas.

21. Unpowered Convenience Outlet
 - a. GFCI, 120v/15amp, 2 plug, convenience outlet.
 22. Economizer - downflow or horizontal
 - a. The assembly includes fully modulating 0-100 percent motor and dampers, minimum position setting, preset linkage, wiring harness with plug, spring return actuator and fixed dry bulb control. The barometric relief shall provide a pressure operated damper that shall be gravity closing and shall prohibit entrance of outside air during the equipment off cycle.
 23. Through the Base Electrical Access
 - a. An electrical service entrance shall be provided allowing electrical access for both control and main power connections inside the curb and through the base of the unit. Option will allow for field installation of liquid-tight conduit and an external field-installed disconnect switch.
 - b. Through the Base Electrical with Disconnect Switch
 - c. This 3-pole, molded case, disconnect switch with provisions for through the base electrical connections. The disconnect switch will be installed in the unit in a water tight enclosure with access through a swinging door. Wiring will be provided from the switch to the unit high voltage terminal block. The switch will be UL/CSA agency recognized.
 - d. Note: The disconnect switch will be sized per NEC and UL guidelines but will not be used in place of unit overcurrent protection.
 24. Roof Curb
 - a. The roof curb shall be designed to mate with the unit's downflow or horizontal supply and return and provide support and a water tight installation when installed properly. The roof curb design shall allow field fabricated rectangular supply/return ductwork to be connected directly to the curb. Curb design shall comply with NRCA requirements. Curb shall be shipped knocked down for field assembly and shall include wood nailer strips.
- C. Packaged Units (6 to 20 Ton)
1. General
 - a. The units shall be dedicated downflow or horizontal airflow. The operating range shall be between 105°F and 0°F in cooling as standard from the factory for all units. Cooling performance shall be rated in accordance with AHRI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation and control sequence, before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be UL listed and labeled, classified in accordance to UL 1995/C 22.2, 236-05 3rd Edition.

2. Casing
 - a. Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Cabinet construction shall allow for all maintenance on one side of the unit. In order to ensure a water and air tight seal, service panels shall have lifting handles and no more than three screws to remove. All exposed vertical panels and top covers in the indoor air section shall be insulated with a 1/2 inch, 1 pound density foil-faced, fire-resistant, permanent, odorless, glass fiber material. The base of the downflow unit shall be insulated with 1/2 inch, 1 pound density foil-faced, closed-cell material. The downflow unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8 inch high supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting.
3. Unit Top
 - a. The top cover shall be one piece, or where seams exist, double hemmed and gasket sealed to prevent water leakage.
4. Filters
 - a. ADD #03_03/03/2021
MERV 13 filters. Provide two extra spare sets of Merv 13 filters per unit.
5. Compressors
 - a. All units shall have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Internal overloads shall be provided with the scroll compressors. All models shall have crankcase heaters, phase monitors and low and high pressure control as standard.
6. Crankcase Heaters
 - a. These band heaters provide improved compressor reliability by warming the oil to prevent migration during off-cycles or low ambient conditions.
7. Refrigerant Circuits
 - a. Each refrigerant circuit shall have independent fixed orifice or thermostatic expansion devices, service pressure ports, and refrigerant line filter driers factory installed as standard. An area shall be provided for replacement suction line driers.
8. Evaporator and Condenser Coils

9. Microchannel coils will be burst tested by the manufacturer. Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard for evaporator coils. Microchannel condenser coils shall be standard on all units. Coils shall be leak tested to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 225 psig and pressure tested to 450 psig. Sloped condensate drain pans are standard.
10. Gas Heating Section
11. The heating section shall have a drum and tube heat exchanger design using corrosion resistant steel components. A forced combustion blower shall supply premixed fuel to a single burner ignited by a pilotless hot surface ignition system. In order to provide reliable operation, a negative pressure gas valve shall be used on standard furnaces and a pressure switch on furnaces with modulating heat that requires blower operation to initiate gas flow. On an initial call for heat, the combustion blower shall purge the heat exchanger 45 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat. Units shall be suitable for use with natural gas or propane (field installed kit) and shall also comply with California requirements for low NOx emissions. The 12½- 25 tons shall have two stage heating.
12. Outdoor Fans
 - a. The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor(s) shall be permanently lubricated and shall have built-in thermal overload protection.
13. Indoor Fan
 - a. Units above shall have belt driven, FC centrifugal fans with adjustable motor sheaves. Units with standard motors shall have an adjustable idler-arm assembly for quick-adjustment of fan belts and motor sheaves. All motors shall be thermally protected. Oversized motors shall be available for high static application. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).
14. Controls
 - a. Unit shall be completely factory-wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device.
 - b. Microprocessor controls provide for all 24V control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.
 - c. Discharge Air Temperature Sensing

- i. This option provides true discharge air temperature sensing in heating models. This sensor is a status indicator readable through Tracer™ or Tracker™. This option is available for microprocessor controlled units.
 - d. High Pressure Cutout
 - e. This option is offered for units that do not have High Pressure cutout as standard.
- 15. Economizer - downflow or horizontal
 - a. The assembly includes fully modulating 0-100 percent motor and dampers, barometric relief, minimum position setting, preset linkage, wiring harness with plug, fixed dry bulb and spring return actuator. The barometric relief damper shall be standard with the economizer and shall provide a pressure operated damper that shall be gravity closing and shall prohibit entrance of outside air during the equipment "off" cycle. Solid state enthalpy and differential enthalpy control shall be field-installed.
- 16. Tool-less Hail Guards
 - a. Tool-less, hail protection coil guards for condenser coil protection.
- 17. Through the Base Electrical with Disconnect Switch
 - a. Three-pole, molded case, disconnect switch with provisions for through the base electrical connections are available. The disconnect switch will be installed in the unit in a water tight RT-PRC028-EN 121 enclosure with access through a swinging door. Factory wiring will be provided from the switch to the unit high voltage terminal block. The switch will be UL/CSA agency recognized.
 - b. Note: The disconnect switch will be sized per NEC and UL guidelines but will not be used in place of unit overcurrent protection.
- 18. Unpowered Convenience Outlet
 - a. This option is a GFCI, 120v/15amp, 2 plug, convenience outlet, unpowered.
- 19. Roof Curb
 - a. The roof curb shall be designed to mate with the unit and provide support and a water tight installation when installed properly. The roof curb design shall allow field-fabricated rectangular supply/return ductwork to be connected directly to the curb. Curb design shall comply with NRCA requirements. Curb shall be shipped knocked down for field assembly and shall include wood nailer strips.

2.2 CONTROLS

A. RTU Controls:

1. Factory wired and tested with all necessary safety controls and all controls for fully automatic operation per the sequence of operations on the drawings. Each unit shall be provided with a field installed thermostat as specified in section 23 0900. See controls drawings for the intended sequence of control.

2.3 CAPACITIES AND CHARACTERISTICS

- A. Supply and exhaust fans: See Equipment Schedule.
- B. Heating and cooling: See Equipment Schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Roof Curb: Install on roof structure or concrete base, level and secure, according to ARI Guideline B. Install RTUs on curbs and coordinate roof penetrations and flashing with roof construction specified in Division 07 Section "Roof Accessories." Secure RTUs to upper curb rail, and secure curb base to roof framing or concrete base with anchor bolts.
- B. Unit Support: Install unit level on structural curbs. Coordinate wall penetrations and flashing with wall construction. Secure RTUs to structural support with anchor bolts.
- C. Install condensate drain, minimum connection size, with trap and indirect connection. See Plumbing drawings.
- D. Install piping adjacent to RTUs to allow service and maintenance.
 1. Gas Piping: Comply with applicable requirements in Division 23 Section "Facility Natural-Gas Piping" Connect gas piping to burner, full size of gas train inlet, and connect with union and shutoff valve with sufficient clearance for burner removal and service.
- E. Duct installation requirements are specified in other Division 23 Sections. Drawings indicate the general arrangement of ducts. The following are specific connection requirements:
 1. Install ducts to termination at top of roof curb.
 2. Connect supply ducts to RTUs with flexible duct connectors specified in Division 23 Section.
 3. Install return-air duct continuously through roof structure.

3.2 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Perform tests and inspections and prepare test reports.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing. Report results in writing.
- C. Tests and Inspections:
 - 1. After installing RTUs and after electrical circuitry has been energized, test units for compliance with requirements.
 - 2. Inspect for and remove shipping bolts, blocks, and tie-down straps.
 - 3. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Remove and replace malfunctioning units and retest as specified above.

3.3 CLEANING AND ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to site during other-than-normal occupancy hours for this purpose.
- B. After completing system installation and testing, adjusting, and balancing RTU and air-distribution systems, clean filter housings and install new filters.

END OF SECTION 237413

SECTION 271500 - COMMUNICATIONS HORIZONTAL CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. UTP cabling.
- 2. Cable connecting hardware, patch panels, and cross-connects.
- 3. Telecommunications outlet/connectors.
- 4. Cabling system identification products.
- 5. Warranty

1.3 DEFINITIONS

- A. BICSI: Building Industry Consulting Service International.
- B. Consolidation Point: A location for interconnection between horizontal cables extending from building pathways and horizontal cables extending into furniture pathways.
- C. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
- D. EMI: Electromagnetic interference.
- E. IDC: Insulation displacement connector.
- F. LAN: Local area network.
- G. MUTOA: Multiuser telecommunications outlet assembly, a grouping in one location of several telecommunications outlet/connectors.
- H. Outlet/Connectors: A connecting device in the work area on which horizontal cable or outlet cable terminates.
- I. RCDD: Registered Communications Distribution Designer.
- J. UTP: Unshielded twisted pair.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate layout and installation of telecommunications cabling with Owner's telecommunications and LAN equipment and service suppliers.
- B. Coordinate telecommunications outlet/connector locations with location of power receptacles at each work area.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. System Labeling Schedules: Electronic copy of labeling schedules, in software and format selected by Owner.
 - 2. System Labeling Schedules: Electronic copy of labeling schedules that are part of the cabling and asset identification system of the software.
 - 3. Cabling administration drawings and printouts.
 - 4. Wiring diagrams to show typical wiring schematics, including the following:
 - a. Cross-connects.
 - b. Patch panels.
 - c. Patch cords.
 - 5. Cross-connects and patch panels. Detail mounting assemblies, and show elevations and physical relationship between the installed components.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, qualified layout technician, installation supervisor, and field inspector.
- B. Source quality-control reports.
- C. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For splices and connectors to include in maintenance manuals.
- B. Software and Firmware Operational Documentation:
 - 1. Software operating and upgrade manuals.
 - 2. Program Software Backup: On magnetic media or compact disk, complete with data files.
 - 3. Device address list.
 - 4. Printout of software application and graphic screens.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Patch-Panel Units: One of each type.
 - 2. Connecting Blocks: One of each type.
 - 3. Device Plates: One of each type.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff. (submit qualifications)
 - 1. Layout Responsibility: Preparation of Shop Drawings and Cabling Administration Drawings, Cabling Administration Drawings and field testing program development by an RCDD.
 - 2. Installation Supervision: Installation shall be under the direct supervision of a Registered Technician, or Level 2 Installer, who shall be present at all times when Work of this Section is performed at Project site.
 - 3. Testing Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- B. Testing Agency Qualifications: An NRTL.
 - 1. Testing Agency's Field Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- C. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 50 or less.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- E. Telecommunications Pathways and Spaces: Comply with TIA-569-D.
- F. Grounding: Comply with TIA-607-B.

1.10 QUALIFICATIONS

- A. Communications Cabling: The Contractor shall have (5) five years of documented experience performing cable placement, splicing, termination, connecting, and testing for each of the media types and (3) three years of applicable experience with the proposed system manufacturer. In the case of newer technologies that do not have a (3) three year history, the Contractor shall

have documented experience for at least half of the lifetime of the new technology. The approved contractor shall, at a minimum, maintain a ratio of one manufacturer or BICSI certified installer for every two non-certified installers assigned to the project.

- B. The contractor shall have on staff a BICSI Certified RCDD as a permanent employee. This staff member shall have been on staff for a minimum of (1) one year prior to the date of this projects release for bid.
- C. The contractor shall have on staff at least (1) one BICSI Certified Technician and this staff member shall have been a full time employee for no less than (1) one year prior to the date of this projects release for bid. A BICSI Certified Technician shall be employed as the on-site Field Supervisor for this project.
- D. The contractor shall provide resumes for the Project Manager, Supervisors and any skilled technicians or installers. Each resume shall include applicable certification documents provided by the manufacturer or BICSI.
 - 1. Project Manager, Supervisors, and Principal Skilled Technicians: minimum of (5) five years' experience in like work.
 - 2. Category 6a Unshielded Twisted Pair and Fiber Optic Cable Technicians: documented training, licensing, and/or certification for the types of media specified, as applicable as well as certification from the manufacturer of the solution chosen by the owner.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
 - 1. Test each pair of UTP cable for open and short circuits.

PART 2 - PRODUCTS

2.1 HORIZONTAL CABLING DESCRIPTION

- A. Horizontal cable and its connecting hardware provide the means of transporting signals between the telecommunications outlet/connector and the horizontal cross-connect located in the communications equipment room. This cabling and its connecting hardware are called a "permanent link," a term that is used in the testing protocols.
 - 1. TIA-568-C.1 requires that a minimum of two telecommunications outlet/connectors be installed for each work area.
 - 2. Horizontal cabling shall contain no more than one transition point or consolidation point between the horizontal cross-connect and the telecommunications outlet/connector.
 - 3. Bridged taps and splices shall not be installed in the horizontal cabling.
- B. A work area is approximately 100 sq. ft. (9.3 sq. m), and includes the components that extend from the telecommunications outlet/connectors to the station equipment.

- C. The maximum allowable horizontal cable length is 295 feet (90 m). This maximum allowable length does not include an allowance for the length of 16 feet (4.9 m) to the workstation equipment or in the horizontal cross-connect.

2.2 BACKBOARDS

- A. Backboards: Plywood, fire-retardant treated, 3/4 by 48 by 96 inches (19 by 1220 by 2440 mm). Comply with requirements in Section 061000 "Rough Carpentry" for plywood backing panels.

2.3 UTP CABLE

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

1. Panduit.
2. General Cable
3. Hubbell Premise Wiring.
4. Superior Essex Inc.
5. SignaMax.
6. Commscope Inc. (NETCONNECT)
7. Commscope Inc. (SYSTIMAX)
8. Commscope Inc. (Uniprise)
9. Berk-Tek; Leviton / (Nexans)
10. Superior Essex; Legrand / (nCompass)
11. Corning (LANscape)
12. Belden Inc.
13. Owner or consultant approved equal.

- B. Description: 100-ohm, four-pair UTP, formed into 4-pair, binder groups covered with a blue thermoplastic jacket. Small diameter outer jacket, outside diameter no larger than 0.25 inches.

1. Comply with ICEA S-90-661 for mechanical properties.
2. Comply with TIA-568-C.1 for performance specifications.
3. Comply with TIA-568-C.2, Category 6a.
4. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444 and NFPA 70 for the following types:
 - a. Communications, Plenum Rated: Type CMP, complying with NFPA 262.

2.4 UTP CABLE HARDWARE

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

1. Panduit.
2. General Cable
3. Hubbell Premise Wiring.
4. Superior Essex Inc.

5. SignaMax.
 6. Commscope Inc. (NETCONNECT)
 7. Commscope Inc. (SYSTIMAX)
 8. Commscope Inc. (Uniprise)
 9. Berk-Tek; Leviton / (Nexans)
 10. Superior Essex; Legrand / (nCompass)
 11. Corning (LANscape)
 12. Belden Inc.
 13. Owner or consultant approved equal.
- B. General Requirements for Cable Connecting Hardware: Comply with TIA-568-C.2, IDC type, with modules designed for punch-down caps or tools. Cables shall be terminated with connecting hardware of same category or higher.
- C. Connecting Blocks: 110-style IDC for Category 6a. Provide blocks for the number of cables terminated on the block, plus 25 percent spare. Integral with connector bodies, including plugs and jacks where indicated.
- D. Cross-Connect: Modular array of connecting blocks arranged to terminate building cables and permit interconnection between cables.
1. Number of Terminals per Field: One for each conductor in assigned cables.
- E. Patch Panel: Angled modular panels housing multiple-numbered jack units with IDC-type connectors at each jack for permanent termination of pair groups of installed cables.
1. Number of Jacks per Field: One for each four-pair UTP cable indicated.
- F. Jacks and Jack Assemblies: Modular, color-coded, eight-position modular receptacle units with integral IDC-type terminals.
- G. Patch Cords: Factory-made, four-pair cables in 60-inch (1520-mm) lengths; terminated with eight-position modular plug at each end.
1. Patch cords shall have bend-relief-compliant boots and color-coded icons to ensure Category 6a performance. Patch cords shall have latch guards to protect against snagging.
 2. 26AWG patch cords minimum for category 6a cabling.
 3. Patch cords shall have color-coded boots for circuit identification.
 4. Patch Cords shall be from the same manufacturer as the cabling solution.

2.5 TELECOMMUNICATIONS OUTLET/CONNECTORS

- A. Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, eight-position modular. Comply with TIA-568-C.1.
- B. Workstation Outlets: Four-port-connector assemblies mounted in single faceplate.
1. Plastic Faceplate: High-impact plastic. Coordinate color with Section 262726 "Wiring Devices."

2. Metal Faceplate: Steel, complying with requirements in Section 262726 "Wiring Devices."
3. For use with snap-in jacks accommodating any combination of UTP, optical fiber, and coaxial work area cords.
 - a. Flush mounting jacks, positioning the cord at a 45-degree angle, only for projector location.
4. Legend: Snap-in, clear-label covers and machine-printed paper inserts.

2.6 GROUNDING

- A. Comply with requirements in Section 260526 "Grounding and Bonding for Electrical Systems" for grounding conductors and connectors.
- B. Comply with TIA-607-B.

2.7 IDENTIFICATION PRODUCTS

- A. Comply with TIA-606-B and UL 969 for labeling materials, including label stocks, laminating adhesives, and inks used by label printers.
- B. Comply with requirements in Section 260553 "Identification for Electrical Systems."

2.8 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to evaluate cables.
- B. Factory test UTP cables on reels according to TIA-568-C.1.
- C. Factory test UTP cables according to TIA-568-C.2.
- D. Cable will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 ENTRANCE FACILITIES

- A. Coordinate backbone cabling with the protectors and demarcation point provided by communications service provider.

3.2 WIRING METHODS

- A. Install cables in pathways and cable trays except within consoles, cabinets, desks, and counters. Conceal pathways and cables except in unfinished spaces.
 - 1. Install plenum cable in environmental air spaces, including plenum ceilings.
 - 2. **Install “wet” rated cable when the voice and data cabling conduit pathway is in the slab or underground. Transition “wet” rated cable to plenum if pathway extends into a plenum space without conduit. Wet rated cable shall not be installed in the open plenum ceiling space.**
 - 3. Comply with requirements in Section 270528 "Pathways for Communications Systems."
 - 4. Comply with requirements in Section 270536 "Cable Trays for Communications Systems."
- B. Conceal conductors and cables in accessible ceilings, walls, and floors where possible.
- C. Wiring within Enclosures:
 - 1. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
 - 2. Install lacing bars and distribution spools.
 - 3. Install conductors parallel with or at right angles to sides and back of enclosure.

3.3 INSTALLATION OF CABLES

- A. Comply with NECA 1.
- B. General Requirements for Cabling:
 - 1. Comply with TIA-568-C.1.
 - 2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
 - 3. Install 110-style IDC termination hardware unless otherwise indicated.
 - 4. MUTOA shall not be used as a cross-connect point.
 - 5. Consolidation points may be used only for making a direct connection to telecommunications outlet/connectors:
 - a. Do not use consolidation point as a cross-connect point, as a patch connection, or for direct connection to workstation equipment.
 - b. Locate consolidation points for UTP at least 49 feet (15 m) from communications equipment room.
 - 6. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
 - 7. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 - 8. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.

9. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
 10. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 11. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
 12. In the communications equipment room, install a 10-foot- (3-m-) long service loop on each end of cable.
 13. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.
- C. UTP Cable Installation:
1. Comply with TIA-568-C.2.
 2. Do not untwist UTP cables more than 1/2 inch (12 mm) from the point of termination to maintain cable geometry.
- D. Open-Cable Installation:
1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
 2. Suspend UTP cable not in a wireway or pathway a minimum of 8 inches (200 mm) above ceilings by cable supports not more than 48 inches (1220 mm) apart.
 3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.
- E. Installation of Cable Routed Exposed under Raised Floors:
1. Install plenum-rated cable only.
 2. Install cabling after the flooring system has been installed in raised floor areas.
 3. Coil cable 6 feet (1800 mm) long not less than 12 inches (300 mm) in diameter below each feed point.
- F. Group connecting hardware for cables into separate logical fields.
- G. Separation from EMI Sources:
1. Comply with BICSI TDMM and TIA-569-D for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
 2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches (127 mm).
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches (300 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches (610 mm).

3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches (64 mm).
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches (150 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches (300 mm).
4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches (76 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches (150 mm).
5. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches (1200 mm).
6. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5 inches (127 mm).

H. Protect cabling during installation:

1. Protect voice and data cabling cables from any liquid, paints, solvents, debris, or other contaminants, per the manufacturers installation guidelines. Cables shall be replaced if damaged.

3.4 FIRESTOPPING

- A. Comply with requirements in Section 078413 "Penetration Firestopping."
- B. Comply with TIA-569-D, Annex A, "Firestopping."
- C. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.5 GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with TIA-607-B.
- C. Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch (50-mm) clearance behind the grounding bus bar. Connect grounding

bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground.

- D. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.

3.6 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA-606-B. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
 - 1. Administration Class: 2.
 - 2. Color-code cross-connect fields. Apply colors to voice and data service backboards, connections, covers, and labels.
- B. Using cable management system software specified in Part 2, develop Cabling Administration Drawings for system identification, testing, and management. Use unique, alphanumeric designation for each cable and label cable, jacks, connectors, and terminals to which it connects with same designation. At completion, cable and asset management software shall reflect as-built conditions.
- C. Comply with requirements in Section 099123 "Interior Painting" for painting backboards. For fire-resistant plywood, do not paint over manufacturer's label.
- D. Paint and label colors for equipment identification shall comply with TIA-606-B for Class 2 level of administration.
- E. Cable Schedule: Post in prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.
- F. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors. Follow convention of TIA-606-B. Furnish electronic record of all drawings, in software and format selected by Owner.
- G. Cable and Wire Identification:
 - 1. Label each cable within 4 inches (100 mm) of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
 - 2. Each wire connected to building-mounted devices is not required to be numbered at device if color of wire is consistent with associated wire connected and numbered within panel or cabinet.
 - 3. Exposed Cables and Cables in Cable Trays and Wire Troughs: Label each cable at intervals not exceeding 15 feet (4.5 m).
 - 4. Label each terminal strip and screw terminal in each cabinet, rack, or panel.

- a. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with name and number of particular device as shown.
 - b. Label each unit and field within distribution racks and frames.
5. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.
- H. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in TIA-606-B.
1. Cables use flexible vinyl or polyester that flex as cables are bent.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 1. Visually inspect UTP cable jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA-568-C.1.
 2. Visually confirm Category 6a, marking of outlets, cover plates, outlet/connectors, and patch panels.
 3. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
 4. Test UTP backbone copper cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.
 - a. Test instruments shall meet or exceed applicable requirements in TIA-568-C.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 5. UTP Performance Tests:
 - a. Test for each outlet. Perform the following tests according to TIA-568-C.1 and TIA-568-C.2:

- 1) Wire map.
 - 2) Length (physical vs. electrical, and length requirements).
 - 3) Insertion loss.
 - 4) Near-end crosstalk (NEXT) loss.
 - 5) Power sum near-end crosstalk (PSNEXT) loss.
 - 6) Equal-level far-end crosstalk (ELFEXT).
 - 7) Power sum equal-level far-end crosstalk (PSELFEXT).
 - 8) Return loss.
 - 9) Propagation delay.
 - 10) Delay skew.
6. Final Verification Tests: Perform verification tests for UTP systems after the complete communications cabling and workstation outlet/connectors are installed.
- a. Voice Tests: These tests assume that dial tone service has been installed. Connect to the network interface device at the demarcation point. Go off-hook and listen and receive a dial tone. If a test number is available, make and receive a local, long distance, and digital subscription line telephone call.
 - b. Data Tests: These tests assume the Information Technology Staff has a network installed and is available to assist with testing. Connect to the network interface device at the demarcation point. Log onto the network to ensure proper connection to the network.
- D. Document data for each measurement. Data for submittals shall be printed in a summary report that is formatted similar to Table 10.1 in BICSI TDMM, or transferred from the instrument to the computer, saved as text files, and printed and submitted.
- E. End-to-end cabling will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports.
- 3.8 SYSTEM WARRANTY
- A. Contractor shall perform all labeling requirements and provide testing documentation for verification as described herein.
 - B. Contractor shall submit cable records to reflect all moves, adds, and changes.
 - C. Contractor shall provide site plans showing locations of all telecommunication routes. See Item 3.06.
 - D. Contractor shall submit final paperwork for warranty to manufacturer and a copy to the Owner one week prior to the substantial completion date.
 - E. Contractor must be a certified as required by the owner and approved solution supplier such as Mohawk, Berk-Tek, Ortronics, and Siemens.
 - F. Contractor must offer a minimum 20-year extended manufacturer's warranty for the premises fiber cabling solution comprised of approved manufacturer products and must follow all

warranty registration procedures set forth by the manufacturer, including submitting all required documentation to the manufacturer for warranty certification.

- G. All installed equipment must conform to the manufacturer's official published specifications. The warranty shall begin at the system acceptance date and remain in effect for a period of 20 years (minimum) from that date. The contractor shall agree to repair, adjust, and/or replace, as determined by the owner and to replace defective equipment, materials, or other parts of the system at the contractor's sole cost. Owner will incur no costs for service or replacement of parts during the warranty period of 20 years. All third party warranties shall be passed through from the contractor to the owner.

- H. Contractor shall warrant that the system will function as specified in the approved manufacturer's Technical Description Guide.

- I. Contractor shall warrant that the system shall accommodate the specifications in all appropriate sections of this Request for Proposal and all applicable sections of the owners Specifications.

END OF SECTION 271500



SEAL

PROJECT

GENERAL SHEET NOTES

- A. DIMENSIONS ARE TO FINISHED FACE OR GRID LINE, U.N.O.
- B. REFER TO FINISH FLOOR ELEVATION
- C. PENETRATIONS THROUGH FIRE RATED ASSEMBLIES TO BE SEALED WITH APPROVED MATERIALS AND METHODS MEETING AGENCY HAVING JURISDICTION REQUIREMENTS. REFER TO G102 CODE REFERENCE SHEET FOR LOCATIONS.
- D. DOOR AND/OR WINDOW ASSEMBLIES (WITH ALL APPURTENANCES THEREOF) THAT OCCUR IN FIRE RATED WALL ASSEMBLIES TO BE U.L. CERTIFIED AND IDENTIFIED BY A PERMANENT LABEL. INSTALLATION TO BE IN COMPLIANCE WITH MANUFACTURERS INSTRUCTIONS FOR U.L. LABEL ASSEMBLY INTEGRITY ARCHITECTURAL FINISH PLANS FOR FINISHES. REFER TO G102 CODE REFERENCE SHEET FOR LOCATIONS.
- E. REFER TO G102 FOR TYPICAL MOUNTING HEIGHTS.
- F. REFER TO REFLECTED CEILING PLANS FOR CEILING AND FINISH INFO.
- G. ANY DAMAGES TO EXISTING SURFACE AS A RESULT OF NEW CONSTRUCTION ARE TO BE PATCHED AND REPAIRED TO MATCH EXISTING TEXTURE, PAINT, AND/OR FINISH. SURFACES TO BE PAINTED IN THEIR ENTIRETY FROM FLOOR TO CEILING AND INSIDE AND OUTSIDE CORNERS.
- H. ALL NEW EXPOSED DUCTWORK AND GRILES TO BE PAINTED. COLOR TO BE SELECTED BY ARCHITECT.
- I. REFER TO FINISH LEGEND ON AF-101 FOR ADDITIONAL FINISH INFORMATION.
- J. ALL EXISTING CONCRETE VAULTS THROUGHOUT SCHOOL TO BE FILLED. REFER TO DETAIL A4/AE341.
- K. REPLACE ALL DAMAGED EXISTING WALL WAINSCOT TILES WITH SALVAGED TILES FROM SELECTIVE DEMOLITION.
- L. PATCH AND REPAIR CRACKS THROUGHOUT BUILDING TO MATCH ADJACENT TEXTURE, PAINT, AND/OR FINISH.
- M. ALL EXISTING EXTERIOR CONCRETE WALLS TO RECEIVE R-10 RIGID INSULATION ON INTERIOR SIDE WHERE NEW FURRED OUT WALL OCCUR.
- N. SEE SPECIFICATION 10 1400 FOR INTERIOR ROOM SIGNAGE REQUIREMENTS. INTERIOR ROOM SIGNAGE TO CORRESPOND WITH DOORS IN BASE BID VS. DOOR IN BID LOTS.
- O. EMERGENCY EVAC SIGNAGE TO BE INSTALLED IN FIELD. REFER TO SPECIFICATIONS 10 1400 FOR EVAC SIGNAGE REQUIREMENTS.
- P. HIGH IMPACT RESISTANT GYPSUM BOARD TO BE INSTALLED ON ALL JANITOR ROOMS, ABUSE RESISTANT GYPSUM BOARD TO BE INSTALLED ON ALL NEW CORRIDOR AND HALLWAY WALLS.
- Q. PATCH MISCELLANEOUS FLOOR DAMAGE CAUSED BY DEMOLITION OF UTILITIES.
- R. REFER TO FINISH FLOOR PLANS FOR NEW FLOORING FINISH INFORMATION.

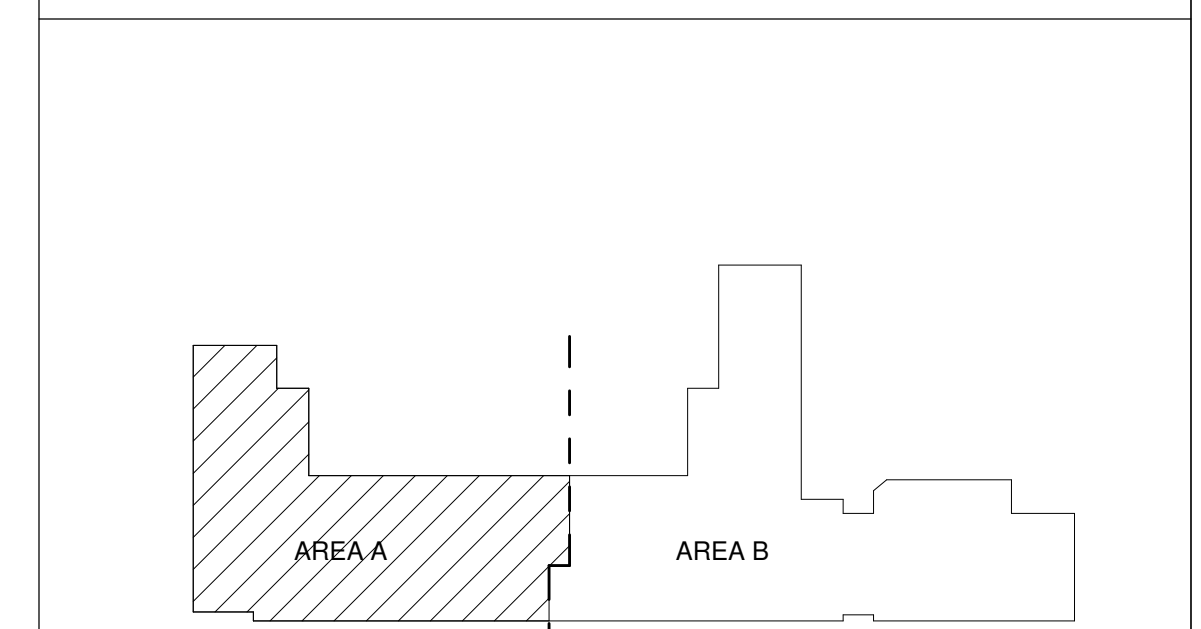
REFERENCE KEYNOTES

0.01	LINE OF SOFFIT/OVERHANG ABOVE
0.04	COPPER, N.I.C.
0.09	FIRE PROOF FILING CABINET, N.I.C.
02 0100.24	DISMANTLE EXISTING DOWNSPOUTS. REINSTALL DOWNSPOUTS AFTER NEW EXTERIOR WALL FINISH IS COMPLETE. STORE AS REQUIRED
02 0100.27	REASSEMBLED CHALKBOARD. COORDINATE LOCATION WITH OWNER
02 0100.36	PATCH AND REPAIR EXISTING FLOOR AT DEMOLISHED TOILET LOCATION AS REQUIRED
02 0100.37	PATCH AND REPAIR EXISTING FLOOR AND WALL AT DEMOLISHED SINK LOCATION AS REQUIRED
06 4023.18	NEW CASEWORK TO BE INSTALLED AT END OF CONSTRUCTION AFTER THE REMOVAL OF EXISTING FIRE ALARM PANEL
06 4023.19	CASEWORK CUBBIES. REFERENCE INTERIOR ELEVATIONS AND CASEWORK SECTION FOR FINISHES
08 4113.01	ALUMINUM-FRAMED STOREFRONT SYSTEM
08 4113.06	ALUMINUM STOREFRONT DOOR W/ REMOVABLE MULLION
09 7200.01	CORK WALL COVERING. REFER FINISH LEGEND
09 7200.02	48" X 60" CORK WALL COVERING W/ 1/2" STAINLESS STEEL "J" TRIM. REFER FINISH LEGEND
10 1101.01	60" X 120" WHITE BOARD WITH 2 FLAG HOLDERS
10 4400.01	SURFACE MOUNT FIRE EXTINGUISHER CABINET
22 0000.05	FLOOR SINK. REFER TO PLUMBING
22 4000.08	DRINKING FOUNTAIN. REFER TO PLUMBING
26 0000.05	EXISTING FIRE ALARM PANEL TO REMAIN THROUGH CONSTRUCTION. REFER TO ELEC.

LEGEND

- EXISTING WALL TO REMAIN
- NEW WALL, REFER TO AE10- PARTITION TYPES
- NEW DOOR, REFER TO AE21- SCHEDULES
- EXISTING TO REMAIN
- NEW CONSTRUCTION
- NO WORK
- PORTION OF WORK TO BE COMPLETED AS PART OF BASE BID. REFER TO BASE BID SHEETS

KEY PLAN



**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

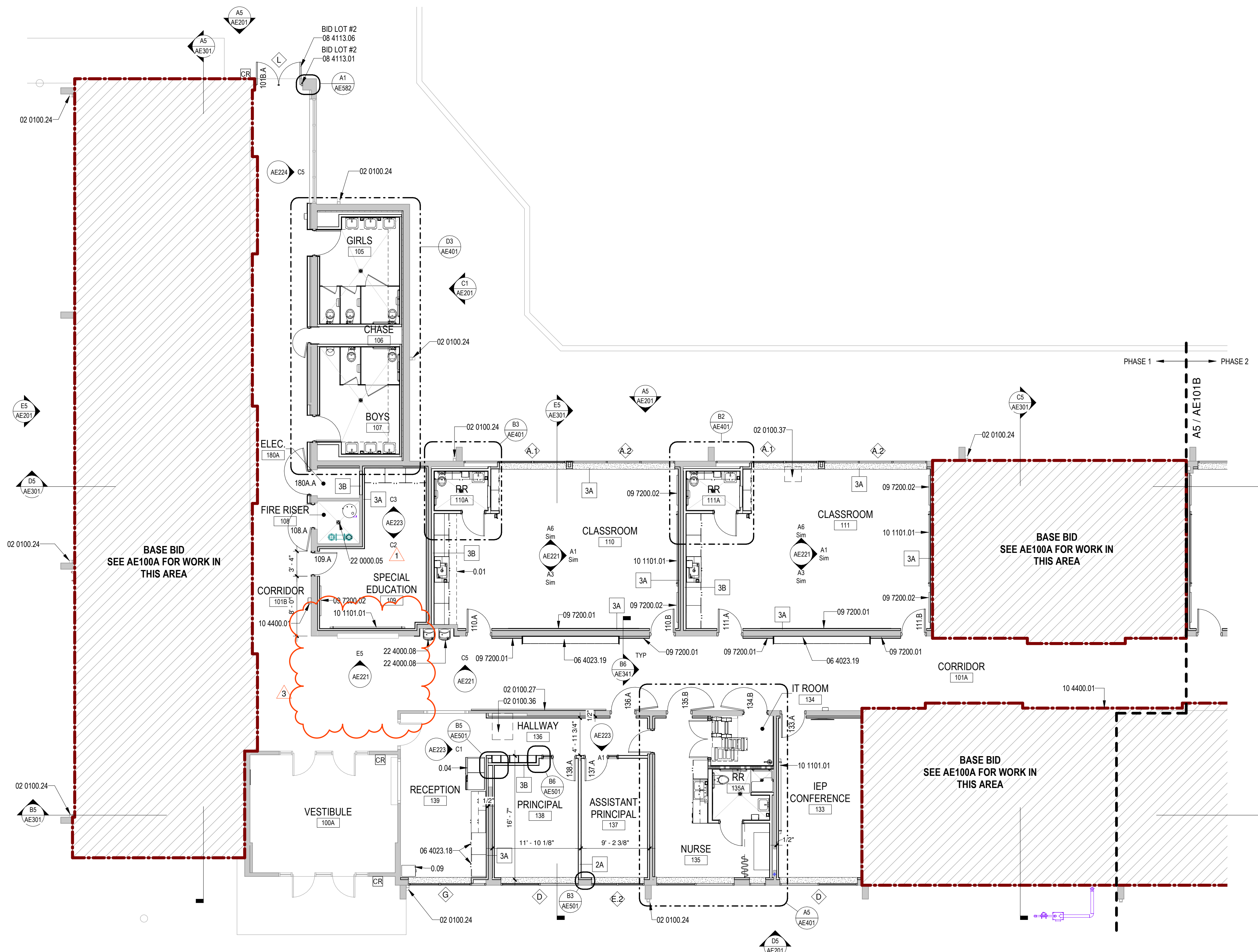
CONSTRUCTION DOCUMENTS

- REVISIONS
- 02/17/2021 ADDENDUM 001
 - 03/03/2021 ADDENDUM 003
 -
 -
 -

DRAWN BY: NW
REVIEWED BY: OK
DATE: 12/10/2019
PROJECT NO: 18-0032
PSFA PRE-K PROJECT NO: K-18-011
PSFA SYSTEMS PROJECT NO: S-20-008
DRAWING NAME:

FLOOR PLAN - AREA A - BID LOT #1

SHEET NO: AE101A



FLOOR PLAN - AREA A
BID LOT #1
1/8" = 1'-0"

GENERAL SHEET NOTES

- A. ALL DIMENSIONS ARE TO FINISHED FACE, UNO
- B. TYPICAL MOUNTING HEIGHTS ARE LOCATED ON G102
- C. PROVIDE SOLID BLOCKING FOR ALL WALL MOUNTED ITEMS INCLUDING BUT NOT LIMITED TO BOARDS, ACCESSORIES, GRAB BARS, HOOKS, PENCIL SHARPENERS AND CASEWORK
- D. FOR ADDITIONAL FINISH INFORMATION REFERENCE FINISH PLANS AND FINISH LEGEND ON AF101
- E. ALL WALLS IN RESTROOMS TO RECEIVE TILE, WALLS NOT SHOWN IN ELEVATION TO RECEIVE SIMILAR FINISH AS THAT ON ADJACENT WALLS, UNO
- F. EQUAL SEGMENTS NOTED ON CASEWORK ELEVATIONS INDICATE DRAWER AND DOOR WIDTHS, NOT CABINET DIMENSIONS
- G. WHERE APPLICABLE, CASEWORK TO BE CENTERED BETWEEN WALLS WITH SMALLEST FILLER PANEL ALLOWABLE
- H. CONTRACTOR TO COORDINATE ALL SWITCHES, THERMOSTATS, AND TECHNOLOGY DEVICES WITH LOCATIONS OF WHITE BOARDS AND CORK WALL COVERINGS
- I. ALL WALL ACCESS PANELS, WINDOWS, SWITCHES, DEVICES AND ACCESSORIES IN CERAMIC TILE MUST BE FULLY WITH FINISH BOUNDARIES AND MAY NOT OVERLAP ONTO ANOTHER WALL FINISH TYPE
- J. TILE INSTALLER TO PLACE GROUT JOINTS SO THAT LARGEST CUT TILES POSSIBLE ARE UTILIZED, AVOID USING TILES LESS THAN 1/2 THE WIDTH OF STANDARD TILES WHERE POSSIBLE
- K. AT ALL WALL TILE LOCATIONS PROVIDE SOFT JOINTS WHERE TILE ADJOINS FLOOR, CEILING, OR ANOTHER MATERIAL
- L. DEVICES AND OUTLETS NOT SHOWN ON SHEETS FOR CLARITY, REFER TO ELECTRICAL AND TECHNOLOGY FOR LOCATION AND MOUNTING HEIGHTS
- M. REPLACE ALL DAMAGED EXISTING WALL WANSSETOILES WITH SALVAGED TILES FROM SELECTIVE DEMOLITION
- N. PATCH AND REPAIR CRACKS THROUGHOUT BUILDING TO MATCH ADJACENT TEXTURE, PAINT, AND/OR FINISH
- O. PATCH, REPAIR AND PAINT ALL INTERIOR PLASTER WALLS TO REMAIN, PAINT P-1 U.N.O.
- P. ALL SOLID SURFACE TO BE SS-1
- Q. ALL PLASTIC LAMINATE TO BE PL-1

REFERENCE KEYNOTES

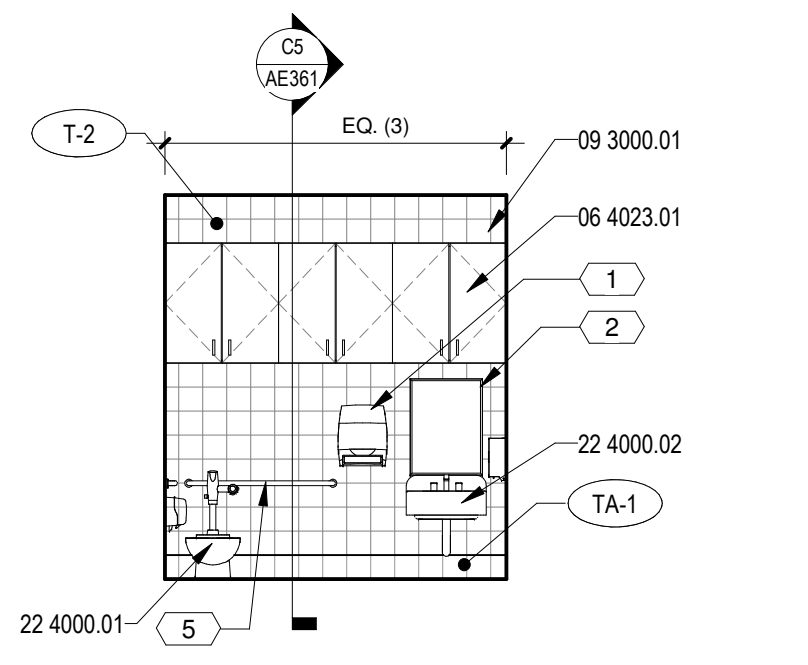
02 0100.20	EXISTING CLAY MASONRY TO REMAIN
02 0100.21	EXISTING BRICK TO REMAIN
02 1000.08	EXISTING BRICK TO REMAIN
06 1000.08	SAND AND PREPARE ALL FACES OF EXISTING WOOD FRAME TO RECEIVE NEW COAT OF PAINT, PAINT TO MATCH SOLID SURFACE COLOR, PROTECT ADJACENT MATERIALS FROM SANDING AND PAINTING
06 4023.01	PLASTIC LAMINATE UPPER CABINETS
06 4023.02	PLASTIC LAMINATE BASE CABINETS
06 4023.03	PLASTIC LAMINATE STORAGE CABINETS
06 4023.04	SOLID SURFACE COUNTERTOP W/ 4" BACKSPLASH AND SIDE SPLASH WHERE APPLICABLE, SS-1, REFER TO FINISH LEGEND
06 4023.19	CASEWORK CUBBIES, REFERENCE INTERIOR ELEVATIONS AND CASEWORK SECTION FOR FINISHES
06 4023.20	SOLID SURFACE SILL, SS-1, REFER TO FINISH LEGEND
09 3000.01	TILE
09 6513.01	4" WALL BASE, RA-1, REFER TO FINISH LEGEND
09 6513.02	6" WALL BASE, RA-2, REFER TO FINISH LEGEND
09 7200.01	CORK WALL COVERING, REFER FINISH LEGEND
09 7200.02	48" X 60" CORK WALL COVERING W/ 1/2" STAINLESS STEEL "J" TRIM, REFER FINISH LEGEND
09 7200.03	CORK WALL COVERING W/ 1/2" STAINLESS STEEL "J" TRIM, REFER FINISH LEGEND
09 7200.04	WRAP CORK WALL COVERING AROUND CORNER
10 1101.01	60" X 120" WHITE BOARD WITH 2 FLAG HOLDERS
10 2601.01	FULL HEIGHT STAINLESS STEEL CORNER GUARD AS SPECIFIED
11 5000.01	PENCIL SHARPENER X-ACTO KS MANUAL, VACUUM MOUNT OR APPROVED EQUAL, PROVIDE BLOCKING AS NECESSARY, REFER TO INTERIOR ELEVATIONS AND MOUNTING HEIGHTS
22 4000.01	WATER CLOSET, REFER TO PLUMBING
22 4000.02	LAVATORY, REFER TO PLUMBING
22 4000.03	DRINKING FOUNTAIN, REFER TO PLUMBING
27 0000.01	SHORT THROW PROJECTOR, OPCI, RE: TECHNOLOGY FOR MOUNTING LOCATION

LEGEND

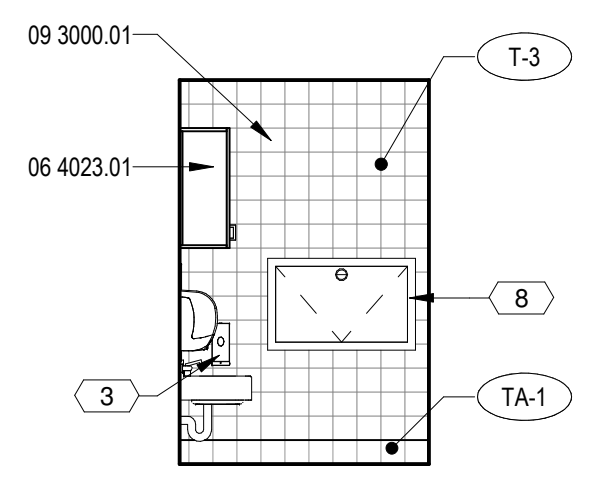
XXX MATERIAL TAG, REFER TO FINISH SCHEDULE AF101A

10 2813 - TOILET ACCESSORIES

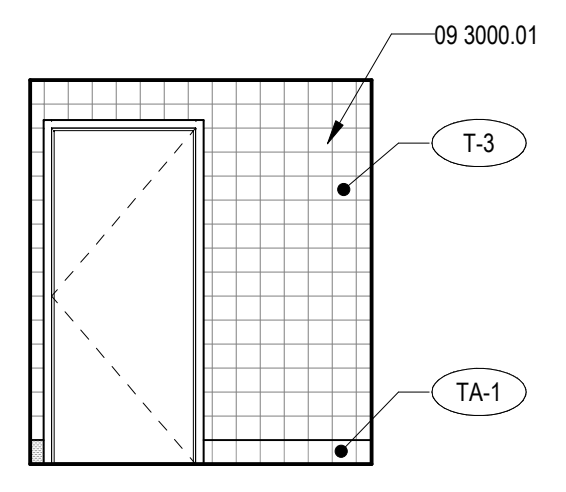
1. PAPER TOWEL DISPENSER, OFCI, COORDINATE LOCATION W/ OWNER BEFORE INSTALLATION
2. HAND SOAP DISPENSER, OFCI, COORDINATE LOCATION W/ OWNER BEFORE INSTALLATION
3. TOILET PAPER DISPENSER, OFCI, COORDINATE LOCATION W/ OWNER BEFORE INSTALLATION
4. 36" LONG STRAIGHT GRAB BAR
5. 42" LONG STRAIGHT GRAB BAR
6. 18" LONG STRAIGHT GRAB BAR
7. 24" LONG STRAIGHT GRAB BAR
8. RECESSED CHANGING TABLE, COORDINATE LOCATION W/ OWNER BEFORE INSTALLATION
9. 24" LONG STRAIGHT GRAB BAR
10. MUP RACK
11. SHOWER BENCH
12. 36" X 36" SHOWER GRAB BAR
13. TOWEL HOOK
14. CURTAIN ROD, SHOWER CURTAIN AND SHOWER HOOKS
15. SANITARY NAPKIN DISPOSAL



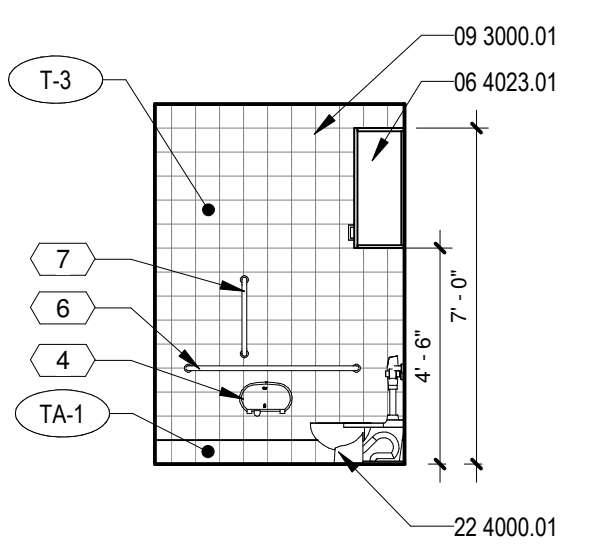
E1 RR. TYP.
1/4" = 1'-0"



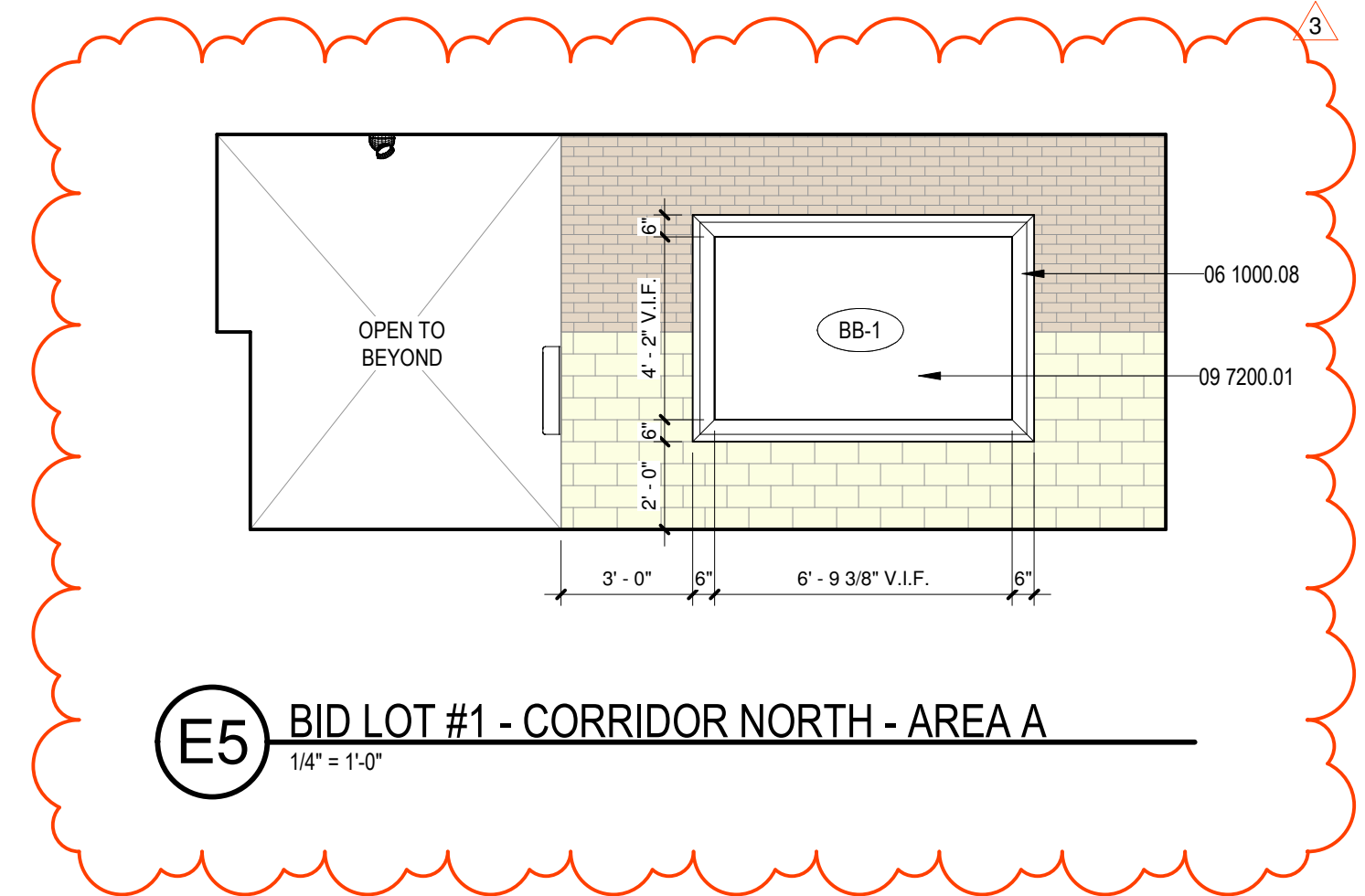
E2 RR. TYP.
1/4" = 1'-0"



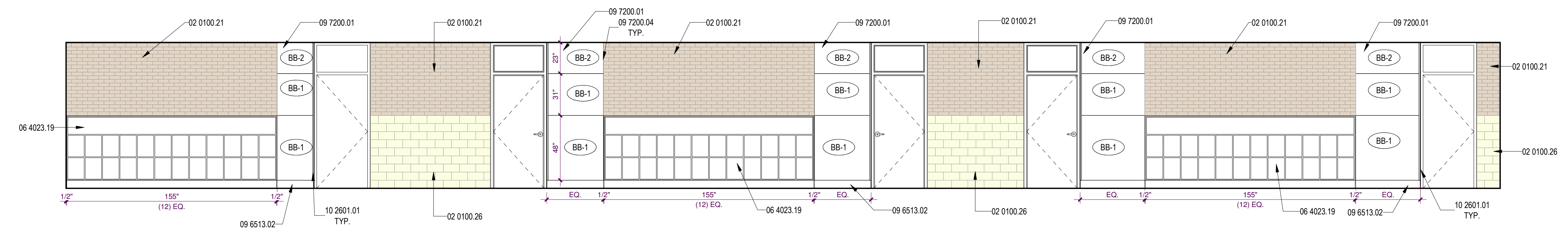
E3 RR. TYP.
1/4" = 1'-0"



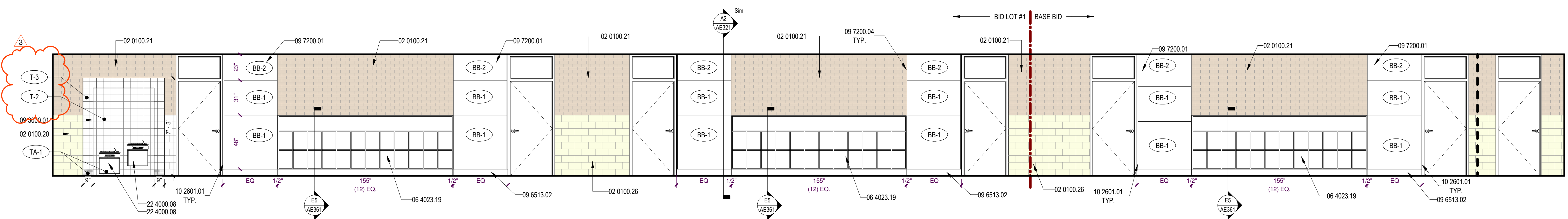
E4 RR. TYP.
1/4" = 1'-0"



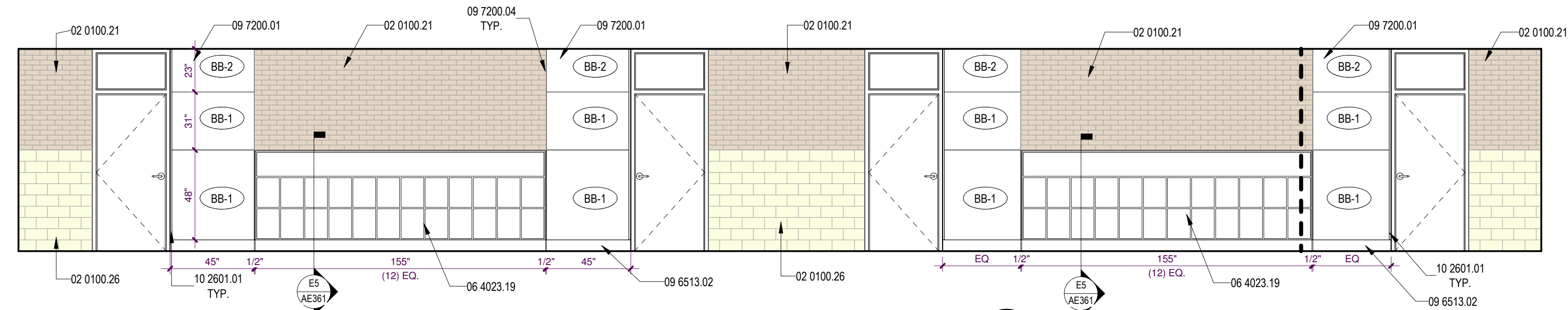
E5 BID LOT #1 - CORRIDOR NORTH - AREA A
1/4" = 1'-0"



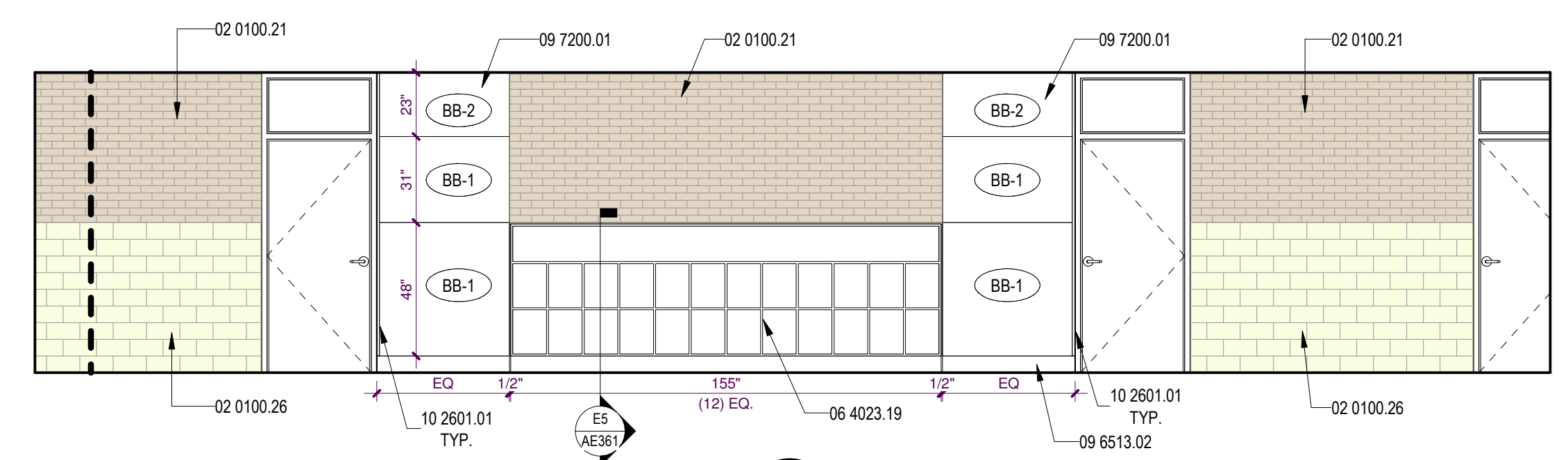
D5 BASE BID - CORRIDOR WEST - AREA A
1/4" = 1'-0"



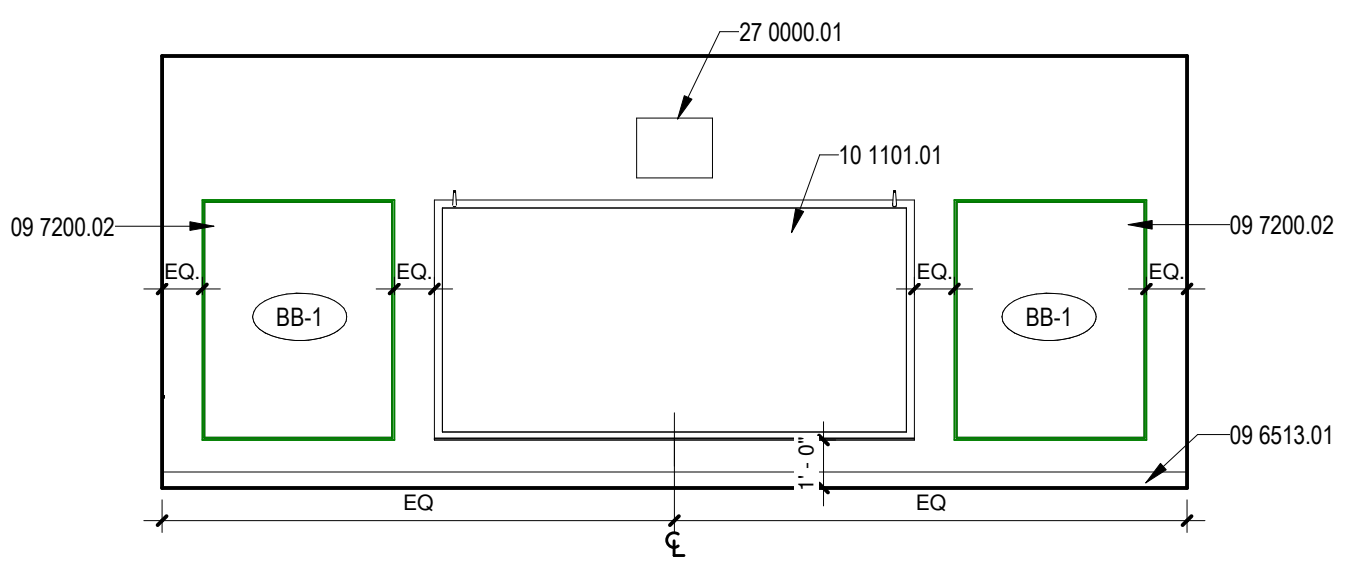
C5 BASE BID & BID LOT #1 - CORRIDOR NORTH - AREA A
1/4" = 1'-0"



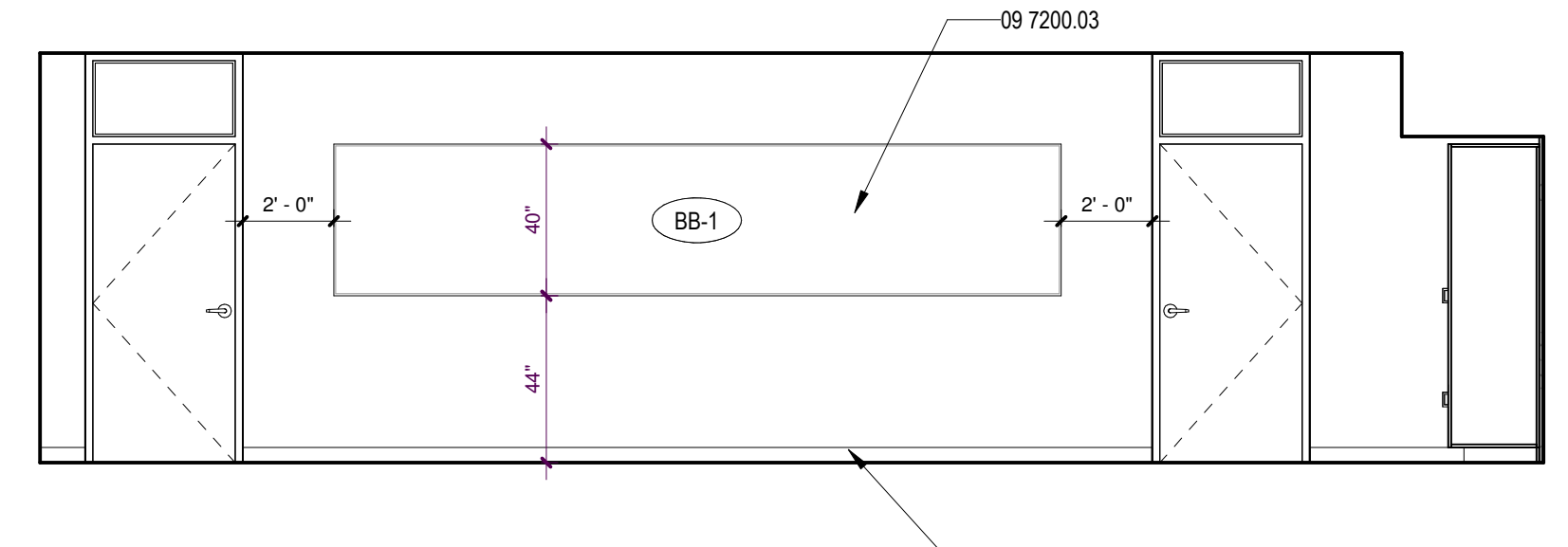
B3 BASE BID - CORRIDOR SOUTH - AREA B
1/4" = 1'-0"



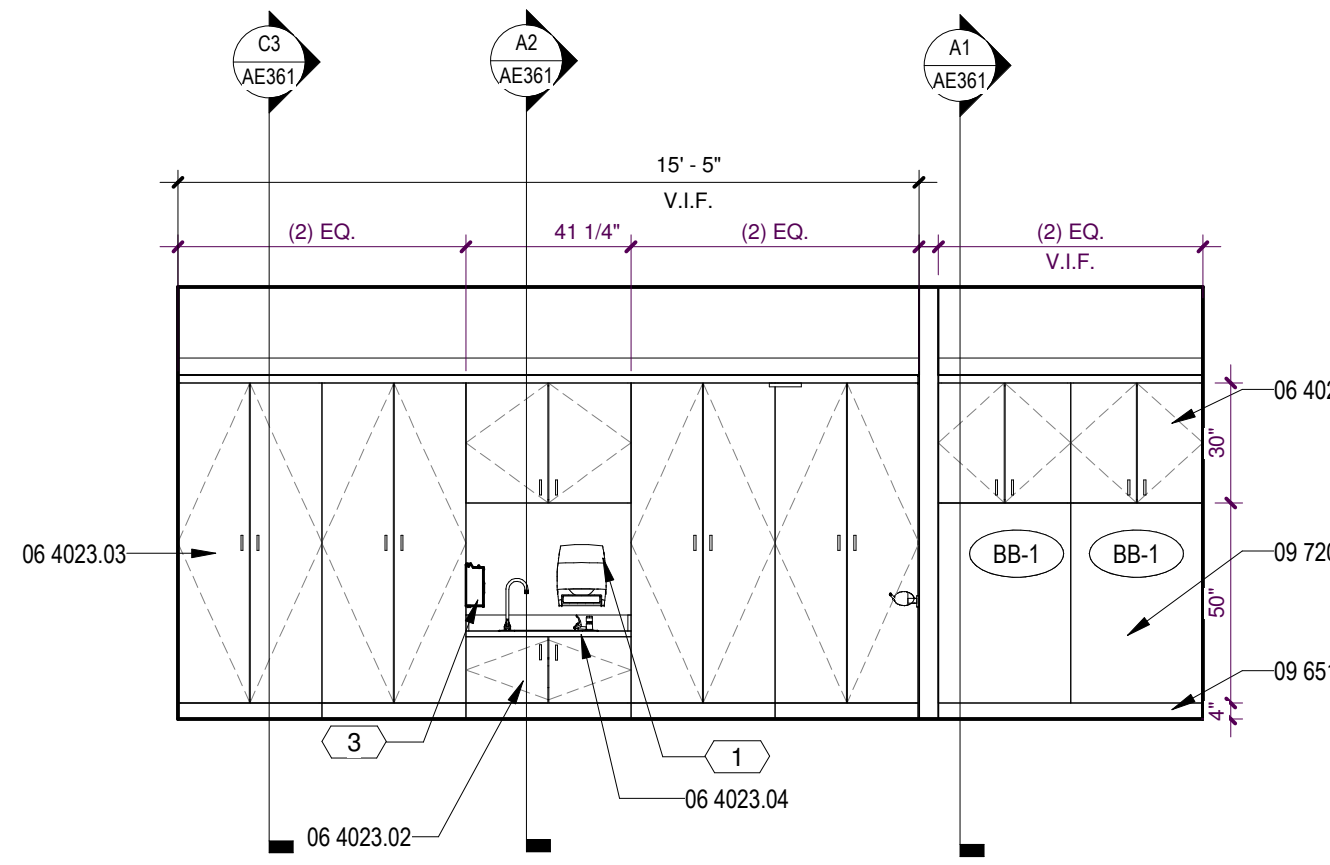
B6 BASE BID - CORRIDOR SOUTH - AREA A
1/4" = 1'-0"



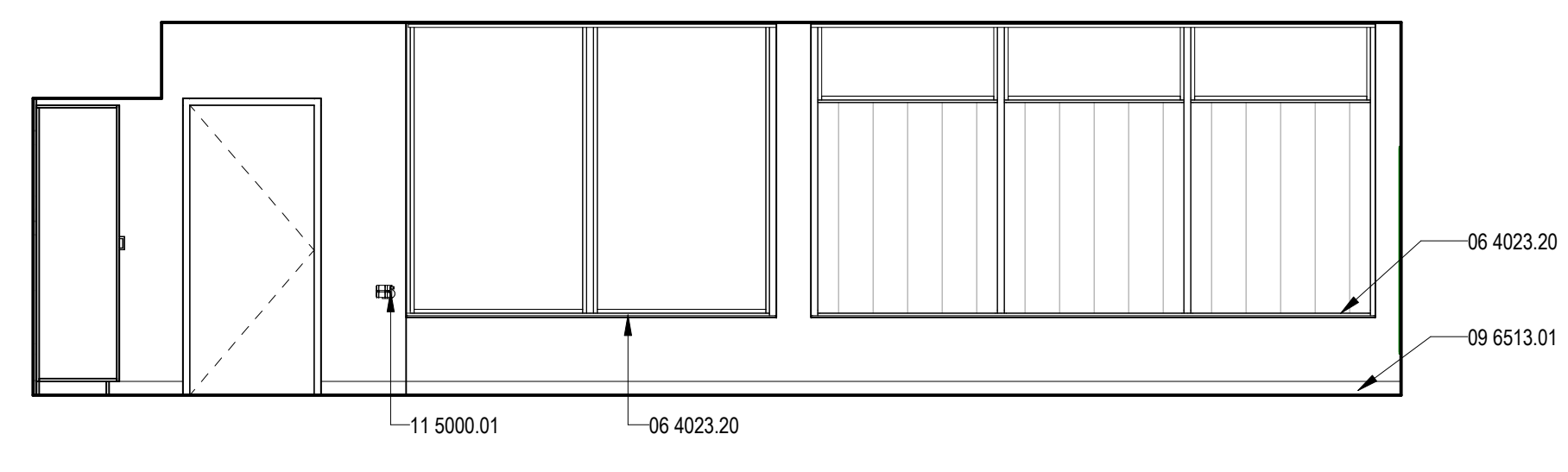
A1 CLASSROOM. TYPICAL
1/4" = 1'-0"



A3 CLASSROOM. TYPICAL
1/4" = 1'-0"



A4 CLASSROOM. TYPICAL
1/4" = 1'-0"



A6 CLASSROOM. TYPICAL
1/4" = 1'-0"

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

03/03/2021	ADDENDUM 003
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DRAWN BY	NW
REVIEWED BY	OK
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	INTERIOR ELEVATIONS

SEAL

PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

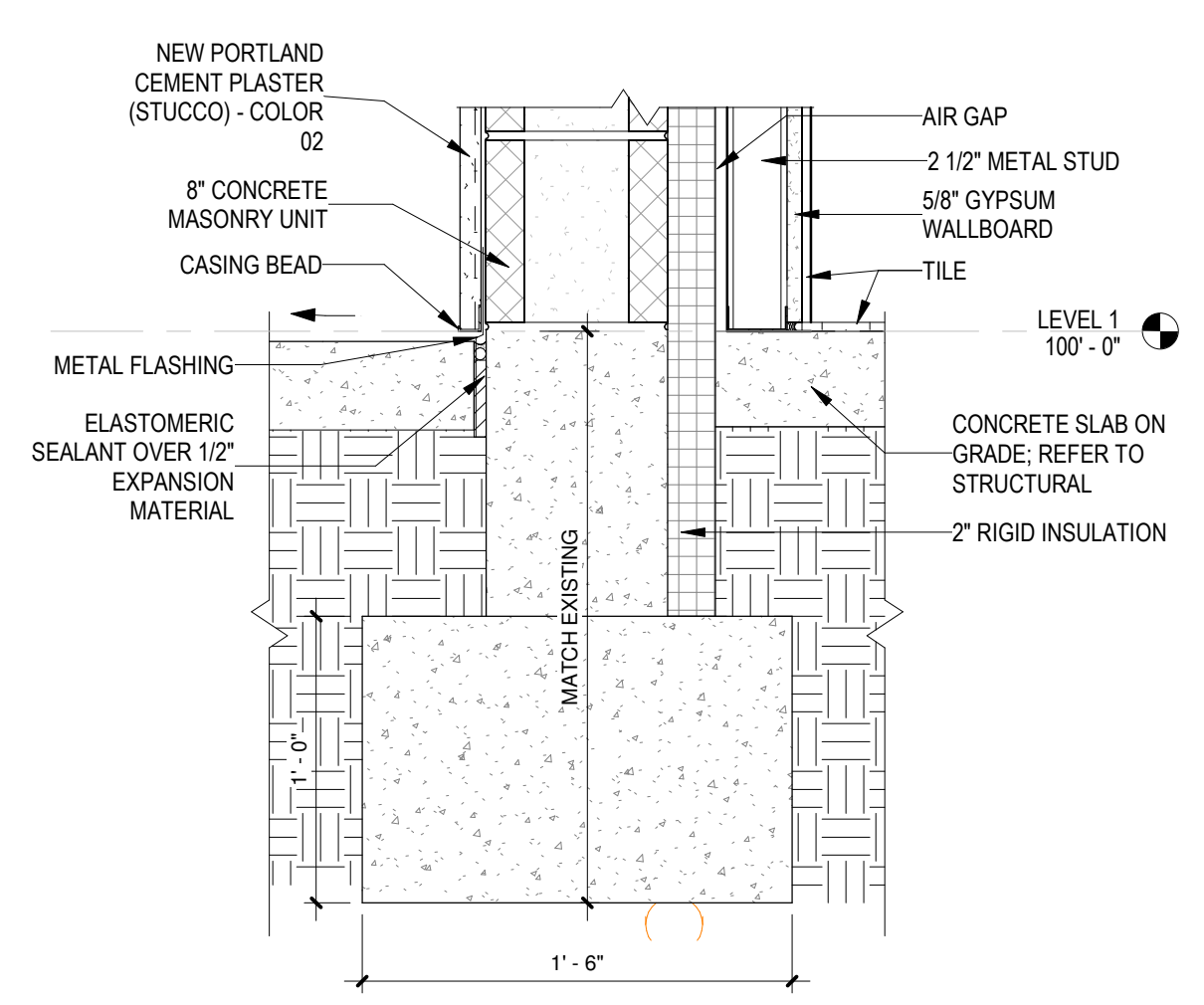
CONSTRUCTION DOCUMENTS

REVISIONS

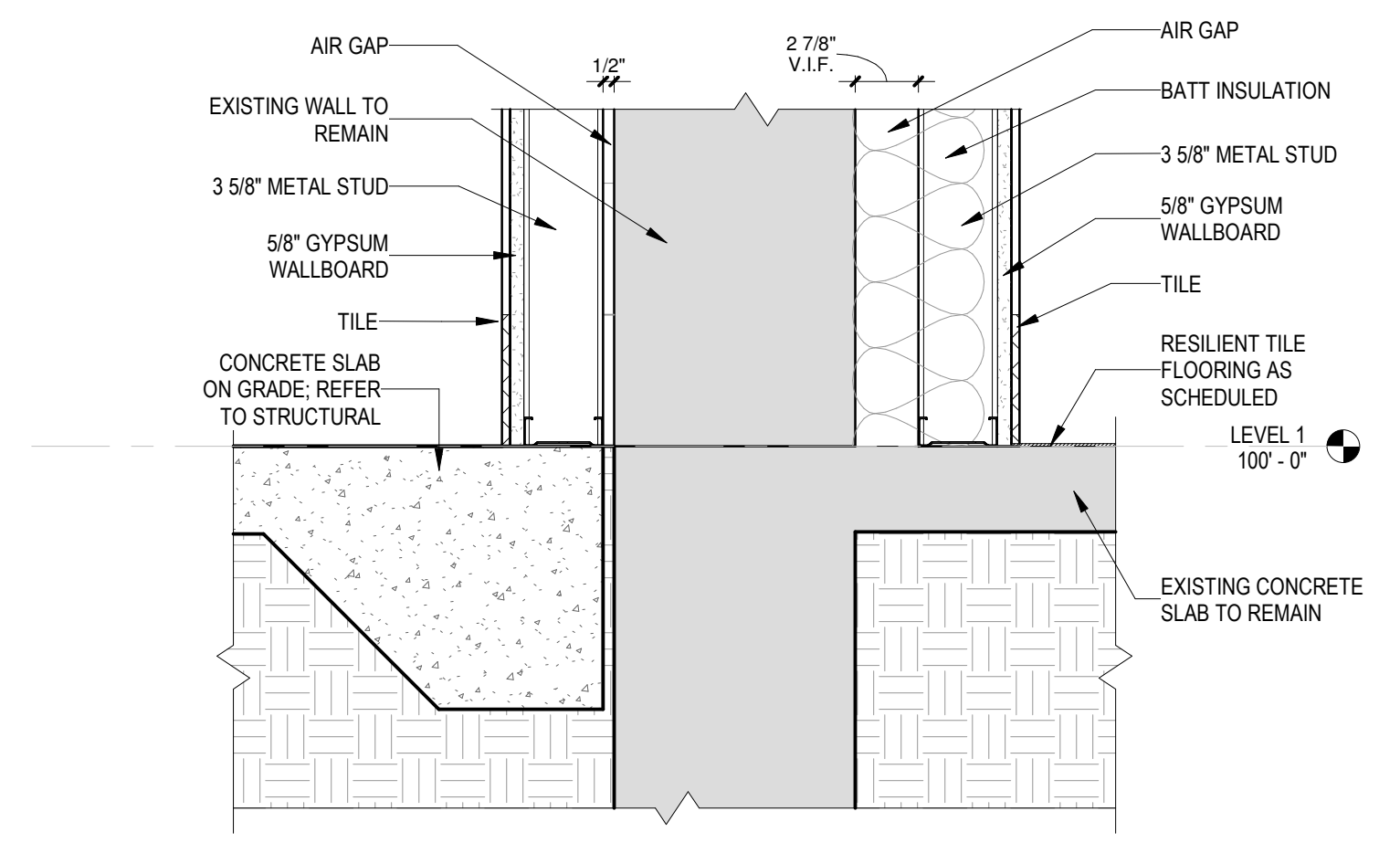
▲	03/02/2021	ADDENDUM 002
▲		
▲		
▲		
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DRAWN BY	NW
REVIEWED BY	OK
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

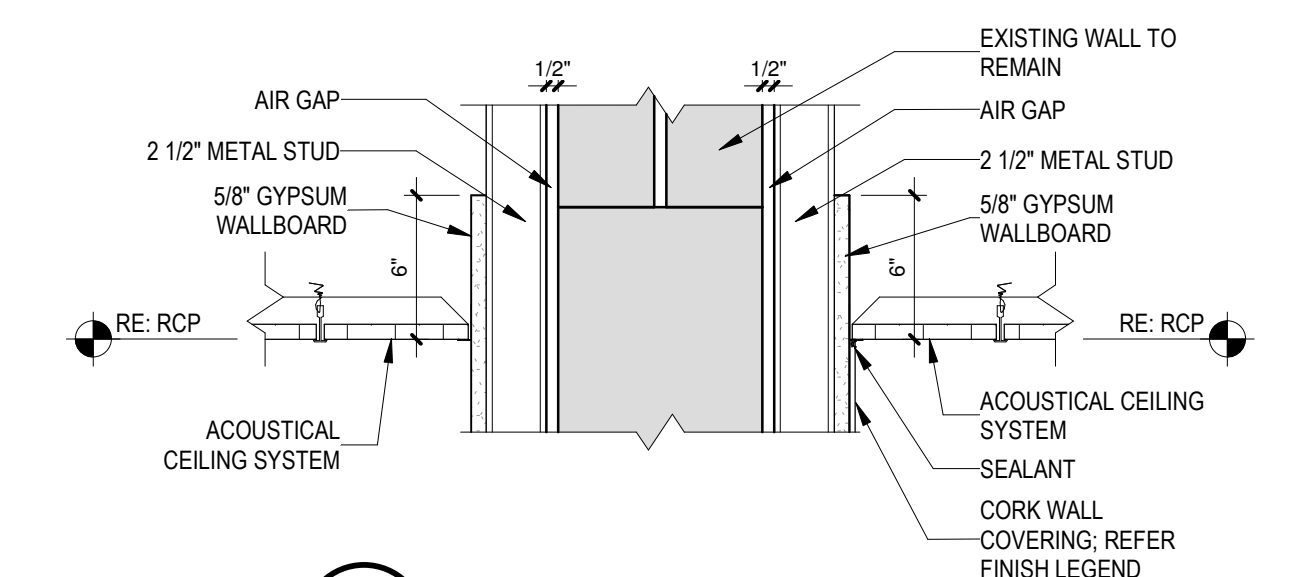
WALL SECTION DETAILS



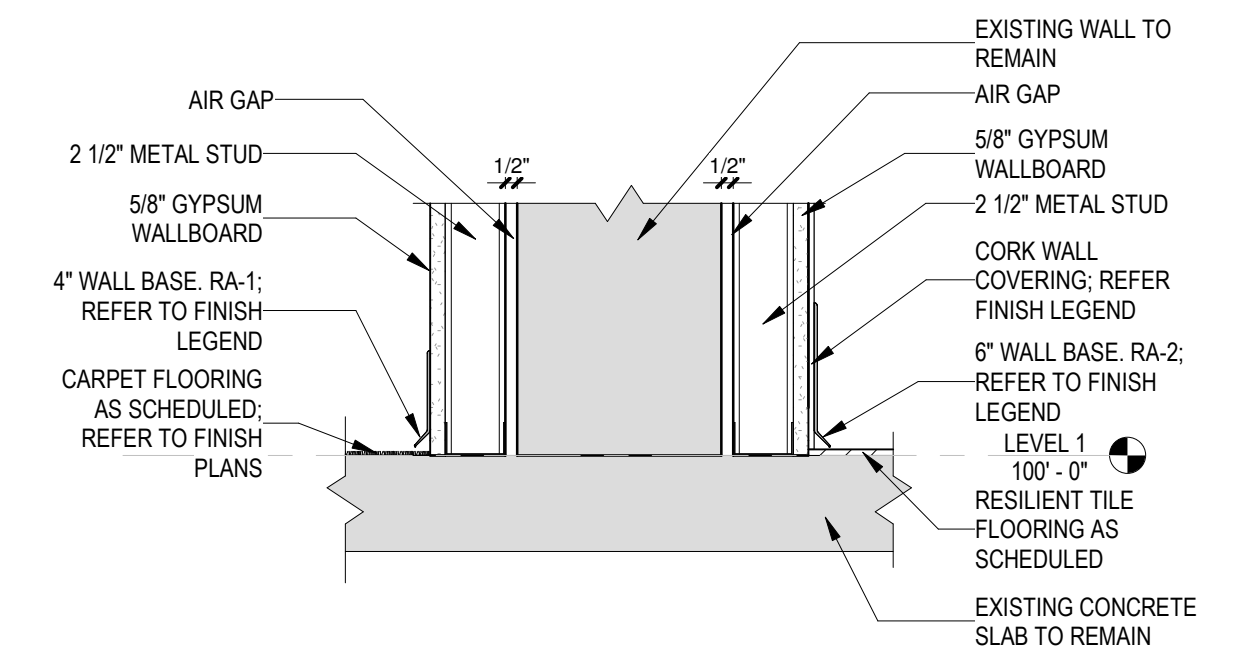
E5 DETAIL - BID LOT #1
1/12" = 1'-0"



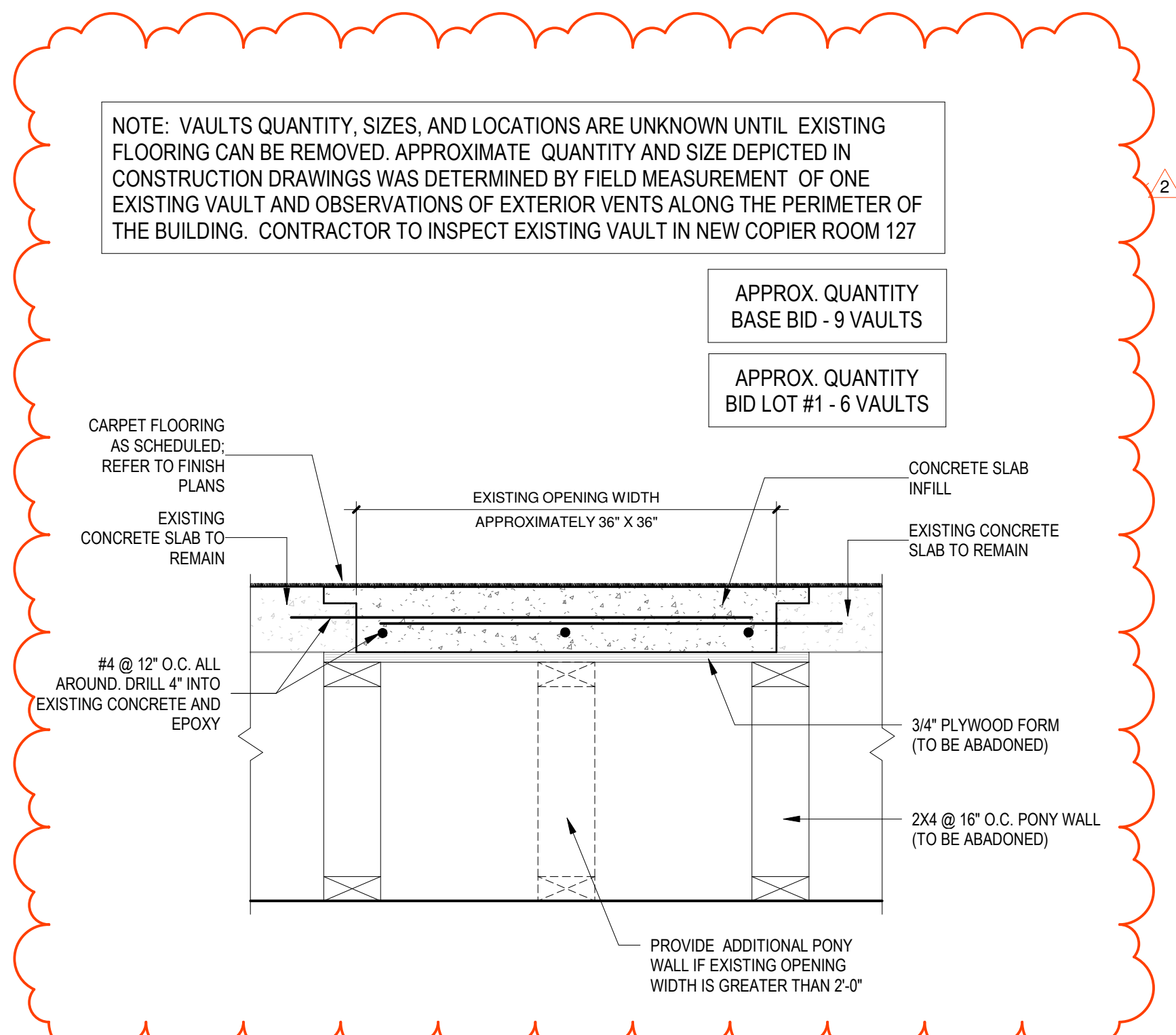
E6 DETAIL - BID LOT #1
1/12" = 1'-0"



C6 DETAIL
1/12" = 1'-0"



B6 DETAIL
1/12" = 1'-0"



A4 DETAIL
1/12" = 1'-0"

PACKAGED ROOFTOP UNIT (DX/GAS)																						
SYMBOL	MANUFACTURER & MODEL NO.	CAPACITY (TONS)	OA (CFM)	SUPPLY FAN					COOLING PERFORMANCE					GAS HEAT EXCHANGER				ELECTRICAL				
				CFM	FAN RPM	EXT. SP (IN. WC)	FAN BHP	TOTAL COOLING (MBH)	SENSIBLE COOLING (MBH)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	HEATING INPUT AT SEA LEVEL (MBH)	HEATING OUTPUT AT ALTITUDE (MBH)	EAT DB (°F)	LAT DB (°F)	OPERATING WEIGHT (LBS.)	V/PH/Hz	MCA	MCCP	
BASE BID	RTU-1	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	31.2	30.8	79.8	60.1	52.1	50	72	47.2	54.7	97.2	750	208/3/60	24	30
BASE BID	RTU-2	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	31.2	31.0	80	60.2	52.1	50.1	72	47.2	52.2	94.7	750	208/3/60	24	30
BASE BID	RTU-3	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	31.2	30.9	79.9	60.2	52.1	50.1	72	47.2	52.8	95.3	750	208/3/60	24	30
BASE BID	RTU-4	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	31.79	31.79	81.4	58.7	52.8	48	72	47.2	50.9	93.4	750	208/3/60	24	30
BASE BID	RTU-5	CARRIER - 48LCD005A2M5-0E1C0	4.0	365	1600	1276	0.8	0.9	41.53	39.19	78.9	60.9	52.4	51	72	47.2	55.6	87.5	850	208/3/60	27	40
BASE BID	RTU-6	CARRIER - 48LCD005A2M5-0E1C0	4.0	365	1600	1276	0.8	0.9	41.53	39.19	78.9	60.9	52.4	51	72	47.2	55.6	87.5	850	208/3/60	27	40
BASE BID	RTU-7	CARRIER - 48LCD005A2M5-0E1C0	4.0	365	1600	1276	0.8	0.9	41.53	39.19	78.9	60.9	52.4	51	72	47.2	55.6	87.5	850	208/3/60	27	40
BASE BID	RTU-8	CARRIER - 48LCD004A2M5-0E1C0	3.0	390	1200	1020	0.8	0.57	34.59	34.59	83.3	60.9	52.2	49.8	72	47.2	46.5	89.0	750	208/3/60	24	30
BASE BID	RTU-9	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	31.17	29.64	78.6	59.5	51.9	49.3	72	47.2	53.1	95.6	750	208/3/60	24	30
BID LOT #1	RTU-10	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	31.17	29.64	78.6	59.5	51.9	49.3	72	47.2	53.1	95.6	750	208/3/60	24	30
BID LOT #1	RTU-11	CARRIER - 48LCD007A2M5-0E1C0	6.0	500	2400	812	0.8	1.03	64.27	61.46	78.4	58	50.7	47	125	82.4	57.9	95.0	1350	208/3/60	35	45
BID LOT #1	RTU-12	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	32.38	32.38	81.4	58.7	52.3	47.8	72	47.2	50.9	93.4	750	208/3/60	24	30
BID LOT #1	RTU-13	CARRIER - 48LCD004A2M5-0E1C0	3.0	365	1200	1020	0.8	0.57	32.38	32.38	81.4	58.7	52.3	47.8	72	47.2	50.9	93.4	750	208/3/60	24	30
BID LOT #1	RTU-14	CARRIER - 48LCD006A2M5-0E1C0	5.0	600	2000	1424	0.8	1.39	53.0	50.1	78.3	59.7	51.3	49.3	115	75.4	51.7	91.9	850	208/3/60	31	45
BID LOT #1	RTU-15	CARRIER - 48LCD007A2M5-0E1C0	6.0	800	2400	812	0.8	1.03	68.8	68.8	82.1	60.5	51.2	49.3	125	82.4	49.0	86.1	1350	208/3/60	35	45
BID LOT #1	RTU-16	CARRIER - 48LCD005A2M5-0E1C0	4.0	550	1600	1276	0.8	0.9	41.4	41.4	80.4	60.0	52.5	49.9	115	75.4	48.8	99.0	850	208/3/60	27	40
BID LOT #1	RTU-17	CARRIER - 48LCD006A2M5-0E1C0	5.0	150	2000	1500	0.8	1.68	52.94	47.64	76.6	58.6	50.9	47.9	72	47.2	65.0	88.2	850	208/3/60	33	45
BID LOT #1	RTU-18	CARRIER - 48LCD004A2M5-0E1C0	3.0	550	1200	1020	0.8	0.57	35.5	35.5	84.3	60.2	52.4	48.5	115	75.4	42.1	109	750	208/3/60	24	30

14" ROOF CURB, ECONOMIZER, BAROMETRIC RELIEF, FACTORY MOUNTED NON-FUSED KNIFE BLADE DISCONNECT, NON-POWERED 120 VOLT RECEPTACLE, MERV-13, HAIL GUARDS, HONEYWELL PROGRAMMABLE THERMOSTAT (WH-FI VisionPRO6 8000)

EXHAUST FANS														
SYMBOL	MANUFACTURER & MODEL NO.	AREA SERVED	TYPE	CFM	S.P. (IN. WC)	FAN RPM	INPUT WATTS	VOLT	PHASE	Hz	FLA	OPERATING WEIGHT (LBS.)	NOTES	
BASE BID	CEF-1	GREENHECK SP-80-VG	RR 104A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-2	GREENHECK SP-80-VG	RR 103A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-3	GREENHECK SP-80-VG	RR 102A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-4	GREENHECK SP-80-VG	RR 112A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-5	GREENHECK SP-80-VG	RR 132A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-6	GREENHECK SP-80-VG	RR 131A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-7	GREENHECK SP-80-VG	RR 130A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-8	GREENHECK SP-80-VG	RR 120A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BASE BID	CEF-9	GREENHECK SP-80-VG	RR 119A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-10	GREENHECK SP-80-VG	RR 118A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-11	GREENHECK SP-80-VG	M 123	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-12	GREENHECK SP-80-VG	W 124	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-13	GREENHECK SP-80-VG	RR 111A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-14	GREENHECK SP-80-VG	RR 110A	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-15	GREENHECK SP-A90-130-VG	RR 135A	CEILING EXHAUST FAN	110	0.2	960	12W	115	1	60	0.29	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	CEF-16	GREENHECK SP-80-VG	JAN 121	CEILING EXHAUST FAN	80	0.2	935	6W	115	1	60	0.1	30	ELEC DISCONNECT, INTERLOCK WITH LIGHTING SWITCH
BID LOT #1	EF-1	GREENHECK CUE-95-VG	GIRLS 105, BOYS 107	SIDEWALL EXHAUST FAN	540	0.5	1576	1/6 HP	115	1	60	2.2	40	ELEC DISCONNECT, TWIST TIMER
BID LOT #1	EF-2	GREENHECK CUE-95-VG	GIRLS 117, BOYS 115	SIDEWALL EXHAUST FAN	540	0.5	1576	1/6 HP	115	1	60	2.2	40	ELEC DISCONNECT, TWIST TIMER
BID LOT #1	EF-3	GREENHECK GB-81-6	NURSE 135	ROOF MOUNTED EXHAUST FAN	460	0.45	1339	1/6 HP	115	1	60	4.4	60	ELEC DISCONNECT, TWIST TIMER

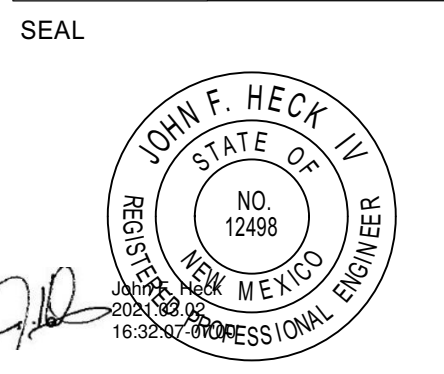
GRILLES AND DIFFUSERS									
SYMBOL	MANUFACTURER & MODEL NO.	TYPE	FRAME STYLE	FACE DIMENSIONS (INCH)	NECK DIMENSIONS (INCH)	CFM RANGE	T.P. (IN. W.G.)	MAX NC	NOTES
SD-1	PRICE SCDA, TYPE 3	SUPPLY DIFFUSER	LAY-IN CEILING	24X24, 12X12	6	91-130	0.02-0.06	24	
	PRICE SCDA, TYPE 3	SUPPLY DIFFUSER	LAY-IN CEILING	24X24, 12X12	8	131-210	0.02-0.06	28	
	PRICE SCDA, TYPE 3	SUPPLY DIFFUSER	LAY-IN CEILING	24X24	10	211-320	0.03-0.06	30	
	PRICE SCDA, TYPE 3	SUPPLY DIFFUSER	LAY-IN CEILING	24X24	12	321-420	0.03-0.06	30	
	PRICE SCDA, TYPE 3	SUPPLY DIFFUSER	LAY-IN CEILING	24X24	14	421-530	0.04-0.06	30	
	PRICE SCDA, TYPE 3	SUPPLY DIFFUSER	LAY-IN CEILING	24X24	15	531-630	0.03-0.06	30	
SD-2	PRICE SCDA, TYPE 1	SUPPLY DIFFUSER	FIXED CEILING	24X24, 12X12	6	91-130	0.02-0.09	30	
	PRICE SCDA, TYPE 1	SUPPLY DIFFUSER	FIXED CEILING	24X24, 12X12	8	131-210	0.02-0.09	30	
	PRICE SCDA, TYPE 1	SUPPLY DIFFUSER	FIXED CEILING	24X24	10	211-320	0.02-0.08	30	
	PRICE SCDA, TYPE 1	SUPPLY DIFFUSER	FIXED CEILING	24X24	12	321-420	0.02-0.08	30	
	PRICE SCDA, TYPE 1	SUPPLY DIFFUSER	FIXED CEILING	24X24	14	421-530	0.03-0.08	30	
SR-1	PRICE 520	SIDEWALL SUPPLY	FLAT MARGIN	SEE PLAN	SEE PLANS	SEE PLANS	0.03-0.06	26	
RG-1	PRICE 80	RETURN GRILLE	LAY-IN CEILING	24x24, 24x12	SEE PLANS	-	N/A	N/A	
RG-2	PRICE 80	RETURN GRILLE	FIXED CEILING	24x24, 24x12	SEE PLANS	-	N/A	N/A	
EG-1	PRICE 80D	EXHAUST GRILLE	LAY-IN CEILING	24x24, 24x12	SEE PLANS	SEE PLANS	0.01-0.08	25	
EG-2	PRICE 80D	EXHAUST GRILLE	FIXED CEILING	24x24, 24x12	SEE PLANS	SEE PLANS	0.01-0.08	25	
ER-3	PRICE 530	EXHAUST GRILLE	SIDEWALL	SEE PLAN	SEE PLANS	SEE PLANS	0.01-0.08	25	

SPLIT SYSTEM INDOOR UNITS																							
SYMBOL	MANUFACTURER	MODEL NO.	NOMINAL TON	AREA SERVED	AIR FLOW CFM	COOLING			HEATING			PIPING SIZE			ELEC		PHYSICAL DIMENSIONS				NOTES		
						OUTSIDE TEMP	INDOOR DB TEMP	INDOOR WB TEMP	TOTAL BTUH	SENSIBLE BTUH	OUTSIDE TEMP	INDOOR DB TEMP	TOTAL BTUH	RS DIA	RL DIA	DRAIN DIA	V/PH/Hz	POWER CONSUMPTION	WEIGHT (LB)	WIDTH (IN)		LENGTH (IN)	HEIGHT (IN)
FC-1	mitsubishi	PKA-A18HA7	1.5	IT ROOM 134	425	95	80	67	18,800	12,200	15	59	13,000	1/2"	1/4"	5/8"	208/1/60	FROM CU-1	29	36	10	12	FURNISH W/ WIRED 7-DAY PROG TSTAT, CONDENSATE PUMP, SAUERMANN MODEL SI3100, R-410A REFRIGERANT, ELEC DISCONNECT BY DIV 26

SPLIT SYSTEM OUTDOOR UNITS																			
SYMBOL	MANUFACTURER	MODEL NO.	NOMINAL TON	COOLING			HEATING			ELEC			PHYSICAL DIMENSION				PIPE SIZES		NOTES
				OUTDOOR TEMP	TOTAL BTUH	OUTDOOR TEMP	TOTAL BTUH	V/PH/Hz	MCA	MCCP	WEIGHT (LB)	WIDTH (IN)	LENGTH (IN)	HIGHT (IN)	RS DIA	RL DIA			
CU-1	MITSUBISHI	PUZ-A18NKA7	1.5	104	18,000	15	13,000	208/1/60	11	15	91	24	32	12	1/2	1/4	FURNISH W/O AMBIENT KIT (HEATING TO 5F AMBIENT), WIND BAFFLE, HAIL GUARD INTERLOCK W/ FC-1		

ELEC UNIT HEATER										
SYMBOL	MANUFACTURER & MODEL NO.	LOCATION	CAPACITY (KW)	AIR FLOW (CFM)	ELECTRICAL DATA			WEIGHT (LBS.)	NOTES	
					V/PH/Hz	MOP	MOTOR HP			
UH-1	TRANE UHEC-051A0C0	FIRE RISER RM	5.0	380	208/1/60	35.0	1/125	1550	30	ELEC DISCONNECT, INSTALL WITH WALL MOUNTED BRACKET

RESIDENTIAL HOOD INFO										
MARK	MANUFACTURER & MODEL NO.	TYPE	HOOD DIMENSIONS (IN.)			CFM	SPEED	EXHAUST	ELEC	TOTAL WEIGHT (LBS.)
			LENGTH	WIDTH	HEIGHT					
HD-1	ZEPHYR AK6500BS	UNDER CABINET STAINLESS STEEL	30	22-1/4"	6-3/8"	290-600	3 LEVELS	6"Ø	120V/60HZ/2.4A	30



PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

1	3/3/2021	ADDENDUM 3
2		
3		
4		
5		

DRAWN BY	MJL
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	ELECTRICAL DEMOLITION FLOOR PLAN - OVERALL

ELECTRICAL DEMOLITION FLOOR PLAN - OVERALL

SHEET NO ED100

THIS PROJECT IS TO BE COMPLETED IN TWO PHASES. PHASE 1 WORK SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY PHASE 2 WORK. THE PHASES OF WORK ARE INDICATED ON THIS DRAWING SET AND ON ARCHITECTURAL SHEET SERIES "G". CONSULT ENGINEER WITH ANY FURTHER PHASING QUESTIONS.

GENERAL SHEET NOTES

- CONSTRUCTION PHASING SCHEDULE WILL DICTATE DEMOLITION AND CONSTRUCTION MODIFICATIONS. COORDINATION OF SWITCHOVER OF SCHOOL SYSTEMS WILL REQUIRE THREE (3) WEEKS NOTIFICATION OF OWNER/ARCHITECT, OR AS INDICATED IN DIVISION 1. ANY AND ALL UTILITY WORK WILL BE PER EACH UTILITY COMPANY'S STANDARD AND REQUIREMENTS.
- REFER TO ARCHITECTURAL DEMOLITION SHEET SERIES "AD" TO VERIFY EXTENT OF ARCHITECTURAL DEMOLITION.
- THE SCHOOL DISTRICT WILL HAVE FIRST RIGHT OF REFUSAL ON ELECTRICAL EQUIPMENT THAT IS TO BE REMOVED.
- NOT ALL ITEMS OF DEMOLITION ARE SHOWN ON THIS DEMOLITION PLAN. THERE ARE MANY SPECIFIC AND SMALL ITEMS OF DEMOLITION THAT WILL BE NECESSARY THROUGHOUT THE COURSE OF THE WORK WHICH IS APPARENT BY A COMPLETE AND THOROUGH REVIEW OF EXISTING CONDITIONS AND ALL OF THE CONSTRUCTION DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL DEMOLITION OPERATIONS REQUIRED FOR THIS PROJECT.
- REMOVE ALL UNUSED RACEWAY PATHS FROM CEILING SPACE.
- REMOVE ALL UNUSED CONDUCTORS AND CABLES FROM CEILING SPACE.
- THROUGHOUT ALL CEILING/CEILING SPACES ALL RACEWAY PATHS, WHETHER NEW OR EXISTING, WILL BE PROPERLY SUPPORTED TO MEET NEC AND MEG CODE REQUIREMENTS, PLUS ANY BICSI INSTALLATION REQUIREMENTS FOR LOW VOLTAGE CABLES.

ELEC. DEMO PLAN LEGEND

- ELECTRICAL DISTRIBUTION UPGRADE IS PART OF BASE BID AND FIRE ALARM UPGRADE OF ENTIRE BUILDING IS PART OF BID LOT #1.
- BASE BID
 - BID LOT #1

- REMOVE ALL RECEPTACLES, ALL GENERAL POWER DEVICES, AND ALL FIRE ALARM DEVICES. REMOVE ALL ASSOCIATED EXISTING CIRCUITS, CABLING, AND RACEWAY PATHS BACK TO SOURCE. SEE SHEET SERIES "EP" AND "FA" FOR NEW POWER AND FIRE ALARM IN THIS AREA. SHOULD EXISTING CIRCUITS BEING DISCONNECTED SERVE DEVICE THAT NEEDS TO REMAIN, THOSE EXISTING CIRCUITS WILL BE MODIFIED AND RECONNECTED TO NEW PANEL SOURCE TO KEEP EXISTING DEVICE REMAINING CONNECTED AND OPERABLE.
- REMOVE ALL LUMINAIRES, LIGHTING CONTROLS AND LIGHTING RACEWAY PATHS BACK TO SOURCE. SEE SHEET SERIES "EL" FOR NEW LIGHTING IN THIS AREA.
- REMOVE ALL POWER, RACEWAY, AND CONDUCTORS TO ALL MECHANICAL EQUIPMENT IN THIS AREA. REFER TO SHEET SERIES "M" FOR ADDITIONAL INFORMATION.
- IN WALLS THAT ARE TO REMAIN, EXISTING CONDUCTOR CIRCUITS TO BE REMOVED BACK TO SOURCE AND BLANK COVERPLATE PROVIDED.
- PRIOR TO COMMENCEMENT OF ANY WORK, CONTRACTOR WILL VERIFY ALL CEILING HEIGHTS AND TYPES FOR REMOVAL OF ANY FIRE ALARM EQUIPMENT OR DEVICES.
- EXISTING FIRE ALARM PROTECTION WILL BE MAINTAINED UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED. PROVIDE A FIRE WATCH AS NECESSARY TO ENSURE ENTIRE BUILDING IS PROTECTED AT ANY TIME EXISTING SYSTEM IS DOWN FOR ANY REASON.
- IN BOTH THE DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM AND THE INSTALLATION OF THE NEW FIRE ALARM SYSTEM, WORK WILL BE REQUIRED IN THE CEILING SPACES AND IN THE WALL SPACES. CONTRACTOR SHALL VERIFY AND DOCUMENT EACH CEILING AND WALL TYPE AND ANY DAMAGE TO ANY PORTION OF THE CEILING OR WALL PRIOR TO COMMENCEMENT OF ANY WORK. WHERE DAMAGE IS EXISTING, CONTRACTOR IS TO COORDINATE WITH OWNER'S REPRESENTATIVE AND ARCHITECT FOR DIRECTION OF REPLACEMENT FOR EACH CEILING AND WALL TYPE. CONTRACTOR WILL ALSO PROVIDE UNIT PRICING TO REPLACE OR REPAIR DAMAGED CEILING OR WALL.
- CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF EACH CEILING OR WALL TYPE AS WELL AS PAINTING TO MATCH EXISTING CONDITIONS SHOULD ANY DAMAGE TAKE PLACE DURING THE INSTALLATION OR REMOVAL OF NEW OR EXISTING FIRE ALARM SYSTEM. REPLACEMENT CEILING TILES WILL MATCH THE SURROUNDING TILES IN EACH SPACE TO EXACT MODEL TYPE AS EXISTING. CONTRACTOR WILL LEAVE ALL AREAS OF THE CEILING AND WALLS AS WERE EXISTING OR BETTER THAN THE CONDITION IT WAS FOUND IN.

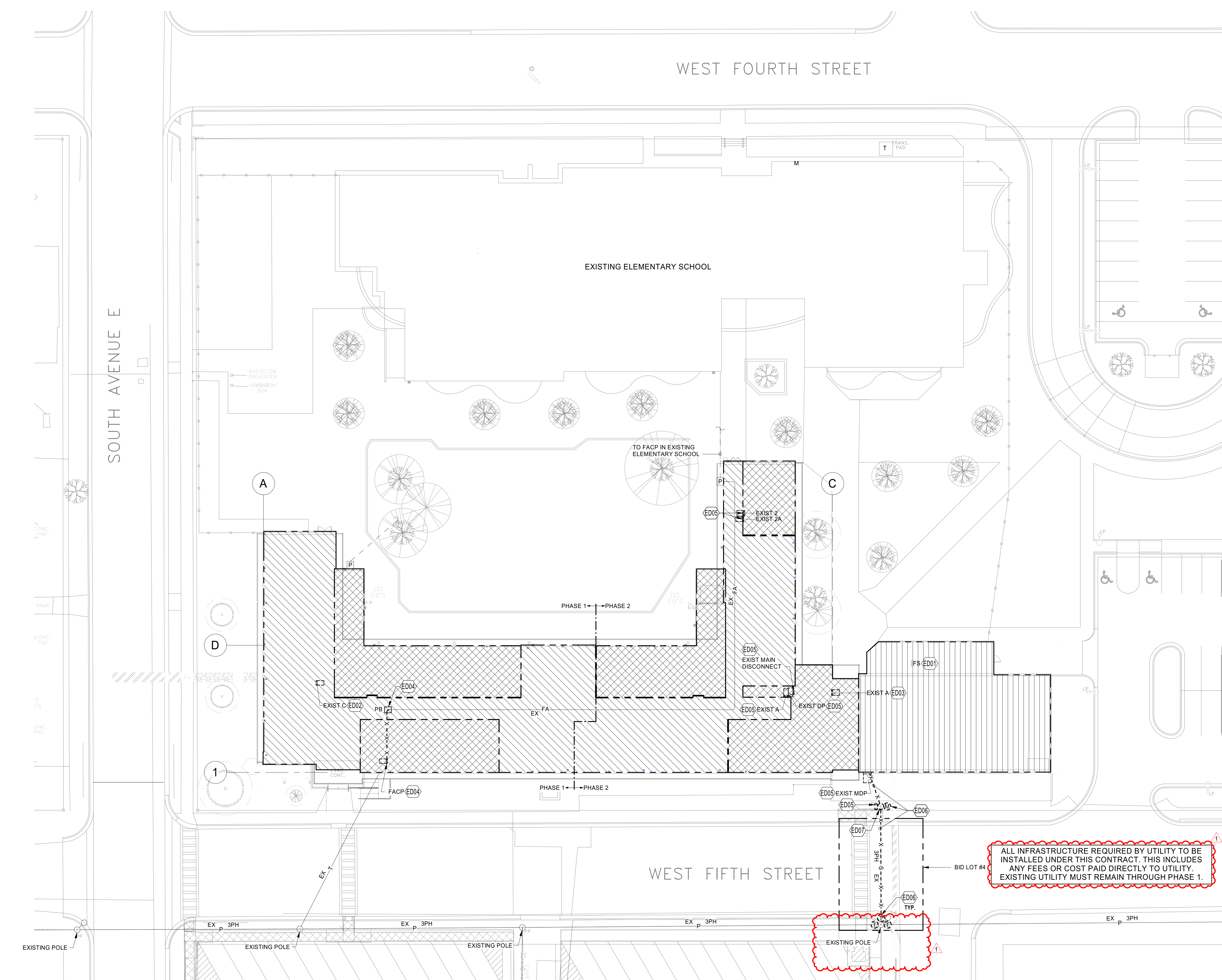
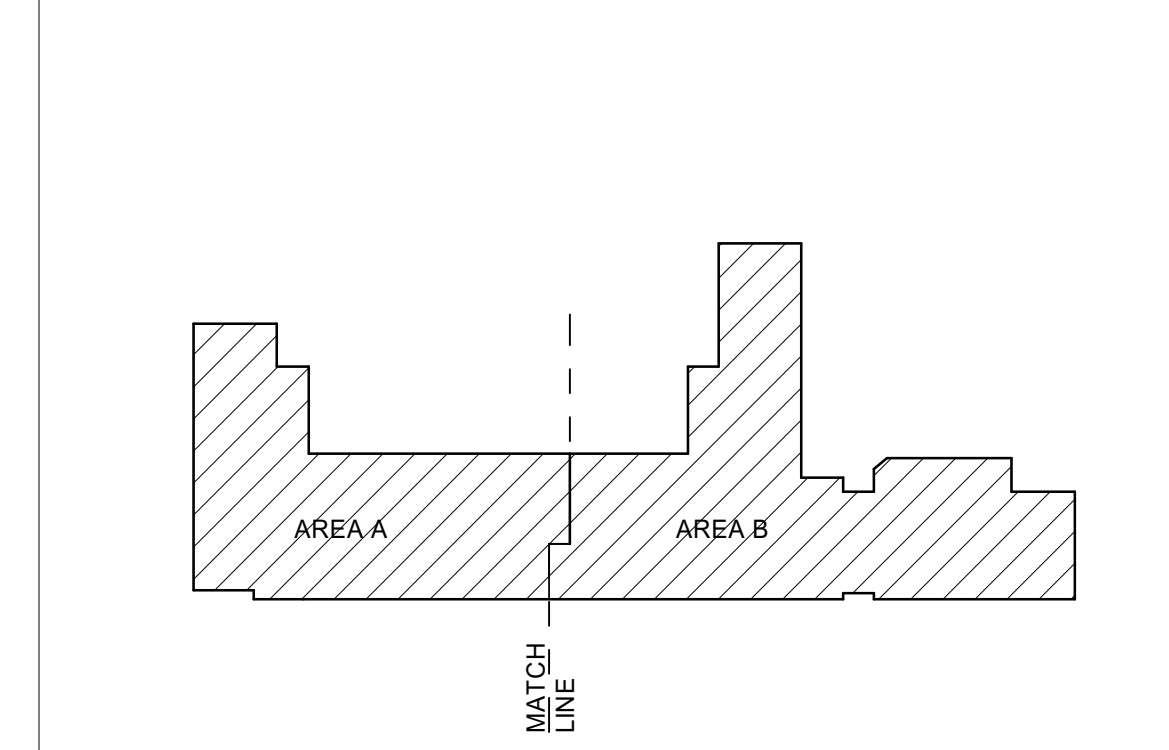
EXISTING TO REMAIN

- ALL LUMINAIRES, LIGHTING CONTROLS AND LIGHTING RACEWAY PATHS WILL REMAIN. SEE SHEET SERIES "EL" FOR CIRCUITS IN THIS AREA.
- UNLESS NOTED OTHERWISE, ALL ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL EQUIPMENT TO REMAIN, PLUS ASSOCIATED RACEWAY PATH AND CONDUCTORS BACK TO PANEL SOURCE WILL REMAIN AS IS. REFER TO SHEET SERIES "M" FOR ADDITIONAL DEMOLITION INFORMATION ON MECHANICAL SYSTEM UNITS.
- ALL RECEPTACLES AND GENERAL POWER DEVICES TO REMAIN PLUS ASSOCIATED BRANCH CIRCUIT SERVING THEM IF BRANCH CIRCUITS ARE WITHIN PANELS TO REMAIN. IF BRANCH CIRCUITS ARE FROM PANELS TO BE DEMOLISHED, THEN EXISTING GENERAL POWER WILL REMAIN PLUS ASSOCIATED RACEWAY PATH TO THE EXTENT THAT REUSE IS POSSIBLE AND WILL BE RECONNECTED TO NEW PANELS THAT WILL BE INSTALLED WITHIN THIS SPACE. REFER TO SHEET SERIES "EP" FOR NEW CIRCUITS.
- PRIOR TO COMMENCEMENT OF ANY WORK, CONTRACTOR WILL VERIFY ALL CEILING HEIGHTS AND TYPES FOR REMOVAL OF ANY FIRE ALARM EQUIPMENT OR DEVICES.
- EXISTING FIRE ALARM PROTECTION WILL BE MAINTAINED UNTIL NEW FIRE ALARM SYSTEM IS INSTALLED. PROVIDE A FIRE WATCH AS NECESSARY TO ENSURE ENTIRE BUILDING IS PROTECTED AT ANY TIME EXISTING SYSTEM IS DOWN FOR ANY REASON.
- IN BOTH THE DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM AND THE INSTALLATION OF THE NEW FIRE ALARM SYSTEM, WORK WILL BE REQUIRED IN THE CEILING SPACES AND IN THE WALL SPACES. CONTRACTOR SHALL VERIFY AND DOCUMENT EACH CEILING AND WALL TYPE AND ANY DAMAGE TO ANY PORTION OF THE CEILING OR WALL PRIOR TO COMMENCEMENT OF ANY WORK. WHERE DAMAGE IS EXISTING, CONTRACTOR IS TO COORDINATE WITH OWNER'S REPRESENTATIVE AND ARCHITECT FOR DIRECTION OF REPLACEMENT FOR EACH CEILING AND WALL TYPE. CONTRACTOR WILL ALSO PROVIDE UNIT PRICING TO REPLACE OR REPAIR DAMAGED CEILING OR WALL.
- CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF EACH CEILING OR WALL TYPE AS WELL AS PAINTING TO MATCH EXISTING CONDITIONS SHOULD ANY DAMAGE TAKE PLACE DURING THE INSTALLATION OR REMOVAL OF NEW OR EXISTING FIRE ALARM SYSTEM. REPLACEMENT CEILING TILES WILL MATCH THE SURROUNDING TILES IN EACH SPACE TO EXACT MODEL TYPE AS EXISTING. CONTRACTOR WILL LEAVE ALL AREAS OF THE CEILING AND WALLS AS WERE EXISTING OR BETTER THAN THE CONDITION IT WAS FOUND IN.

KEYNOTES

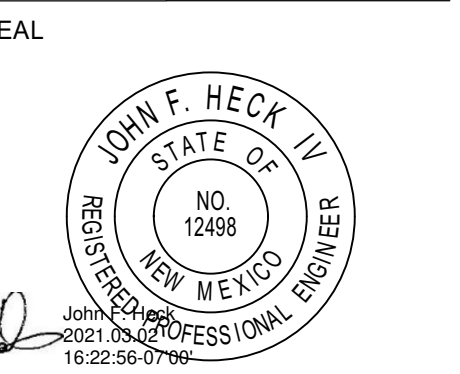
- ED01 ELECTRICAL EQUIPMENT TO REMAIN AS PRESENTLY INSTALLED AND TO BE REFERED FROM NEW POWER SOURCE. REFER TO SHEET ES100 AND E-601 FOR ADDITIONAL INFORMATION.
- ED02 REMOVE EXISTING ELECTRICAL EQUIPMENT. REFER TO SHEET ED01 FOR ADDITIONAL INFORMATION.
- ED03 REMOVE EXISTING PANEL AND PROVIDE PULLBOX IN ITS PLACE FOR NEW PANEL PLACEMENT. ALL EXISTING BRANCH CIRCUITS WILL REMAIN AND BE MODIFIED TO EXTEND TO NEW PANEL. FEEDER CONDUIT AND CONDUCTORS BACK TO SOURCE WILL BE REMOVED. REFER TO SHEET ES100 AND E-601 FOR ADDITIONAL INFORMATION.
- ED04 FIRE ALARM PANEL TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THIS FIRE ALARM PANEL, AND ALL FEEDERS AND RACEWAYS WILL BE REMOVED DURING PHASE 2 OF CONSTRUCTION. PROVIDE PULLBOX ABOVE CEILING TO INTERCEPT RACEWAY FROM CONNECTION TO EXISTING FIRE ALARM PANEL. IN EXISTING ELEMENTARY SCHOOL, TO EXTEND TO NEW FIRE ALARM PANEL LOCATION. REFER TO FIRE ALARM RISER DIAGRAM ON SHEET E-602 FOR ADDITIONAL INFORMATION.
- ED05 ELECTRICAL EQUIPMENT TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THIS ELECTRICAL EQUIPMENT AND ALL FEEDERS AND BRANCH CIRCUIT RACEWAYS WILL BE REMOVED DURING PHASE 2 OF CONSTRUCTION.
- ED06 ELECTRICAL UTILITY TO REMAIN OPERATIONAL. THE ELECTRICAL UTILITY EQUIPMENT AND DISTRIBUTION WILL BE REMOVED BY XCEL ENERGY DURING PHASE 2 OF CONSTRUCTION.
- ED07 POLE TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THE POLE WILL BE REMOVED BY XCEL ENERGY DURING PHASE 2 OF CONSTRUCTION.

KEYPLAN



ALL INFRASTRUCTURE REQUIRED BY UTILITY TO BE INSTALLED UNDER THIS CONTRACT. THIS INCLUDES ANY FEES OR COST PAID DIRECTLY TO UTILITY. EXISTING UTILITY MUST REMAIN THROUGH PHASE 1.

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Bridgers & Paxton Project No. 8022



PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

1	3/3/2021	ADDENDUM 3
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DRAWN BY	MJL
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	ELECTRICAL SITE PLAN

SHEET NO
ES100

GENERAL SHEET NOTES

- A. SEE SHEET E-602 FOR FIRE ALARM RISER DIAGRAM AND ADDITIONAL INFORMATION.
- B. REFER TO SHEET SERIES "EP" FOR ELECTRICAL ROOM EQUIPMENT LAYOUTS AND EQUIPMENT SIZES.
- C. REFER TO SHEET SERIES "AS", "FX", "FX", AND "TP" FOR OTHER UTILITIES WITHIN ROUTING PATH OF ELECTRICAL RACEWAYS.
- D. REFER TO SHEET E-601 FOR ELECTRICAL EQUIPMENT, CONDUIT SIZE AND ADDITIONAL INFORMATION ON ELECTRICAL DISTRIBUTION SYSTEM.
- E. REFER TO SHEET SERIES "T" FOR TELECOMMUNICATIONS ROOMS, EQUIPMENT LAYOUTS AND EQUIPMENT SIZES.
- F. CONTRACTOR WILL REFER TO "C" SHEET SERIES FOR OTHER NEW AND EXISTING UTILITIES. CONTRACTOR WILL COORDINATE THE INSTALLATION OF ANY UTILITIES SHOWN ON THIS SHEET PRIOR TO COMMENCEMENT OF ANY WORK FOR BEST LOCATION OF THESE UTILITIES. WHERE CONDUITS CROSS A DRIVEWAY, ROADWAY OR PARKING AREA, CONDUITS WILL BE CONCRETE ENCASED.
- G. COORDINATE WITH CIVIL AND ARCHITECTURAL SHEETS PRIOR TO PLACEMENT OF SITE LUMINAIRE POLES. EACH POLE CAN BE ADJUSTED TO AVOID OBSTRUCTIONS, BUT ONLY UP TO 1" OF MOVEMENT IN ANY DIRECTION. PROVIDE A 6" GAP BETWEEN EDGE OF SIDEWALK OR CURBS TO POLE BASE.

THIS PROJECT IS TO BE COMPLETED IN TWO PHASES. PHASE 1 WORK SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY PHASE 2 WORK. THE PHASES OF WORK ARE INDICATED ON THIS DRAWING SET AND ON ARCHITECTURAL SHEET SERIES "G". CONSULT ENGINEER WITH ANY FURTHER PHASING QUESTIONS.

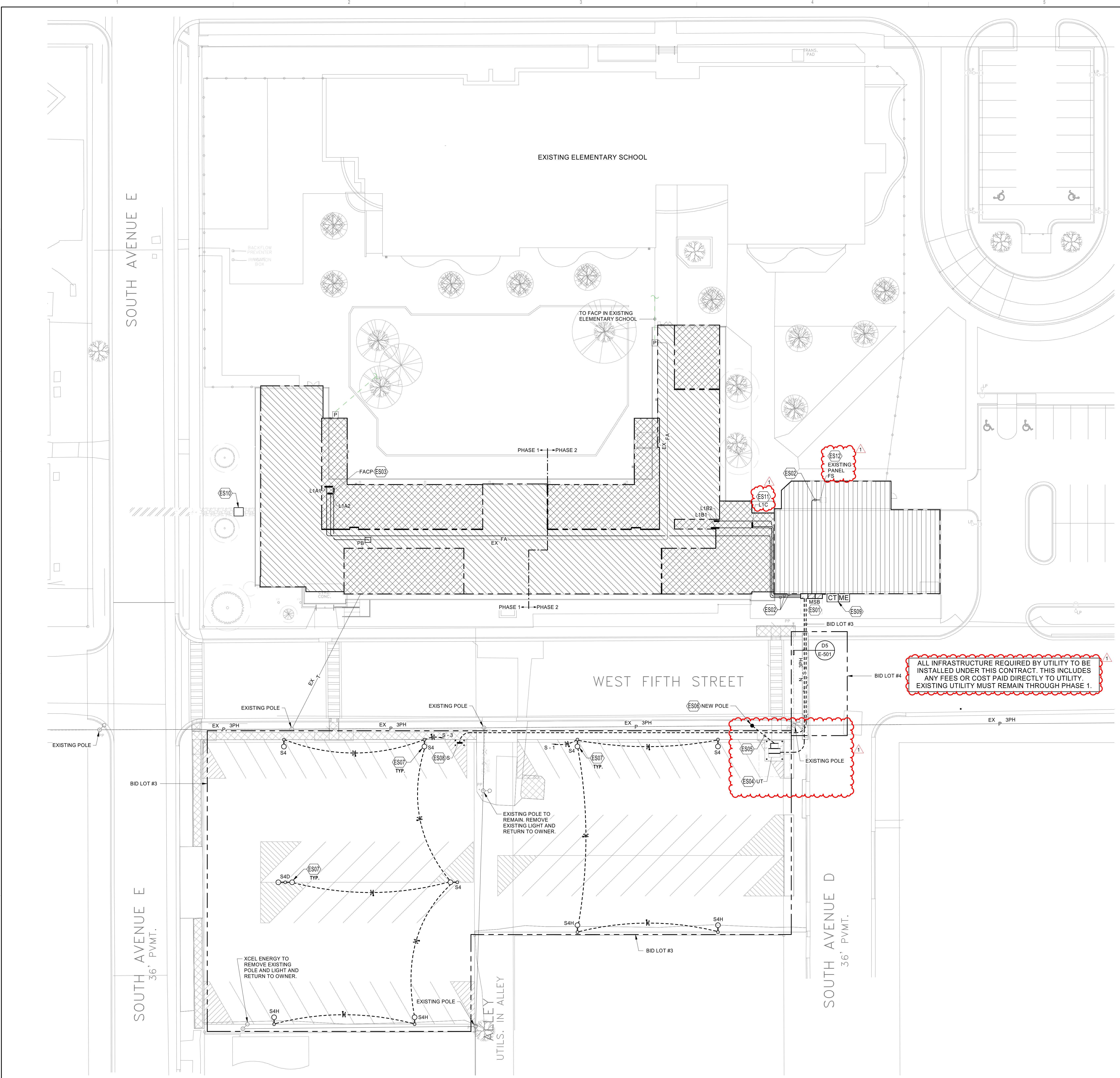
ELEC. SITE PLAN LEGEND

- BASE BID
- BID LOT #1
- EXISTING TO REMAIN

KEYNOTES

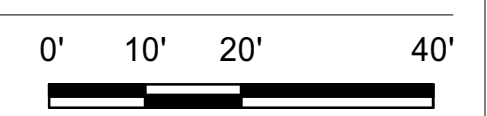
- ES01 NEW SWITCHBOARD "MSB" AND SECONDARY FEEDERS. REFER TO SHEET E-601 FOR ADDITIONAL INFORMATION.
- ES02 ROUTE FEEDER CONDUIT/CONDUCTORS EXPOSED UP SIDE OF EXTERIOR WALL AND ONTO ROOF AND DOWN TO EACH PANEL LOCATION. PAINT TO MATCH. REFER TO SHEET E-601 FOR CONDUIT AND CONDUIT SIZES.
- ES03 APPROXIMATE LOCATION OF FIRE ALARM CONTROL PANEL (FACP). NEW FACP TO BE CONNECTED TO EXISTING FACP IN EXISTING ELEMENTARY SCHOOL. REFER TO SHEET E-602 FOR ADDITIONAL INFORMATION. EXISTING FACP NEEDS TO REMAIN OPERATIONAL DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL.
- ES04 NEW TRANSFORMER BY XCEL ENERGY. REFER TO SHEET E-601 FOR ADDITIONAL INFORMATION.
- ES05 THREE PHASE PRIMARY DISTRIBUTION UNDERGROUND TO NEW TRANSFORMER LOCATION. CONTRACTOR WILL COORDINATE WITH XCEL ENERGY FOR INSTALLATION REQUIREMENTS.
- ES06 NEW POWER POLE BY XCEL ENERGY.
- ES07 POLE MOUNTED LUMINAIRE. REFER TO POLE BASE DETAIL C4 ON SHEET E-601. PROVIDE 2#8 & 1#10 GROUND IN A 1" CONDUIT. EXTEND THESE CONDUCTORS TO EACH POLE ON THE CIRCUIT INDICATED AND HOMERUN.
- ES08 NEMA 3R PANEL MOUNTED ON UNISTRUT. REFER TO SHEET E-601 AND DETAIL B3 ON SHEET E-601 FOR ADDITIONAL INFORMATION.
- ES09 CT AND METER ENCLOSURE WILL BE MOUNTED AS DIRECTED BY XCEL ENERGY. CONTRACTOR WILL COORDINATE WITH XCEL ENERGY REPRESENTATIVE AND XCEL ENERGY SERVICE GUIDE FOR CORRECT INSTALLATION.
- ES10 REFER TO SHEET E-601 AND E-602 FOR ADDITIONAL INFORMATION.
- ES11 ALL EXISTING BRANCH CIRCUITS WILL REMAIN AND BE MODIFIED TO EXTEND TO NEW PANEL. REFER TO SHEET E-601 FOR ADDITIONAL INFORMATION.
- ES12 ELECTRICAL EQUIPMENT TO REMAIN AS PRESENTLY INSTALLED AND TO BE REFERRED FROM NEW POWER SOURCE. REFER TO SHEET E-601 FOR ADDITIONAL INFORMATION.

ALL INFRASTRUCTURE REQUIRED BY UTILITY TO BE INSTALLED UNDER THIS CONTRACT. THIS INCLUDES ANY FEES OR COST PAID DIRECTLY TO UTILITY. EXISTING UTILITY MUST REMAIN THROUGH PHASE 1.

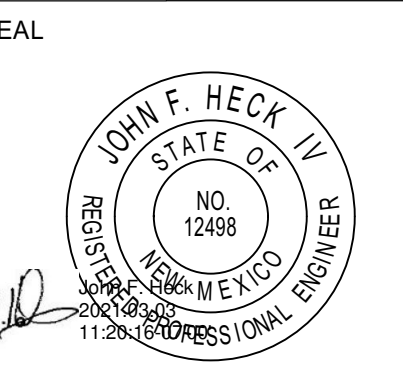


A4 ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"



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PROJECT

GENERAL SHEET NOTES

- A. GFCI RECEPTACLES WILL BE INSTALLED AT ALL LOCATIONS AS REQUIRED BY THE LATEST VERSION OF NEC, STATE AND LOCAL CODES WHETHER INDICATED ON PLANS OR NOT. SOME LOCATIONS WILL BE WITHIN 6'-0" OF SINKS, EXTERIOR DOORS AND WET LOCATIONS. ALL EXTERIOR RECEPTACLE LOCATIONS WILL BE WEATHERPROOF AND GFCI RATED.
- B. COORDINATE ALL 120 VOLT POWER REQUIREMENTS AND LOCATIONS WITH THE CONTROLS / ACCESS / SECURITY CONTRACTORS IN THE FIELD. REFER TO SPECIFICATION 230549 FOR ADDITIONAL INFORMATION.
- C. COVER PLATES OF ALL DEVICES WILL BE LABELED WITH CIRCUIT IT IS CONNECTED TO. SUCH DEVICES ARE, BUT NOT LIMITED TO, SWITCHES AND RECEPTACLES. REFER TO SPECIFICATION SECTION 26053 FOR ADDITIONAL INFORMATION.
- D. CONTROLS FOR ALL MECHANICAL EQUIPMENT WILL BE AS INDICATED ON SHEET SERIES "M". RACEWAY PATHS FOR CONTROLS AND WIRING WILL BE INSTALLED AS INDICATED ON CONTROL DIAGRAMS. ALSO REFER TO SPECIFICATION SECTION 230649 FOR ADDITIONAL INFORMATION. CONTRACTOR WILL PROVIDE A 3/4" CONDUIT FOR CONTROL WIRING AS REQUIRED BY SHEET SERIES "M". CONTROL WILL EITHER BE BY FACILITY MANAGEMENT SYSTEM (FMS) OR LOCAL SWITCHES. PROVIDE PILOT LIGHT SWITCHES WHERE LOCAL SWITCHES ARE REQUIRED PER CONTROL DIAGRAMS.
- E. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET SERIES "M" FOR ADDITIONAL INFORMATION ON EQUIPMENT.
- F. WITH LABEL AND IDENTIFICATION OF CIRCUIT, PANEL AND UNIT NAME, PROVIDE ROOM THAT UNIT SERVES WITH-IN LABEL ON UNIT.
- G. REMOVE ALL UNUSED RACEWAY PATHS FROM CEILING SPACE.
- H. REMOVE ALL UNUSED CONDUCTORS AND CABLES FROM CEILING SPACE.
- I. THROUGHOUT ALL CEILING/CEILING SPACES, ALL RACEWAY PATHS, WHETHER NEW OR EXISTING, WILL BE PROPERLY SUPPORTED TO MEET NEC AND NMEC CODE REQUIREMENTS, PLUS ANY BICSI INSTALLATION REQUIREMENTS FOR LOW VOLTAGE CABLES.

ALL 15A AND 20A, 120V AND 250V, NONLOCKING TYPE RECEPTACLES PER NEC 406.12. REFER TO NEC 406.12 FOR EXCEPTIONS.

KEYNOTES

- ED05 ELECTRICAL EQUIPMENT TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THIS ELECTRICAL EQUIPMENT AND ALL FEEDERS AND BRANCH CIRCUIT RACEWAYS WILL BE REMOVED DURING PHASE 2 OF CONSTRUCTION.
- EP05 MAIN GROUNDING ELECTRODE GROUND BAR. REFER TO MAIN GROUNDING ELECTRODE BUS BAR DETAIL B5 ON SHEET E-501 AND ELECTRICAL GROUNDING DIAGRAM ON SHEET E-602 FOR ADDITIONAL INFORMATION. PROVIDE AN 18"X18" NEMA 3R SCREW COVERED PULLBOX TO HOUSE MAIN GROUND BAR ADJACENT TO MAIN SWITCHBOARD.
- EP07 RELAY PANEL FOR CONTROL OF CORRIDOR LIGHTING. REFER TO SHEET SERIES "EL" FOR ADDITIONAL INFORMATION.
- EP08 EXTEND POWER FROM ROOM LUMINAIRE CIRCUIT. REFER TO SHEET SERIES "EL" FOR CIRCUIT INFORMATION. EXHAUST FAN TO BE CONTROLLED BY ROOM WALL MOUNTED OCCUPANCY SENSOR.
- EP12 DEVICE IS FOR WALL MOUNTED SHORT-THROW PROJECTOR. MOUNT ADJACENT TO DATA DEVICE. REFER TO MOUNTING DETAILS ON SHEET SERIES "T" FOR ADDITIONAL INSTALLATION INFORMATION.

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

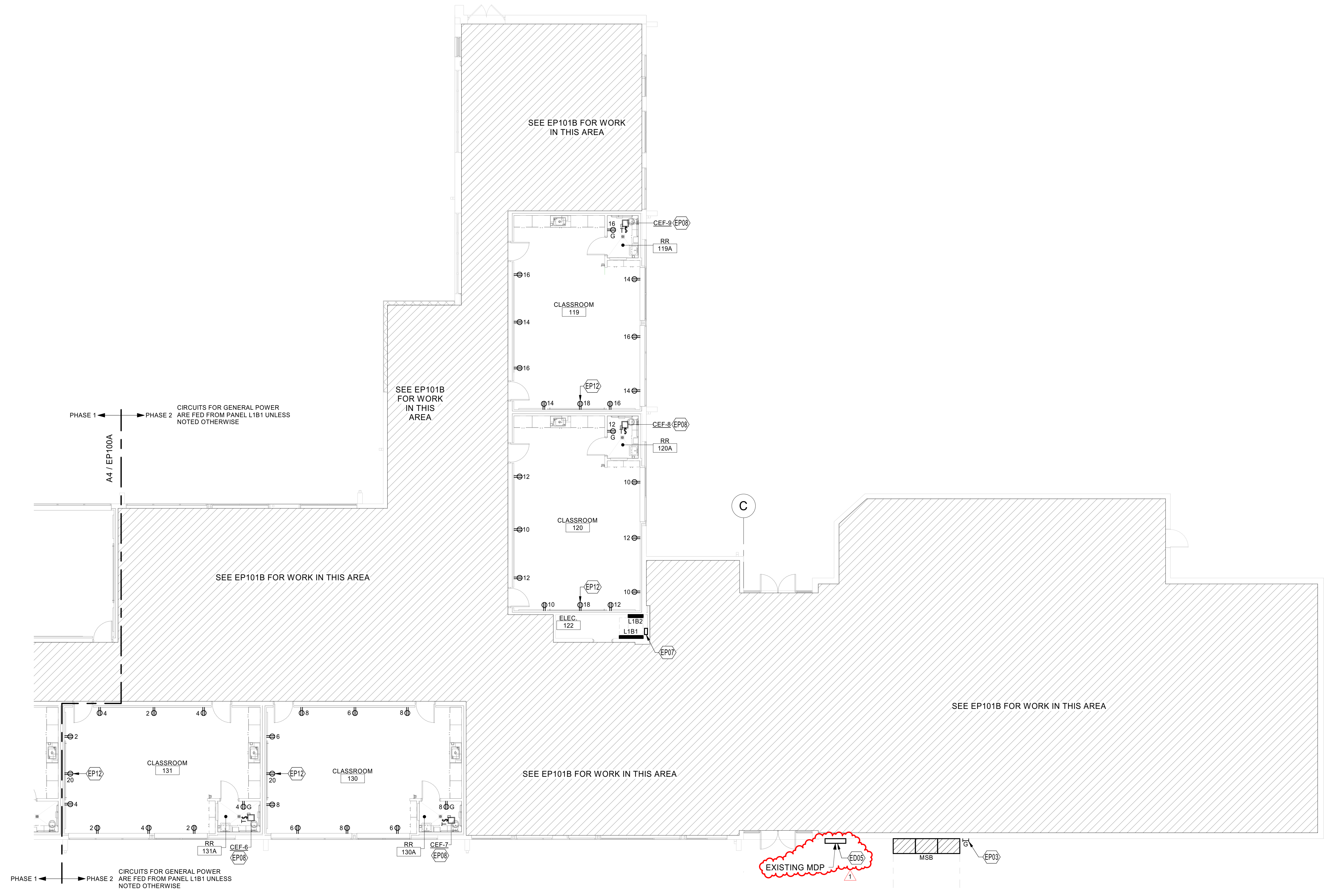
REVISIONS

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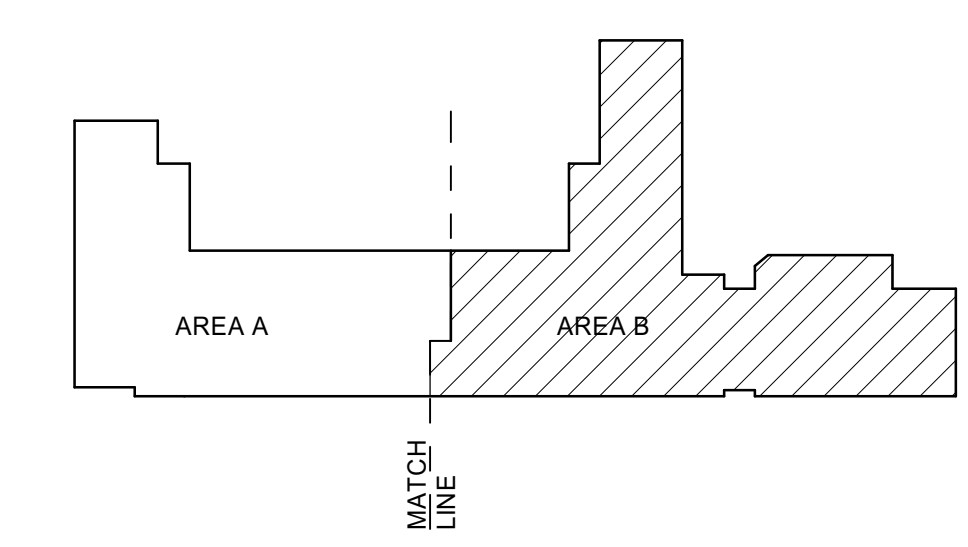
DRAWN BY	MJL
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

POWER FLOOR PLAN - AREA B

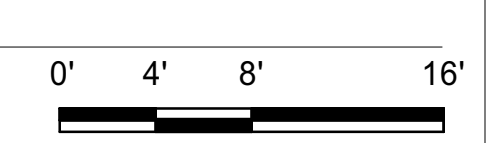
SHEET NO
EP100B



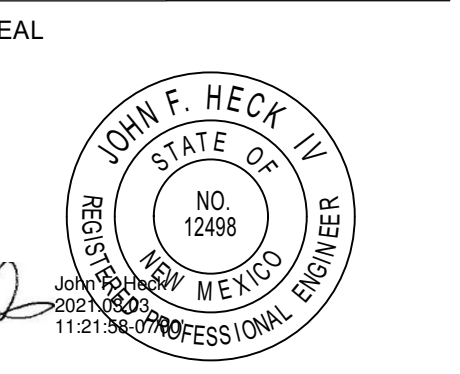
KEYPLAN



A4 POWER FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"



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Bridgers & Paxton Project No. 8022



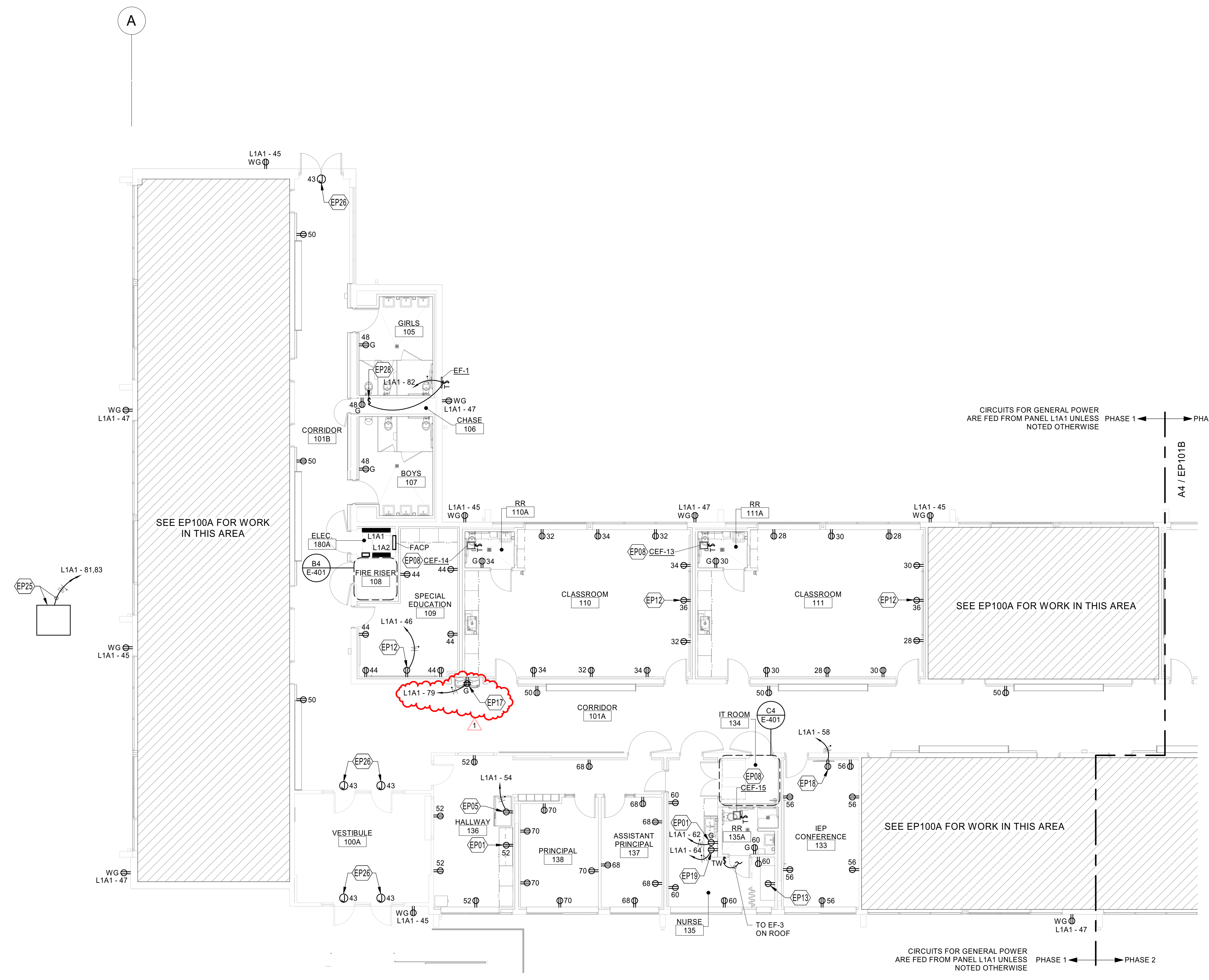
GENERAL SHEET NOTES

- A. GFCI RECEPTACLES WILL BE INSTALLED AT ALL LOCATIONS AS REQUIRED BY THE LATEST VERSION OF NEC, STATE AND LOCAL CODES WHETHER INDICATED ON PLANS OR NOT. SOME LOCATIONS WILL BE WITHIN 6'-0" OF SINKS, EXTERIOR DOORS AND WET LOCATIONS. ALL EXTERIOR RECEPTACLE LOCATIONS WILL BE WEATHERPROOF AND GFCI RATED.
- B. COORDINATE ALL 120 VOLT POWER REQUIREMENTS AND LOCATIONS WITH THE CONTROLS / ACCESS / SECURITY CONTRACTORS IN THE FIELD. REFER TO SPECIFICATION 230549 FOR ADDITIONAL INFORMATION.
- C. COVER PLATES OF ALL DEVICES WILL BE LABELED WITH CIRCUIT IT IS CONNECTED TO, SUCH DEVICES ARE, BUT NOT LIMITED TO, SWITCHES AND RECEPTACLES. REFER TO SPECIFICATION SECTION 26053 FOR ADDITIONAL INFORMATION.
- D. CONTROLS FOR ALL MECHANICAL EQUIPMENT WILL BE AS INDICATED ON SHEET SERIES "M". RACEWAY PATHS FOR CONTROLS AND WIRING WILL BE INSTALLED AS INDICATED ON CONTROL DIAGRAMS. ALSO REFER TO SPECIFICATION SECTION 230549 FOR ADDITIONAL INFORMATION. CONTRACTOR WILL PROVIDE A 3/4" CONDUIT FOR CONTROL WIRING AS REQUIRED BY SHEET SERIES "M". CONTROL WILL EITHER BE BY FACILITY MANAGEMENT SYSTEM (FMS) OR LOCAL SWITCHES. PROVIDE PILOT LIGHT SWITCHES WHERE LOCAL SWITCHES ARE REQUIRED PER CONTROL DIAGRAMS.
- E. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET SERIES "M" FOR ADDITIONAL INFORMATION ON EQUIPMENT.
- F. WITH LABEL AND IDENTIFICATION OF CIRCUIT, PANEL AND UNIT NAME, PROVIDE ROOM THAT UNIT SERVES WITH-IN LABEL ON UNIT.
- G. REMOVE ALL UNUSED RACEWAY PATHS FROM CEILING SPACE.
- H. REMOVE ALL UNUSED CONDUCTORS AND CABLES FROM CEILING SPACE.
- I. THROUGHOUT ALL CEILING/CEILING SPACES, ALL RACEWAY PATHS, WHETHER NEW OR EXISTING, WILL BE PROPERLY SUPPORTED TO MEET NEC AND NMEC CODE REQUIREMENTS, PLUS ANY BICSI INSTALLATION REQUIREMENTS FOR LOW VOLTAGE CABLES.

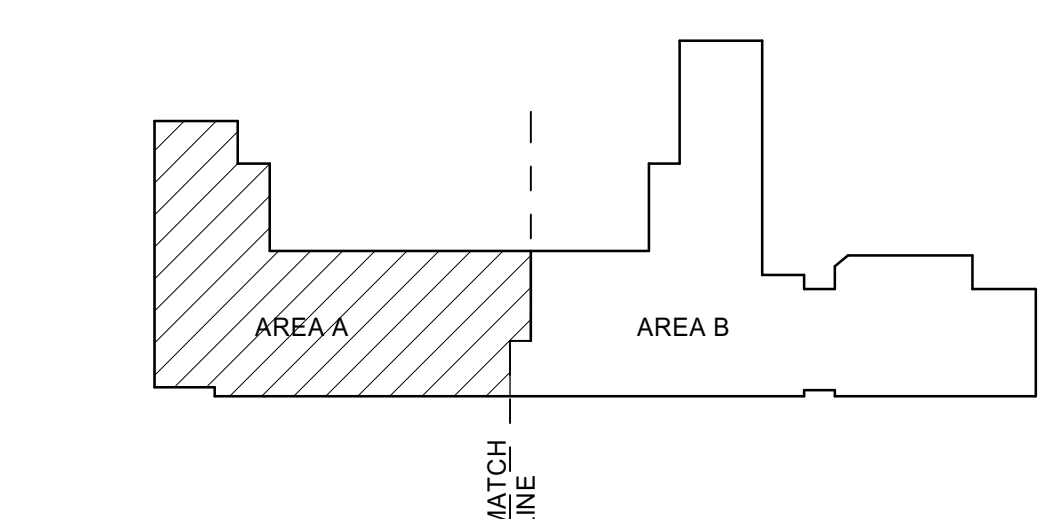
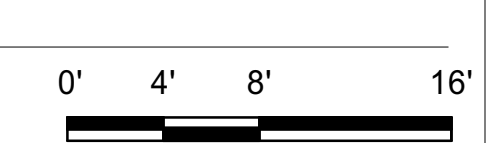
ALL 15A AND 20A, 120V AND 250V, NONLOCKINGTYPE RECEPTACLES PER NEC 406.12. REFER TO NEC 406.12 FOR EXCEPTIONS.

KEYNOTES

- EP01 MOUNT DEVICES 6" ABOVE COUNTER TOP BACK SPLASH, TABLE TOP OR SINK. RECEPTACLE WILL BE GFCI RATED IF DESIGNATED WITH "G".
- EP05 DEVICE IS FOR COOPER. PROVIDE DEDICATED CIRCUIT. CONTRACTOR WILL MATCH NEMA CONFIGURATION OF RECEPTACLE WITH UNIT PLUG. COORDINATE PRIOR TO ORDERING RECEPTACLE DEVICE.
- EP08 EXTEND POWER FROM ROOM LUMINAIRE CIRCUIT. REFER TO SHEET SERIES "EL" FOR CIRCUIT INFORMATION. EXHAUST FAN TO BE CONTROLLED BY ROOM WALL MOUNTED OCCUPANCY SENSOR.
- EP12 DEVICE IS FOR WALL MOUNTED SHORT-THROW PROJECTOR. MOUNT ADJACENT TO DATA DEVICE. REFER TO MOUNTING DETAILS ON SHEET SERIES "T" FOR ADDITIONAL INSTALLATION INFORMATION.
- EP13 HEIGHT ADJUSTABLE CHANGING TABLE. COORDINATE ROUGH-IN LOCATION AND REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN.
- EP17 PROVIDE DEVICE FOR ELECTRIC WATER COOLER/BOTTLE FILLER. PROVIDE GFCI CIRCUIT BREAKER IN PANEL. NOT AT RECEPTACLE. MOUNT DEVICE SO IT IS CONCEALED BEHIND UNIT ALONG WITH CORD. COORDINATE WITH MANUFACTURER FOR ALL REQUIREMENTS PRIOR TO COMMENCEMENT OF ANY WORK.
- EP18 RECEPTACLE FOR WALL MOUNTED DISPLAY. MOUNT ADJACENT TO DATA NETWORK OUTLETS. REFER TO MOUNTING DETAILS ON SHEET SERIES "T" FOR ADDITIONAL INSTALLATION INFORMATION.
- EP19 UNDER COUNTER REFRIGERATOR. INSTALL OUTLET WITHIN BASE CABINETS AT ACCESSIBLE LOCATION. COORDINATE WITH EQUIPMENT INSTALLER.
- EP25 APPROXIMATE LOCATION OF HOT BOX. PROVIDE TWO DEDICATED CIRCUITS TO HOT BOX HEATERS. PROVIDE 2#10 & 1#10 GROUND FOR EACH CIRCUIT IN 1" CONDUIT BETWEEN EQUIPMENT AND PANEL SOURCE. REFER TO SHEET SERIES "P" AND "X" FOR MORE INFORMATION AND LOCATION.
- EP26 PROVIDE POWER FOR CONNECTION TO DOOR HARDWARE. 3/4" CONDUIT BETWEEN EACH JUNCTION BOX AND PERMANENT CONDUCTORS PER DOOR HARDWARE INSTALLER'S INSTRUCTIONS.
- EP28 SWITCH WILL BE A TWIST TIMER SWITCH FOR CONTROL OF EXHAUST FAN PROVIDED WITH UNIT. REFER TO SHEET SERIES "M" FOR ADDITIONAL INFORMATION.



A4 POWER FLOOR PLAN - AREA A - BID LOT #1
 SCALE: 1/8" = 1'-0"



**Brown Early Childhood Center
 Old Wing Renovation**
 520 W 5th St, Portales, NM 88130

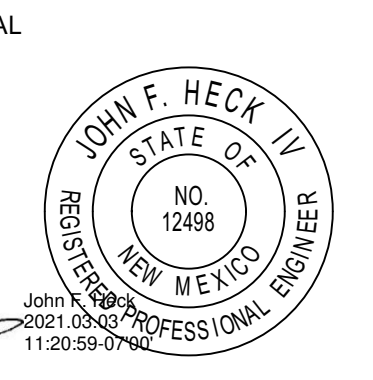
CONSTRUCTION DOCUMENTS

REVISIONS	
▲	3/3/2021 ADDENDUM 3
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DRAWN BY	MJL
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

POWER FLOOR PLAN - AREA A - BID LOT #1

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 Bridges & Paxton Project No: 8022



PROJECT

GENERAL SHEET NOTES

- A. GFCI RECEPTACLES WILL BE INSTALLED AT ALL LOCATIONS AS REQUIRED BY THE LATEST VERSION OF NEC, STATE AND LOCAL CODES WHETHER INDICATED ON PLANS OR NOT. SOME LOCATIONS WILL BE WITHIN 6'-0" OF SINKS, EXTERIOR DOORS AND WET LOCATIONS. ALL EXTERIOR RECEPTACLE LOCATIONS WILL BE WEATHERPROOF AND GFCI RATED.
- B. COORDINATE ALL 120 VOLT POWER REQUIREMENTS AND LOCATIONS WITH THE CONTROLS / ACCESS / SECURITY CONTRACTORS IN THE FIELD. REFER TO SPECIFICATION 230549 FOR ADDITIONAL INFORMATION.
- C. COVER PLATES OF ALL DEVICES WILL BE LABELED WITH CIRCUIT IT IS CONNECTED TO, SUCH DEVICES ARE, BUT NOT LIMITED TO, SWITCHES AND RECEPTACLES. REFER TO SPECIFICATION SECTION 260553 FOR ADDITIONAL INFORMATION.
- D. CONTROLS FOR ALL MECHANICAL EQUIPMENT WILL BE AS INDICATED ON SHEET SERIES "M". RACEWAY PATHS FOR CONTROLS AND WIRING WILL BE INSTALLED AS INDICATED ON CONTROL DIAGRAMS. ALSO REFER TO SPECIFICATION SECTION 230644 FOR ADDITIONAL INFORMATION. CONTRACTOR WILL PROVIDE A 3/4" CONDUIT FOR CONTROL WIRING AS REQUIRED BY SHEET SERIES "M". CONTROL WILL EITHER BE BY FACILITY MANAGEMENT SYSTEM (FMS) OR LOCAL SWITCHES. PROVIDE PILOT LIGHT SWITCHES WHERE LOCAL SWITCHES ARE REQUIRED PER CONTROL DIAGRAMS.
- E. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SHEET SERIES "M" FOR ADDITIONAL INFORMATION ON EQUIPMENT.
- F. WITH LABEL AND IDENTIFICATION OF CIRCUIT, PANEL AND UNIT NAME, PROVIDE ROOM THAT UNIT SERVES WITH-IN LABEL ON UNIT.
- G. REMOVE ALL UNUSED RACEWAY PATHS FROM CEILING SPACE.
- H. REMOVE ALL UNUSED CONDUCTORS AND CABLES FROM CEILING SPACE.
- I. THROUGHOUT ALL CEILING/CEILING SPACES, ALL RACEWAY PATHS, WHETHER NEW OR EXISTING, WILL BE PROPERLY SUPPORTED TO MEET NEC AND NMEC CODE REQUIREMENTS, PLUS ANY BICSI INSTALLATION REQUIREMENTS FOR LOW VOLTAGE CABLES.

ALL 15A AND 20A, 120V AND 250V, NONLOCKINGTYPE RECEPTACLES PER NEC 406.12. REFER TO NEC 406.12 FOR EXCEPTIONS.

KEYNOTES

- ED05 ELECTRICAL EQUIPMENT TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THIS ELECTRICAL EQUIPMENT AND ALL FEEDERS AND BRANCH CIRCUIT RACEWAYS WILL BE REMOVED DURING PHASE 2 OF CONSTRUCTION.
- EP01 MOUNT DEVICES 6" ABOVE COUNTER TOP BACK SLASH, TABLE TOP OR SINK. RECEPTACLE WILL BE GFCI RATED IF DESIGNATED WITH A "G".
- EP03 MAIN GROUNDING ELECTRODE GROUND BAR. REFER TO MAIN GROUNDING ELECTRODE BUS BAR DETAIL BS ON SHEET E-01 AND ELECTRICAL GROUNDING DIAGRAM ON SHEET E-02 FOR ADDITIONAL INFORMATION. PROVIDE AN 18"x18"x8" NEVMA 3R SCREW COVERED PULLBOX TO HOUSE MAIN GROUND BAR ADJACENT TO MAIN SWITCHBOARD.
- EP05 DEVICE IS FOR COPIER, PROVIDE DEDICATED CIRCUIT. CONTRACTOR WILL MATCH NEMA CONFIGURATION OF RECEPTACLE WITH UNIT PLUG. COORDINATE PRIOR TO ORDERING RECEPTACLE DEVICE.
- EP07 RELAY PANEL FOR CONTROL OF CORRIDOR LIGHTING. REFER TO SHEET SERIES "EL" FOR ADDITIONAL INFORMATION.
- EP08 EXTEND POWER FROM ROOM LUMINAIRE CIRCUIT. REFER TO SHEET SERIES "EL" FOR CIRCUIT INFORMATION. EXHAUST FAN TO BE CONTROLLED BY ROOM WALL MOUNTED OCCUPANCY SENSOR.
- EP12 DEVICE IS FOR WALL MOUNTED SHORT-THROW PROJECTOR. MOUNT ADJACENT TO DATA DEVICE. REFER TO MOUNTING DETAILS ON SHEET SERIES "T" FOR ADDITIONAL INSTALLATION INFORMATION.
- EP17 PROVIDE DEVICE FOR ELECTRIC WATER COOLER/BOTTLE FILLER. PROVIDE GFCI CIRCUIT BREAKER IN PANEL. NOT AT RECEPTACLE. MOUNT DEVICE SO IT IS CONCEALED BEHIND UNIT ALONG WITH CORD. COORDINATE WITH MANUFACTURER FOR ALL REQUIREMENTS PRIOR TO COMMENCEMENT OF ANY WORK.
- EP18 RECEPTACLE FOR WALL MOUNTED DATA DEVICE. MOUNT ADJACENT TO DATA DEVICE. REFER TO MOUNTING DETAILS ON SHEET SERIES "T" FOR ADDITIONAL INSTALLATION INFORMATION.
- EP26 PROVIDE POWER FOR CONNECTION TO DOOR HARDWARE. 3/4" CONDUIT BETWEEN EACH JUNCTION BOX AND PERMANENT CONDUCTORS PER DOOR HARDWARE INSTALLERS INSTRUCTIONS.
- EP27 ALL DEVICES UNDER TABLE TOPS WILL BE MOUNTED AT 1'-0" AND HORIZONTAL.
- EP28 SWITCH WILL BE A TWIST TIMER SWITCH FOR CONTROL OF EXHAUST FAN PROVIDED WITH UNIT. REFER TO SHEET SERIES "M" FOR ADDITIONAL INFORMATION.
- EP29 CIRCUIT INDICATED WILL BE CONNECTED TO EXISTING GENERAL POWER DEVICES IN SPACE.
- EP30 EXISTING DRINKING FOUNTAIN/BOTTLE FILLER TO REMAIN AND REMAIN OPERATIONAL. EXTEND CIRCUIT TO NEW PANEL LOCATION SHOWN IF EXISTING CIRCUIT IS IN PANEL BEING REMOVED. IF EXISTING CIRCUIT IS IN EXISTING PANEL A BEING REMOVED, EXTEND CIRCUIT TO NEW PANEL LIC LOCATION AND PROVIDE GFCI BREAKER IN PANEL.

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

1	3/3/2021	ADDENDUM 3
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DRAWN BY

MJL

REVIEWED BY

JMM

DATE

12/10/2019

PROJECT NO

18-0032

PSFA PRE-K PROJECT NO:

K-18-011

PSFA SYSTEMS PROJECT NO:

S-20-008

DRAWING NAME

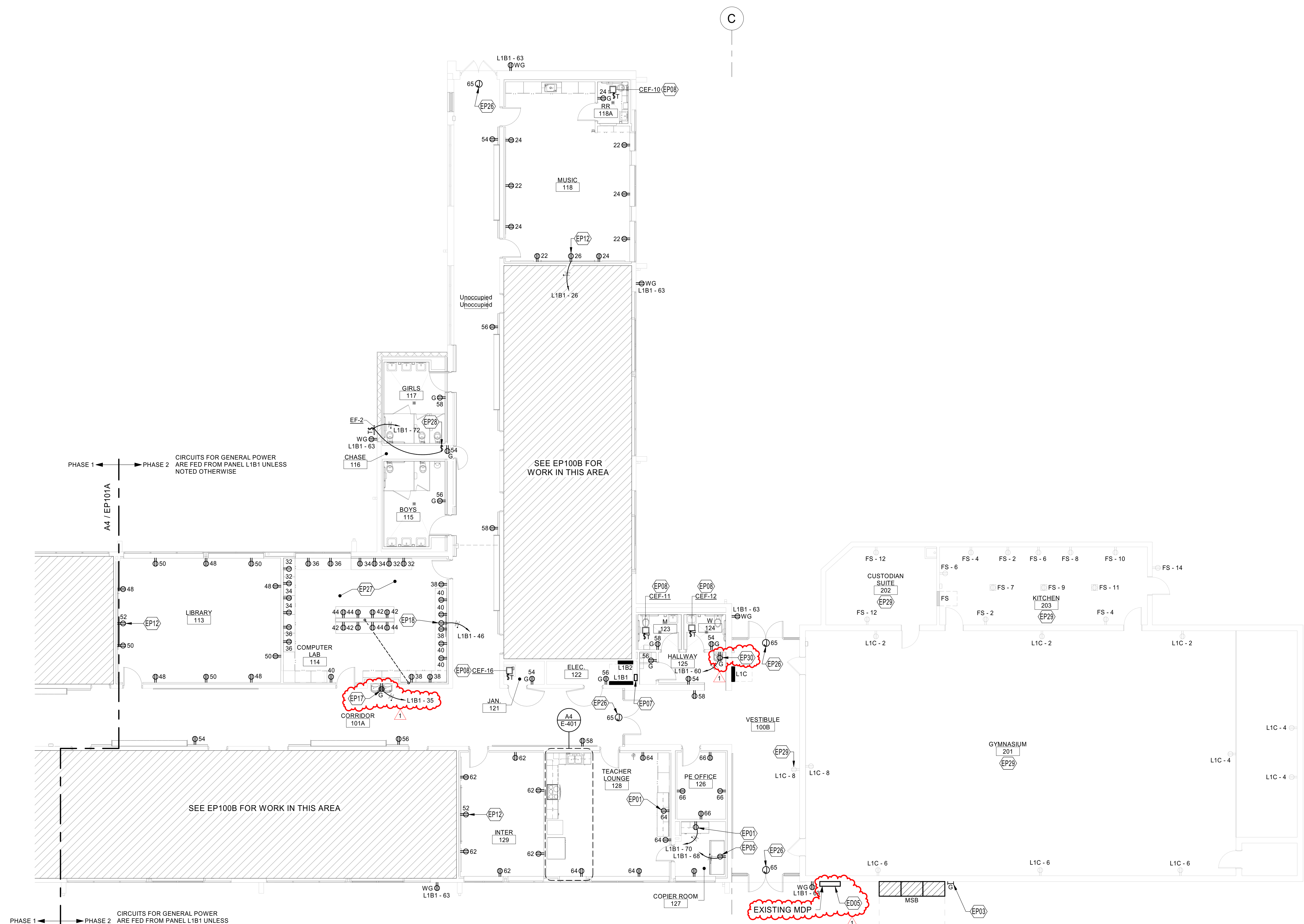
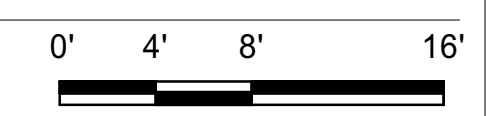
POWER FLOOR PLAN - AREA B - BID LOT #1

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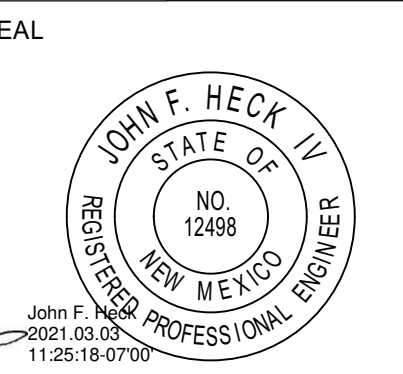
EP101B

A4 POWER FLOOR PLAN - AREA B - BID LOT #1

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



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Bridgers & Paxton Project No: 8022



PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

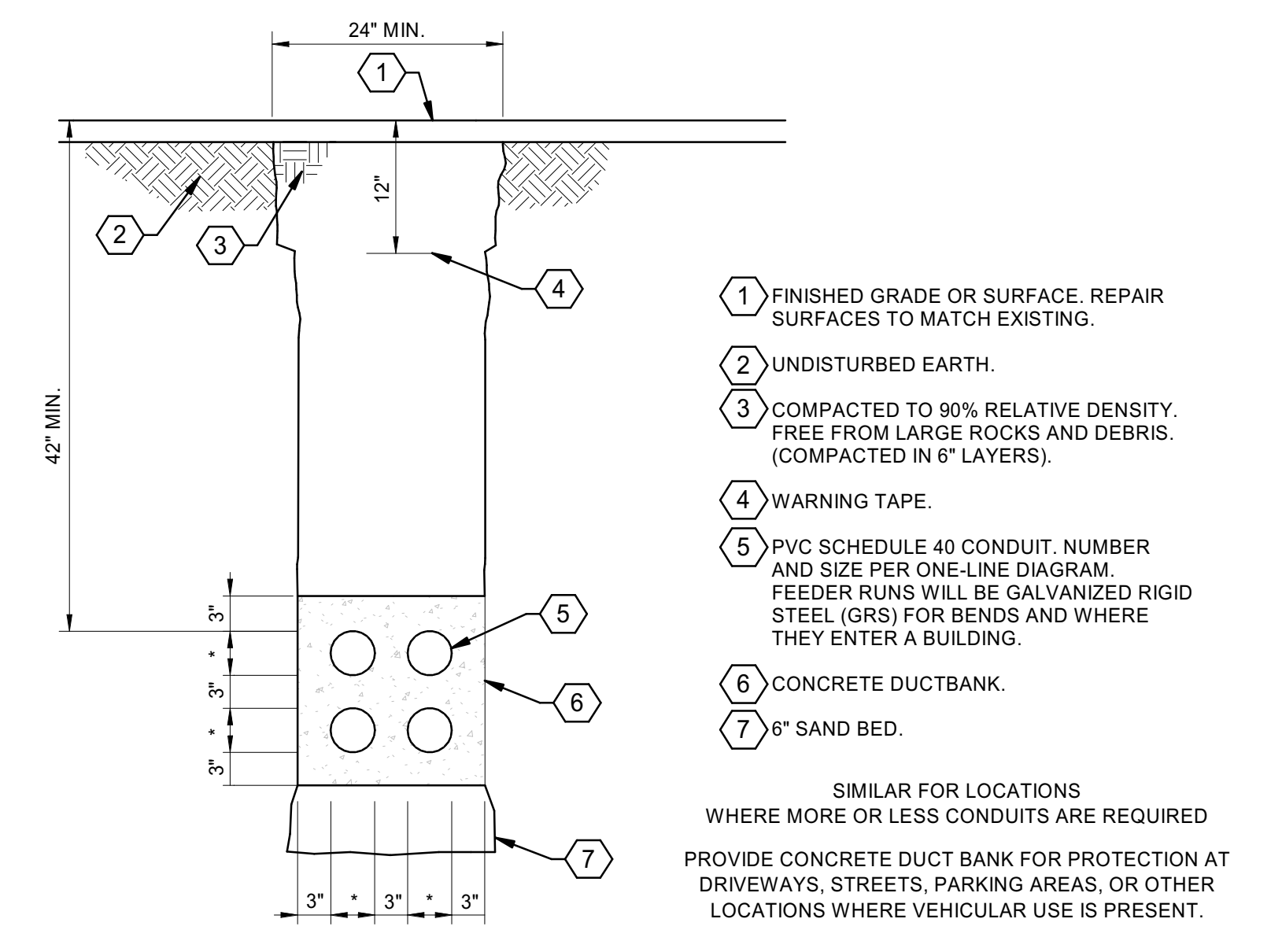
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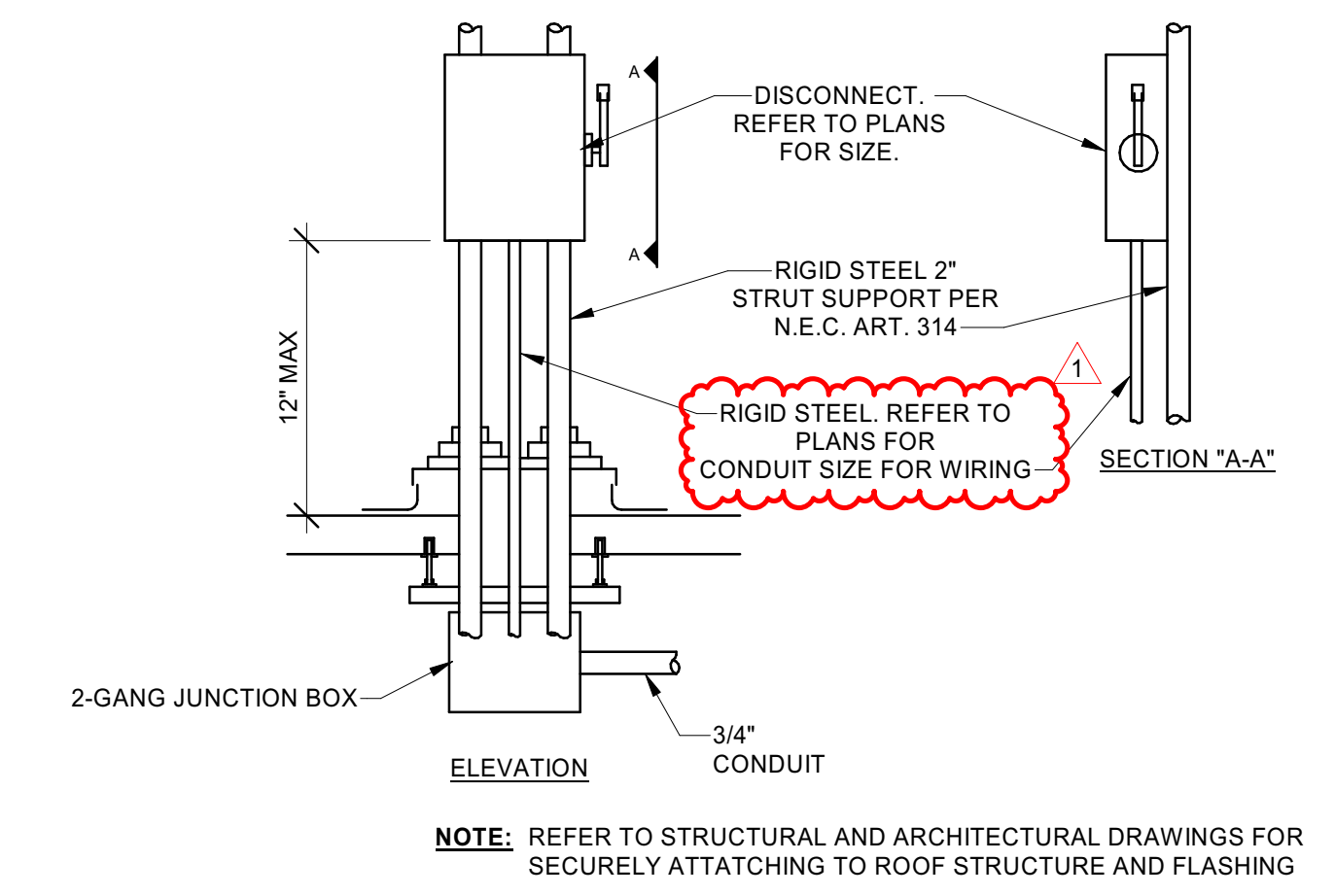
DRAWN BY	MJL
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

ELECTRICAL DETAILS

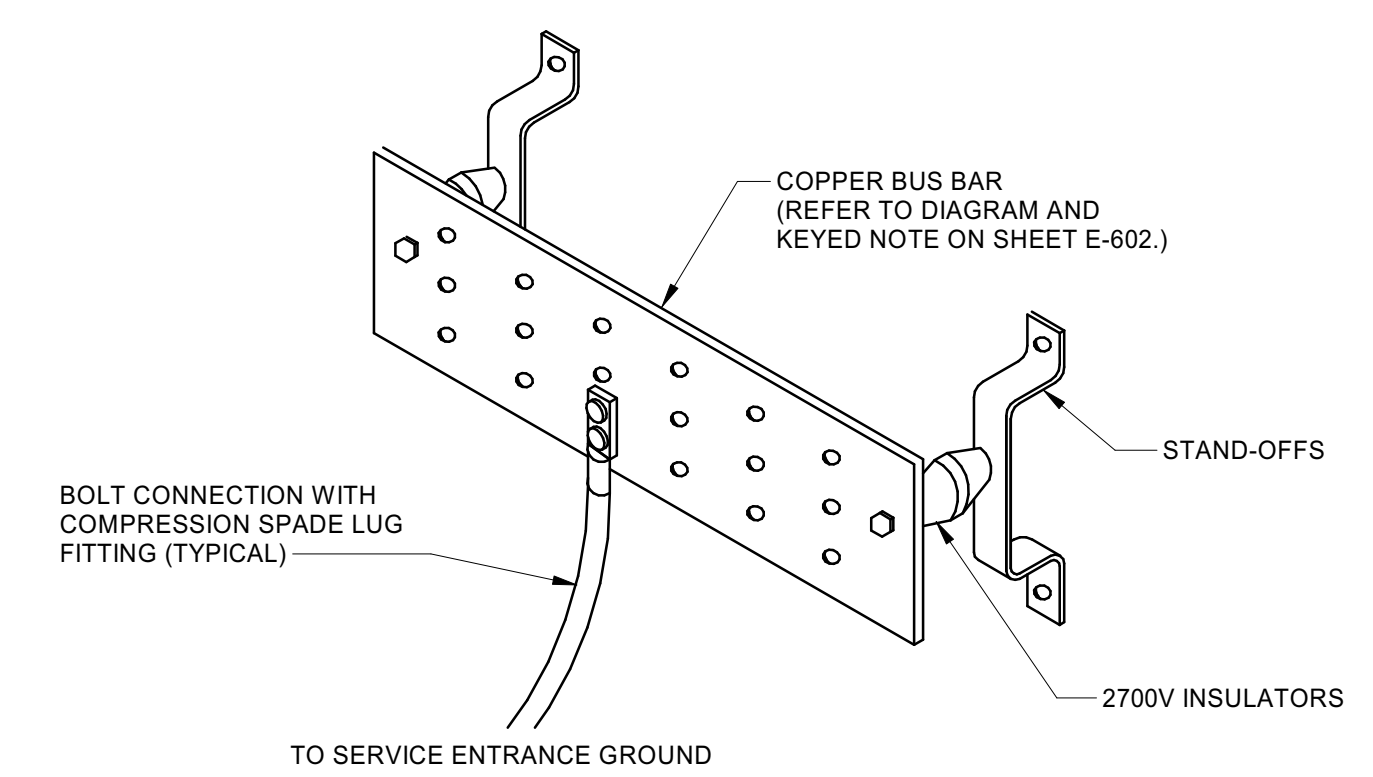
SHEET NO
E-501



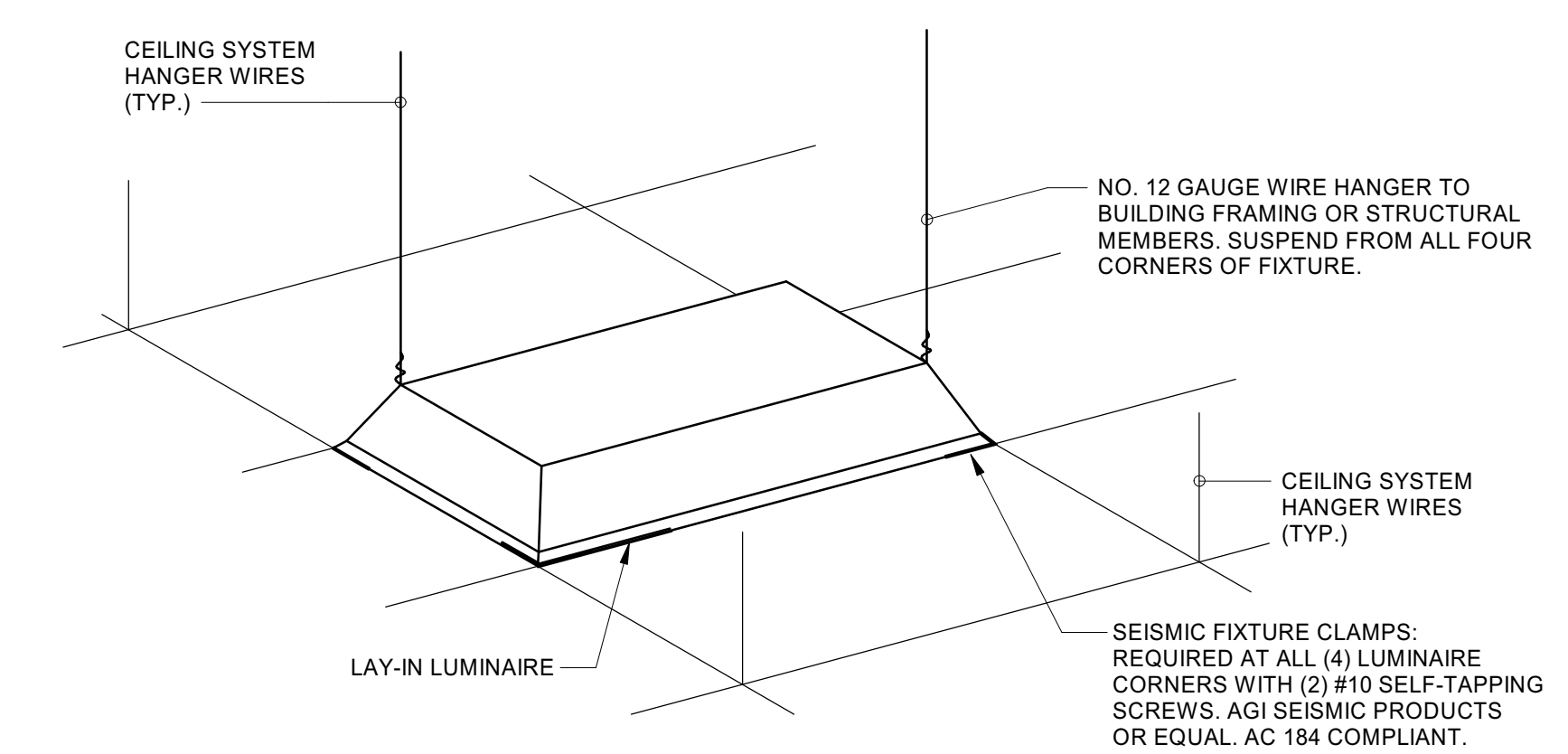
D5 480V SECONDARY DUCT BANK DETAIL
SCALE: NO SCALE



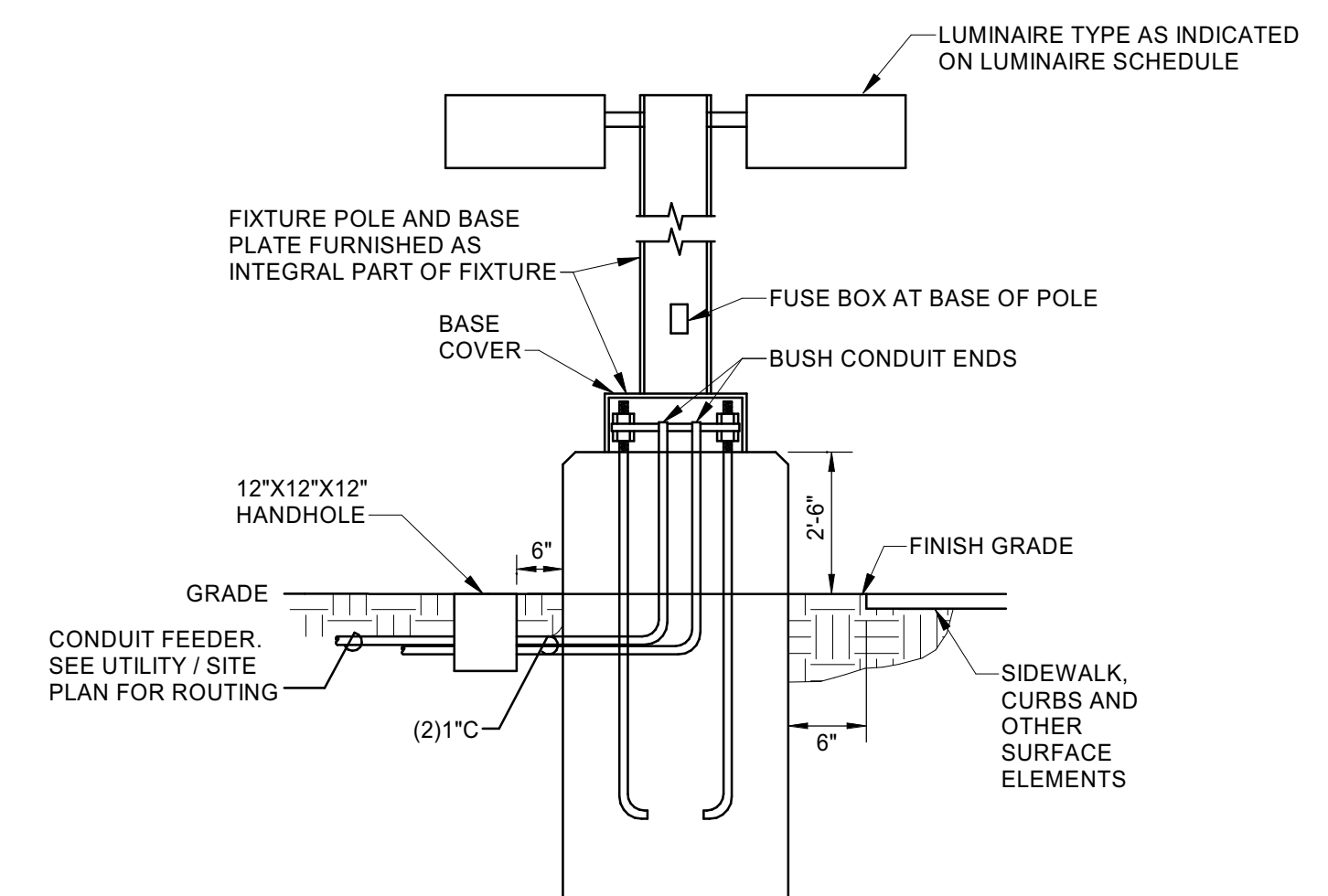
C5 UNISTRUT MOUNTED DISCONNECT DETAIL
SCALE: NO SCALE



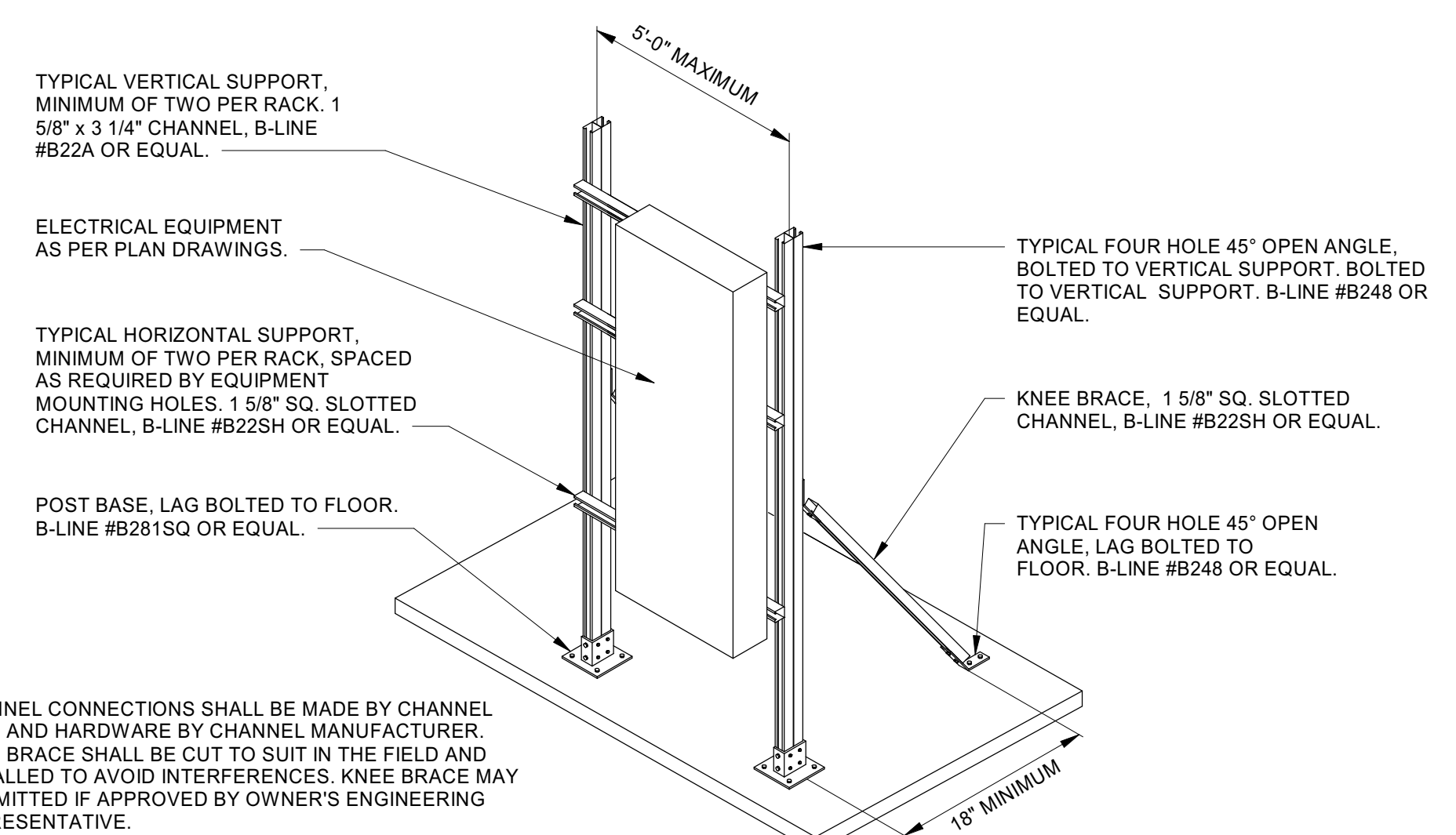
B5 MAIN GROUNDING ELECTRODE GROUND BAR DETAIL
SCALE: NO SCALE



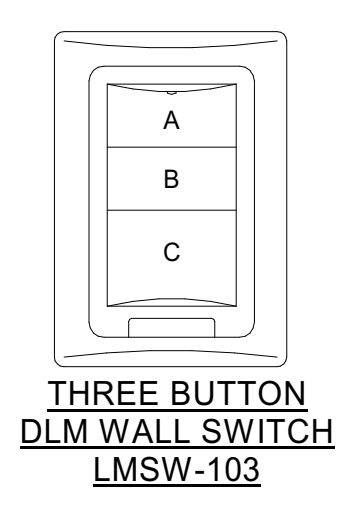
A5 LUMINAIRE SUPPORT DETAIL
SCALE: NO SCALE



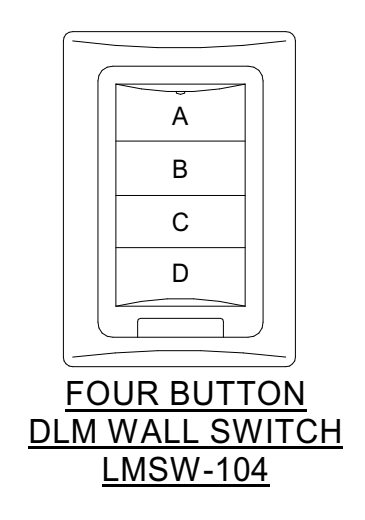
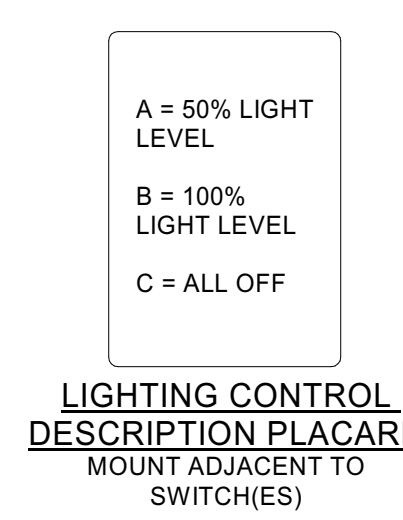
C4 POLE BASE DETAIL - BID LOT #3
SCALE: NO SCALE



B3 UNISTRUT MOUNTED PANEL DETAIL - BID LOT #3
SCALE: NO SCALE

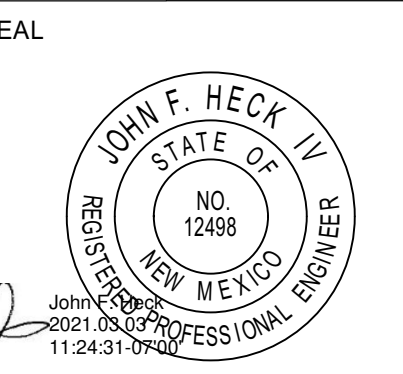


A3 3-BUTTON DLM SWITCH DETAIL
SCALE: NO SCALE



A4 4-BUTTON DLM SWITCH DETAIL
SCALE: NO SCALE

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Bridgers & Paxton Project No: 8022



PROJECT

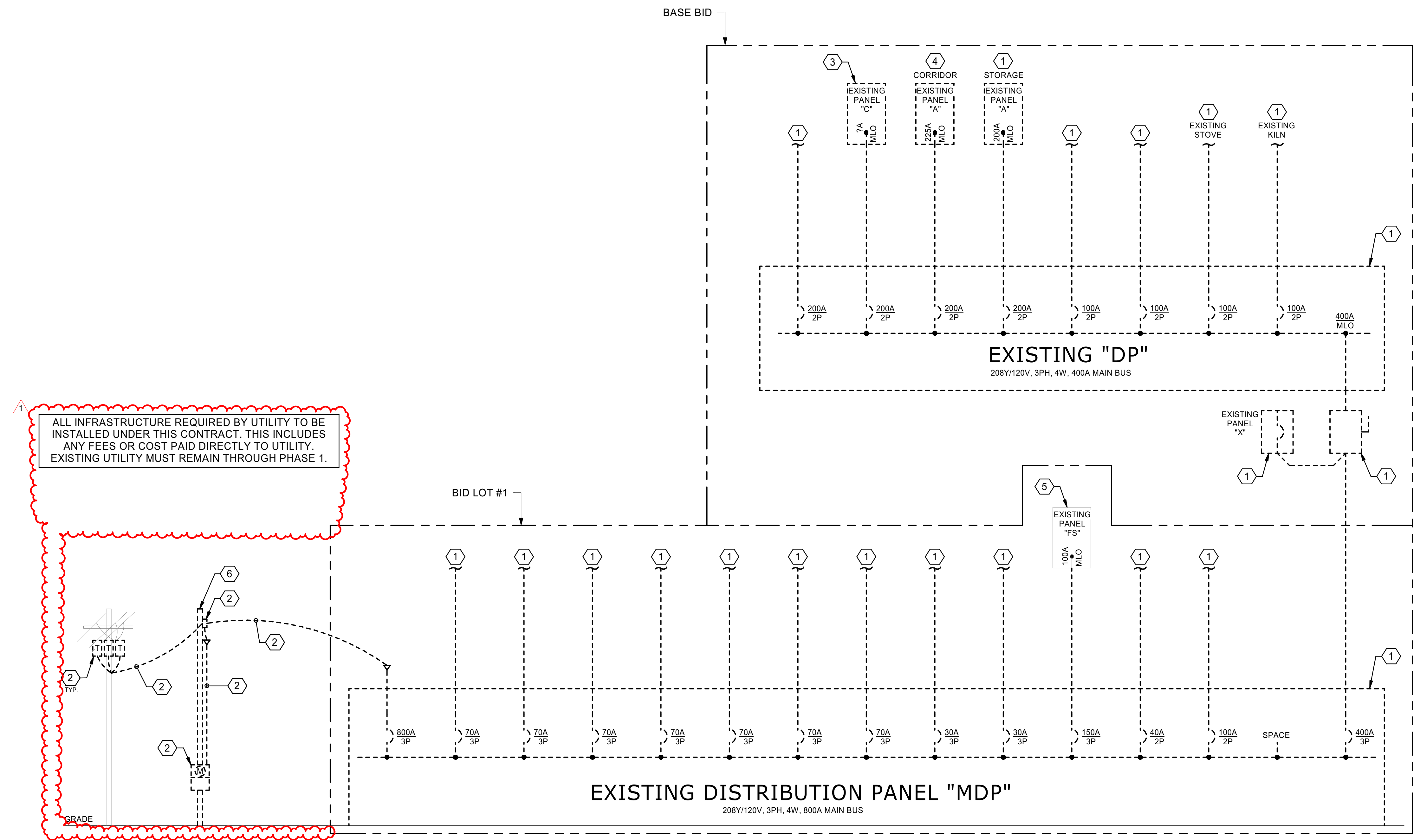
GENERAL SHEET NOTES

- A. INFORMATION SHOWN IS DIAGRAMMATIC AND IS NOT INTENDED TO REPRESENT PHYSICAL ARRANGEMENTS, LOCATIONS, ROUTING OR CONNECTIONS. PHYSICAL LAYOUTS ARE TO BE PER FIELD CONDITIONS AND AS INDICATED ELSEWHERE IN THE ELECTRICAL PLANS.
- B. REFERENCE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING EQUIPMENT AND INSTALLATION. NOT ALL INFORMATION SHOWN ON THIS DIAGRAM.
- C. DARK AND DASHED LINES FOR FEEDERS AND ELECTRICAL EQUIPMENT TO BE REMOVED IN THEIR ENTIRETY. REFER TO E-0101 AND E-601 FOR ADDITIONAL INFORMATION FOR EXISTING ELECTRICAL EQUIPMENT THAT WILL BE REFEED FROM A DIFFERENT SOURCE. COORDINATE SWITCHOVER OF EQUIPMENT PRIOR TO REMOVAL TO ENSURE NECESSARY EQUIPMENT STAYS OPERATIONAL.

THIS PROJECT IS TO BE COMPLETED IN TWO PHASES. PHASE 1 WORK SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY PHASE 2 WORK. THE PHASES OF WORK ARE INDICATED ON THIS DRAWING SET AND ON ARCHITECTURAL SHEET SERIES "C". CONSULT ENGINEER WITH ANY FURTHER PHASING QUESTIONS.

KEYNOTES

1. ELECTRICAL EQUIPMENT TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THIS ELECTRICAL EQUIPMENT AND ALL FEEDERS AND BRANCH CIRCUIT RACEWAYS WILL BE REMOVED DURING PHASE 2 OF CONSTRUCTION.
2. ELECTRICAL UTILITY TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THE ELECTRICAL UTILITY EQUIPMENT AND ALL DISTRIBUTION BACK TO SOURCE WILL BE REMOVED BY XCEL ENERGY DURING PHASE 2 OF CONSTRUCTION.
3. REMOVE EXISTING ELECTRICAL EQUIPMENT AND ALL FEEDERS AND BRANCH CIRCUIT RACEWAY DURING PHASE 1 OF RENOVATION.
4. AS PART OF PHASE 2 OF RENOVATION, REMOVE EXISTING PANEL AND PROVIDE PULLBOX IN ITS PLACE FOR NEW PANEL PLACEMENT. ALL EXISTING BRANCH CIRCUITS WILL REMAIN AND BE MODIFIED TO EXTEND TO NEW PANEL. FEEDER CONDUIT AND CONDUCTORS BACK TO SOURCE WILL BE REMOVED. REFER TO SHEET ES100 AND E-601 FOR ADDITIONAL INFORMATION.
5. AS PART OF PHASE 2 OF RENOVATION, ELECTRICAL EQUIPMENT TO REMAIN AS PRESENTLY INSTALLED AND TO BE REFEED FROM NEW POWER SOURCE. REFER TO SHEET ES100 AND E-601 FOR ADDITIONAL INFORMATION.
6. POLE TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. THE POLE WILL BE REMOVED BY XCEL ENERGY DURING PHASE 2 OF CONSTRUCTION.



ALL INFRASTRUCTURE REQUIRED BY UTILITY TO BE INSTALLED UNDER THIS CONTRACT. THIS INCLUDES ANY FEES OR COST PAID DIRECTLY TO UTILITY. EXISTING UTILITY MUST REMAIN THROUGH PHASE 1.

A2 ELECTRICAL DEMOLITION ONE-LINE DIAGRAM
 SCALE: NO SCALE

**Brown Early Childhood Center
 Old Wing Renovation**
 520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS
 3/3/2021 ADDENDUM 3

DRAWN BY MJL
 REVIEWED BY JMM
 DATE 12/10/2019
 PROJECT NO 18-0032
 PSFA PRE-K PROJECT NO: K-18-011
 PSFA SYSTEMS PROJECT NO: S-20-008
 DRAWING NAME

ELECTRICAL DEMOLITION ONE-LINE DIAGRAM

SHEET NO **ED601**

COPPER FEEDER SCHEDULE

NOTE: ALL CONDUCTORS ARE COPPER TYPE THW/THHN UNLESS OTHERWISE NOTED.

DESIGNATION	CONDUCTORS	GROUND	CONDUIT
THREE PHASE THREE WIRE & GROUND FEEDER			
20	3#12	12	3/4"
25	3#10	10	3/4"
30	3#10	10	3/4"
35	3#8	10	3/4"
40	3#8	10	3/4"
45	3#8	10	3/4"
50	3#8	10	3/4"
60	3#6	10	1"
70	3#4	8	1 1/4"
80	3#4	8	1 1/4"
90	3#2	8	1 1/4"
100	3#2	8	1 1/4"
125	3#1	6	1 1/2"
150	3#1/0	6	1 1/2"
175	3#2/0	6	2"
200	3#3/0	6	2"
225	3#4/0	4	2 1/2"
250	3-250 KCMIL	4	3"
300	3-350 KCMIL	4	3"
350	3-500 KCMIL	2	4"
400	3-600 KCMIL	2	4"
450	(2) 3#4/0	(2) 2	(2) 2 1/2"
500	(2) 3-250 KCMIL	(2) 2	(2) 3"
600	(2) 3-350 KCMIL	(2) 1	(2) 3"
700	(2) 3-500 KCMIL	(2) 1	(2) 4"
800	(2) 3-600 KCMIL	(2) 1/0	(2) 4"
1000	(3) 3-400 KCMIL	(3) 2/0	(3) 3"
1200	(3) 3-600 KCMIL	(3) 3/0	(3) 4"
1600	(4) 3-600 KCMIL	(4) 4/0	(4) 4"
2000	(5) 3-600 KCMIL	(5) 250 KCMIL	(5) 4"
2500	(6) 3-600 KCMIL	(6) 350 KCMIL	(6) 4"
3000	(8) 3-500 KCMIL	(8) 400 KCMIL	(8) 4"
4000	(10) 3-600 KCMIL	(10) 500 KCMIL	(10) 4"
THREE PHASE FOUR WIRE & GROUND FEEDER			
20Y	4#12	12	3/4"
25Y	4#10	10	3/4"
30Y	4#10	10	3/4"
35Y	4#8	10	3/4"
40Y	4#8	10	3/4"
45Y	4#8	10	3/4"
50Y	4#8	10	3/4"
60Y	4#6	10	1"
70Y	4#4	8	1 1/4"
80Y	4#4	8	1 1/4"
90Y	4#2	8	1 1/4"
100Y	4#2	8	1 1/4"
125Y	4#1	6	1 1/2"
150Y	4#1/0	6	2"
175Y	4#2/0	6	2"
200Y	4#3/0	6	2"
225Y	4#4/0	4	2 1/2"
250Y	4-250 KCMIL	4	3"
300Y	4-350 KCMIL	4	3"
350Y	4-500 KCMIL	2	4"
400Y	4-600 KCMIL	2	4"
450Y	(2) 4#4/0	(2) 2	(2) 2 1/2"
500Y	(2) 4-250 KCMIL	(2) 2	(2) 3"
600Y	(2) 4-350 KCMIL	(2) 1	(2) 3"
700Y	(2) 4-500 KCMIL	(2) 1	(2) 4"
800Y	(2) 4-600 KCMIL	(2) 1/0	(2) 4"
1000Y	(3) 4-400 KCMIL	(3) 2/0	(3) 3"
1200Y	(3) 4-600 KCMIL	(3) 3/0	(3) 4"
1600Y	(4) 4-600 KCMIL	(4) 4/0	(4) 4"
2000Y	(5) 4-600 KCMIL	(5) 250 KCMIL	(5) 4"
2500Y	(6) 4-600 KCMIL	(6) 350 KCMIL	(6) 4"
3000Y	(8) 4-500 KCMIL	(8) 400 KCMIL	(8) 4"
4000Y	(10) 4-600 KCMIL	(10) 500 KCMIL	(10) 4"
5000Y	(12) 4-600 KCMIL	(12) 700 KCMIL	(12) 4"

EQUIPMENT BONDING JUMPER FOR SEPARATELY DERIVED SYSTEMS PER NEC 250.66 (PROVIDE CONDUCTOR GROUND BELOW INSTEAD OF FEEDER GROUND FOR THREE PHASE, 4-WIRE SYSTEMS INDICATED ABOVE)

DESIGNATION	CONDUCTORS	GROUND	CONDUIT
100Y-E	3#2, 1#4/0 NEUTRAL	2"	2"
150Y-E	3#2/0, 2#2/0 NEUTRAL	6	2"
225Y-E	3-250 KCMIL, 2-250 KCMIL NEUTRAL	4	2 1/2"
350Y-E	(2) 3#3/0	(2) 3	(2) 2 1/2"
400Y-E	(2) 3#4/0	(2) 2	(2) 2 1/2"
500Y-E	(2) 3-350 KCMIL	(2) 2	(2) 3"

B1 COPPER FEEDER SCHEDULE
SCALE: NO SCALE

KNOWN FAULT INFORMATION

Fault Point	Equipment	Source of Fault	Available Current	Voltage	PHASE
F1	MSB	UTILITY	45000	208	3
F2	L1A1	MSB	33853	208	3
F3	L1A2	MSB	33853	208	3
F4	L1B1	MSB	33853	208	3
F5	L1B2	MSB	33853	208	3
F6	L1C	MSB	33853	208	3
F7	ED FS	MSB	33853	208	3
F8	S	MSB	33853	208	3

E2 FAULT CURRENT CALCULATION
SCALE: NO SCALE

FEEDER BRANCH CIRCUIT CALCULATION

Run	Feeder or Branch Circuit Run	Type of Circuit	Voltage	Phase	Conductor Material	Length (ft)	Size	Load Current (amps)	Qty Parallel Run	Load on Feeder	Resistance	Voltage Drop	% Voltage Drop	Available Short Circuit Current at Fault
1	UTILITY TO MSB	Feeder	208	3	C	105	400	1000	3	333	0.032	1.95	0.94%	33853
2	MSB TO L1A1	Feeder	208	3	C	335	350	225	1	225	0.037	4.79	2.30%	33853
3	MSB TO L1A2	Feeder	208	3	C	335	600	400	1	400	0.021	4.97	2.30%	33853
4	MSB TO L1B1	Feeder	208	3	C	115	410	225	1	225	0.061	2.72	1.31%	33853
5	MSB TO L1B2	Feeder	208	3	C	115	600	400	1	400	0.021	1.70	0.82%	33853
6	MSB TO L1C	Feeder	208	3	C	95	410	225	1	225	0.061	2.25	1.08%	33853
7	MSB TO ED/F8	Feeder	208	3	C	60	2	100	1	100	0.194	2.69	1.29%	33853
8	MSB TO S	Feeder	208	3	C	270	2	60	1	60	0.194	5.44	2.62%	33853
9														
10	L1A2 TO RTU-1	Branch	208	3	C	65	10	30	1	30	1.240	4.19	2.01%	33853
11	L1A2 TO RTU-2	Branch	208	3	C	45	10	30	1	30	1.240	2.90	1.39%	33853
12	L1A2 TO RTU-3	Branch	208	3	C	75	10	30	1	30	1.240	4.83	2.32%	33853
13	L1A2 TO RTU-4	Branch	208	3	C	145	8	30	1	30	0.778	5.86	2.82%	33853
14	L1A2 TO RTU-5	Branch	208	3	C	150	6	40	1	40	0.491	5.10	2.45%	33853
15	L1B2 TO RTU-6	Branch	208	3	C	110	8	40	1	40	0.778	5.93	2.85%	33853
16	L1B2 TO RTU-7	Branch	208	3	C	60	8	40	1	40	0.778	4.21	2.07%	33853
17	L1B2 TO RTU-8	Branch	208	3	C	75	10	30	1	30	1.240	4.83	2.32%	33853
18	L1B2 TO RTU-9	Branch	208	3	C	110	8	30	1	30	0.778	4.45	2.14%	33853
19	L1B2 TO RTU-10	Branch	208	3	C	140	8	30	1	30	0.778	5.66	2.72%	33853
20	L1B2 TO RTU-11	Branch	208	3	C	65	8	45	1	45	0.778	3.94	1.89%	33853
21	L1A2 TO RTU-12	Branch	208	3	C	110	8	30	1	30	0.778	4.45	2.14%	33853
22	L1A2 TO RTU-13	Branch	208	3	C	75	10	30	1	30	1.240	4.83	2.32%	33853
23	L1B2 TO RTU-14	Branch	208	3	C	60	8	45	1	45	0.778	3.64	1.75%	33853
24	L1B2 TO RTU-15	Branch	208	3	C	50	8	45	1	45	0.778	3.03	1.46%	33853
25	L1A2 TO RTU-16	Branch	208	3	C	100	8	40	1	40	0.778	5.39	2.59%	33853
26	L1A2 TO RTU-17	Branch	208	3	C	65	8	45	1	45	0.778	3.94	1.89%	33853
27	L1A2 TO RTU-18	Branch	208	3	C	45	10	30	1	30	1.240	2.90	1.39%	33853
28	L1A2 TO CU-1	Branch	208	1	C	120	10	20	1	20	1.240	5.95	2.86%	33853
29														
30	S TO WEST PARKING SITE POLES	Branch	120	1	C	255	8	8	1	8	0.778	3.17	3.85%	33853
31	S TO EAST PARKING SITE POLES	Branch	120	1	C	245	10	5	1	5	1.240	5.04	2.83%	33853

D2 VOLTAGE DROP CALCULATION
SCALE: NO SCALE

ELEC. SERVICE CALC. - PMSD Brown Early Childhood Center - Project #9022

Description of Load	Connected Load KVA	Demand % Multiplier	Demand Load KVA	Service % Multiplier	Service Load KVA	Notes
Lighting Interior	17	100%	17	125%	21	1,2,3
Lighting Exterior	3	100%	3	125%	4	3
Receptacle	50	100%	50	100%	50	
Largest Motor	10	125%	13	100%	13	
All other Motors	156	100%	156	100%	156	
Non-continuous loads	37	100%	37	100%	37	
Subtotal of loads KVA	273		276		281	
Future Capacity				25%		
Total Service Load KVA					351	
Voltage of Service (208-3PH)					0.360	
Total Service Ampacity					975	

24,377 Sq. Ft. 0.69 watts/sq. ft. for lighting loads = 16,781 VA
 24,377 Sq. Ft. 0.13 watts/sq. ft. for exterior lighting loads = 3,059 VA
 24,377 Sq. Ft. 2.05 watts/sq. ft. for receptacle loads = 50,040 VA
 24,377 Sq. Ft. 6.82 watts/sq. ft. for mechanical loads = 166,275 VA
 24,377 Sq. Ft. 1.52 watts/sq. ft. for non-continuous loads = 37,038 VA

NOTES
 1. Meets required New Mexico State energy requirement. IECC required educational space watts/sq. ft. of 1.2.
 2. Occupancy sensors were utilized through building for control to meet requirements of IECC.
 3. A programmable system is also used for automatic control for energy savings.

D4 ELECTRICAL SERVICE CALCULATION
SCALE: NO SCALE

GENERAL SHEET NOTES

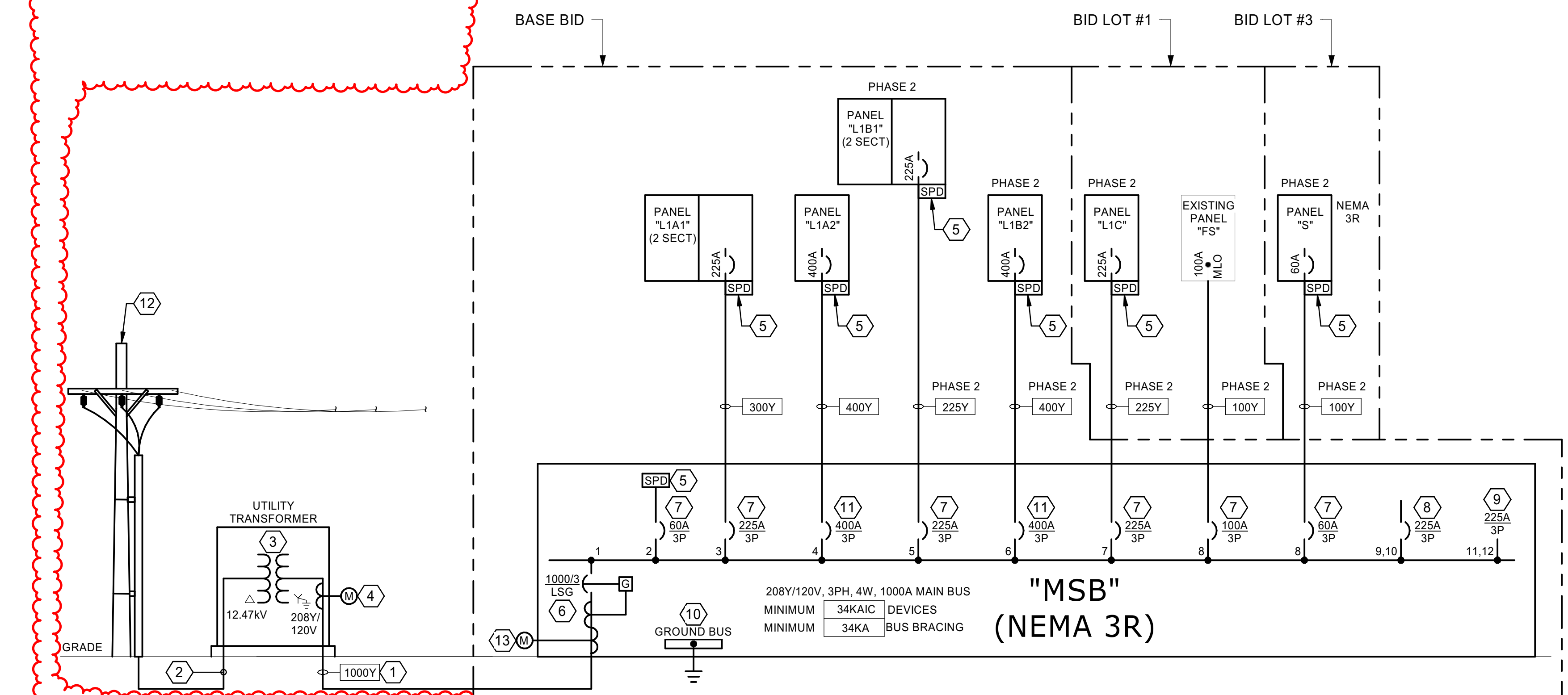
- PANELBOARD AIC RATINGS ARE INDICATED ON THE PANEL SCHEDULES.
- ARRANGEMENTS, LOCATIONS, ROUTING OR CONNECTIONS, PHYSICAL LAYOUTS ARE TO BE PER FIELD CONDITIONS AND AS INDICATED ELSEWHERE IN THE ELECTRICAL PLANS.
- REFERENCE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING EQUIPMENT AND INSTALLATION, NOT ALL INFORMATION SHOWN ON THIS DIAGRAM.
- ALL PANELS WILL HAVE DOOR-IN-DOOR ACCESSIBILITY FOR EACH PANEL.
- CONTRACTOR WILL MEASURE AND TORQUE ALL PANEL FEEDERS, MEASURE RESISTANCE TO GROUND AT SERVICE GROUND AND PROVIDE WRITTEN DOCUMENTATION OF TEST RESULTS. CONTRACTOR WILL COORDINATE TIME SO THAT OWNERS REPRESENTATIVE IS PRESENT DURING TEST.
- CONTRACTOR WILL LABEL ALL DISTRIBUTION EQUIPMENT PRIOR TO FINAL OBSERVATION WALK THROUGH.
- WHEN ALL EQUIPMENT IS INSTALLED REQUIRING PROGRAMMING AND TRAINING HAS BEEN COMPLETED, THE BUILDING'S IP ADDRESS WILL NEED TO BE GIVEN TO OWNERS REPRESENTATIVE FOR ELECTRICAL M&O USE.

THIS PROJECT IS TO BE COMPLETED IN TWO PHASES. PHASE 1 WORK SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY PHASE 2 WORK. THE PHASES OF WORK ARE INDICATED ON THIS DRAWING SET AND ON ARCHITECTURAL SHEET SERIES "G". CONSULT ENGINEER WITH ANY FURTHER PHASING QUESTIONS.

KEYNOTES

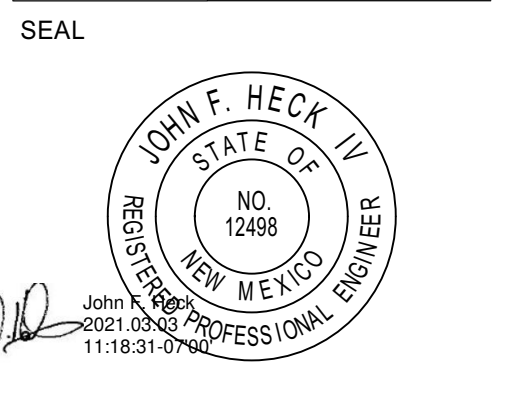
- DO NOT RUN EQUIPMENT GROUND CONDUCTOR IN SERVICE LATERAL.
- UTILITY PRIMARY DISTRIBUTION BY XCEL ENERGY.
- UTILITY PAD MOUNTED TRANSFORMER. CONTRACTOR WILL COORDINATE INSTALLATION OF TRANSFORMER WITH XCEL ENERGY FOR TRANSFORMER SIZE AND CONCRETE PAD REQUIREMENTS. REFERENCE XCEL ENERGY STANDARD INSTALLATION GUIDE AS DIRECTED BY XCEL ENERGY REPRESENTATIVE.
- CT AND METER ENCLOSURE WILL BE MOUNTED AS DIRECTED BY XCEL ENERGY. CONTRACTOR WILL COORDINATE WITH XCEL ENERGY REPRESENTATIVE AND XCEL ENERGY SERVICE GUIDE FOR CORRECT INSTALLATION.
- SPD MOUNTED INTERNALLY TO SWITCHBOARD / PANELBOARD. REFERENCE SECTION 264313 FOR ADDITIONAL INFORMATION.
- SOLID STATE, ELECTRONIC TRIP CIRCUIT BREAKER WITH LONGTIME, SHORTTIME, INSTANTANEOUS AND GROUND FAULT FUNCTIONS. 100% RATED WITH ADJUSTABLE SETTINGS. MOLDED CASE, THERMAL-MAGNETIC CIRCUIT BREAKERS, 100% RATED AND LOCKABLE.
- SPARE CIRCUIT BREAKERS(S) SIZE AS INDICATED.
- PROVIDE SPACE FOR ADDITIONAL CIRCUIT BREAKERS. SIZE AS INDICATED.
- REFER TO SHEET E-602 FOR GROUNDING INFORMATION FOR THIS EQUIPMENT.
- SOLID STATE, ELECTRONIC TRIP CIRCUIT BREAKER WITH LONGTIME, SHORTTIME, AND INSTANTANEOUS FUNCTIONS. 100% RATED WITH ADJUSTABLE SETTINGS.
- NEW POWER POLE BY XCEL ENERGY.
- PROCURE AND INSTALL A VERIS ES02C POWER AND ENERGY METER OR EQUIVALENT APPROVED BY PSFA, WITH APPROPRIATE CURRENT TRANSFORMERS (CT) FOR MEASUREMENT OF THE WHOLE FACILITY ELECTRICAL USE. INSTALL THE METER IN AN APPROPRIATELY-RATED ENCLOSURE ACCORDING TO APPLICABLE CODES AND TO PROTECT THE METER FROM FALLING WATER. PROVIDE POWER TO THE METER AND ESTABLISH COMMUNICATION WITH THE FIELD SERVER THROUGH MODBUS (RS-485). COMPLETE METER CONFIGURATION AND VERIFY PROPER FUNCTION BY CALIBRATING AGAINST INSTANTANEOUS MEASUREMENTS FROM A CALIBRATED (NIST-TRACEABLE) HAND-HELD METER.

ALL INFRASTRUCTURE REQUIRED BY UTILITY TO BE INSTALLED UNDER THIS CONTRACT. THIS INCLUDES ANY FEES OR COST PAID DIRECTLY TO UTILITY. EXISTING UTILITY MUST REMAIN THROUGH PHASE 1.



A3 ELECTRICAL ONE-LINE DIAGRAM
SCALE: NO SCALE

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 Bridges & Paxton Project No: 8022



PROJECT

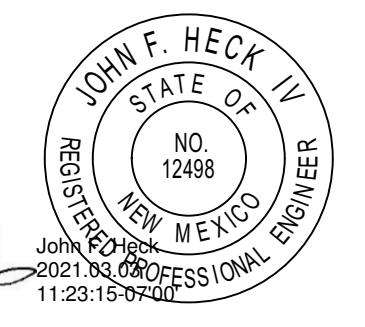
**Brown Early Childhood Center
 Old Wing Renovation**
 520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS	ADDENDUM
3/2/2021	ADDENDUM 3

DRAWN BY	MJL
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	ELECTRICAL ONE-LINE DIAGRAM
SHEET NO	E-601

SEAL



PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St., Portales, NM 88130

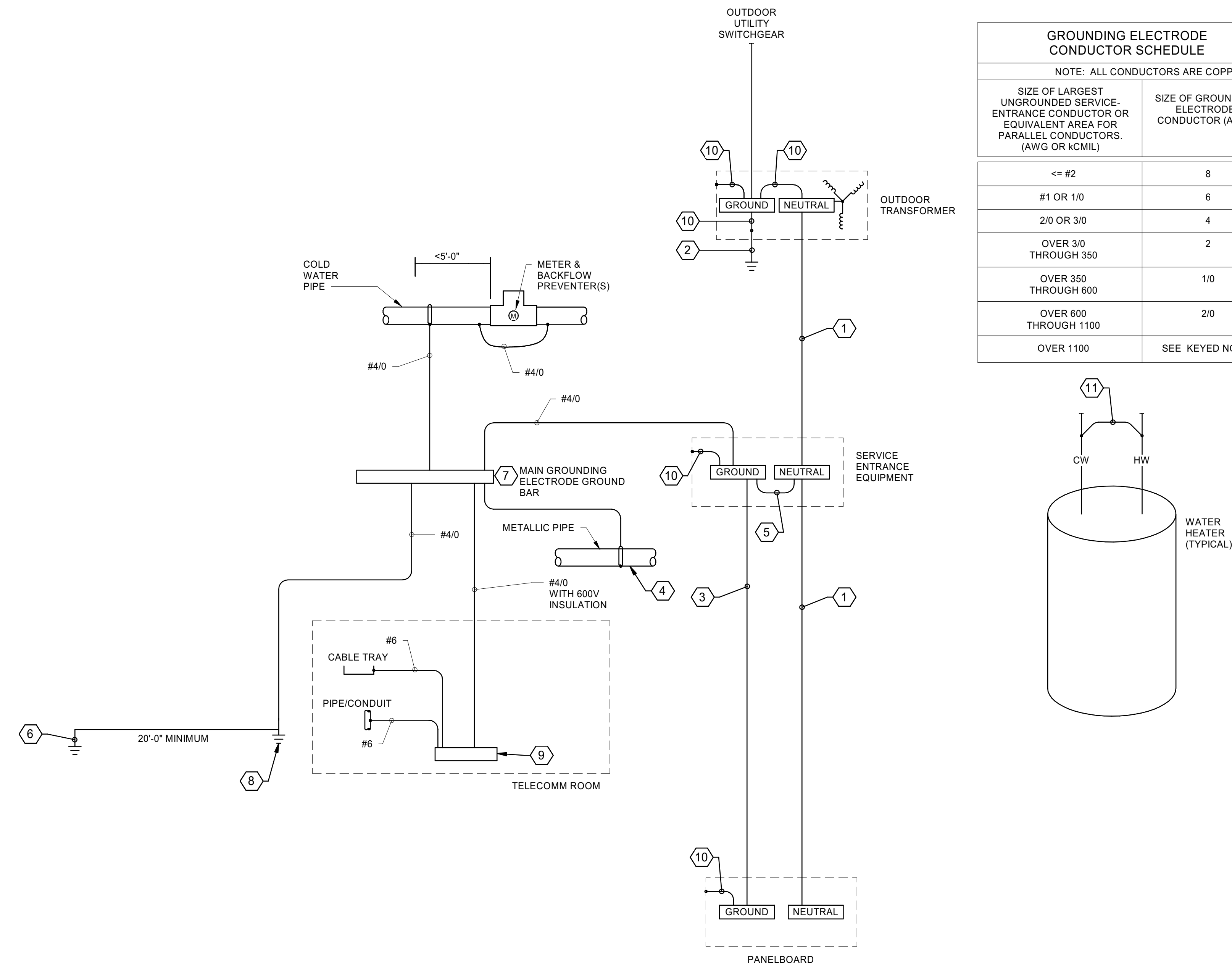
GROUNDING DIAG. GENERAL SHEET NOTES

- A. INSTALL GROUNDING CONNECTIONS TO BUILDING STRUCTURE AND WATER PIPES AT LOCATIONS THAT ARE VISIBLE AND ACCESSIBLE FOR INSPECTION, MAINTENANCE, AND TESTING.
- B. INSTALL AN INSULATED THROAT GROUNDING BUSHING ON EACH METALLIC SERVICE ENTRANCE CONDUIT. BOND TO SERVICE ENTRANCE EQUIPMENT GROUND BUS USING NEC TABLE 250.102 (C) (1).
- C. INSTALL AN INSULATED THROAT GROUNDING BUSHING ON EACH METALLIC FEEDER CONDUIT. BOND TO GROUND BUS USING CONDUCTOR THAT IS SIZED EQUAL TO EQUIPMENT GROUNDING CONDUCTOR.
- D. BOND ELECTRICAL EQUIPMENT ENCLOSURES TO GROUND BAR USING SAME SIZE CONDUCTOR AS FEEDER EQUIPMENT GROUND CONDUCTOR OR FACTORY PROVIDED GREEN SCREW.
- E. CLEAN COATED RE-BAR PRIOR TO PERFORMING ELECTRICAL CONNECTIONS.

GROUNDING DIAGRAM KEYNOTES

1. REFER TO ONE-LINE DIAGRAM AND FEEDER SCHEDULE FOR GROUNDING CONDUCTOR SIZE.
2. CONNECT GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD.
3. FOR EQUIPMENT GROUNDING CONDUCTOR SIZE REFER TO ONE-LINE DIAGRAM AND FEEDER SCHEDULE.
4. BOND ALL METALLIC PIPING SYSTEMS WITHIN STRUCTURE.
5. MAIN BONDING JUMPER AND/OR SYSTEM BONDING JUMPER SIZE BASED ON UNGROUNDED CONDUCTOR SIZE AND GROUNDING ELECTRODE CONDUCTOR SCHEDULE ON THIS SHEET UNLESS UNGROUNDED CONDUCTOR SIZE OR EQUIVALENT IS GREATER THAN 1100 KCMIL. IF GREATER THAN 1100 KCMIL (OR 1750 KCMIL FOR ALUMINUM) SIZE JUMPER PER NEC TABLE 250.102 (C)(1).
6. PROVIDE A GROUNDING ELECTRODE SYSTEM PER 2014 NMEC.
7. PROVIDE A 14" X 4" X 12" MAIN GROUNDING ELECTRODE GROUND BAR FOR SINGLE POINT GROUNDING. LOCATE AT AN ACCESSIBLE POINT NEAR THE SERVICE ENTRANCE EQUIPMENT. MAKE OTHER CONNECTIONS TO THE GROUND BAR USING TWO-HOLE COMPRESSION SPADE LUGS THAT MEET IEEE 837 REQUIREMENTS. LABEL EACH CONNECTION.
8. PROVIDE A GROUND ROD PER NEC 250.52 A.5.
9. INSTALL A 1/4" X 4" COPPER TELECOMMUNICATIONS GROUNDING BUSBAR IN EACH TELECOMMUNICATIONS ROOM. CONNECT CABLES TO THE TELECOMMUNICATIONS GROUNDING BUSBAR USING COMPRESSION SPADE LUGS. LABEL CONDUCTORS PER ANSI-J-STD-607-A. LABEL EACH CONNECTION. SEE PLAN FOR BAR LENGTH AND LOCATIONS.
10. BONDING JUMPER SIZED PER GROUNDING ELECTRODE CONDUCTOR SCHEDULE THIS SHEET.
11. BOND HOT WATER PIPE TO COLD WATER PIPE AT EACH WATER HEATER WITH A #8 BARE COPPER CONDUCTOR.

GROUNDING ELECTRODE CONDUCTOR SCHEDULE	
NOTE: ALL CONDUCTORS ARE COPPER.	
SIZE OF LARGEST UNGROUNDED SERVICE-ENTRANCE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS. (AWG OR KCMIL)	SIZE OF GROUNDING ELECTRODE CONDUCTOR (AWG)
<= #2	8
#1 OR 1/0	6
2/0 OR 3/0	4
OVER 3/0 THROUGH 350	2
OVER 350 THROUGH 600	1/0
OVER 600 THROUGH 1100	2/0
OVER 1100	SEE KEYED NOTE 5



C2 GROUNDING DIAGRAM
SCALE: NO SCALE

FIRE ALARM DIAG. GENERAL SHEET NOTES

- A. FIRE ALARM DIAGRAM INDICATES GENERAL DIAGRAMMATIC CONNECTIONS ONLY. ALL CONNECTIONS AND INSTALLATION WILL BE PER FIRE ALARM SYSTEM MANUFACTURER'S SHOP DRAWINGS.
- B. DEVICE QUANTITIES ARE NOT INDICATED ON THIS DRAWING. REFER TO FLOOR PLANS FOR QUANTITIES AND LOCATIONS.
- C. REFER TO SPECIFICATION SECTION 283100 FOR FIRE ALARM SYSTEM REQUIREMENTS.
- D. FIRE ALARM WIRING AND CABLING SHALL BE IN CONFORMANCE WITH NEC AND TYPE SHALL BE AS RECOMMENDED BY FIRE ALARM SYSTEM MANUFACTURER.
- E. SEAL ALL PENETRATIONS THROUGH WALLS, FLOOR, CEILING AND ROOF PER ARCHITECTURAL SPECIFIED REQUIREMENTS. SEAL WILL MATCH THE FIRE RATING OF EACH PENETRATION LOCATION.

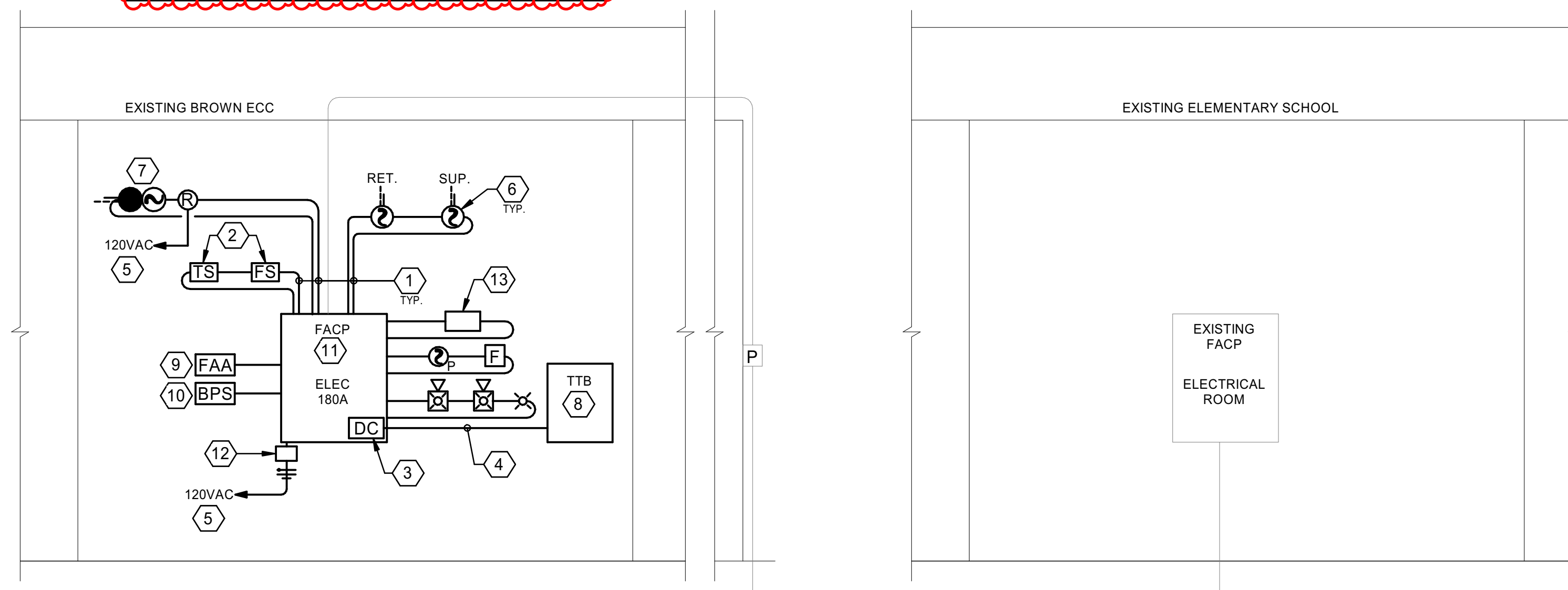
IT IS THE INTENT OF THESE DOCUMENTS TO SHOW A BASIC REPRESENTATION OF THE FIRE ALARM SYSTEM. DEVICES INDICATED ON THESE DOCUMENTS ARE IN NO WAY IMPLIED TO BE COMPREHENSIVE OF THE FINAL DESIGN. IT IS THE RESPONSIBILITY OF THE FIRE ALARM CONTRACTOR TO PROVIDE A DESIGN/BUILD FIRE ALARM SYSTEM BASED UPON A THOROUGH REVIEW OF ALL CONTRACT DOCUMENTS. IT IS THE RESPONSIBILITY OF THE FIRE ALARM CONTRACTOR TO ENSURE THAT THE FIRE ALARM SYSTEM IS CODE COMPLIANT, MEETS THE REQUIREMENTS OF THE AHJ AND COMPREHENSIVELY COVERS AND INCLUDES ALL NECESSARY PARTS AND LABOR ASSOCIATED WITH OTHER TRADES AND SYSTEMS IMPACTING THE FIRE ALARM SYSTEM. NO CHANGE ORDERS SHALL BE APPROVED FOR THE BASE SCOPE OF WORK.

ENTIRE FIRE ALARM SYSTEM WILL BE IN RACEWAYS; NO EXCEPTIONS!

FIRE ALARM DIAGRAM KEYNOTES

1. MINIMUM 3/4" CONDUIT AND FIRE ALARM CABLING AS REQUIRED BY THE FIRE ALARM MANUFACTURER.
2. INDEPENDENTLY SUPERVISE EACH FLOW AND TAMPER SWITCH WITH AN ADDRESSABLE MODULE. REFER TO FIRE PROTECTION PLANS FOR EACH LOCATION.
3. DIGITAL COMMUNICATOR FOR CENTRAL STATION MONITORING.
4. CONDUIT AND COMMUNICATIONS CABLING FOR CENTRAL STATION REPORTING.
5. REFER TO SHEET SERIES 'EP' FOR CIRCUITS SERVING THIS SYSTEM.
6. DUCT SMOKE DETECTOR, FURNISHED BY DIVISION 28, INSTALLED IN DUCT BY DIVISION 23, CONNECTED, WIRED AND TESTED BY DIVISION 28. REFERENCE MECHANICAL CONTROL DIAGRAMS FOR MECHANICAL INTERCONNECTIONS. PROVIDE DUCT DETECTORS IN NEW AND EXISTING UNITS WHERE 200CFM AND ABOVE EXIST. INSTALL PER CODE.
7. FIRE SMOKE DAMPER, ROUTE 120VAC VIA FIRE ALARM ADDRESSABLE RELAY.
8. TELEPHONE TERMINAL BOARD.
9. PROVIDE NEW ANNUNCIATOR PANEL IN VESTIBULE 100A AND RECEPTION 139 OR AS DIRECTED BY FIRE MARSHALL. FIELD COORDINATE EXACT LOCATION.
10. WHERE POWER SUPPLIES ARE INSTALLED OUTSIDE OF FAC/FAC/FC, CONTRACTOR WILL PROVIDE 120V/20A POWER CIRCUIT TO UNITS FROM NEAREST PANEL. CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH FIRE ALARM INSTALLER AT TIME OF SUBMITTALS TO VERIFY NEED.
11. FIRE ALARM SYSTEM A.C.P.
12. PROVIDE SURGE PROTECTION FOR CIRCUIT TO FIRE ALARM PANEL.
13. PIV LOCATIONS AND/OR HOT BOX LOCATIONS.

EXISTING FIRE ALARM PANEL IN BROWN ECC TO REMAIN DURING PHASE 1 OF CONSTRUCTION SO THAT PHASE 2 PORTION OF BUILDING WILL REMAIN OPERATIONAL. EXISTING FIRE ALARM PANEL IN BROWN ECC AND ALL FEEDERS AND RACEWAYS WILL BE REMOVED DURING PHASE 2 OF CONSTRUCTION. PROVIDE PULLBOX ABOVE CEILING TO INTERCEPT RACEWAY FROM CONNECTION TO EXISTING FIRE ALARM PANEL IN EXISTING ELEMENTARY SCHOOL TO EXTEND TO NEW FIRE ALARM PANEL LOCATION. REFER TO SHEET SERIES "ED", "ES", AND "FA" FOR ADDITIONAL INFORMATION.



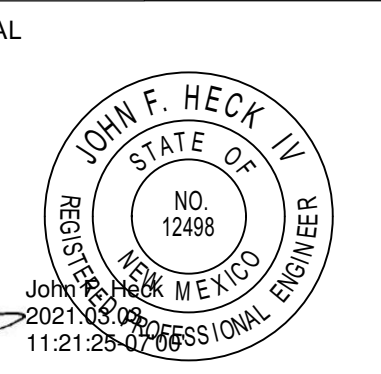
A3 FIRE ALARM RISER DIAGRAM - BID LOT #1
SCALE: NO SCALE

CONSTRUCTION DOCUMENTS

REVISIONS	
▲	3/3/2021 ADDENDUM 3
▲	
▲	
▲	
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DRAWN BY	MJM
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

GROUNDING & FIRE ALARM RISER DIAGRAMS



PROJECT

**Brown Early Childhood Center
 Old Wing Renovation**
 520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

- ▲ 3/3/2021 ADDENDUM 3
- ▲
- ▲
- ▲
- ▲

DRAWN BY: MJL
 REVIEWED BY: JMM
 DATE: 12/10/2019
 PROJECT NO: 18-0032
 PSFA PRE-K PROJECT NO: K-18-011
 PSFA SYSTEMS PROJECT NO: S-20-008
 DRAWING NAME

ELECTRICAL PANEL SCHEDULES

SHEET NO: E-702

L1A1 L1B1

L1A2 L1B2

KEY PLAN N.T.S.

Branch Panel: L1A1

Location: Space 130B
 Supply From: MSB
 Mounting: Surface
 Enclosure: Type 1

Volts: 120/208 Wye
 Phases: 3
 Wires: 4
 Spaces: 84

MINIMUM A.I.C. Rating: 10,000
 Mains Type: MCB
 Mains Rating: 225 A
 MCB Rating: 225 A

Notes: 1) PROVIDE RED BREAKER BLOCK AT CIRCUIT BREAKER 42 FOR FACP. 2) CIRCUIT BREAKERS 79, 81, AND 83 WILL BE GFCI TYPE.

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	LTG VEST 100A, CORRIDORS 101A/101B	20 A	1	694 VA	720 VA			1	20 A REC CLASSROOM 104	2	
3	LTG CLASSROOM 104	20 A	1		560 VA	900 VA		1	20 A REC CLASSROOM 104, RR 104A	4	
5	LTG CLASSROOM 103	20 A	1			560 VA	720 VA	1	20 A REC CLASSROOM 103	6	
7	LTG CLASSROOM 102	20 A	1	557 VA	900 VA			1	20 A REC CLASSROOM 103, RR 103A	8	
9	LTG CLASSROOM 112	20 A	1		560 VA	720 VA		1	20 A REC CLASSROOM 102	10	
11	LTG CLASSROOM 132	20 A	1			560 VA	900 VA	1	20 A REC CLASSROOM 102, RR 102A	12	
13	LTG RR 102A/103A/104A, MTR CEF-1/2/3	20 A	1	114 VA	720 VA			1	20 A REC CLASSROOM 112	14	
15	LTG RR 112A/132A, MTR CEF-4/5	20 A	1		76 VA	900 VA		1	20 A REC CLASSROOM 112, RR 112A	16	
17	LTG RR 110A/111A/135A, MTR CEF-13/14/15	20 A	1			140 VA	720 VA	1	20 A REC CLASSROOM 132	18	
19	LTG CLASSROOM 111	20 A	1	560 VA	900 VA			1	20 A REC CLASSROOM 132, RR 130C	20	
21	LTG CLASSROOM 110	20 A	1		560 VA	800 VA		1	20 A REC CLASSROOM 112/132 SHORT THROW PROJECTORS	22	
23	LTG GIRLS 105, CHASE 106, BOYS 107, FIRE 108, SPED 109, ELEC	20 A	1			573 VA	800 VA	1	20 A NC CLASSROOM 102/103 SHORT THROW PROJECTORS	24	
25	LTG IEP CONF. 133, IT ROOM 134, NURSE 135	20 A	1	633 VA	400 VA			1	20 A NC CLASSROOM 104 SHORT THROW PROJECTOR	26	
27	LTG HALL 136, ASST. PRINC. 137, PRINC. 138, RECEPTION 139	20 A	1		748 VA	720 VA		1	20 A REC CLASSROOM 111	28	
29	NC ELEC 180A RELAY PANEL	20 A	1			200 VA	900 VA	1	20 A REC CLASSROOM 111, RR 111A	30	
31	LTG-EXT	20 A	1	711 VA	720 VA			1	20 A REC CLASSROOM 110	32	
33	LTG VEST 100A, CORRIDORS 101A/101B, RECEP 139 NIGHT...	20 A	1		306 VA	900 VA		1	20 A REC CLASSROOM 110, RR 110A	34	
35	SPARE	20 A	1			0 VA	800 VA	1	20 A NC CLASSROOM 110/111 SHORT THROW PROJECTORS	36	
37	SPARE	20 A	1	0 VA	900 VA			1	20 A REC ROOF	38	
39	SPARE	20 A	1		0 VA	900 VA		1	20 A REC ROOF	40	
41	SPARE	20 A	1			0 VA	200 VA	1	20 A NC RECEPTION 139 FACP	42	
43	NC VEST 100A/CORR 101D DOOR HARDWARE	20 A	1	300 VA	1080 VA			1	20 A REC SPECIAL EDUCATION 109	44	
45	REC EXTERIOR	20 A	1		900 VA	400 VA		1	20 A NC SPECIAL EDUCATION 109 SHORT THROW PROJECTOR	46	
47	REC EXTERIOR	20 A	1			900 VA	900 VA	1	20 A REC GIRLS 105, CHASE 106, BOYS 107, FIRE 108, ELEC 180A	48	
49	SPARE	20 A	1	0 VA	1080 VA			1	20 A REC CORR 101A/101B	50	
51	SPARE	20 A	1		0 VA	900 VA		1	20 A REC RECEPTION 139	52	
53	SPARE	20 A	1			0 VA	1500 VA	1	20 A NC RECEPTION 139 COPIER	54	
55	SPARE	20 A	1	0 VA	1080 VA			1	20 A REC IEP CONFERENCE 133	56	
57	SPARE	20 A	1		0 VA	500 VA		1	20 A NC IEP CONFERENCE 133 TV	58	
59	SPARE	20 A	1	0 VA		0 VA	900 VA	1	20 A REC NURSE 135, RR 135A	60	
61	SPARE	20 A	1	0 VA	500 VA			1	20 A NC NURSE 135 ABOVE COUNTER	62	
63	SPARE	20 A	1		0 VA	500 VA		1	20 A NC NURSE 135 U/C REFRIGERATOR	64	
65	SPARE	20 A	1			0 VA	500 VA	1	20 A NC NURSE 135 CHANGING TABLE	66	
67	SPARE	20 A	1	0 VA	1080 VA			1	20 A REC HALL 136, ASST. PRINC. 137	68	
69	SPARE	20 A	1		0 VA	900 VA		1	20 A REC PRINCIPAL 138	70	
71	SPARE	20 A	1			0 VA	500 VA	1	20 A NC IT ROOM 134 RACK	72	
73	SPARE	20 A	1	0 VA	500 VA			1	20 A NC IT ROOM 134 RACK	74	
75	SPARE	20 A	1		0 VA	500 VA		1	20 A NC IT ROOM 134	76	
77	SPARE	20 A	1			0 VA	500 VA	1	20 A NC IT ROOM 134	78	
79	NC CORRIDOR 101A EWC	20 A	1	500 VA	1000 VA			1	20 A MTR FIRE RISER 108 DHW-1/LP-1	80	
81	NC HOT BOX	20 A	1		1500 VA	264 VA		1	15 A MTR EF-1	82	
83	NC HOT BOX	20 A	1			1500 VA	528 VA	1	15 A MTR EF-3 (ROOF)	84	
				Total Load:	15649 VA	15014 VA	14801 VA				
				Total Amps:	131 A	125 A	123 A				

Legend:	Connected Load	Demand Factor	Estimated Demand	Panel Totals
NC	12900 VA	100.00%	12900 VA	Total Conn. Load: 45464 VA
MTR	1988 VA	100.00%	1988 VA	Total Est. Demand: 40868 VA
REC	22860 VA	71.87%	16430 VA	Total Conn. Current: 126 A
LTG	7105 VA	125.00%	8881 VA	Total Est. Demand Current: 114 A
LTG-EXT	711 VA	125.00%	889 VA	

Branch Panel: L1A2

Location: Space 130B
 Supply From: MSB
 Mounting: Surface
 Enclosure: Type 1

Volts: 120/208 Wye
 Phases: 3
 Wires: 4
 Spaces: 42

MINIMUM A.I.C. Rating: 10,000
 Mains Type: MCB
 Mains Rating: 400 A
 MCB Rating: 400 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT	
1	MTR RTU-1 (ROOF)	30 A	3	2304 VA	2304 VA			3	30 A MTR RTU-2 (ROOF)	2	
3	--	--	--		2304 VA	2304 VA		--	--	4	
5	--	--	--			2304 VA	2304 VA	--	--	6	
7	MTR RTU-3 (ROOF)	30 A	3	2304 VA	2304 VA			3	30 A MTR RTU-4 (ROOF)	8	
9	--	--	--		2304 VA	2304 VA		--	--	10	
11	--	--	--			2304 VA	2304 VA	--	--	12	
13	MTR RTU-5 (ROOF)	40 A	3	2592 VA	2304 VA			3	30 A MTR RTU-18 (ROOF)	14	
15	--	--	--		2592 VA	2304 VA		--	--	16	
17	--	--	--			2592 VA	2304 VA	--	--	18	
19	MTR RTU-17 (ROOF)	45 A	3	2976 VA	2304 VA			3	30 A MTR RTU-13 (ROOF)	20	
21	--	--	--		2976 VA	2304 VA		--	--	22	
23	--	--	--			2976 VA	2304 VA	--	--	24	
25	MTR RTU-16 (ROOF)	40 A	3	2592 VA	2304 VA			3	30 A MTR RTU-12 (ROOF)	26	
27	--	--	--		2592 VA	2304 VA		--	--	28	
29	--	--	--			2592 VA	2304 VA	--	--	30	
31	MTR CU-1 (ROOF)	15 A	2	1144 VA	0 VA			3	30 A SPARE	32	
33	--	--	--		1144 VA	0 VA		--	--	34	
35	MTR FIRE RISER 108 UH-1	35 A	2			2507 VA	0 VA	--	--	36	
37	--	--	--			2507 VA	0 VA	--	--	38	
39	SPARE	20 A	1		0 VA	0 VA		--	--	40	
41	SPARE	20 A	1			0 VA	0 VA	--	--	42	
				Total Load:	27939 VA	25432 VA	26795 VA				
				Total Amps:	235 A	212 A	225 A				

Legend:	Connected Load	Demand Factor	Estimated Demand	Panel Totals
MTR	80165 VA	100.00%	80165 VA	Total Conn. Load: 80165 VA
				Total Est. Demand: 80165 VA
				Total Conn. Current: 223 A
				Total Est. Demand Current: 223 A

Branch Panel: L1B1

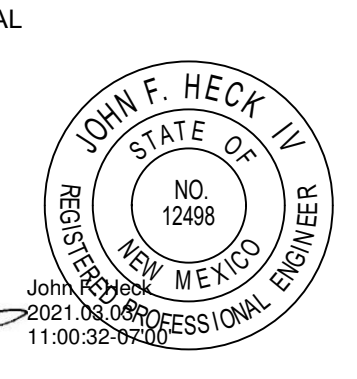
Location: ELEC. 122
 Supply From: MSB
 Mounting: Surface
 Enclosure: Type 1

Volts: 120/208 Wye
 Phases: 3
 Wires: 4
 Spaces: 84

MINIMUM A.I.C. Rating: 11,000
 Mains Type: MCB
 Mains Rating: 225 A
 MCB Rating: 225 A

Notes: CIRCUIT BREAKER 35 WILL BE GFCI TYPE.

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	LTG CORRIDOR 101A/101C	20 A	1	263 VA	720 VA			1	20 A REC CLASSROOM 131	2
3	LTG CLASSROOM 131	20 A	1		560 VA	900 VA		1	20 A REC CLASSROOM 131, RR 131A	4
5	LTG CLASSROOM 130	20 A	1			560 VA	720 VA	1	20 A REC CLASSROOM 130	6
7	LTG CLASSROOM 120	20 A	1	560 VA	900 VA			1	20 A REC CLASSROOM 130, RR 130A	8
9	LTG CLASSROOM 119	20 A	1		560 VA	720 VA		1	20 A REC CLASSROOM 120	10
11	LTG RR 119A/120A, MTR CEF-8/9	20 A	1			76 VA	900 VA	1	20 A REC CLASSROOM 120, RR 120A	12
13	LTG RR 130A/131A, MTR CEF-6/7	20 A	1	76 VA	720 VA			1	20 A REC CLASSROOM 119	14
15	LTG RR 118A, MTR CEF-10	20 A	1		38 VA	900 VA		1	20 A REC CLASSROOM 119, RR 119A	16
17	LTG MUSIC 118	20 A	1			560 VA	800 VA	1	20 A NC CLASSROOM 119/120 SHORT THROW PROJECTORS	18
19	LTG PE OFF. 126, COPIER 127, TEACH. LOUNGE 128, INTER 129	20 A	1	847 VA	800 VA			1	20 A NC CLASSROOM 130/131 SHORT THROW PROJECTORS	20
21	LTG COMPUTER LAB 114	20 A	1		457 VA	720 VA		1	20 A REC MUSIC 118	22
23	LTG LIBRARY 113	20 A	1			607 VA	900 VA	1	20 A REC MUSIC 118, RR 118A	24
25	LTG RR 115/117/123/124/STOR. 121/ELEC. 122, MTR CEF-11/12/16	20 A	1	595 VA	400 VA			1	20 A NC MUSIC 118 SHORT THROW PROJECTOR	26
27	LTG VEST 100B	20 A	1		123 VA	720 VA		1	20 A REC ROOF	28
29	NC ELEC. 122 RELAY PANEL	20 A	1			200 VA	720 VA	1	20 A REC ROOF	30
31	LTG-EXT	20 A	1	702 VA	720 VA			1	20 A REC CLASSROOM 110	32
33	LTG VEST 100B, CORRIDOR 101A/101C, HALL 125 NIGHT LIGHTS	20 A	1	294 VA	720 VA			1	20 A REC COMPUTER LAB 114	34
35	NC CORRIDOR 101A EWC	20 A	1	500 VA	1000 VA			1	20 A REC COMPUTER LAB 114	36
37	SPARE	20 A	1		0 VA	900 VA		1	20 A REC COMPUTER LAB 114	38
39	SPARE	20 A	1			0 VA	900 VA	1	20 A REC COMPUTER LAB 114	40
41	SPARE	20 A	1			0 VA	720 VA	1	20 A REC COMPUTER LAB 114	42
43	NC TEACHER LOUNGE 128 STOVE	40 A	2	3300 VA	720 VA			1	20 A REC COMPUTER LAB 114	44
45	--	--	--		3300 VA	500 VA		1	20 A NC COMPUTER LAB 114 TV	46
47	NC TEACHER LOUNGE 128 VENDING	20 A	1			1000 VA	900 VA	1	20 A REC LIBRARY 113	48
49	NC TEACHER LOUNGE 128 FRIDGE	20 A	1	1000 VA	900 VA			1	20 A REC LIBRARY 113	50
51	NC TEACHER LOUNGE 128 ABOVE COUNTER	20 A	1		500 VA	800 VA		1	20 A NC LIBRARY 113/INTER 129 SHORT THROW PROJECTORS	52
53	NC TEACHER LOUNGE 128 HOOD	15 A	1			250 VA	1080 VA	1	20 A REC CORR 101A/101C, CHASE 116, 125, STOR 121, RR 124, HALL...	54
55	NC TEACHER LOUNGE 128 ABOVE COUNTER	20 A	1	500 VA	900 VA			1	20 A REC CORR 101A/101C, BOYS 115, ELEC 122, JAN 180B	56
57	NC TEACHER LOUNGE 128 ABOVE COUNTER	20 A	1		500 VA	900 VA		1	20 A REC VEST 100B, CORR 101A/101C, GIRLS 117, RR 123	58
59	NC TEACHER LOUNGE 128 DISPOSAL	20 A	1			1500 VA	500 VA	1	20 A NC HALL 125 BOTTLE FILLER	60
61	NC TEACHER LOUNGE 128 ABOVE COUNTER	20 A	1	500 VA	1080 VA			1	20 A REC INTER 129	62
63	REC EXTERIOR	20 A	1		1080 VA	900 VA		1	20 A REC TEACHER LOUNGE 128	64
65	NC VEST 100B, CORR 101C DOOR HARDWARE	20 A	1			200 VA	900 VA	1	20 A REC PE OFFICE 126, COPIER ROOM 127	66
67	SPARE	20 A	1	0 VA	1500 VA			1	20 A NC COPIER ROOM 127 COPIER	68
69	SPARE	20 A	1		0 VA	1500 VA		1	20 A NC COPIER ROOM 127 LAMINATOR	70
71	SPARE	20 A	1			0 VA	264 VA	1	15 A MTR EF-2	72
73	SPARE	20 A	1	0 VA	0 VA			1	20 A SPARE	74
75	SPARE	20 A	1							



PROJECT

GENERAL SHEET NOTES

- A. THE CONDUIT RUNS, AS SHOWN ON PLANS, INDICATE APPROXIMATE ROUTING. EXACT LOCATION OF CONDUIT RUNS SHALL BE AS FIELD CONDITIONS DICTATE.
- B. ALL LOW VOLTAGE CONDUCTORS SHALL BE RUN IN SEPARATE RACEWAYS FROM POWER CONDUCTORS (120VAC OR HIGHER PHASE TO NEUTRAL), NO EXCEPTIONS.
- C. ALL UNDERGROUND CABLING TO BE OSP RATED.
- D. ALL CONDUIT TURNS SHALL BE "SWEEP" TYPE. NO BEND FITTINGS ARE PERMITTED.
- E. REFER TO SHEET SERIES T-400 FOR MDF AND IDF ROOM LAYOUTS AND ADDITIONAL INFORMATION.
- F. INSTALL "MAXCELL 3 CELL" INNERDUCT IN ALL COMMUNICATIONS DISTRIBUTION CONDUIT. CONTRACTOR IS TO SIZE APPROPRIATELY. INSTALL WITH MAXCELL INSTALLATION SWIVEL.

KEYNOTES

- 1. 1-1/2" CONDUIT PATHWAY ABOVE CEILING WITH MAXCELL 3-CELL 1-1/2" MESH INNERDUCT.
 - 2. PROVIDE "LB" JUNCTION TO PENETRATE INTO BUILDING ABOVE CEILING.
 - 3. 1-1/2" CONDUIT PATHWAY RUN UNDERGROUND TO 12"X12" HANDHOLES. REFER TO DUCTBANK DETAIL #4 ON SHEET T-502.
 - 4. 12"X12" HANDHOLE WITH SEALED LID TO PREVENT WATER INTRUSION. PROVIDE PROPER GRAVEL BED DRAINAGE. SEAL CONDUITS WITHIN HANDHOLE TO PREVENT WATER INTRUSION.
 - 5. PROVIDE ROUGH-IN OF CONDUITS AND JUNCTION BOX PER DETAIL #2 ON SHEET T-502 FOR FUTURE SURVEILLANCE CAMERA BY OWNER. REFER TO ELEC SHEETS FOR POWER.
- PROVIDE ONE RUN OF OSP GAMECHANGER CABLE, PAIGE #253330804. TRANSITION TO BLUE PLENUM GAMECHANGER CABLE WHILE IN PLENUM SPACE, PAIGE #28300336. PROVIDE PLENUM RATED TRANSITION, IN-CEILING CONNECTOR ASSEMBLY COMMSCOPE #760244061. PROVIDE POE+ LIGHTNING CATEGORY 6A PROTECTORS ON BOTH ENDS, DITEK #DTRAJR/POE. SLACK AND COIL 5-FT IN HAND HOLES.

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

3/3/2021	ADDENDUM 3

DRAWN BY CSK

REVIEWED BY JMM

DATE 12/10/2019

PROJECT NO 18-0032

PSFA PRE-K PROJECT NO: K-18-011

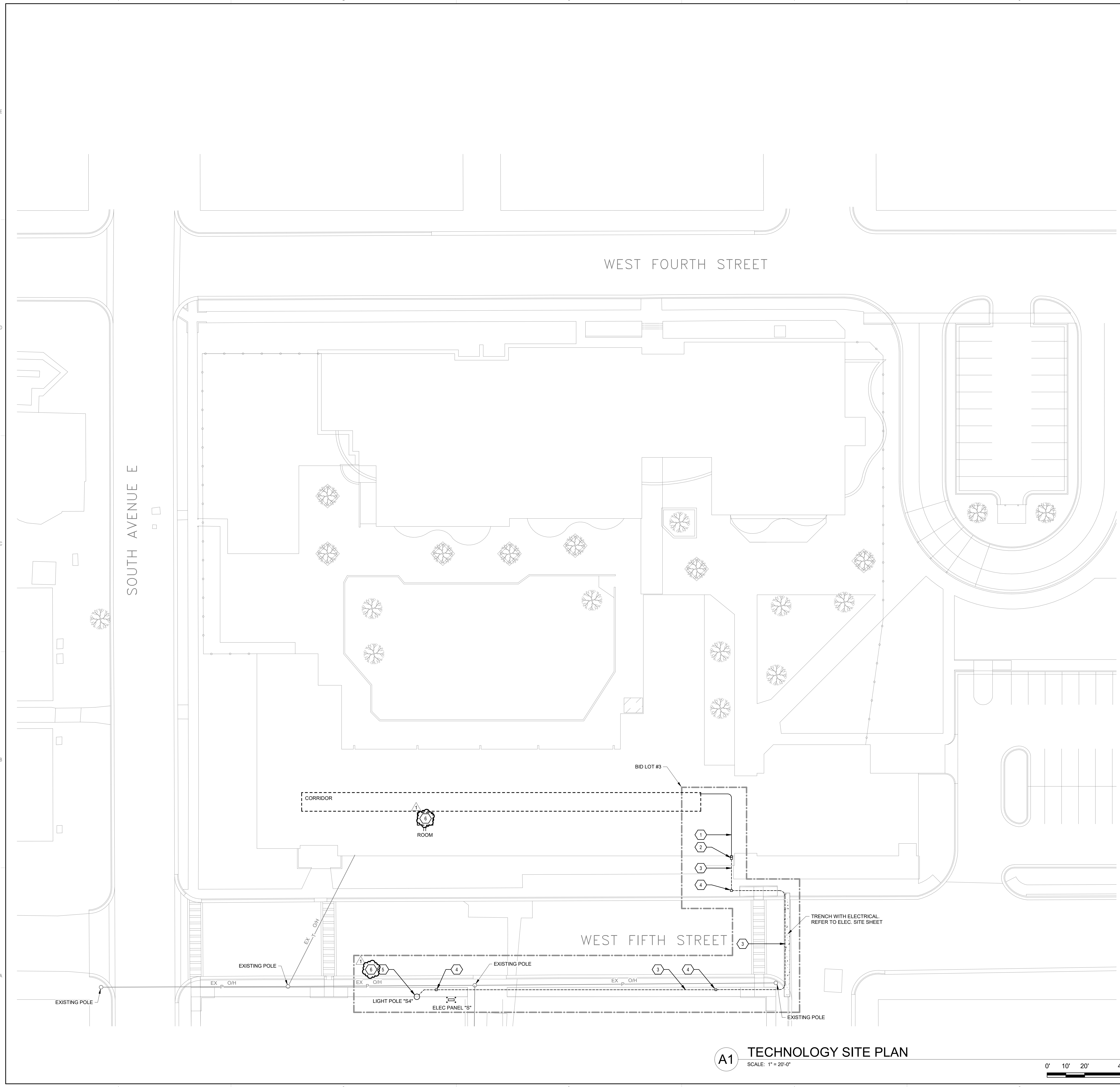
PSFA SYSTEMS PROJECT NO: S-20-008

DRAWING NAME

**TECHNOLOGY
SITE PLAN**

SHEET NO

TS101



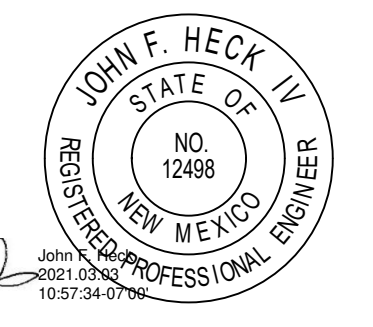
A1 TECHNOLOGY SITE PLAN

SCALE: 1" = 20'-0"



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SEAL



PROJECT

GENERAL SHEET NOTES

- A. CONTRACTOR TO INSURE ALL COMMUNICATIONS CABLING REMAIN UNDAMAGED. CABLING SHALL BE FREE OF CUTS, KINKS, STRETCHED, SOLVENTS AND PAINTS. DAMAGED CABLING SHALL BE REPLACED.
- B. PROPERLY FIRE STOP AND SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOF AS PER OWNER, CODE, AND AHJ.
- C. PRIOR TO INSTALLATION OF CABLE TRAY COORDINATE LOCATIONS WITH ALL OTHER TRADES.
- D. NOT ALL PARTS AND PIECES ARE SHOWN FOR A COMPLETE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE END-TO-END WARRANTED SOLUTION FOR THE HORIZONTAL CABLING.
- E. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.
- F. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS' PAGING, ALL LOW VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE ALARM (RED). (SEE GENERAL NOTES OTHERWISE NOTED). FOR EXAMPLE, DEVICES SPECIFIED AT +18" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR POWER RECEPTACLES AND TELECOMMUNICATIONS OUTLETS. DEVICES SPECIFIED AT +48" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR LIGHT SWITCHES ETC.
- G. ALL JUNCTION BOXES IN FURRED OUT WALLS TO BE 2-1/2" DEEP MINIMUM. ANY BOXES, CONDUITS, AND PATHWAYS THAT REQUIRE TO BE SURFACE MOUNTED DUE TO EXISTING CONDITIONS, SHALL BE COORDINATED WITH ARCHITECT AND ENGINEER.
- H. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS SHALL BE STEEL. THINWALL ELECTRICAL METALLIC TUBING (TYPE EMT) UNLESS OTHERWISE NOTED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE CONDUIT BE USED FOR PATHWAYS INDICATED ON THIS SHEET. ALL CONDUITS ARE TO BE AT A MINIMUM 1-1/4" TRADE SIZE, UNLESS OTHERWISE NOTED. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS ARE TO BE STUBBED TO NEAREST CABLE TRAY. CONTRACTOR IS TO ENSURE THAT NO CONDUIT EXCEEDS 40% FULL.
- I. CABLE TRAY SYSTEMS SHOWN ON THIS SHEET SHALL BE USED FOR VOICE AND DATA CABLING ONLY. ALL OTHER SYSTEMS INCLUDING, BUT NOT LIMITED TO, FIRE ALARM, SECURITY, HVAC CONTROL, ETC. SHALL BE SUPPORTED BY OTHER MEANS. HOOKS ATTACHED TO THE CABLE TRAY SUPPORTS WILL BE PERMITTED. LIKEWISE, ANY CONDUITS PROVIDED FOR VOICE AND DATA CABLING IS NOT TO BE USED BY ANY OTHER SYSTEM. HENCE, SEPARATE CONDUITS MAY NEED TO BE PROVIDED FOR THE SUPPORT OF THESE SYSTEMS.
- J. NUMBER ADJACENT TO TELECOMMUNICATIONS OUTLET SYMBOL REPRESENTS NUMBER OF CATEGORY 6A CABLES TO BE INSTALLED AND TERMINATED AT THAT LOCATION.
- K. CONDUIT PATHWAYS SHALL BE PROVIDED WITH NYLON BUSHINGS TO PROTECT CABLES, REGARDLESS OF WHETHER THEY TERMINATE IN A DEVICE OR JUNCTION BOX.
- L. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.

KEYNOTES

- T01 TELECOMMUNICATIONS DATA OUTLET. PROVIDE 4-11 1/4" SQ. BY 2-1/8" DEEP STEEL BOX WITH 1-1/4" K.O. PROVIDE A SINGLE GANG RING RAISED TO FINISHED WALL SURFACE. PROVIDE 1-1/4" EMT CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T02 ROUGH-IN FOR WALL MOUNTED SHORT THROW PROJECTOR. PROVIDE ROUGH-IN STRUCTURAL BRACKETS AS SHOWN ON DETAIL D1 ON SHEET T-501. PROVIDE A STANDARD TELECOMMUNICATIONS DATA OUTLET. PROVIDE A FOUR PORT ANGLED FACEPLATE WITH ONE CATEGORY 6A CABLE AND MODULAR JACK TERMINATION, AND THREE BLANK INSERTS FOR FUTURE LOW VOLTAGE.
- T03 INTERCOM CALL SWITCH MOUNTED AT 48" A.F.F. WIRED TO ROOM INTERCOM SPEAKER COMPLETE FOR OPERATION. WIRE TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL INTERCOM CALL SWITCHES THROUGHOUT ENTIRE BUILDING.
- T04 SURFACE WALL MOUNTED PAGING LOUDSPEAKER WITH TALKBACK FOR DISTRIBUTED INTERCOMPARING SYSTEM. COORDINATE SIGNAL PULL BOX TYPE AND ROUGH-IN LOCATION WITH EQUIPMENT INSTALLER PRIOR TO COMMENCING ANY WORK. REFER TO SPECIFICATION SECTION 27 51 23 FOR ADDITIONAL REQUIREMENTS. WIRE BACK TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T05 CEILING TELECOMMUNICATIONS DATA OUTLET. PROVIDE IN CEILING PLENUM RATED BOX FOR FUTURE CONNECTION TO EXISTING SCHOOL WIRELESS ACCESS POINTS AND SURVEILLANCE CAMERAS. MOUNT BOX SUPPENDED IN CEILING. PROVIDE CATEGORY 6A CABLING AND TERMINATIONS. COORDINATE LOCATION AND COLOR CODE WITH REQUIREMENTS PER GENERAL NOTE G WITH SCHOOL DISTRICT PRIOR TO ROUGH-IN.
- T06 TELECOMMUNICATIONS DATA OUTLET. INTERBED BETWEEN THE WHITEBOARD AND TACKBOARD. PROVIDE A 2-GANG 1-1/2" X 2-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA, AND (1) 2-PORT VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. PROVIDE 1-1/4" EMT FOR DATA CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE 1-1/4" EMT CONDUIT FOR POWER. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T07 18" X 2" WIRE BASKET STYLE CABLE TRAY THROUGHOUT CORRIDORS. MOUNT CABLE TRAY 6" ABOVE LAY-IN CEILING. COORDINATE WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF WORK.
- T08 12" X 2" WIRE BASKET STYLE CABLE TRAY THROUGHOUT CORRIDORS. MOUNT CABLE TRAY 6" ABOVE LAY-IN CEILING. COORDINATE WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF WORK.
- T09 HOOK PATH. PROVIDE PROPERLY SIZED AND QUANTITY TO SPAN DISTANCE WITH 4-5" SPANS. PLENUM RATED.
- T10 2" CONDUIT SLEEVE THROUGH WALL AND/OR SOFFIT FOR VOICE, DATA, AND INTERCOM CABLING. PROVIDE PLASTIC BUSHINGS ON BOTH ENDS TO PROTECT CABLES.
- T11 CONTRACTOR TO PROVIDE ALL NEW COMMUNICATIONS CATEGORY CABLE TO EXISTING OUTLET LOCATIONS. PROVIDE TERMINATIONS AND FACEPLATE. CONTRACTOR TO PROVIDE ALL NEW INTERCOMPARING CABLING TO EXISTING CALL SWITCHES AND SPEAKER LOCATIONS. PROVIDE NEW EQUIPMENT AND DEVICES AS DEFEND IN SPECIFICATION 27 51 23. UTILIZE EXISTING PATHWAYS AS NEEDED.
- T12 EXISTING ACCESS CONTROL, HANDICAP DOOR OPERATORS, AND CABLING TO REMAIN. PROTECT CABLING AND PATHWAYS AS NEEDED DURING REMODEL.
- T13 EXISTING INTERCOM EXTERIOR SPEAKER TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO SPEAKER.
- T14 NEW BUILDING INTERCOM MASTER STATION. PROVIDE INTERCONNECTION TO SECONDARY SCHOOL BUILDING EXISTING INTERCOM MASTER STATION AND PROVIDE FULL OPERATIONS TO SCHOOL DISTRICTS STANDARD. PROVIDE FULL OPERATIONS TO SECONDARY SCHOOL BUILDING HARDWARE AND SOFTWARE WITH NEW INTERCOM MASTER STATION UNIT. PROVIDE NEW CABLING AS NEEDED TO COMPLETE INTERCONNECTIONS. PROVIDE OSP CABLING WHEN PATHWAY IS UNDERGROUND AND TRANSITION TO PLENUM CABLING WHEN PATHWAY IS IN PLENUM RATED CEILING. REFER TO SPECIFICATION SECTION 27 51 23 FOR ADDITIONAL REQUIREMENTS. COORDINATE OPERATION WITH EXISTING SCHOOL PORTABLES AND SECONDARY SCHOOL BUILDING AND INTERCONNECT WORK OVER TO NEW INTERCOM HEADEND UNIT AND MAINTAIN OPERATION.
- T19 BIDIRECTIONAL CORRIDOR SPEAKER FOR INTERCOM PAGING. COORDINATE LOCATION WITH ALL OTHER TRADES PRIOR TO ROUGH-IN. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T20 EXISTING SURVEILLANCE CAMERA TO REMAIN. REFER TO DEMOLITION SHEETS FOR REQUIREMENTS ON WORK.
- T26 DATA DEVICE FOR LIGHTING RELAY PANEL. COORDINATE LOCATION WITH PANEL. REFER TO ELEC. SHEETS FOR ADDITIONAL REQUIREMENTS.

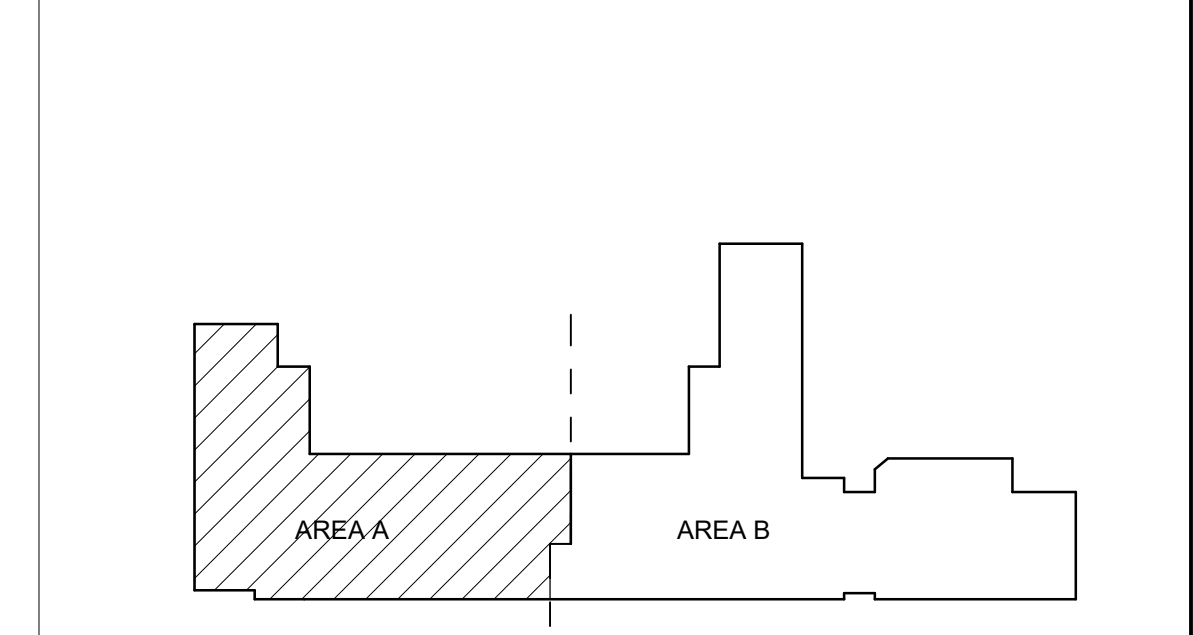
TECH. PLAN LEGEND

INTERCOMMUNICATIONS & PROGRAM SYSTEMS UPGRADE OF ENTIRE BUILDING IS PART OF BASE BID.
TELECOMMUNICATIONS CATEGORY CABLING & TERMINATIONS OF ENTIRE BUILDING IS PART OF BASE BID.

NO WORK, UNLESS OTHERWISE NOTED

ABBREVIATIONS:
AWB ABOVE WHITE BOARD
CR CARD READER
IC INTERCOM
ICM INTERCOM MASTER
S SPEAKER

KEYPLAN



CONSTRUCTION DOCUMENTS

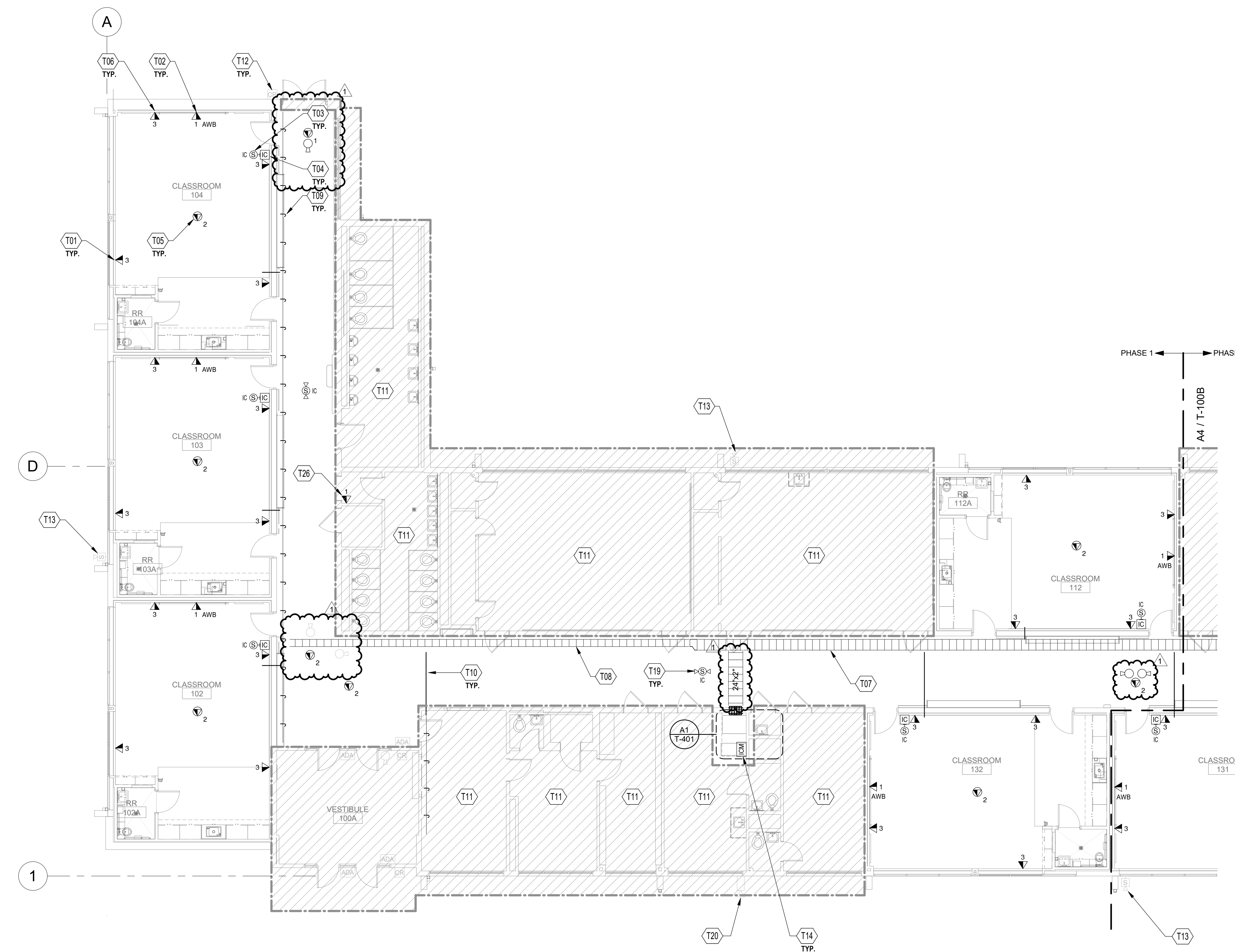
REVISIONS

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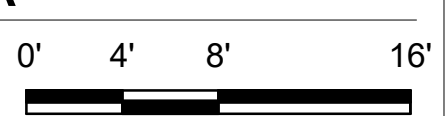
DRAWN BY	CSK
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO.	18-0032
PSFA PRE-K PROJECT NO.	K-18-011
PSFA SYSTEMS PROJECT NO.	S-20-008
DRAWING NAME	

TECHNOLOGY SYSTEMS FLOOR PLAN - AREA A

SHEET NO. **T-100A**

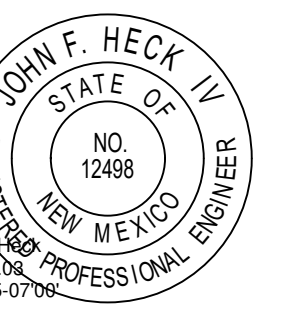


A4 TECHNOLOGY SYSTEMS FLOOR PLAN - AREA A
SCALE: 1/8" = 1'-0"



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Bridgers & Paxton Project No. 8022

SEAL



PROJECT

GENERAL SHEET NOTES

- A. CONTRACTOR TO INSURE ALL COMMUNICATIONS CABLING REMAIN UNDAMAGED. CABLING SHALL BE FREE OF CUTS, KINKS, STRETCHES, SOLVENTS AND PAINTS. DAMAGED CABLING SHALL BE REPLACED.
- B. PROPERLY FIRE STOP AND SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOF AS PER OWNER, CODE, AND AHJ.
- C. PRIOR TO INSTALLATION OF CABLE TRAY COORDINATE LOCATIONS WITH ALL OTHER TRADES.
- D. NOT ALL PARTS AND PICES ARE SHOWN FOR A COMPLETE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE END-TO-END WARRANTED SOLUTION FOR THE HORIZONTAL CABLING.
- E. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.
- F. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE ALARM (RED).
- G. OTHERWISE NOTED, FOR EXAMPLE, DEVICES SPECIFIED AT +18" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR POWER RECEPTACLES AND TELECOMMUNICATIONS OUTLETS. DEVICES SPECIFIED AT +48" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR LIGHT SWITCHES ETC.
- H. ALL JUNCTION BOXES IN FURRED OUT WALLS TO BE 2-1/2" DEEP MINIMUM. ANY BOXES, CONDUITS, AND PATHWAYS THAT REQUIRE TO BE SURFACE MOUNTED DUE TO EXISTING CONDITIONS, SHALL BE COORDINATED WITH ARCHITECT AND ENGINEER.
- I. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS SHALL BE STEEL. THINWALL ELECTRICAL METALLIC TUBING (TYPE EMT) UNLESS OTHERWISE NOTED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE CONDUIT BE USED FOR PATHWAYS INDICATED ON THIS SHEET. ALL CONDUITS ARE TO BE AT A MINIMUM 1-1/4" TRADE SIZE, UNLESS OTHERWISE NOTED. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS ARE TO BE STUBBED TO NEAREST CABLE TRAY. CONTRACTOR IS TO ENSURE THAT NO CONDUIT EXCEEDS 40% FULL.
- J. CABLE TRAY SYSTEMS SHOWN ON THIS SHEET SHALL BE USED FOR VOICE AND DATA CABLING ONLY. ALL OTHER SYSTEMS INCLUDING, BUT NOT LIMITED TO, FIRE ALARM, SECURITY, HVAC CONTROL, ETC. SHALL BE SUPPORTED BY OTHER MEANS. J-HOOKS ATTACHED TO THE CABLE TRAY SUPPORTS WILL BE PERMITTED. LIKEWISE, ANY CONDUITS PROVIDED FOR VOICE AND DATA CABLING IS NOT TO BE USED BY ANY OTHER SYSTEM. HENCE, SEPARATE CONDUITS MAY NEED TO BE PROVIDED FOR THE SUPPORT OF THESE SYSTEMS.
- K. TELECOMMUNICATIONS OUTLET SYMBOL REPRESENTS NUMBER OF CATEGORY 6A CABLES TO BE INSTALLED AND TERMINATED AT THAT LOCATION.
- L. ALL CABLE PATHWAYS SHALL BE PROVIDED WITH NYLON BUSHINGS TO PROTECT CABLES, REGARDLESS OF WHETHER THEY TERMINATE IN A DEVICE OR JUNCTION BOX.
- M. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.

KEYNOTES

- T01 TELECOMMUNICATIONS DATA OUTLET. PROVIDE 4-11/16" SQ. BY 2-1/8" DEEP STEEL BOX WITH 1-1/4" K.O. PROVIDE A SINGLE GANG RING RAISED TO FINISHED WALL SURFACE. PROVIDE 1-1/4" EMT CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T02 ROUGH-IN FOR WALL MOUNTED SHORT THROW PROJECTOR. PROVIDE ROUGH-IN STRUCTURAL BRACKING AS SHOWN ON DETAIL D1 ON SHEET T-501. PROVIDE A STANDARD TELECOMMUNICATIONS DATA OUTLET. PROVIDE A FOUR PORT ANGLED FACEPLATE WITH ONE CATEGORY 6A CABLE AND MODULAR JACK TERMINATION, AND THREE BLANK INSERTS FOR FUTURE LOW VOLTAGE.
- T03 INTERCOM CALL SWITCH MOUNTED AT 48" A.F.F. WIRED TO ROOM INTERCOM SPEAKER COMPLETE FOR OPERATION. WIRE TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL INTERCOM CALL SWITCHES THROUGHOUT ENTIRE BUILDING.
- T04 SURFACE WALL MOUNTED PAGING LOUDSPEAKER WITH TALKBACK FOR DISTRIBUTED INTERCOMPAING SYSTEM. COORDINATE SIGNAL PULL BOX TYPE AND ROUGH-IN LOCATION WITH EQUIPMENT INSTALLER PRIOR TO COMMENCING ANY WORK. REFER TO SPECIFICATION SECTION 27 51 23 FOR ADDITIONAL REQUIREMENTS. WIRE BACK TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T05 CEILING TELECOMMUNICATIONS DATA OUTLET. PROVIDE IN CEILING PLENUM RATED BOX FOR FUTURE CONNECTION TO EXISTING SCHOOL WIRELESS ACCESS POINTS AND SURVEILLANCE CAMERAS. MOUNT BOX SUSPENDED IN CEILING. PROVIDE CATEGORY 6A CABLING AND TERMINATIONS. COORDINATE LOCATION AND COLOR CODE WITH REQUIREMENTS PER GENERAL NOTE G WITH SCHOOL DISTRICT PRIOR TO ROUGH-IN.
- T06 TELECOMMUNICATIONS DATA OUTLET IN BETWEEN THE WHITEBOARD AND TACKBOARD. PROVIDE A 2-GANG 1-1/2" X 2-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT RECEPTACLE AND (1) 2-PORT VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. PROVIDE 1-1/4" EMT FOR DATA CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T07 18" X 2" WIRE BASKET STYLE CABLE TRAY THROUGHOUT CORRIDORS. MOUNT CABLE TRAY 6" ABOVE LAY-IN CEILING. COORDINATE WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF WORK.
- T08 12" X 2" WIRE BASKET STYLE CABLE TRAY THROUGHOUT CORRIDORS. MOUNT CABLE TRAY 6" ABOVE LAY-IN CEILING. COORDINATE WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF WORK.
- T09 J-HOOK PATH. PROVIDE PROPERLY SIZED AND QUANTITY TO SPAN DISTANCE WITH 4' 5" SPANS. PLENUM RATED.
- T10 2" CONDUIT SLEEVE THROUGH WALL AND/OR SOFFIT FOR VOICE, DATA, AND INTERCOM CABLING. PROVIDE PLASTIC BUSHINGS ON BOTH ENDS TO PROTECT CABLES. CONTRACTOR TO PROVIDE ALL NEW COMMUNICATIONS CATEGORY CABLE TO EXISTING OUTLET LOCATIONS. PROVIDE TERMINATIONS AND FACEPLATE. CONTRACTOR TO PROVIDE ALL NEW INTERCOMPAING CABLING TO EXISTING CALL SWITCHES AND SPEAKER LOCATIONS. PROVIDE NEW EQUIPMENTS AND DEVICES AS DEFEND IN SPECIFICATION 27 51 23. UTILIZE EXISTING PATHWAYS AS NEEDED.
- T12 EXISTING ACCESS CONTROL, HANDICAP DOOR OPERATORS, AND CABLING TO REMAIN. PROTECT CABLING AND PATHWAYS AS NEEDED DURING REMODEL.
- T13 EXISTING INTERCOM ERROR SPEAKER TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO SPEAKER.
- T15 EXISTING CAMERA, DATA OUTLETS, INTERCOM BOXES, AND SPEAKERS IN GYMNASIUM AND KITCHEN TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO CAMERA, DATA OUTLETS, SPEAKERS AND INTERCOM CALL SWITCH.
- T16 BIRIRECTIONAL CORRIDOR SPEAKER FOR INTERCOM PAGING. COORDINATE LOCATION WITH ALL OTHER TRADES PRIOR TO ROUGH-IN. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T20 EXISTING SURVEILLANCE CAMERA TO REMAIN. REFER TO DEMOLITION T SHEETS FOR REQUIREMENTS ON WORK.
- T26 DATA DEVICE FOR LIGHTING RELAY PANEL. COORDINATE LOCATION WITH PANEL. REFER TO ELEC. SHEETS FOR ADDITIONAL REQUIREMENTS.

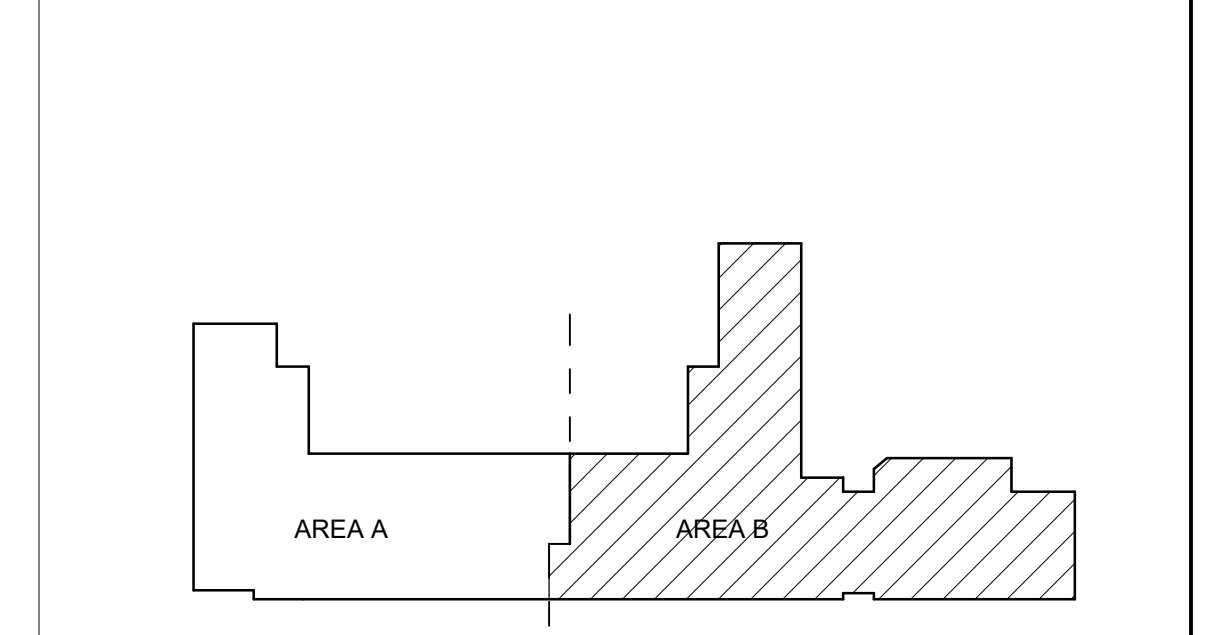
TECH. PLAN LEGEND

INTERCOMMUNICATIONS & PROGRAM SYSTEMS UPGRADE OF ENTIRE BUILDING IS PART OF BASE BID.
TELECOMMUNICATIONS CATEGORY CABLING & TERMINATIONS OF ENTIRE BUILDING IS PART OF BASE BID.

NO WORK; UNLESS OTHERWISE NOTED

- ABBREVIATIONS:
AWB ABOVE WHITE BOARD
CR CARD READER
IC INTERCOM
ICM INTERCOM MASTER
S SPEAKER

KEYPLAN



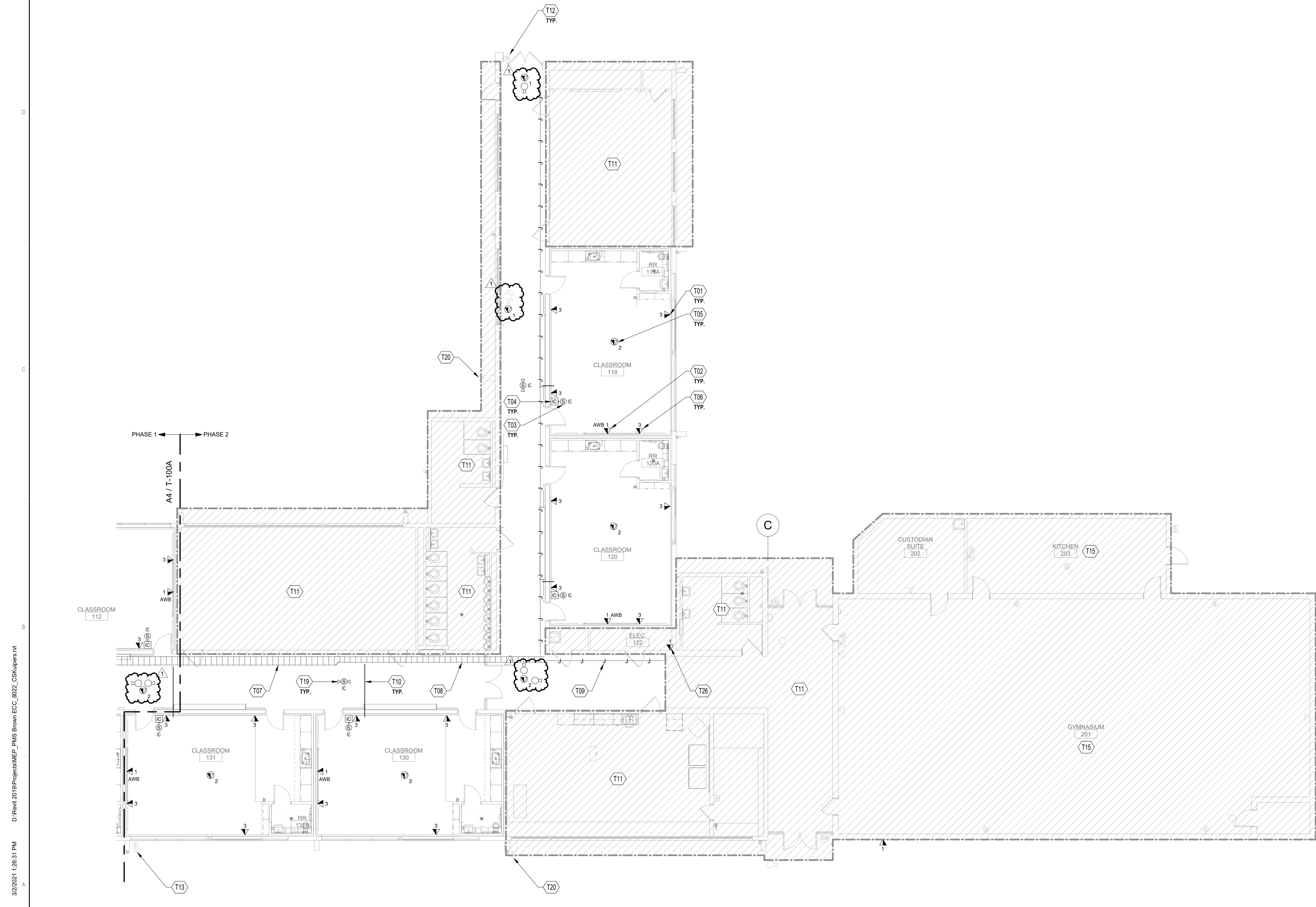
CONSTRUCTION DOCUMENTS

REVISIONS	ADDENDUM 3
3/3/2021	

DRAWN BY	CSK
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

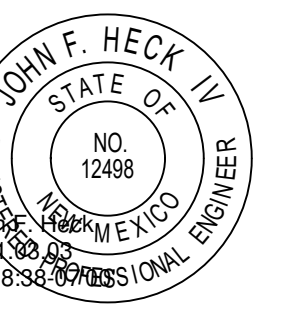
TECHNOLOGY SYSTEMS FLOOR PLAN - AREA B

SHEET NO
T-100B



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Bridgers & Paxton Project No. 8022

SEAL



PROJECT

GENERAL SHEET NOTES

- A. CONTRACTOR TO INSURE ALL COMMUNICATIONS CABLING REMAIN UNDAMAGED. CABLING SHALL BE FREE OF CUTS, KINKS, STRETCHED, SOLVENTS AND PAINTS. DAMAGED CABLING SHALL BE REPLACED.
- B. PROPERLY FIRE STOP AND SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOF AS PER OWNER, CODE, AND AHJ.
- C. PRIOR TO INSTALLATION OF CABLE TRAY COORDINATE LOCATIONS WITH ALL OTHER TRADES.
- D. NOT ALL PARTS AND PIECES ARE SHOWN FOR A COMPLETE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE END-TO-END WARRANTED SOLUTION FOR THE HORIZONTAL CABLING.
- E. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.
- F. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS' PAGING, ALL LOW VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE ALARM (RED). (SEE GENERAL NOTES OTHERWISE NOTED). FOR EXAMPLE, DEVICES SPECIFIED AT +18" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR POWER RECEPTACLES AND TELECOMMUNICATIONS OUTLETS. DEVICES SPECIFIED AT +48" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR LIGHT SWITCHES ETC.
- G. ALL JUNCTION BOXES IN FURRED OUT WALLS TO BE 2-1/2" DEEP MINIMUM. ANY BOXES, CONDUITS, AND PATHWAYS THAT REQUIRE TO BE SURFACE MOUNTED DUE TO EXISTING CONDITIONS, SHALL BE COORDINATED WITH ARCHITECT AND ENGINEER.
- H. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS SHALL BE STEEL. THINWALL ELECTRICAL METALLIC TUBING (TYPE EMT) UNLESS OTHERWISE NOTED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE CONDUIT BE USED FOR PATHWAYS INDICATED ON THIS SHEET. ALL CONDUITS ARE TO BE AT A MINIMUM 1-1/4" TRADE SIZE, UNLESS OTHERWISE NOTED. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS ARE TO BE STUBBED TO NEAREST CABLE TRAY. CONTRACTOR IS TO ENSURE THAT NO CONDUIT EXCEEDS 40% FULL.
- I. CABLE TRAY SYSTEMS SHOWN ON THIS SHEET SHALL BE USED FOR VOICE AND DATA CABLING ONLY. ALL OTHER SYSTEMS INCLUDING, BUT NOT LIMITED TO, FIRE ALARM, SECURITY, HVAC CONTROL, ETC. SHALL BE SUPPORTED BY OTHER MEANS. J-HOOKS ATTACHED TO THE CABLE TRAY SUPPORTS WILL BE PERMITTED. LIKEWISE, ANY CONDUITS PROVIDED FOR VOICE AND DATA CABLING IS NOT TO BE USED BY ANY OTHER SYSTEM. HENCE, SEPARATE CONDUITS MAY NEED TO BE PROVIDED FOR THE SUPPORT OF THESE SYSTEMS.
- J. NUMBER ADJACENT TO TELECOMMUNICATIONS OUTLET SYMBOL REPRESENTS NUMBER OF CATEGORY 6A CABLES TO BE INSTALLED AND TERMINATED AT THAT LOCATION.
- K. CONDUIT PATHWAYS SHALL BE PROVIDED WITH NYLON BUSHINGS TO PROTECT CABLES, REGARDLESS OF WHETHER THEY TERMINATE IN A DEVICE OR JUNCTION BOX.
- L. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.

KEYNOTES

- T01 TELECOMMUNICATIONS DATA OUTLET. PROVIDE 4-11 1/4" SQ. BY 2-1/8" DEEP STEEL BOX WITH 1-1/4" K.O. PROVIDE A SINGLE GANG RING RAISED TO FINISHED WALL SURFACE. PROVIDE 1-1/4" EMT CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T02 ROUGH-IN FOR WALL MOUNTED SHORT THROW PROJECTOR. PROVIDE ROUGH-IN STRUCTURAL BRACING AS SHOWN ON DETAIL D1 ON SHEET T-501. PROVIDE A STANDARD TELECOMMUNICATIONS DATA OUTLET. PROVIDE A FOUR PORT ANGLED FACEPLATE WITH ONE CATEGORY 6A CABLE AND MODULAR JACK TERMINATION, AND THREE BLANK INSERTS FOR FUTURE LOW VOLTAGE.
- T03 INTERCOM CALL SWITCH MOUNTED AT 48" A.F.F. WIRED TO ROOM INTERCOM SPEAKER COMPLETE FOR OPERATION. WIRE TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL INTERCOM CALL SWITCHES THROUGHOUT ENTIRE BUILDING.
- T04 SURFACE WALL MOUNTED PAGING LOUDSPEAKER WITH TALKBACK FOR DISTRIBUTED INTERCOMPARING SYSTEM. COORDINATE SIGNAL PULL BOX TYPE AND ROUGH-IN LOCATION WITH EQUIPMENT INSTALLER PRIOR TO COMMENCING ANY WORK. REFER TO SPECIFICATION SECTION 27 51 23 FOR ADDITIONAL REQUIREMENTS. WIRE BACK TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T05 CEILING TELECOMMUNICATIONS DATA OUTLET. PROVIDE IN CEILING PLENUM RATED BOX FOR FUTURE CONNECTION TO EXISTING SCHOOL WIRELESS ACCESS POINTS AND SURVEILLANCE CAMERAS. MOUNT BOX SUPPENDED IN CEILING. PROVIDE CATEGORY 6A CABLING AND TERMINATIONS. COORDINATE LOCATION AND COLOR CODE WITH REQUIREMENTS PER GENERAL NOTE G WITH SCHOOL DISTRICT PRIOR TO ROUGH-IN.
- T06 TELECOMMUNICATIONS DATA OUTLET. INTERMEDIATE BETWEEN THE WHITEBOARD AND TACKBOARD. PROVIDE A 2-GANG 1-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA CATEGORY 6A AND (1) BRUSH GROMMETED DECORA. MOUNT AT 60" ABOVE FINISHED FLOOR. PROVIDE VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. PROVIDE 1-1/4" EMT FOR DATA CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE AND COORDINATE LENGTH OF HDMI 2.0 CABLE PRIOR TO INSTALL.
- T10 2" CONDUIT SLEEVE THROUGH WALL AND/OR SOFFIT FOR VOICE, DATA, AND INTERCOM CABLING. PROVIDE PLASTIC BUSHINGS ON BOTH ENDS TO PROTECT CABLES.
- T12 EXISTING ACCESS CONTROL, HANDICAP DOOR OPERATORS, AND CABLING TO REMAIN. PROTECT CABLING AND PATHWAYS AS NEEDED DURING REMODEL.
- T13 EXISTING INTERCOM EXTERIOR SPEAKER TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO SPEAKER.
- T14 NEW BUILDING INTERCOM MAIN STATION. PROVIDE INTERCONNECTION TO SECONDARY SCHOOL BUILDING INTERCOM MAIN STATION. PROVIDE FULL OPERATIONS TO SCHOOL DISTRICTS STANDARD INTERCONNECTIONS WITH SECONDARY SCHOOL BUILDING HARDWARE AND SOFTWARE WITH NEW INTERCOM MASTER STATION UNIT. PROVIDE NEW CABLING AS NEEDED TO COMPLETE INTERCONNECTIONS. PROVIDE GSP CABLING WHEN PATHWAY IS UNDERGROUND AND TRANSITION TO PLENUM CABLING WHEN PATHWAY IS IN PLENUM RATED CEILING. REFER TO SPECIFICATION SECTION 27 51 23 FOR ADDITIONAL REQUIREMENTS. COORDINATE OPERATION WITH EXISTING SCHOOL PORTABLES AND SECONDARY SCHOOL BUILDING AND INTERCONNECT WORK OVER TO NEW INTERCOM HEADEND UNIT AND MAINTAIN OPERATION.
- T17 PROVIDE A 3-GANG 1-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA CATEGORY 6A AND (1) BRUSH GROMMETED DECORA. MOUNT AT 60" ABOVE FINISHED FLOOR. PROVIDE VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. REFER TO TECHNOLOGY DIAGRAMS ON SHEET T-801 FOR BOX, CONDUIT, AND PATHWAY DETAILS. PROVIDE AND COORDINATE LENGTH OF HDMI 2.0 CABLE PRIOR TO INSTALL.
- T18 PROVIDE A 3-GANG 1-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA CATEGORY 6A AND (1) HDM DECORA INSERT (20#1943 OR EQUAL) MOUNTED AT 18" ABOVE FINISHED FLOOR. PROVIDE VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. REFER TO TECHNOLOGY DIAGRAMS ON SHEET T-801 FOR BOX, CONDUIT, AND PATHWAY DETAILS.
- T19 BI-DIRECTIONAL CORRIDOR SPEAKER FOR INTERCOM PAGING. COORDINATE LOCATION WITH ALL OTHER TRADES PRIOR TO ROUGH-IN. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T20 EXISTING SURVEILLANCE CAMERA TO REMAIN. REFER TO DEMOLITION T SHEETS FOR REQUIREMENTS ON WORK.
- T26 DATA DEVICE FOR LIGHTING RELAY PANEL. COORDINATE LOCATION WITH PANEL. REFER TO ELEC. SHEETS FOR ADDITIONAL REQUIREMENTS.

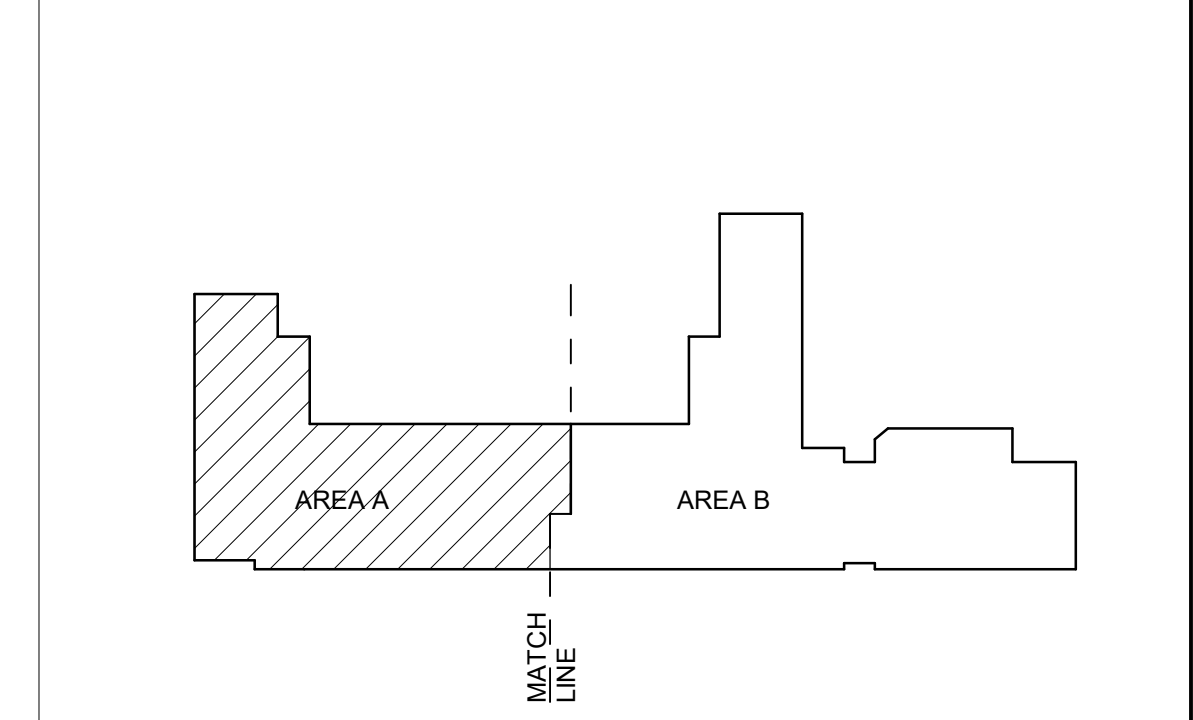
TECH. PLAN LEGEND

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TELECOMMUNICATIONS CATEGORY CABLING & TERMINATIONS OF ENTIRE BUILDING IS PART OF BASE BID.

NO WORK, UNLESS OTHERWISE NOTED

ABBREVIATIONS:
AWB ABOVE WHITE BOARD
CR CARD READER
IC INTERCOM
ICM INTERCOM MASTER
S SPEAKER

KEYPLAN



Brown Early Childhood Center
Old Wing Renovation
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

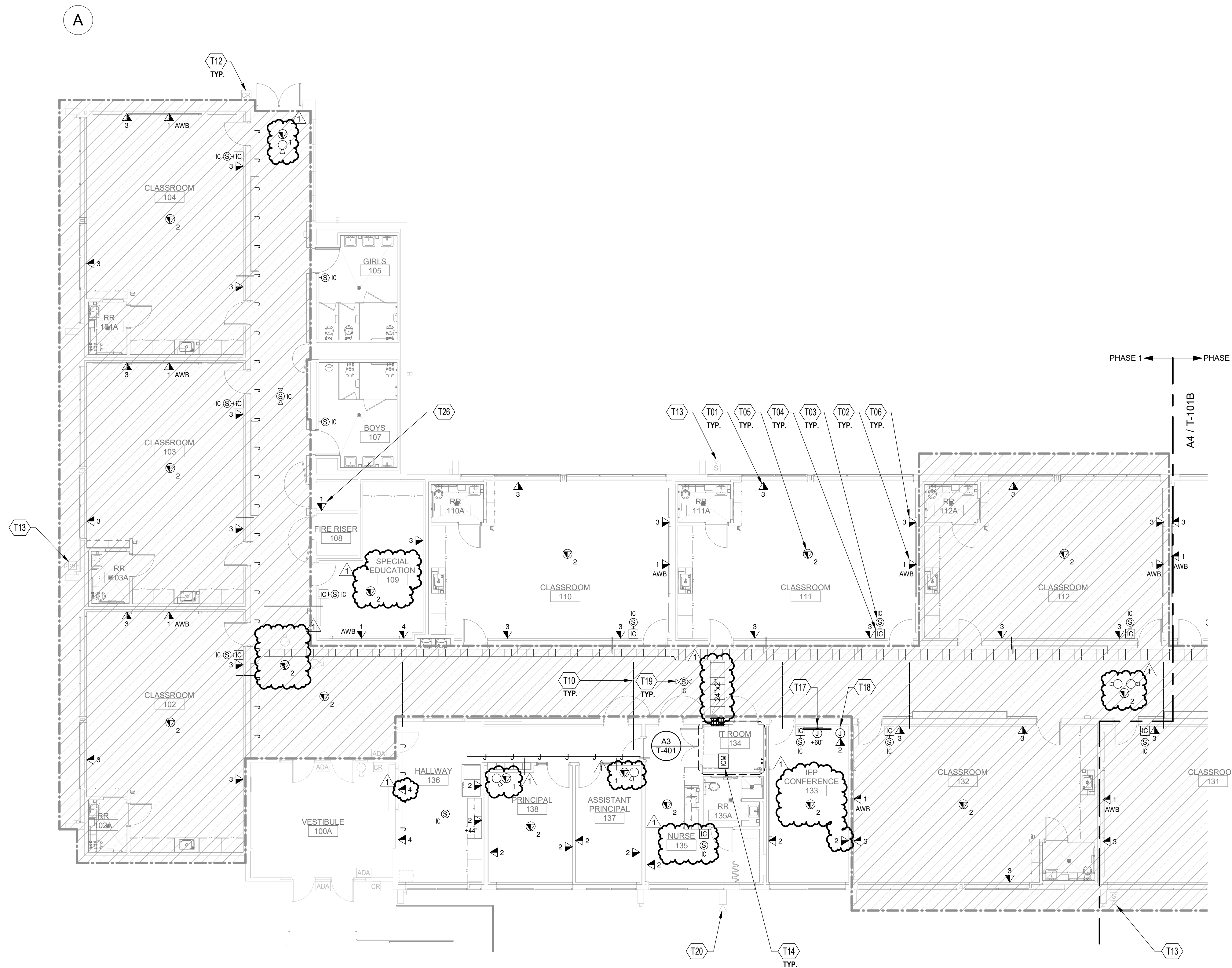
REVISIONS

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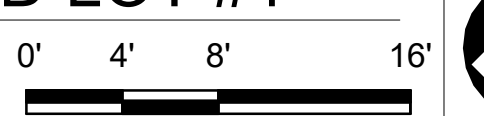
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REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO.	18-0032
PSFA PRE-K PROJECT NO.	K-18-011
PSFA SYSTEMS PROJECT NO.	S-20-008
DRAWING NAME	TECHNOLOGY SYSTEMS FLOOR PLAN - AREA A - BID LOT #1

SHEET NO

T-101A



A4 TECHNOLOGY SYSTEMS FIRST FLOOR PLAN - AREA A - BID LOT #1
SCALE: 1/8" = 1'-0"



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Bridgers & Paxton Project No. 8022



PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

3/3/2021	ADDENDUM 3
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DRAWN BY	CSK
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

TECHNOLOGY SYSTEMS FLOOR PLAN - AREA B - BID LOT #1

SHEET NO T-101B

GENERAL SHEET NOTES

- A. CONTRACTOR TO INSURE ALL COMMUNICATIONS CABLING REMAIN UNDAMAGED. CABLING SHALL BE FREE OF CUTS, KINKS, STRETCHES, SOLVENTS AND PAINTS. DAMAGED CABLING SHALL BE REPLACED.
- B. PROPERLY FIRE STOP AND SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOF AS PER OWNER, CODE, AND AHJ.
- C. PRIOR TO INSTALLATION OF CABLE TRAY COORDINATE LOCATIONS WITH ALL OTHER TRADES.
- D. NOT ALL PARTS AND PICES ARE SHOWN FOR A COMPLETE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE END-TO-END WARRANTED SOLUTION FOR THE HORIZONTAL CABLING.
- E. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.
- F. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE ALARM (RED). OTHERWISE NOTED. FOR EXAMPLE, DEVICES SPECIFIED AT +18" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR POWER RECEPTACLES AND TELECOMMUNICATIONS OUTLETS. DEVICES SPECIFIED AT +48" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR LIGHT SWITCHES ETC.
- G. ALL JUNCTION BOXES IN FURRED OUT WALLS TO BE 2-1/2" DEEP MINIMUM. ANY BOXES, CONDUITS, AND PATHWAYS THAT REQUIRE TO BE SURFACE MOUNTED DUE TO EXISTING CONDITIONS, SHALL BE COORDINATED WITH ARCHITECT AND ENGINEER.
- H. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS SHALL BE STEEL. THINWALL ELECTRICAL METALLIC TUBING (TYPE EMT) UNLESS OTHERWISE NOTED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE CONDUIT BE USED FOR PATHWAYS INDICATED ON THIS SHEET. ALL CONDUITS ARE TO BE AT A MINIMUM 1-1/4" TRADE SIZE, UNLESS OTHERWISE NOTED. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS ARE TO BE STUBBED TO NEAREST CABLE TRAY. CONTRACTOR IS TO ENSURE THAT NO CONDUIT EXCEEDS 40% FULL.
- I. CABLE TRAY SYSTEMS SHOWN ON THIS SHEET SHALL BE USED FOR VOICE AND DATA CABLING ONLY. ALL OTHER SYSTEMS INCLUDING, BUT NOT LIMITED TO, FIRE ALARM, SECURITY, HVAC CONTROL, ETC. SHALL BE SUPPORTED BY OTHER MEANS. HOOKS ATTACHED TO THE CABLE TRAY SUPPORTS WILL BE PERMITTED. LIKEWISE, ANY CONDUITS PROVIDED FOR VOICE AND DATA CABLING IS NOT TO BE USED BY ANY OTHER SYSTEM. HENCE, SEPARATE CONDUITS MAY NEED TO BE PROVIDED FOR THE SUPPORT OF THESE SYSTEMS.
- J. TELECOMMUNICATIONS OUTLET SYMBOL REPRESENTS NUMBER OF CATEGORY 6A CABLES TO BE INSTALLED AND TERMINATED AT THAT LOCATION.
- K. ALL PATHWAYS SHALL BE PROVIDED WITH NYLON BUSHINGS TO PROTECT CABLES, REGARDLESS OF WHETHER THEY TERMINATE IN A DEVICE OR JUNCTION BOX.
- L. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.

KEYNOTES

- T01 TELECOMMUNICATIONS DATA OUTLET. PROVIDE 4-11 1/2" SQ. BY 2-1/8" DEEP STEEL BOX WITH 1-1/4" K.O. PROVIDE A SINGLE GANG W/ RING RAISED TO FINISHED WALL SURFACE. PROVIDE 1-1/4" EMT CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T02 ROUGH-IN FOR WALL MOUNTED SHORT THROW PROJECTOR. PROVIDE ROUGH-IN STRUCTURAL BRACKETS AS SHOWN ON DETAIL. ON SHEET T-101. PROVIDE A STANDARD TELECOMMUNICATIONS DATA OUTLET. PROVIDE A FOUR PORT ANGLE FACEPLATE WITH ONE CATEGORY 6A CABLE AND MODULAR JACK TERMINATION, AND THREE BLANK INSERTS FOR FUTURE LOW VOLTAGE.
- T03 INTERCOM CALL SWITCH MOUNTED AT 48" A.F.F. WIRED TO ROOM INTERCOM SPEAKER COMPLETE FOR OPERATION. WIRE TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL INTERCOM CALL SWITCHES THROUGHOUT ENTIRE BUILDING.
- T04 SURFACE WALL MOUNTED PAGING LOUDSPEAKER WITH TALKBACK FOR DISTRIBUTED INTERCOMPARING SYSTEM. COORDINATE SIGNAL PULL BOX TYPE AND ROUGH-IN LOCATION WITH EQUIPMENT INSTALLER PRIOR TO COMMENCING ANY WORK. REFER TO SPECIFICATION SECTION 27 51 23 FOR ADDITIONAL REQUIREMENTS. WIRE BACK TO HEAD-END EQUIPMENT. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T05 CEILING TELECOMMUNICATIONS DATA OUTLET. PROVIDE IN CEILING PLENUM RATED BOX FOR FUTURE CONNECTION TO EXISTING SCHOOL WIRELESS ACCESS POINTS AND SURVEILLANCE CAMERAS. MOUNT BOX SUSPENDED IN CEILING. PROVIDE CATEGORY 6A CABLING AND TERMINATIONS. COORDINATE LOCATION AND COLOR CODE WITH REQUIREMENTS PER GENERAL NOTE G WITH SCHOOL DISTRICT PRIOR TO ROUGH-IN.
- T06 TELECOMMUNICATIONS DATA OUTLET (BETWEEN THE WHITEBOARD AND TACKBOARD). PROVIDE A 2-GANG BACK BOX 2-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA CATEGORY 6A AND (1) HDMI DECORA INSERT (C2#1043 OR EQUAL). PROVIDE VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. PROVIDE 1-1/4" EMT FOR DATA CONDUIT UP INTO ACCESSIBLE CEILING SPACE. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLING AND MODULAR JACK TERMINATIONS.
- T07 2" CONDUIT SLEEVE THROUGH WALL AND/OR SOFFIT FOR VOICE, DATA, AND INTERCOM CABLING. PROVIDE PLASTIC BUSHINGS ON BOTH ENDS TO PROTECT CABLES.
- T08 EXISTING ACCESS CONTROL, HANDICAP DOOR OPERATORS, AND CABLING TO REMAIN. PROTECT CABLING AND PATHWAYS AS NEEDED DURING REMODEL.
- T09 EXISTING INTERCOM EXTERIOR SPEAKER TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO SPEAKER.
- T10 EXISTING CAMERA, DATA OUTLETS, INTERCOM BOXES, AND SPEAKERS IN HALLWAY AND KITCHEN TO REMAIN. REMOVE OLD CABLING AND PROVIDE NEW CABLING TO CAMERA, DATA OUTLETS, SPEAKERS AND INTERCOM CALL SWITCH.
- T11 PROVIDE (1) 2" CONDUIT THROUGH CABLE TRAY, ROUTE DOWN WALL INTO FLOOR AND OVER TO POINT W/ ACCESS PATHWAY. PROVIDE PULL STRING TO SPAN BOTH ENDS. PROVIDE CATEGORY 6A CABLE TO BE USED FROM TERMINATION AT OUTLET TO CABLE TRAY. PROVIDE TERMINATED TRANSITION FROM OSP TO PLENUM RATED CABLING. COMMISSCOPE IN CEILING CONDUIT ASSEMBLY #18024921, OR EQUAL.
- T12 PROVIDE A 3-GANG BACK BOX 2-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA CATEGORY 6A AND (1) BRUSH GROMMETTED DECORA. MOUNT AT 60" ABOVE FINISHED FLOOR. PROVIDE VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. REFER TO TECHNOLOGY DIAGRAMS ON SHEET T-101 FOR BOX, CONDUIT, AND PATHWAY DETAILS. PROVIDE AND COORDINATE LENGTH OF HDMI 2.0 CABLE PRIOR TO INSTALL.
- T13 PROVIDE A 3-GANG BACK BOX 2-1/2" DEEP. PROVIDE GANGS FOR (1) DUPLEX DECORA, (1) 2-PORT DECORA CATEGORY 6A AND (1) HDMI DECORA INSERT (C2#1043 OR EQUAL). MOUNTED AT 18" ABOVE FINISHED FLOOR. PROVIDE VOLTAGE DIVIDER PLATE TO SEPARATE HIGH AND LOW VOLTAGE GANGS. REFER TO TECHNOLOGY DIAGRAMS ON SHEET T-101 FOR BOX, CONDUIT, AND PATHWAY DETAILS.
- T14 BI-DIRECTIONAL CORRIDOR SPEAKER FOR INTERCOM PAGING. COORDINATE LOCATION WITH ALL OTHER TRADES PRIOR TO ROUGH-IN. THIS IS PROVIDED AS BASE BID TO ALL PAGING LOUD SPEAKERS THROUGHOUT ENTIRE BUILDING.
- T15 EXISTING SURVEILLANCE CAMERA TO BE RELOCATED FOR BID LOT#1.
- T16 EXISTING SURVEILLANCE CAMERA TO BE RELOCATED FOR BID LOT#1.
- T17 BOX AND CONDUIT ROUGH-IN FOR ACCESS CONTROL. ACCESS CONTROL SYSTEM IS POE INFIRNAS CONTROL. PROVIDE ALL LOW VOLTAGE CABLING FOR COMPLETE DOOR ACCESS. PROVIDE CATEGORY 6A CABLING BACK TO ACCESS CONTROL HEAD-END. REFER TO DETAIL AS ON SHEET T-101 FOR ROUGH-IN REQUIREMENTS.
- T18 PROVIDE BOX AND CONDUIT FOR AUTOMATIC DOOR OPENER PUSH BUTTON PLATE. COORDINATE SYSTEM AND LOCATION OF EXTERIOR BOX WITH EXISTING CONDITIONS AND ARCHITECT PRIOR TO ROUGH-IN. REFER TO ELEC. SHEETS FOR ELECTRICAL REQUIREMENTS.
- T19 UNDERGROUND CONDUIT PATHWAY. REFER TO TS-101 SITE PLAN FOR PATHWAY REQUIREMENTS.
- T20 ALL DEVICES UNDER TABLE TOPS WILL BE MOUNTED AT 1'-6" AND HORIZONTAL.
- T21 DATA DEVICE FOR LIGHTING RELAY PANEL. COORDINATE LOCATION WITH PANEL. REFER TO ELEC. SHEETS FOR ADDITIONAL REQUIREMENTS.
- T22 DATA DEVICE FOR ELECTRICAL METERED UNIT. COORDINATE LOCATION WITH METERED UNIT. REFER TO ELEC. SHEETS FOR ADDITIONAL REQUIREMENTS.

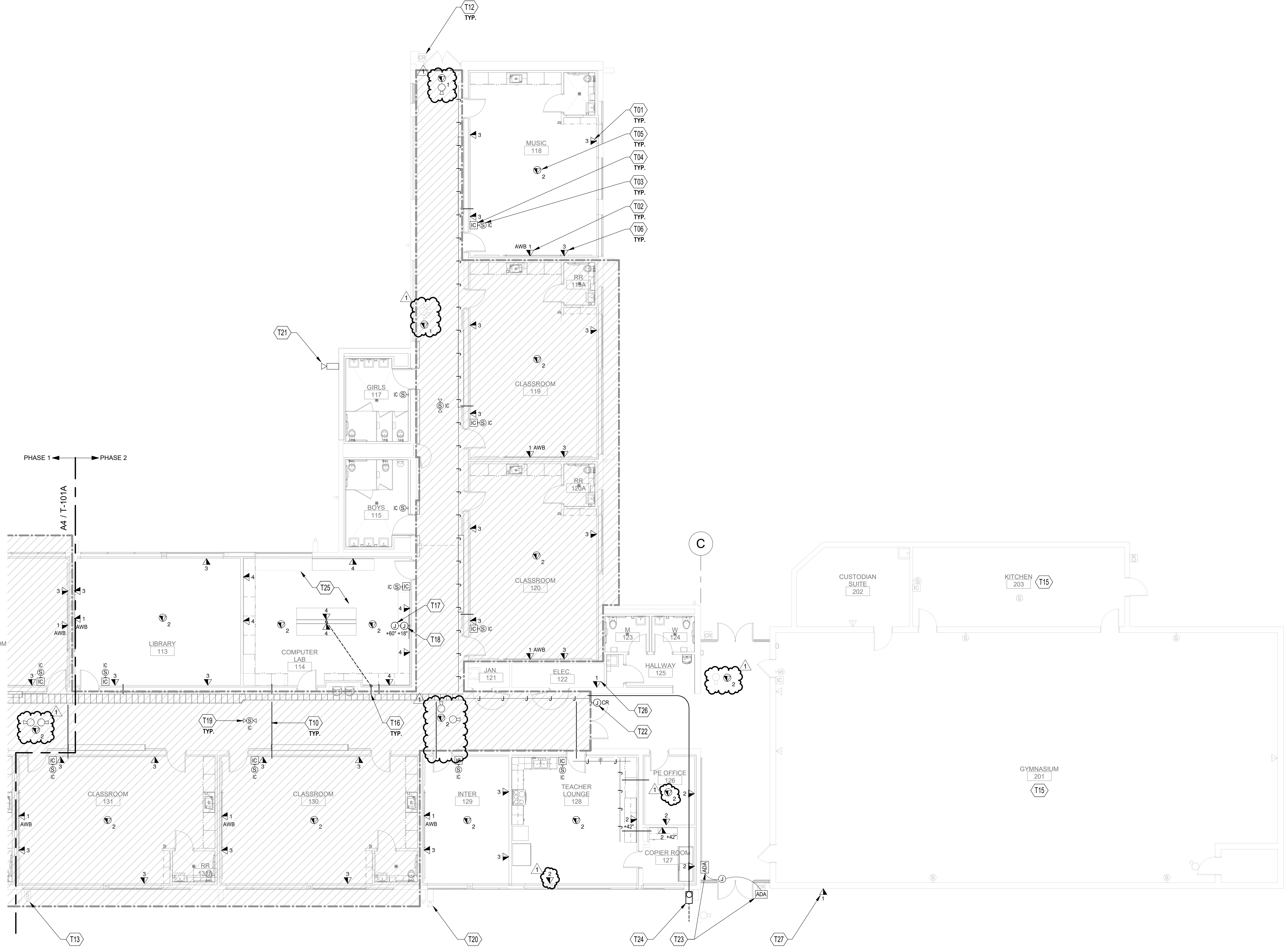
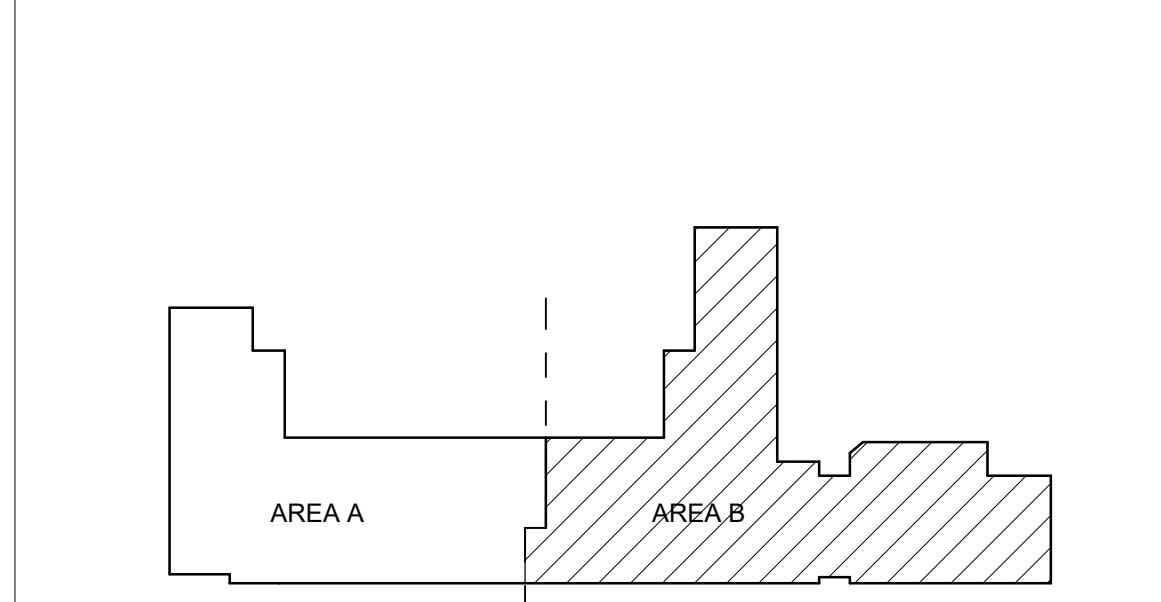
TECH. PLAN LEGEND

INTERCOMMUNICATIONS & PROGRAM SYSTEMS UPGRADE OF ENTIRE BUILDING IS PART OF BASE BID.
TELECOMMUNICATIONS CATEGORY CABLING & TERMINATIONS OF ENTIRE BUILDING IS PART OF BASE BID.

NO WORK; UNLESS OTHERWISE NOTED

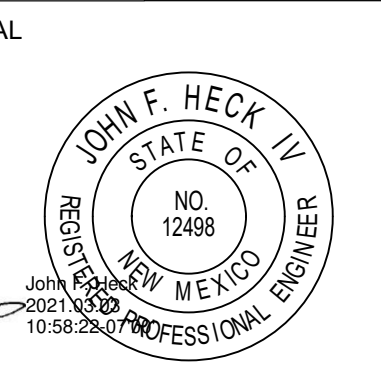
ABBREVIATIONS:
AWB ABOVE WHITE BOARD
CR CARD READER
IC INTERCOM
ICM INTERCOM MASTER
S SPEAKER

KEYPLAN



A4 TECHNOLOGY SYSTEMS FIRST FLOOR PLAN - AREA B - BID LOT #1
SCALE: 1/8" = 1'-0"
0' 4' 8' 16'

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Bridgers & Paxton Project No. 8022



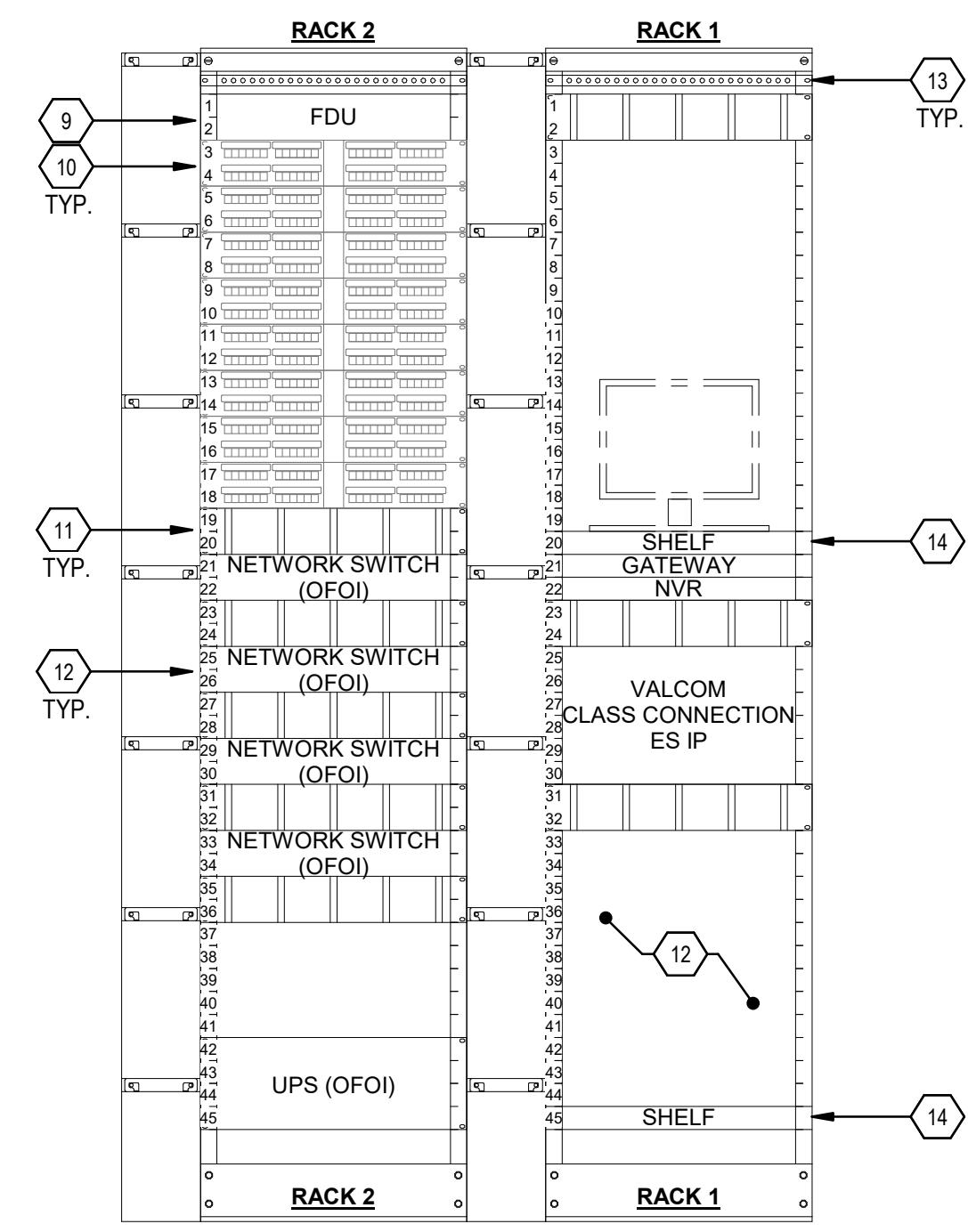
PROJECT

GENERAL SHEET NOTES

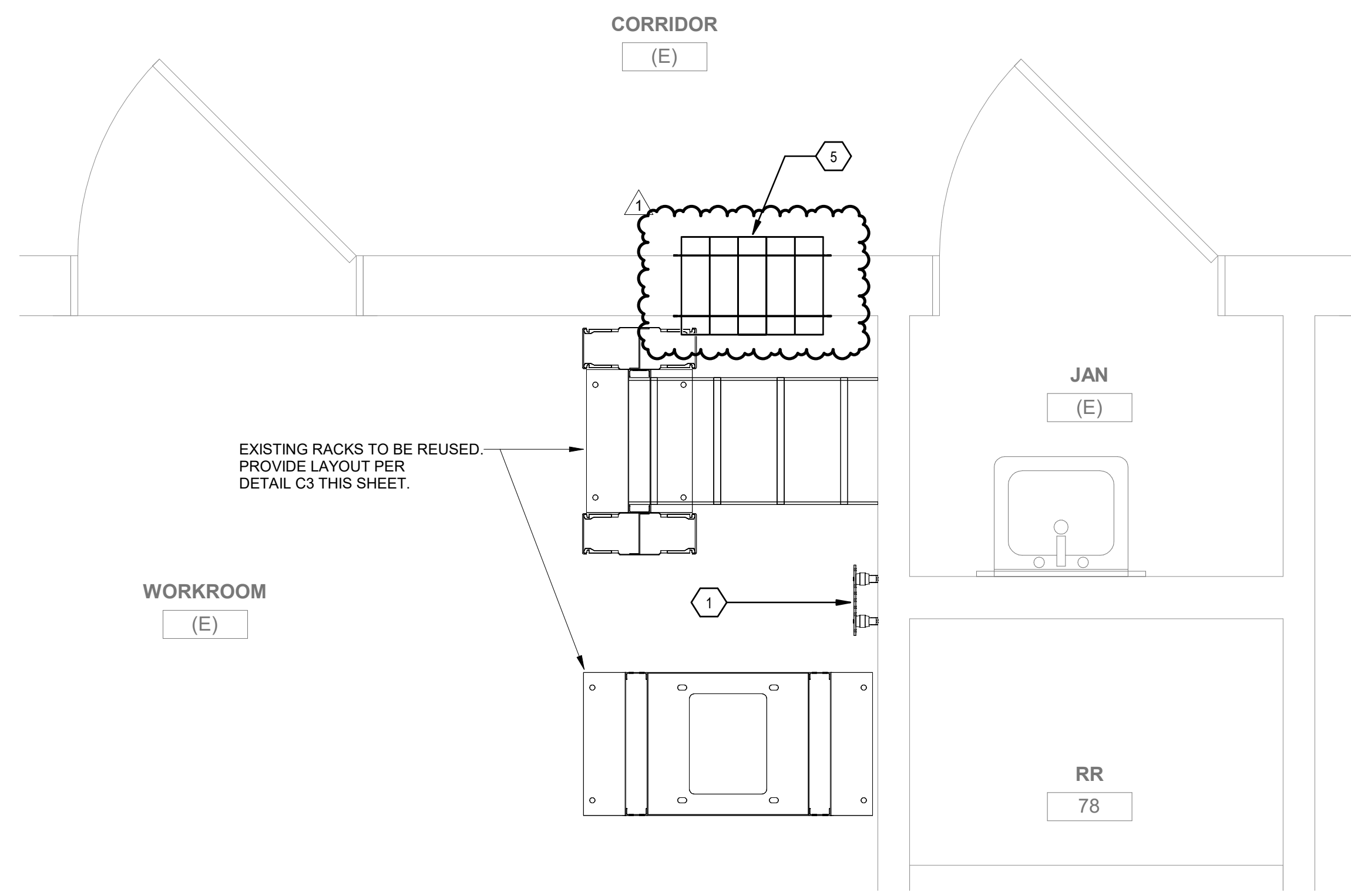
- A. CONTRACTOR TO INSURE ALL COMMUNICATIONS CABLING REMAIN UNDAMAGED. CABLING SHALL BE FREE OF CUTS, KINKS, STRETCHED, SOLVENTS AND PAINTS. DAMAGED CABLING SHALL BE REPLACED.
- B. PROPERLY FIRE STOP AND SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOF AS PER OWNER, CODE, AND AHJ.
- C. PRIOR TO INSTALLATION OF CABLE TRAY COORDINATE LOCATIONS WITH ALL OTHER TRADES.
- D. NOT ALL PARTS AND PIECES ARE SHOWN FOR A COMPLETE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE END-TO-END WARRANTED SOLUTION FOR THE HORIZONTAL CABLING.
- E. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.
- F. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS DIRECTION. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE ALARM (RED).
- G. OTHERWISE NOTED, FOR EXAMPLE, DEVICES SPECIFIED AT +18" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR POWER RECEPTACLES AND TELECOMMUNICATIONS OUTLETS. DEVICES SPECIFIED AT +48" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR LIGHT SWITCHES, ETC.
- H. ALL JUNCTION BOXES IN FURRED OUT WALLS TO BE 2-1/2" DEEP MINIMUM. ANY BOXES, CONDUITS, AND PATHWAYS THAT REQUIRE TO BE SURFACE MOUNTED DUE TO EXISTING CONDITIONS, SHALL BE COORDINATED WITH ARCHITECT AND ENGINEER.
- I. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS SHALL BE STEEL. THINWALL ELECTRICAL METALLIC TUBING (TYPE EMT) UNLESS OTHERWISE NOTED. UNDER NO CIRCUMSTANCES SHALL FLEXIBLE CONDUIT BE USED FOR PATHWAYS INDICATED ON THIS SHEET. ALL CONDUITS ARE TO BE AT A MINIMUM, 1-1/4" TRADE SIZE, UNLESS OTHERWISE NOTED. ALL CONDUITS FOR TELECOMMUNICATIONS OUTLETS ARE TO BE STUBBED TO NEAREST CABLE TRAY. CONTRACTOR IS TO ENSURE THAT NO CONDUIT EXCEEDS 40% FULL.
- J. CABLE TRAY SYSTEMS SHOWN ON THIS SHEET SHALL BE USED FOR VOICE AND DATA CABLING ONLY. ALL OTHER SYSTEMS INCLUDING, BUT NOT LIMITED TO, FIRE ALARM, SECURITY, HVAC CONTROL, ETC. SHALL BE SUPPORTED BY OTHER MEANS. HOOKS ATTACHED TO THE CABLE TRAY SUPPORTS WILL BE PERMITTED. LIKEWISE, ANY CONDUITS PROVIDED FOR VOICE AND DATA CABLING IS NOT TO BE USED BY ANY OTHER SYSTEM. HENCE, SEPARATE CONDUITS MAY NEED TO BE PROVIDED FOR THE SUPPORT OF THESE SYSTEMS.
- K. NUMBER ADJACENT TO TELECOMMUNICATIONS OUTLET SYMBOL REPRESENTS NUMBER OF CATEGORY 6A CABLES TO BE INSTALLED AND TERMINATED AT THAT LOCATION.
- L. PATHWAYS SHALL BE PROVIDED WITH NYLON BUSHINGS TO PROTECT CABLES, REGARDLESS OF WHETHER THEY TERMINATE IN A DEVICE OR JUNCTION BOX.
- M. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.
- N. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.

KEYNOTES

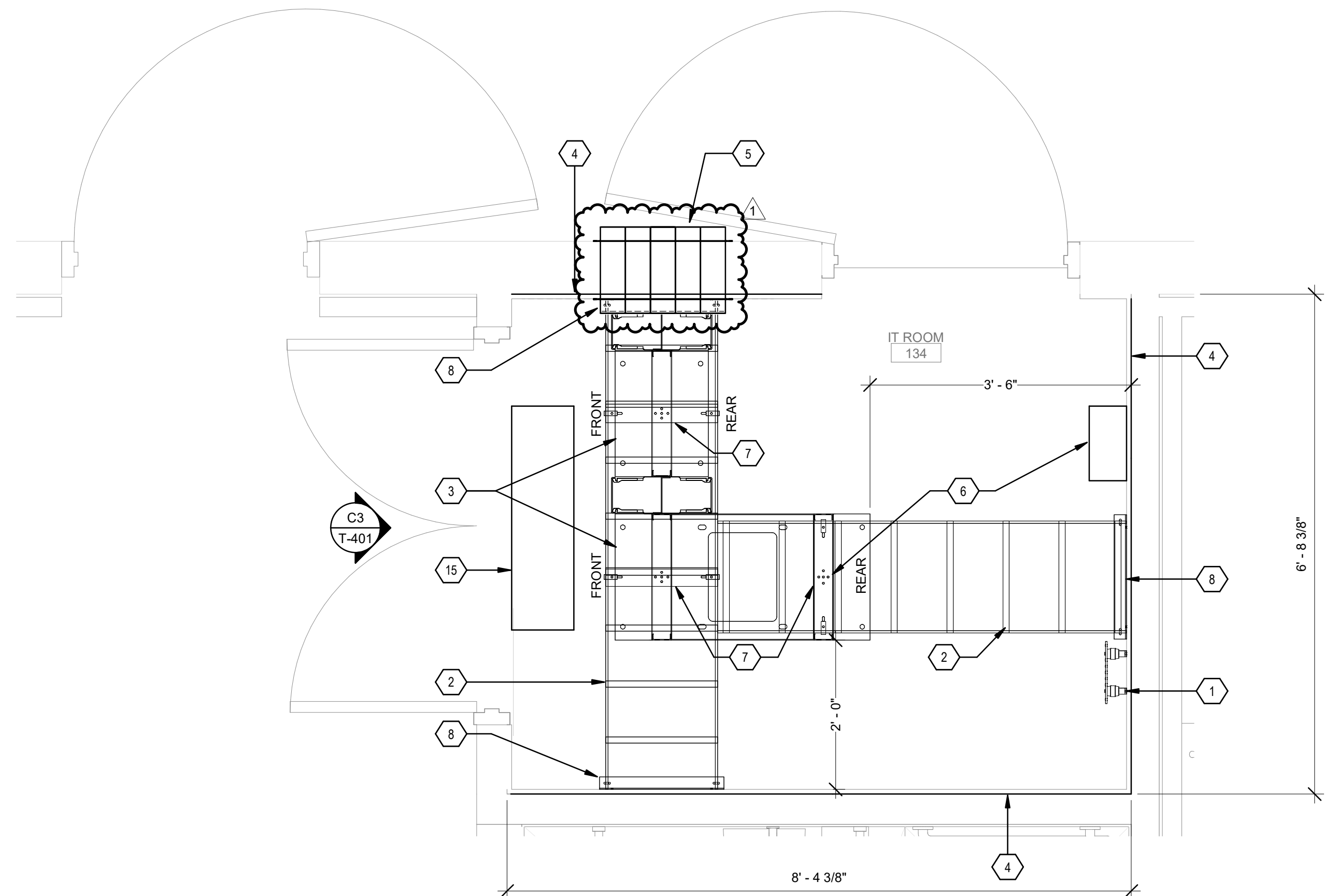
- 1. PROVIDE TELECOMMUNICATIONS GROUNDING BUSBAR. GROUND AND BOND ALL EQUIPMENT AND RACKS. REFER TO GROUNDING DETAILS ON SHEET T-501.
- 2. PROVIDE 8" WIDE LADDER RACK CABLE TRAY MOUNTED 6" ABOVE RACKS.
- 3. SHIFT EXISTING RACKS AND RE-ANCHOR TO NEW LOCATION. RACKS WILL BE MOVING APPROXIMATELY 15' PLAN EAST FROM EXISTING LOCATION. EXISTING CABLING TO REMAIN. PROTECT EQUIPMENT AND CABLING DURING DEMOLITION AND REMODEL. COORDINATE WORK WITH OWNER AND ARCHITECT TO KEEP NETWORK OPERATIONAL AS NEEDED.
- 4. 3/4" AC GRADE FIRE RESISTANT PLYWOOD WITH 2 COATS OF FIRE RESISTANT PAINT ON WALLS.
- 5. PROVIDE FIRE RATED PATHWAY ST1 EZ PATH 44+. PROVIDE (1) #2ZP544W, (3) #2Z44S2, (5) #2ZRCM44S. REFER TO OLD WORK INSTALLATION FOR ANY EXISTING CABLING IN EXISTING PATHWAYS.
- 6. CONTROL ENCLOSURE TO WALL FIELD.
- 7. PROVIDE 3" RUNWAY MOUNTING PLATE, CPI#10595-718 OR EQUAL. PROVIDE 6" ELEVATION KIT, CPI#10595-706 OR EQUAL.
- 8. PROVIDE WALL ANGLE SUPPORT KIT, CPI#1142-718 OR EQUAL.
- 9. EXISTING FIBER DISTRIBUTION UNIT.
- 10. PROVIDE A 48 PORT UNLOADED ANGLED PATCH PANEL FOR MODULAR JACK CONNECTIONS.
- 11. PROVIDE 2U HORIZONTAL CABLING MANAGERS, PANDUIT #WMPFIE, OR EQUAL.
- 12. ACTIVE NETWORK EQUIPMENT, OWNER PROVIDED OWNER INSTALLED. PROVIDE 2U EQUIPMENT SUPPORT BRACKET, CPI #12312-701.
- 13. 19" WIDE GROUND BUS BAR MOUNTED TO REAR OF RACK.
- 14. PROVIDE 4-POST FIXED SHELF, CPI#1851-719.
- 15. HVAC SPLIT SYSTEM ABOVE DOOR FRAME. REFER TO MECHANICAL DRAWINGS FOR REQUIREMENTS.



C3 TELE ELEV - ER/TR RACK ELEVATION
SCALE: NO SCALE



A1 TECHNOLOGY SYSTEMS ENLARGED FLOOR PLAN - WORK ROOM BASE BID
SCALE: 3/4" = 1'-0"



A3 TECHNOLOGY SYSTEMS ENLARGED FLOOR PLAN - IT ROOM 134 BID LOT #1
SCALE: 3/4" = 1'-0"

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS

1	3/3/2021	ADDENDUM 3
2		
3		
4		
5		

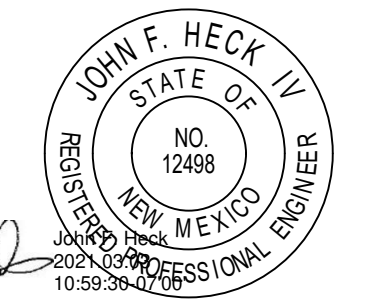
DRAWN BY	CSK
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

ENLARGED TECHNOLOGY PLANS

SHEET NO
T-401

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 Bridgers & Paxton Project No: 8022

SEAL



PROJECT

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

**CONSTRUCTION
DOCUMENTS**

REVISIONS

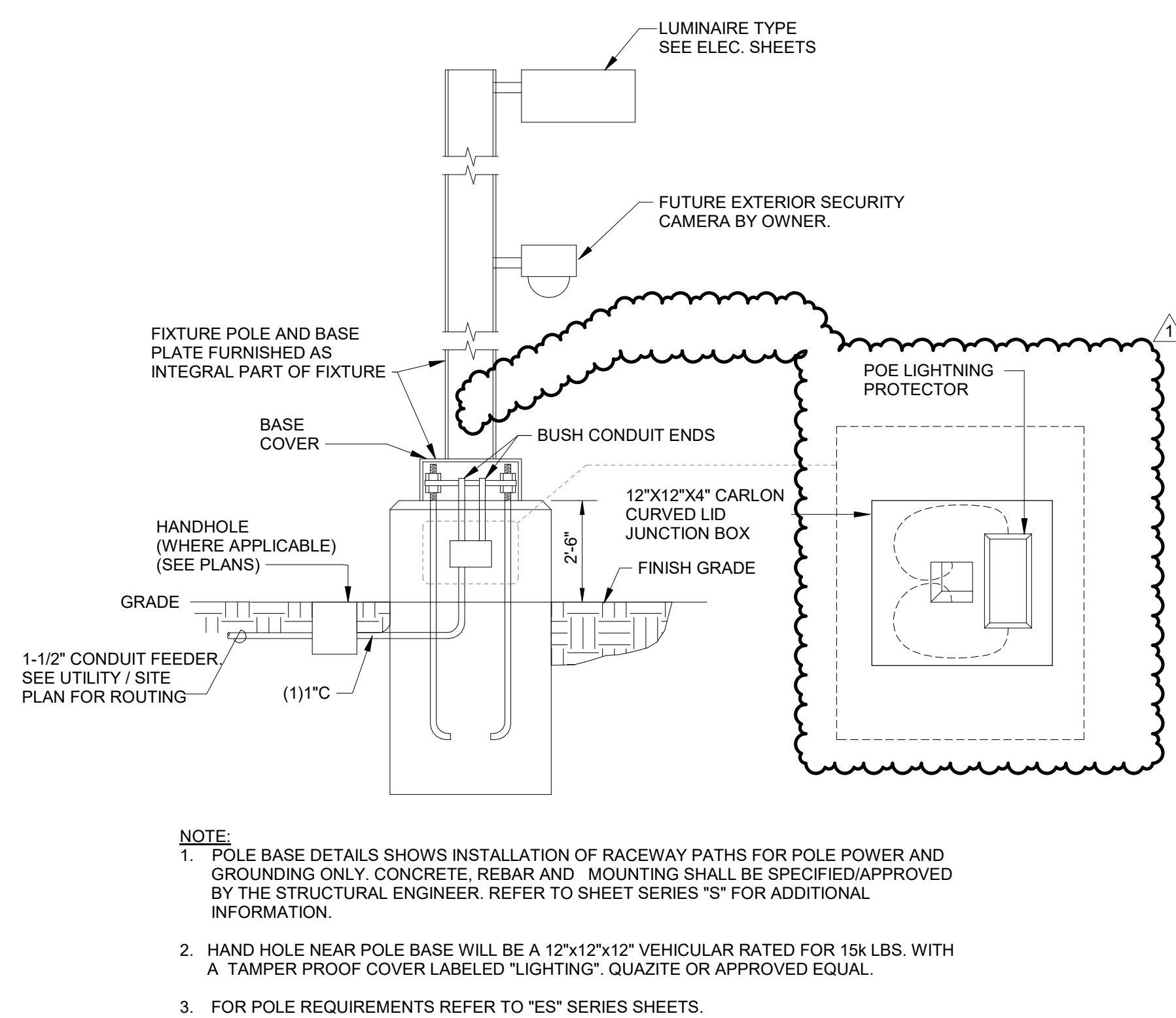
NO.	DATE	DESCRIPTION
1	3/3/2021	ADDENDUM 3
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5		

DRAWN BY	CSK
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO	18-0032
PSFA PRE-K PROJECT NO:	K-18-011
PSFA SYSTEMS PROJECT NO:	S-20-008
DRAWING NAME	

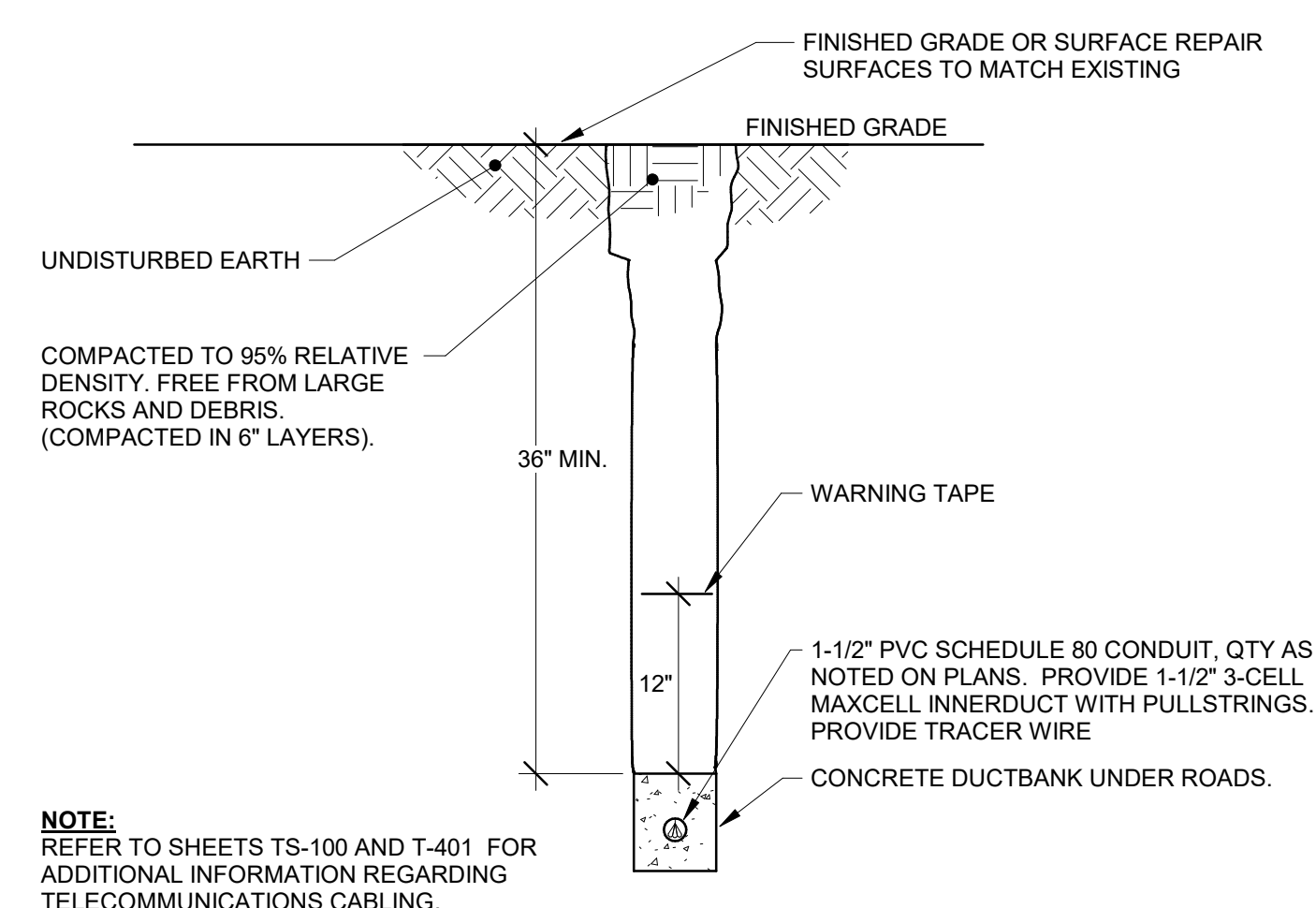
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DETAILS**

SHEET NO

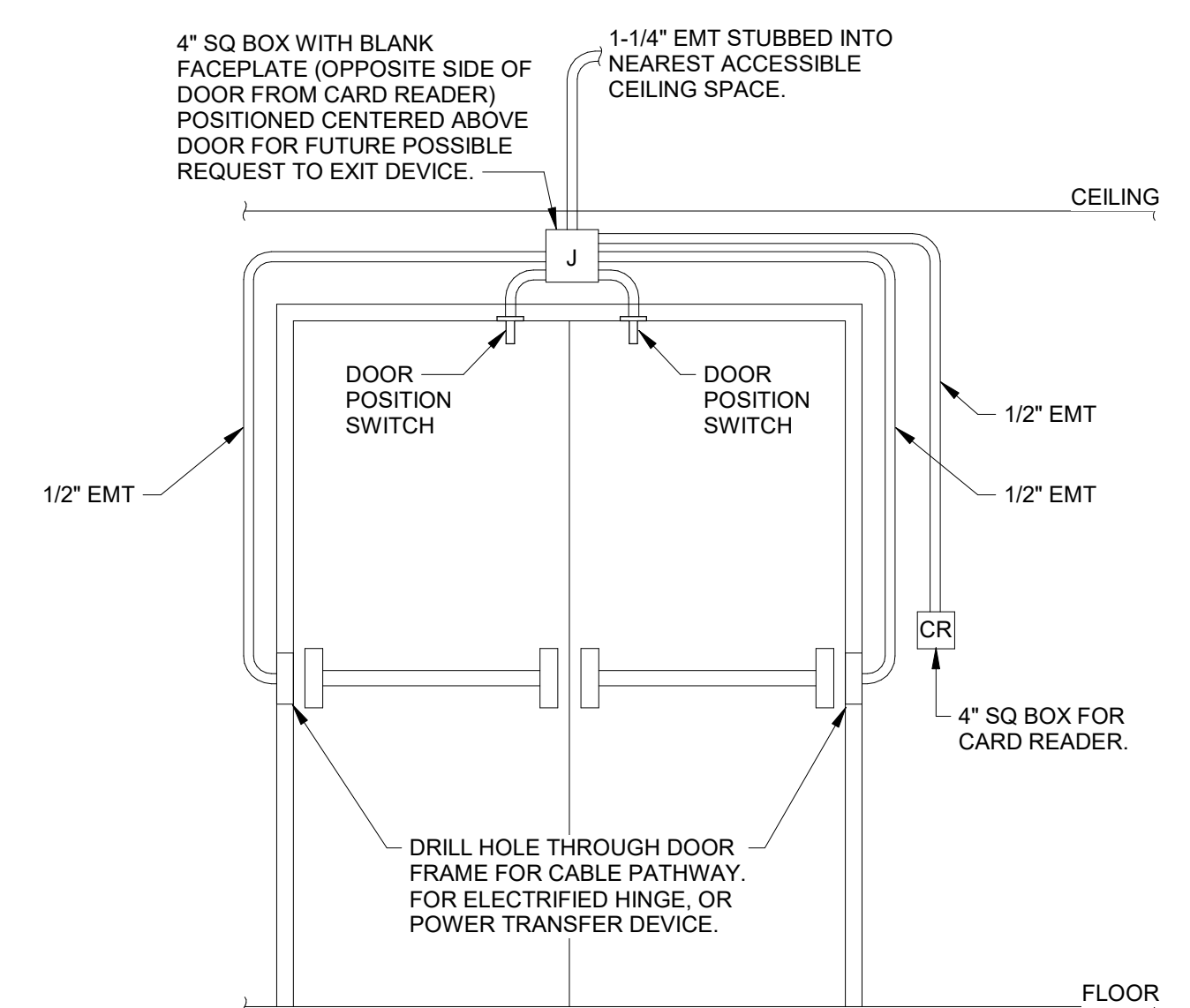
T-502



A2 EXTERIOR CAMERA POLE BASE DETAIL - BID LOT #3
SCALE: NO SCALE

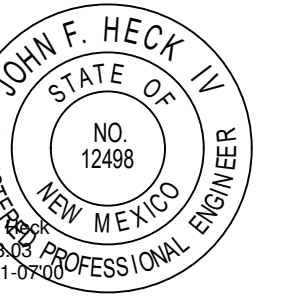


A4 TELECOM CONDUIT DUCTBANK SECTION
SCALE: NO SCALE



**A5 DOOR ROUGH-IN:
ACCESS CONTROLLED DOUBLE DOORS**
SCALE: NO SCALE

SEAL



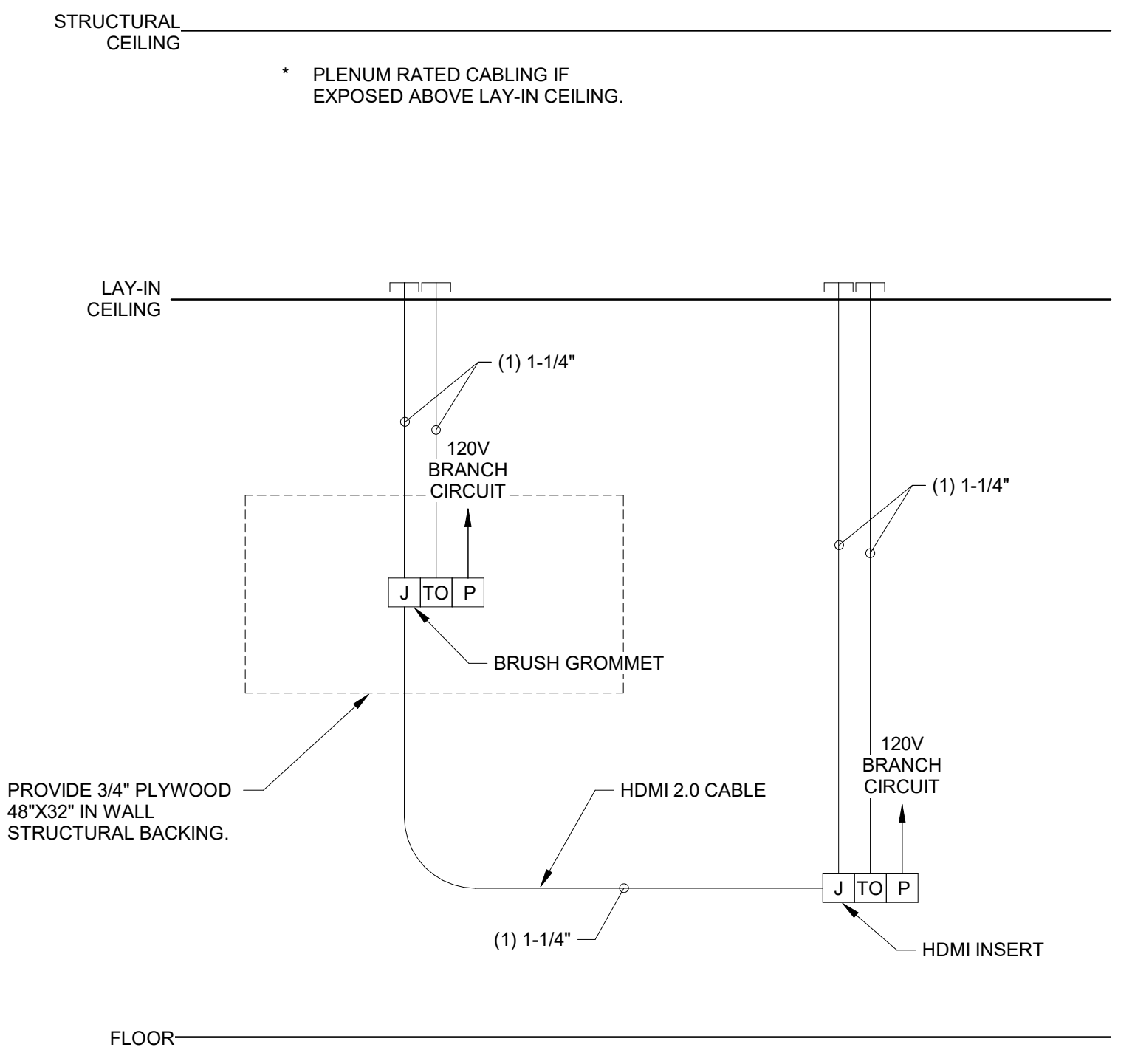
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GENERAL SHEET NOTES

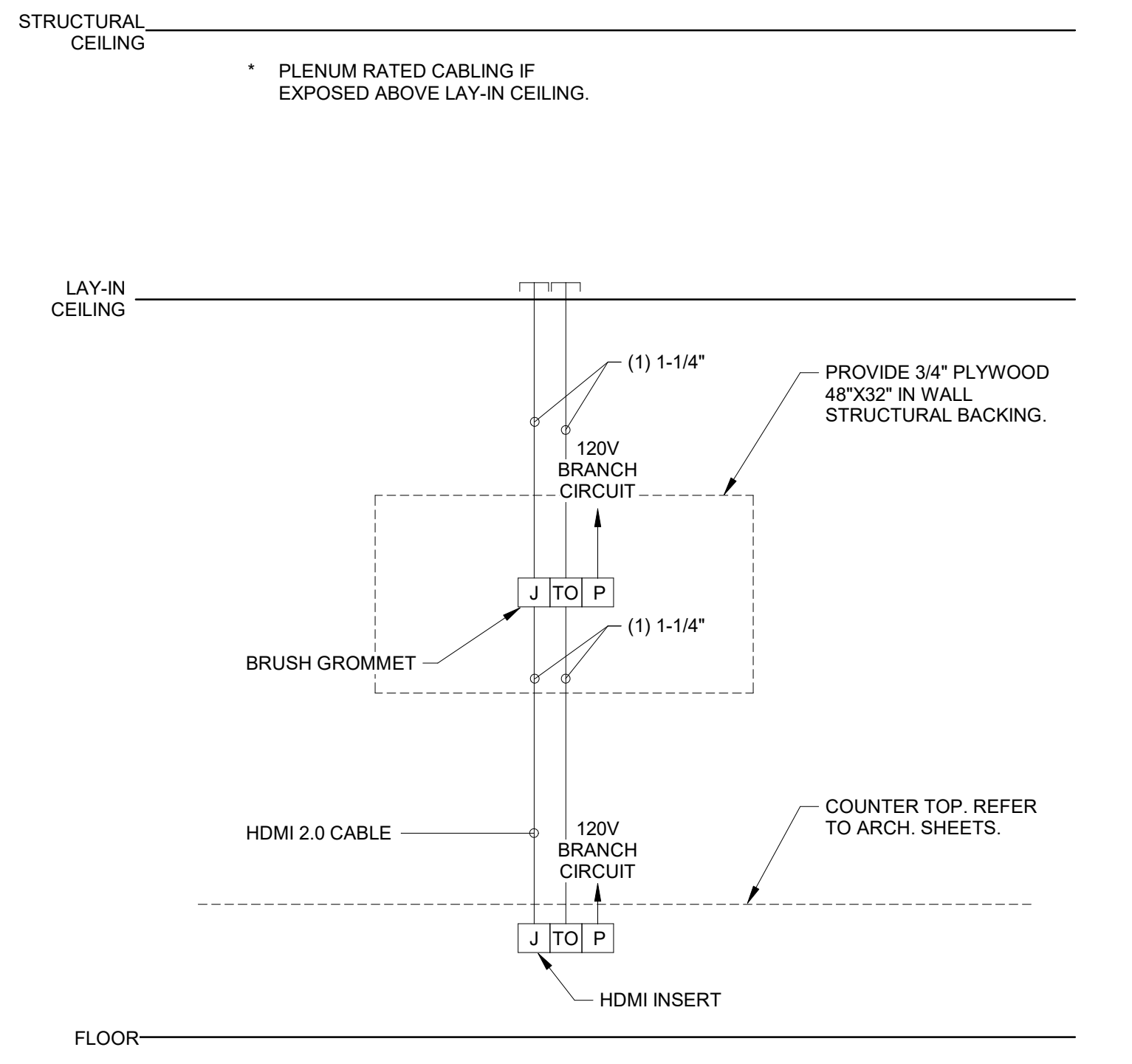
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- B. PROPERLY FIRE STOP AND SEAL ALL PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, AND ROOF AS PER OWNER, CODE, AND AHJ.
- C. PRIOR TO INSTALLATION OF CABLE TRAY COORDINATE LOCATIONS WITH ALL OTHER TRADES.
- D. NOT ALL PARTS AND PIECES ARE SHOWN FOR A COMPLETE SYSTEM. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE END-TO-END WARRANTED SOLUTION FOR THE HORIZONTAL CABLING.
- E. ALL COMMUNICATIONS CABLING TO MEET OR EXCEED CATEGORY 6A STANDARDS. PROVIDE SMALL DIAMETER CATEGORY 6A CABLING.
- F. ALL CABLING TO BE COLOR CODED TO SCHOOL DISTRICTS' PRACTICES. ALL LOW-VOLTAGE APPLIES TO INCLUDE BUT NOT LIMITED TO DATA & PHONE (BLUE), PAGING (WHITE), SURVEILLANCE (PURPLE), ACCESS CONTROL (GREEN), FIRE ALARM (RED).
- G. OTHERWISE NOTED, FOR EXAMPLE, DEVICES SPECIFIED AT +18" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR POWER RECEPTACLES AND TELECOMMUNICATIONS OUTLETS. DEVICES SPECIFIED AT +48" A.F.F. SHALL MATCH THE STANDARD MOUNTING HEIGHT FOR LIGHT SWITCHES, ETC.
- H. ALL JUNCTION BOXES IN FURRED OUT WALLS TO BE 2-1/2" DEEP MINIMUM. ANY BOXES, CONDUITS, AND PATHWAYS THAT REQUIRE TO BE SURFACE MOUNTED DUE TO EXISTING CONDITIONS, SHALL BE COORDINATED WITH ARCHITECT AND ENGINEER.
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- N. GROUP DATA OUTLETS TOGETHER WITH POWER OUTLETS (WHERE APPLICABLE). REFER TO "EP" SERIES SHEETS FOR POWER OUTLET LOCATIONS.

A/V PATHWAY DIAGRAM SYMBOLS LEGEND

- P** POWER JUNCTION BOX, OUTLET BOX (REFER TO EP SHEETS)
- J** LOW VOLTAGE JUNCTION/PULL BOX (REFER TO T SHEETS)
- TO** TELECOM OUTLET VOICE/DATA
- ┆** CONDUIT STUB



A1 PATHWAY DIAGRAM: CONFERENCE 133 - BID LOT #1
SCALE: NO SCALE



A3 PATHWAY DIAGRAM: COMPUTER LAB 114 - BID LOT #1
SCALE: NO SCALE

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Bridgers & Paxton Project No. 8022

**Brown Early Childhood Center
Old Wing Renovation**
520 W 5th St, Portales, NM 88130

CONSTRUCTION DOCUMENTS

REVISIONS	
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DRAWN BY	CSK
REVIEWED BY	JMM
DATE	12/10/2019
PROJECT NO.	18-0032
PSFA PRE-K PROJECT NO.	K-18-011
PSFA SYSTEMS PROJECT NO.	S-20-008
DRAWING NAME	TECHNOLOGY DIAGRAMS

SHEET NO
T-601