

THE SCHOOL DISTRICT OF PHILADELPHIA
Office of Capital Programs
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Addendum No. 002

Subject: Benjamin Franklin School Classroom Modernization Renovation
SDP Contract Nos. 2022-005-G, 2022-005-E

Location: Benjamin Franklin School
5741 Rising Sun Avenue,
Philadelphia, Pennsylvania 19120

This Addendum, dated 17 of February, 2022, shall modify and become part of the Contract Documents for the work of this project. Any items not mentioned herein, or affected by, shall be performed strictly in accordance with the original documents.

SPECIFICATIONS:

SECTION 03 54 16

1. REPLACE Section 03 54 16 Hydraulic Cement Underlayment with the attached section. Changes made shown underlined and in red font.

SECTION 08 71 00

1. REPLACE Section 08 71 00 Door Hardware with attached section. Changes made bubbled in red.

SECTION 09 65 19

1. REPLACE Section 09 65 19 Resilient Tile Flooring with the attached section. Changes made shown underlined and in red font.

SECTION 27 13 00

1. REPLACE Section 27 13 00 Communication Systems with the attached section.

ARCHITECTURAL DRAWINGS:

DRAWING A-110

1. MODIFY markerboard / tackboard layouts as indicated on drawings.

ELECTRICAL DRAWINGS:

DRAWING E-100

1. MODIFY Sheet notes as indicated on drawings
2. MODIFY Detail 1 as indicated on drawings
3. MODIFY Detail 2 as indicated on drawings

DRAWING E-110

1. MODIFY General notes as indicated on drawings

DRAWING E-120

1. MODIFY General notes as indicated on drawings
2. MODIFY Sheet notes as indicated on drawings

DRAWING E-130

1. MODIFY General notes as indicated on drawings
2. MODIFY Sheet notes as indicated on drawings

DRAWING E-200

1. MODIFY Responsibility matrix as indicated on drawings

BIDDER'S QUESTIONS AND RESPONSES ARE AS FOLLOWS:

Question 1: Spec section 06 41 16 Plastic laminate cabinets calls for the AWI QCP program. The other sections for interior finished wood, plam counters and solid surfacing do not. Can the AWI QCP requirement for section 06 41 16 be waived for this project?

Answer 1: The AWI QCP certifications are not required for this project. However, all millwork (plastic laminate work, interior finished woodwork, and solid surface work) will meet the AWI Standard Grade "custom", as per the project specifications.

Question 2: Please confirm that Catharine Elementary School is the only Classroom Modernization project that requires Room Signage. The bid documents for all the other projects include a specification for signage however, Catharine ES is the only project that shows signage on the drawings.

Answer 2: There is no signage in the scope of the Benjamin Franklin Classroom Modernization project.

Question 3: NO Summary of work was included in the Bid Package.

Answer 3: The summary of work was included in Division 1 of the specifications, section 01 10 00. It is found on page 271 of the Franklin ES Class Mod General Spec PDF.

Question 4: Elevation 2 on drawing A400 showing the marker boards / tack boards does not match the notation for the same on the floor plan.

Answer 4: Elevation 2 on A400 is the correct configuration of the markerboards / tackboards. See updated Drawing A-100 attached.

Question 5: Keynote A06 indicates existing sink cabinets to remain yet elevation 4K indicates new Plam cabinets.

Answer 5: Elevation 4K only refers to the sink elevation in the Kindergarten Classrooms (Rooms 110, 111, 112) These classrooms utilize Keynote A06K which indicates a reconfiguration of the sink area, including new Plam cabinetry. Keynote A06 is only utilized in 1st, 2nd, and 3rd Grade Classrooms (Rooms 113, 114, 115, 117, 214, 216, 219, and 221) where the sink cabinets are to remain unless noted otherwise on the plans – refer to Elevations 4T and 5T for more information.

Question 6: Drawing E-120 keynote #3 calls for all receptacles to be tamper resistant AFCI. Spec section 262726 neither specifies duplex tamper resistant AFCI receptacles nor does it specify duplex tamper resistant combination GFCl/AFCI receptacles. Please clarify design intent.

Answer 6: Provide tamper resistant receptacles – AFCI not required.

Question 7: Drawings E-110, E-120, and E-130 mention a general note regarding 500/700 series wiremold for new devices. Please confirm surface mounted EMT conduit with one hole straps can be provided instead as this has been done on previous SDP project numerous times and offers better protection from damage.

Answer 7: Provide surface mounted EMT conduit in lieu of wiremold for new devices. General note updated on plans accordingly.

Question 8: Drawings E-110 general note #3 and drawings E-120 and E-130 general note #4 mention general note regarding painting of surface raceways. Painting is in the GC contract per the summary of work spec section 011000. Please confirm this painting of surface raceways note applies to the GC contract.

Answer 8: GC to paint the raceway.

Question 9: Drawing E-130 keynote #3 specifies a catalog for a SAM series clock that receives the time signal via wires. In the same sentence the SAL series clock is mentioned which receives the time signal wirelessly which conflicts. The SAL series can either be powered by a battery, 24V circuit or 120V circuit. Which is the

correct clock series SAM or SAL? Do the existing clocks on site receive the time signal from wires or wirelessly? How are the existing clocks on site powered (battery, 24v circuit, 120v circuit) ?

Answer 9: Provide SAM series clock – catalog number as noted on plan.

Question 10: Drawing E-130 keynote #1 mentions testing existing cables and removing/replacing the cables if they do not pass a test. The scope for removing/replacing the cables is **not** biddable. We cannot know what cables will pass and what cables will **not** pass prior to the bid, so it would be a complete guess as to how many won't pass. Please pick a scenario below to resolve this issue:

- Scenario #1: Provide an allowance to the EC bid and EC will provide proposal (or ticket work) during construction for removing/replacing cables
- Scenario #2: Eliminate remove/replacing cables that do not pass scope. Any cables that do not pass SDP can make a decision during construction on whether to replace them or not under additional cost to the contract.

Answer 10: EC to replace all existing cables within scope of work area with new CAT6 cables.

Question 11: Drawing E-130 keynote #4 calls for providing a new rack “as necessary”. We cannot bid “as necessary” and SDP IT department should have coordinated this with the AE consultant during design phase. Please pick a scenario below to resolve this issue:

- Scenario #1: Provide an allowance to the EC bid and make a decision to provide a new rack during construction
- Scenario #2: Confirm new racks are **not** required and only patch panels need to be added in existing racks as required.
- Scenario #3: Provide details on new rack(s) and rack elevations for equipment required inside rack (e.g. wall mount or floor mount, U height, open rack or enclosed cabinet etc.) and how racks are receiving 120V power via new receptacles.

Answer 11: New rack not required, provide patch panels needed in existing racks.

Question 12: Drawing E-200 specifies Cat6A cable for new data outlets. Spec section 271300-3.2A mentions Cat6A, but spec section 271300-3.2C(2)(a) lists parts numbers for Cat6 rated cable which conflicts. Please clarify design intent.

Answer 12: Provide CAT6 cables

ATTACHMENTS:

SPECIFICATIONS

Section 03 54 16	Hydraulic Cement Underlayment
Section 08 71 00	Door Hardware
Section 09 65 19	Resilient Tile Flooring
Section 27 13 00	Communications Systems

DRAWINGS

Drawing A-100	Floor Plans
Drawing E-100	Electrical Demolition Plans
Drawing E-110	Lighting Plans
Drawing E-120	Power Plans
Drawing E-130	Special Systems Plans
Drawing E-200	Electrical Details

End of Addendum No. 2

SECTION 03 54 16 - HYDRAULIC CEMENT UNDERLAYMENT

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. Polymer-modified, self-leveling, hydraulic cement underlayment for application below interior floor coverings.

1.3 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Hydraulic cement underlayment.
 - 2. Primer.

1.4 INFORMATIONAL SUBMITTALS

Qualification Data: For Installer. Installer who is approved by manufacturer for application of underlayment products required for this Project.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature, ventilation, ambient temperature and humidity, and other conditions affecting underlayment performance.

PART 2 - PRODUCTS

2.1 HYDRAULIC CEMENT UNDERLAYMENTS

- A. Hydraulic Cement Underlayment: Polymer-modified, self-leveling, hydraulic cement product that can be applied in minimum uniform thickness of 1/4 inch (6 mm) and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C150/C150M, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C219.

2. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C109/C109M.
3. Basis-of-Design Product: Subject to compliance with requirements, provide:
 - a. Ardex K15 System as manufactured by ARDEX Americas of Aliquippa, PA
 - b. Or comparable product by one of the following:
 - 1) ProSpec, H.B. Fuller Construction Products
 - 2) Dayton Superior Corporation
- B. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm); or coarse sand as recommended by underlayment manufacturer.
 1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.
- C. Water: Potable and at a temperature of not more than 70 deg F (21 deg C).
- D. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

2.2 SELF-DRYING, CEMENT-BASED FINISH UNDERLAYMENT

- A. Cement-Based Finish Underlayment: Blend of Portland cement and other hydraulic cements to provide a smooth finish and a true featheredge.
 1. For use at doorway or transitions to existing flooring.
- B. Basis of Design Product: Subject to compliance with requirements, provide:
 1. Ardex Feather Finish, as manufactured by ARDEX Americas of Aliquippa, PA
 2. Or comparable product
- C. Primer:
 1. For gypsum surfaces: basis of design is Ardex P 51 Primer
 2. For other non-porous substrates, such as epoxy coating systems and metal: basis of design is Ardex P 82 Ultra Prime
- D. Water:
 1. Should be clean, potable, and not warmer than 70-degrees Fahrenheit

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for conditions affecting performance of the Work.
- B. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare and clean substrate according to manufacturer's written instructions.
 - 1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
 - 2. Fill substrate voids to prevent underlayment from leaking.
- B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
- C. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond; prepare surfaces according to manufacturer's written instructions. Sand over entire surface prior to primer.

3.3 INSTALLATION

- A. Mix and install underlayment components according to manufacturer's written instructions.
 - 1. Close areas to traffic during underlayment installation and for time period after installation recommended in writing by manufacturer.
 - 2. Coordinate installation of components to provide optimum adhesion to substrate and between coats.
 - 3. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Install underlayment to produce uniform, level surface.
 - 1. Install a final layer without aggregate to product surface.
 - 2. Feather edges to match adjacent floor elevations.
- D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during installation and curing processes.
- E. Do not install floor coverings over underlayment until after time period recommended in writing by underlayment manufacturer.
- F. Remove and replace underlayment areas that evidence lack of bond with substrate, including areas that emit a "hollow" sound when tapped.
- G. For Self-Drying, Cement-Based Finish Underlayment Only: Where used as a transition to door threshold or existing floor finish to remain, slope product from pour stop or high point to threshold or existing finish at no greater than 1:20. Coordinate transition depth with slope and surrounding wall layout.

3.4 INSTALLATION TOLERANCES

- A. Finish and measure surface, so gap at any point between gypsum cement underlayment surface and an unlevelled, freestanding, 10-foot- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch (6 mm).

3.5 PROTECTION

- A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 03 54 16

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section includes:
 - 1. Mechanical and electrified door hardware for:
 - a. Swinging doors.
 - 2. Electronic access control system components, including:
 - a. Electronic access control devices.
 - 3. Field verification, preparation and modification of existing doors and frames to receive new door hardware
 - 4. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:
 - 1. Windows
 - 2. Cabinets (casework), including locks in cabinets
 - 3. Signage
 - 4. Toilet accessories
 - 5. Overhead doors
- C. Related Sections:
 - 1. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
 - 2. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
 - 3. Division 26 sections for connections to electrical power system and for low-voltage wiring.
 - 4. Division 28 sections for coordination with other components of electronic access control system.

1.03 REFERENCES

- A. UL - Underwriters Laboratories
 - 1. UL 10B - Fire Test of Door Assemblies
 - 2. UL 10C - Positive Pressure Test of Fire Door Assemblies
 - 3. UL 1784 - Air Leakage Tests of Door Assemblies

4. UL 305 - Panic Hardware
- B. DHI - Door and Hardware Institute
 1. Sequence and Format for the Hardware Schedule
 2. Recommended Locations for Builders Hardware
 3. Key Systems and Nomenclature
- C. ANSI - American National Standards Institute
 1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.04 SUBMITTALS

- A. General:
 1. Submit in accordance with Conditions of Contract and Division 01 requirements.
 2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
 3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
- B. Action Submittals:
 1. Product Data: Technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
 2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
 3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated, and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
 4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index; include door number, heading number, and Architects hardware set number.
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Quantity, type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.
 - e. Fastenings and other pertinent information.

- f. Location of each hardware set cross-referenced to indications on Drawings.
 - g. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - h. Mounting locations for hardware.
 - i. Door and frame sizes and materials.
 - j. Name and phone number for local manufacturer's representative for each product.
 - k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components).
Operational description should include operational descriptions for: egress, ingress (access), and fire/smoke alarm connections.
 - 1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.
5. Key Schedule:
- a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.
- C. Informational Submittals:
- 1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
 - 2. Product data for electrified door hardware:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - 3. Warranty: Special warranty specified in this Section.
- D. Closeout Submittals:
- 1. Operations and Maintenance Data: Provide in accordance with supplementary conditions-sc-30 operation and maintenance data and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Factory order acknowledgement numbers (for warranty and service)
 - d. Name, address, and phone number of local representative for each manufacturer.

- e. Parts list for each product.
- f. Final approved hardware schedule, edited to reflect conditions as-installed.
- g. Final keying schedule
- h. Copies of floor plans with keying nomenclature
- i. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
- j. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.05 QUALITY ASSURANCE

- A. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 - 1. Warehousing Facilities: In Project's vicinity.
 - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 - 4. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.
- B. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - 1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC).
 - 2. Can provide installation and technical data to Architect and other related subcontractors.
 - 3. Can inspect and verify components are in working order upon completion of installation.
 - 4. Capable of producing wiring diagrams.
 - 5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.
- C. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
- D. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- E. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- F. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.

G. Keying Conference

1. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - b. Preliminary key system schematic diagram.
 - c. Requirements for key control system.
 - d. Requirements for access control.
 - e. Address for delivery of keys.

H. Pre-installation Conference

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.
3. Inspect and discuss electrical roughing-in for electrified door hardware.
4. Review sequence of operation for each type of electrified door hardware.
5. Review required testing, inspecting, and certifying procedures.

I. Coordination Conferences:

1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
 1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
 1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 2. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Protection and Damage:
 1. Promptly replace products damaged during shipping.
 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- E. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.07 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.08 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Beginning from date of Substantial Completion, for durations indicated.
 - a. Closers:
 - 1) Mechanical: 30 years.
 - 2) Electrified: 2 years.
 - b. Exit Devices:
 - 1) Mechanical: 3 years.
 - 2) Electrified: 1 year.
 - c. Locksets:
 - 1) Mechanical: 10 years
 - 2) Electrified: 1 year.
 - d. Continuous Hinges: Lifetime warranty.
 - e. Key Blanks: Lifetime
 - 2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.09 MAINTENANCE

- A. Maintenance Tools: Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 - 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

- A. Fasteners
 - 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
 - 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 - 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
 - 4. Install hardware with fasteners provided by hardware manufacturer.
- B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.
 - 1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
 - 2. Use materials which match materials of adjacent modified areas.
 - 3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.
- C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
 - 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: McKinney TA/T4A series.
2. Acceptable Manufacturers and Products: Hager BB series, Ives 5BB series, Stanley FBB Series.

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
3. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
4. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
6. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
8. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
10. Provide mortar guard for each electrified hinge specified.
11. Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Provide one additional bearing hinge for each 30 inches (762 mm) of additional door height.

2.04 CONTINUOUS HINGES

A. Aluminum Geared

1. Manufacturers:
 - a. Scheduled Manufacturer: McKinney.
 - b. Acceptable Manufacturers: Select, Stanley, Ives.
2. Requirements:
 - a. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
 - b. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
 - c. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.

- d. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
- e. On fire-rated doors, provide aluminum geared continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
- f. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware.
- g. Install hinges with fasteners supplied by manufacturer.
- h. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.
- i. Provide thru bolts on door for full surface or half surface continuous mountings.

2.05 FLUSH BOLTS

- A. Manufacturers:
 1. Scheduled Manufacturer: Trimco.
 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Requirements:
 1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.06 SURFACE BOLTS

- A. Manufacturers:
 1. Scheduled Manufacturer: Trimco.
 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Requirements:
 1. Surface bolts to have 1" throw for maximum security with concealed mounting that prevents vandalism. Units to be constructed of heavy duty steel and cUL listed up to three (3) hours when used on the inactive door of a pair up to 8' in height.

2.07 COORDINATORS

- A. Manufacturers:
 1. Scheduled Manufacturer: Trimco.
 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Requirements:
 1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
 2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.08 CYLINDRICAL LOCKS – GRADE 1

- A. Manufacturers and Products:
 - 1. Scheduled Manufacturer and Product: Corbin-Ruswin CL3300 series.
 - 2. Acceptable Manufacturers and Products: Sargent 11-Line, Schlage ND series.

- B. Requirements:
 - 1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3 hour fire doors.
 - 2. Cylinders: Refer to “KEYING” article, herein.
 - 3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw. Provide proper latch throw for UL listing at pairs.
 - 4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
 - 5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
 - 6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
 - 7. Provide electrified options as scheduled in the hardware sets.
 - 8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
 - a. Lever Design: Corbin-Ruswin PZD

2.09 EXIT DEVICES

- A. Manufacturers and Products:
 - 1. Scheduled Manufacturer and Product: Corbin-Ruswin ED5200S series.
 - 2. Acceptable Manufacturers and Products: Detex Advantex series, Precision APEX 2000 series, Sargent 80 series, Von Duprin 98 series.

- B. Requirements:
 - 1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
 - 2. Cylinders: Refer to “KEYING” article, herein.
 - 3. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
 - 4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
 - 5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
 - 6. Provide flush end caps for exit devices.
 - 7. Provide exit devices with manufacturer’s approved strikes.
 - 8. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
 - 9. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
 - 10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
 - 11. Provide dogging indicators (CDSI/HDSI) for visible indication of dogging status.
 - 12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
 - 13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
 - 14. Provide electrified options as scheduled.

15. Top latch mounting: double or single tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.10 KEYING

- A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- B. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- C. Provide cylinders/cores keyed into Owner's existing Schlage or Corbin Pyramid keying systems managed by Owner's locksmith, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
 1. Firm Name: School District of Philadelphia
 2. Contact Person: Rick Zeoli
- D. Requirements:
 1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - a. Master Keying system as directed by the Owner.
 2. Forward biting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
 3. Provide keys with the following features:
 - a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - b. Patent Protection: Keys and blanks protected by one or more utility patent(s) .
 4. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Do not provide blind code marks with actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Owner.
 - c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - d. Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
 5. Quantity: Furnish in the following quantities.
 - a. Change (Day) Keys: 3 per cylinder/core.
 - b. Permanent Control Keys: 3.
 - c. Master Keys: 6.

2.11 DOOR CLOSERS

- A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN 4010/4110/4020 series.
 2. Acceptable Manufacturers and Products: Corbin-Russwin DC8000 series, Sargent 281 series.
- B. Requirements:
1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. Certify surface mounted mechanical closers to meet fifteen million (15,000,000) full load cycles. ISO 9000 certify closers. Stamp units with date of manufacture code.
 2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
 3. Cylinder Body: 1-1/2 inch (38 mm) diameter with 11/16 inch (17 mm) diameter double heat-treated pinion journal.
 4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
 5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
 6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
 7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers. When closers are parallel arm mounted, provide closers which mount within 6-inch (152 mm) top rail without use of mounting plate so that closer is not visible through vision panel from pull side.
 8. Pressure Relief Valve (PRV) Technology: Not permitted.
 9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI/BHMA Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
 10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.12 DOOR TRIM

- A. Manufacturers:
1. Scheduled Manufacturer: Trimco.
 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Requirements:
1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
 2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
 3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
 4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
 5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
 6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
 7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
 8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.

2.13 PROTECTION PLATES

- A. Manufacturers:
 - 1. Scheduled Manufacturer: Trimco.
 - 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Requirements:
 - 1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
 - 2. Sizes of plates:
 - a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.14 WRAP-AROUND RETROFIT MOUNTING PLATE

- A. Manufacturers:
 - 1. Scheduled Manufacturer: Don-Jo.
 - 2. Acceptable Manufacturers: Trimco.
- B. Requirements:
 - 1. Provide wrap-around retrofit mounting plates in minimum 22 gauge (.032) stainless steel. Furnish with sheet metal or wood screws, finished to match plates.
 - 2. Sizes of plates:
 - a. 12-2-CW 5 1/8" wide x 12" high x required thickness

2.15 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

- A. Manufacturers:
 - 1. Scheduled Manufacturers: Rixson.
 - 2. Acceptable Manufacturers: Glynn Johnson, Sargent.
- B. Requirements:
 - 1. Provide heavy duty concealed mounted overhead stop or holder as specified for exterior and interior vestibule single acting doors.
 - 2. Provide heavy duty concealed mounted overhead stop or holder as specified for double acting doors.
 - 3. Provide heavy or medium duty and concealed or surface mounted overhead stop or holder for interior doors as specified. Provide medium duty surface mounted overhead stop for interior doors and at any door that swings more than 140 degrees before striking wall, open against equipment, casework, sidelights, and where conditions do not allow wall stop or floor stop presents tripping hazard.
 - 4. Where overhead holders are specified provide friction type at doors without closer and positive type at doors with closer.

2.16 DOOR STOPS AND HOLDERS

- A. Manufacturers:
 - 1. Scheduled Manufacturer: Trimco.
 - 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Provide door stops at each door leaf:
 - 1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
 - 2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
 - 3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.17 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

- A. Manufacturers:
 - 1. Scheduled Manufacturer: Pemko.
 - 2. Acceptable Manufacturers: National Guard, Reese, Zero.
- B. Requirements:
 - 1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
 - 2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - 3. Size of thresholds:
 - a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
 - b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width
 - 4. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.18 SILENCERS

- A. Manufacturers:
 - 1. Scheduled Manufacturer: Trimco.
 - 2. Acceptable Manufacturers: Burns, Rockwood, Ives.
- B. Requirements:
 - 1. Provide "push-in" type silencers for hollow metal or wood frames.
 - 2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
 - 3. Omit where gasketing is specified.

2.19 FINISHES

- A. Finish: BHMA 626/652 (US26D); except:
 - 1. Hinges at Exterior Doors: BHMA 630 (US32D)

2. Continuous Hinges: BHMA 630 (US32D)
3. Continuous Hinges: BHMA 628 (US28)
4. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
5. Protection Plates: BHMA 630 (US32D)
6. Overhead Stops and Holders: BHMA 630 (US32D)
7. Door Closers: Powder Coat to Match
8. Wall Stops: BHMA 630 (US32D)
9. Latch Protectors: BHMA 630 (US32D)
10. Weatherstripping: Clear Anodized Aluminum
11. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Where on-site modification of doors and frames is required:
 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 2. Field modify and prepare existing door and frame for new hardware being installed.
 3. When modifications are exposed to view, use concealed fasteners, when possible.
 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 2. Custom Steel Doors and Frames: HMMA 831.

3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
 - C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
 - D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
 - E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
 - F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
 - G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
 - H. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches (750 mm) of door height greater than 90 inches (2286 mm).
 - I. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 1. Replace construction cores with permanent cores as indicated in keying section.
 - J. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
 - K. Closer/holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
 - L. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
 - M. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
 - N. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
 - O. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
 - P. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
 - Q. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 FIELD QUALITY CONTROL

- A. Engage qualified manufacturer trained representative to perform inspections and to prepare inspection reports.
 - 1. Representative will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.05 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, Installer's Architectural Hardware Consultant must examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.06 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.07 DOOR HARDWARE SCHEDULE

- A. Hardware items are referenced in the following hardware. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.
- B. Hardware Sets: See attachment

Hardware Set 1

Doors: 110, 111, 112, 113, 114, 115, 214, 216, 219, 221

Each to receive:

1	EA	Classroom Intruder Lock	CL3352 PZD 606 PS	RU
1	EA	Surface Closer	4040XP .EDA .696 .MC	LC
1	EA	Kick Plate	K1050 8" x 2" LDW 630	RO
1	EA	Bumper	1270CVSV 606	TC
3	EA	Silencer	1229A	TC
1	EA	Adapter Plate	4-PB-2 605	OT

Existing hinges reused.
Supplier to field check and match existing hardware finish.

Hardware Set 2

Doors: 117

Each to receive:

3	EA	Hinge, Half Surface, Hvy Wt	T4A3382 NRP 4-1/2" US4	MK
3	EA	Back Plate	BP-10 4-1/2" US10BE	MK
1	EA	Classroom Intruder Lock	CL3352 PZD 606 PS	RU
1	EA	Surface Closer	4040XP .EDA .696 .MC	LC
1	EA	Kick Plate	K1050 8" x 2" LDW 630	RO
1	EA	Bumper	1270CVSV 606	TC
3	EA	Silencer	1229A	TC
1	EA	Adapter Plate	4-PB-2 605	OT

Supplier to field check and match existing hardware finish.

Added per Addendum 2

SECTION 09 65 19 - RESILIENT TILE FLOORING

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. Vinyl Composition Tile (VCT)
- B. Related Sections include the following:
 - 1. Division 3 Section "Hydraulic Cement Underlayment" for underlayment and primer to be installed prior to VCT installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 - 1. Show details of special patterns.
- C. Product Schedule: For floor tile. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 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. Floor Tile: Furnish one box for every 60 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.
 - 1. Engage an installer who employs workers for this Project who are trained or certified by floor tile manufacturer for installation techniques required.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F Store floor tiles on flat surfaces.

1.9 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 Vinyl Composition Tile (VCT)

- A. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Armstrong "Standard Excelon Imperial Texture VCT"
- B. Tile Standard: ASTM F 1066, Class 2, through-pattern.
- C. Wearing Surface: Smooth
- D. Thickness: 0.125 inch

- E. Size: 12 by 12 inches
- F. Color: Refer to drawings for color selections and patterns.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
 - 1. Adhesives shall comply with the following limits for VOC content:
 - a. Vinyl Composition Tile Adhesives: 50 g/L or less.
 - b. Luxury Vinyl Tile Adhesives: Per manufacturer's recommendations.
 - 2. Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 - 3. Provide adhesive for porous substrates.
- C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Receive Resilient Tile Floor Manufacturer's written approval of substrate required before installation of any tile flooring. The Carpet and Resilient Tile Contractor is responsible for obtaining the Resilient Tile Flooring Manufacturer's written approval of the floor as an acceptable substrate for the installation of manufacturer's tile product specified. If the floor is not acceptable to the manufacturer, the general contractor is responsible for preparing the floor to receive the new tile, as specified in order paragraphs of this specification, including an underlayment or leveling compound where necessary to meet all requirements for a manufacturer's approval of the substrate.

3.2 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 10 pH.
 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 1. Lay tiles in pattern indicated
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 1. Lay tiles with grain running in one direction.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

- H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
- E. Joint Sealant: Apply sealant to resilient terrazzo floor tile perimeter and around columns, at door frames, and at other joints and penetrations.
- F. Sealers and Finish Coats: Remove soil, visible adhesive, and surface blemishes from resilient floor tile surfaces before applying liquid cleaners, sealers, and finish products.
 - 1. Finish: Apply 3 coats of liquid floor polish to vinyl composition tile flooring.
- G. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 271300 – COMMUNICATIONS SYSTEMS

PART 1 -GENERAL

1.1 FORWARD

- A. The following specification is typically intended for the extension of existing communications systems in an existing facility. They are intended to provide a set of instructions and materials needed for installation of additional data and voice ports, and additional cabling for new data and voice ports, etc. within parameters set by industry standards and by the SDP IT Department:

1.2 DESIGN

- A. Structured Cabling Systems:

1. All horizontal drops for voice and data shall be Cat.6 (minimum) copper.
2. From drop locations to IDF

1.3 APPLICABLE STANDARDS

- A. EIA/TIA-569A-1 to A-7. "Commercial Building Standard for Telecommunications Pathways and Spaces."
- B. EIA/TIA-568-B.1 & B.1-1; B.2, B-2.2, B-2.3; B.3."Commercial Building Telecommunication Standard."
- C. EIA/TIA-455-61. "FOTP-61, Measurement of Fiber or Cable Attenuation Using an OTDR."
- D. ANSI/TIA/EIA-606. "The Administration Standard for the Telecommunications Infrastructure of Commercial Building."
- E. ANSI/TIA/EIA-607-A."Commercial Building Grounding and Bonding Requirements for Telecommunications."
- F. TIA/EIA 492AAAB "Detail Specification for 50µm Core Diameter/125µm Cladding Diameter Class Multi-Mode Optical Fibers"
- G. TIA/EIA 492AAAC-A "Detail Specification for 850-nm Laser Optimized 50-µm Core Diameter/125µm Cladding Diameter Class 1a Graded Index Multi-Mode Optical Fibers"
- H. IEEE 802.3 "Carrier Sense Multiple Access with Collision Detection" and all applicable supplements a through af.
1. IEEE 802.3u-100 Base T/100-Base-TX, Fast Ethernet
 2. IEEE 802.3z-Gigabit Ethernet
 3. IEEE 802.3 ab-1000 Base T
 4. IEEE 802.3ae-10 Gigabit Ethernet
- I. Electrical Code Compliance: Comply with applicable local and code requirements of the authority having jurisdiction.

- J. NFPA-70-NEC Compliance: Comply with NEC requirements as applicable to construction, installation and color coding of both power type wires/cables and control/signal transmission media.
- K. UL Compliance: Comply with applicable requirements of UL Standards 83, "Thermoplastic-Insulated Wires and Cables," 486A, "Wire Connectors and Soldering Lugs for Use with Copper Conductors," and UL 910, "Test Method for Fire and Smoke Characteristics of Cables Used in Air-Handling Spaces." Provide products which are UL-listed and labeled.
- L. NEMA/ICEA Compliance: Comply with NEMA/ICEA Std. Pub/No's WC-5, "Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy," and WC30, "Color Coding of Wires and Cables," pertaining to control and signal transmission media.
- M. ASTM Compliance: Comply with applicable requirements of D-2219 and D-2220. Provide copper conductors with conductivity of not less than 98% at 20°C (68°F).
- N. FCC Compliance: Comply with U.S. Federal Communications Commission Class 8 standard for allowable radiation from network equipment and wiring.
- O. Internet Networking Standards: Network hardware and software shall be able to communicate with the Internet and provide for the creation of IP based networks for the district. Supplied hardware and software shall comply with the following standards and RFC's as appropriate.
 - 1. MIL-STD -1777, RFC 971 -Internet Protocol
 - 2. MIL-STD -1778, RFC 793 -Transmission Control Protocol
 - 3. MIL-STD -1780, RFC 959 -File Transfer Protocol
 - 4. MIL-STD -1781, RFC 821 -Simple Mail Transfer Protocol
 - 5. MIL-STD -1782, RFC 854 -TELNET Protocol
 - 6. RFC 950 -Internet Standard Sub-Netting Procedure
 - 7. RFC 1140 -Official Protocol Standards
 - 8. RFC 1156 -MIB Base for IP Networks
 - 9. RFC-1213 -MIB-II
 - 10. RFC-1757 -Remote Monitoring(RMON)
 - 11. 1RFC 1157 -Simple Network Management Protocol
 - 12. RFC 1720 -TCP/IP, OSI Compliant
 - 13. RFC 1918 -Address Allocation for Private Subnets
 - 14. RFC 1583 -OSPF, Version II
 - 15. RFC 1723 -RIP -II
- P. NECA (National Electrical Contractors Association) Standard of Installation.
- Q. BICSI TDM Manual, latest edition
- R. BICSI LAN Design Manual, latest edition
- S. BICSI Cabling Installation Manual, latest edition

PART 2 STRUCTURED CABLING SYSTEM (SCS) DISTRIBUTION

2.1 DEFINITIONS

- A. MAIN DISTRIBUTION FRAME (MDF): The MDF is the location, within a building or complex of buildings, where the entire telecommunications system originates. It may include: the physical location, enclosure, wire and cable management hardware, termination hardware, distribution hardware, and patching and equipment racks.
- B. INTERMEDIATE DISTRIBUTION FRAME (IDF): The IDF is the location in a building where a transition between the backbone or vertical riser system and the individual drop distribution system occurs. It may include: the physical location, enclosure, wire and cable management hardware, termination hardware, distribution hardware, and patching and equipment racks. The IDF's provide the interface location between fiber distribution cable (backbone) and station cable (horizontal distribution). All walls shall be covered with 3/4" plywood, AC or better, from 12" above the finished floor to the ceiling, painted with two coats of fire retardant paint both sides.
- C. Entrance Facility (EF): Existing. Existing MDF room is the entrance facility.
- D. BACKBONE PATHWAY: The Backbone Pathway consists of a series of conduits, surface raceways (renovations only), cable trays, conduit sleeves, and chases which connect the MDF to IDF's and MDF to the EF and the MDF to the Server Room. It generally houses the vertical or backbone system.
- E. BACKBOARD: Backboard generally refers to the plywood sheeting lining the walls of telecommunications facilities. Backboard may also refer to the entire wall-mounted assembly, including wire management, wiring blocks, and equipment racks. In this case, the term Backboard is fully interchangeable with SBB or TTB and the equipment required to fulfill the Scope of Work below.

2.2 WORK DESCRIPTION -TYPICAL

- A. CONTRACTOR to provide all infrastructure wiring and conduit (if necessary), between and including classroom faceplate or termination, and closet patch panel termination, all cut sheets for Fiber Optic cable, copper UTP cable, patch panels, station jacks, speakers, phone faceplates, and Wireless Access Point enclosures for approval by SDP Tech Services, all patch cables on both ends of each termination, all Wireless Access Point enclosures for every AP location with the exception of any spaces with a drop ceiling at 12 feet high or less (classrooms, hallways, etc), metal faceplates for all wall phones, material and installation of all speakers, as well as the TERMINATION, LABELING, and TESTING of all copper and fiber wiring.
- B. The work performed under these guidelines shall be of good quality and performed in a workmanlike manner. In this context "good quality" means the work shall meet industry technical standards and quality of appearance. The owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds. "Rats Nest" wiring and poor workmanship is not acceptable.

2.3 MANUFACTURERS

- A. Cat 6 cables and telecommunications outlets shall be equal in quality and performance to that manufactured by SYSTIMAX. Note that other cabling systems meeting the listed performance and warranty requirements are also acceptable substitutions.

2.4 FUNCTIONS AND OPERATION

- A. All copper and fiber network cabling shall be labeled on both ends - at the classroom/ workstation termination end, as well as the network closet patch panel termination end. All labels shall be comprised of a sequential numbering scheme that meets TIA/EIA-606 requirements, and shall include room location numbers as described herein.
- B. All labels shall be machine printed on clear or opaque tape, stenciled onto adhesive labels, or type written onto adhesive labels, with legible block characters that are at least one-eighth inch (1/8") in height. The text shall be of a color contrasting with the label such that it may be easily read. If labeling tape is utilized, the width of the tape shall not exceed 3/8".

CLASSROOM/ WORKSTATION TERMINATIONS

1. All copper cable terminations on the classroom/ workstation side shall be labeled in logical order with the respective network closet number, room location number, drop type, and drop number. The numbering and abbreviation scheme shall be as follows:

CLOSET# - ROOM# - TYPE INITIAL - DROP#

- a. For example, in room 205 there may be 8 Data drops which all terminate in IDF3. Those drops shall be labeled in sequential order as such:
 - i. "IDF3-205-D1"
 - ii. "IDF3-205-D2"
 - iii. "IDF3-205-D3", etc...
- b. If data drops are grouped together on a multi-port faceplate, and label space on each faceplate is limited, the network closet label may be shown once per group, provided that all drops in that group run to the same closet. Using the example above, if the 8 data drops in room 205 are grouped into (2) 4-port faceplates, they shall be labeled as such:
 - i. Faceplate 1 label: "IDF3"
 1. Data drop 1: "205-D1"
 2. Data drop 2: "205-D2"
 3. Data drop 3: "205-D3"
 4. Data drop 4: "205-D4"

- ii. Faceplate 2 label: "IDF3"
 1. Data drop 5: "205-D5"
 2. Data drop 6: "205-D6", etc...
2. Type initials shall be designated as follows:
 - a. Data: "D"
 - b. Wireless: "W"
 - c. Speaker: "S"
 - d. Alarm: "A"
 - e. Voice: Any voice cabling shall not be differentiated from any data cabling, and shall be grouped in with the "D" designation for Data.
3. Room initials for non-numbered locations shall be as follows:
 - a. Auditorium: "AUD"
 - b. Cafeteria: "CAF"
 - c. Gym: "GYM"
 - d. Library: "IMC"
 - e. Hallway: "HALL"
 - f. Main Office: "MO"
 - g. Any other locations not listed here which do not have a numerical room designation shall be abbreviated logically.
4. Other classroom/workstation side labeling examples are as follows:
 - a. 2 WiFi drops at the ceiling of classroom 104, which run back to the MDF: i. "MDF-104-W1" ii. "MDF-104-W2" b. 8 speakers in the Cafeteria, which run back to IDF2: i. "IDF2-CAF-S1" ii. "IDF2-CAF-S2", etc... c. 4 phones in the Main Office, which run back to IDF1: i. "IDF1-MO-D1" ii. "IDF1-MO-D2", etc...

NETWORK CLOSET TERMINATIONS

1. All cable terminations on the network closet side shall be terminated on patch panels and grouped together by type, as described in the Rack Installation section above.
 - a. All patch panels shall be labeled by drop type in order as follows:
 - i. "OUTSIDE FIBER" (if applicable - only in MDF)
 - ii. "FIBER"
 - iii. "LEGACY TIE CABLES"
 - iv. "WIRELESS"
 - v. "DATA" (Data includes all: network data, voice, speaker, alarm, and headend controller drops.)
 - b. All copper cable terminations on those patch panels shall be labeled in logical order with the respective room location number, drop type, and drop number. The numbering and abbreviation scheme shall be as follows:

ROOM# - TYPE INITIAL - DROP#

2. For example, all non-Wireless copper cabling from classroom 201 and classroom 202, including 4 data drops each, 1 wall phone each, and 1 speaker each, shall be terminated on the DATA patch panel. Those drops shall be labeled sequentially as such:
 - a. "201-D1", "201-D2", "201-D3", "201-D4", "201-D5", "201-S1", "202-D1", "202-D2", "202-D3", "202-D4", "202-D5", "202-S1"
3. Additionally, in that same example, the Wireless Access Point cabling from both classrooms 201 and 202 shall be terminated in the WIRELESS patch panel in that same closet, and labeled sequentially as such:
 - a. "201-W1", "201-W2", "202-W1", "202-W2"

FIBER TERMINATIONS

1. Optical fiber cable segments shall be labeled at each end with the respective closet or classroom/lab identifier, as well as the cable type, as follows:

ROOM# - TYPE INITIAL

- a. For example, a 24 strand, OM3, 50 μ Multimode fiber cable between the MDF and IDF1 shall be labeled as follows:
 - i. In the MDF: "IDF1-MM"
 - ii. In IDF1: "MDF-MM"
 - b. For example, a 12 strand, OM3, 50 μ Multimode fiber cable between the MDF and a computer lab in room# 305 shall be labeled as follows:
 - i. In the MDF: "Lab 305-MM"
 - ii. In the computer lab: "MDF-MM"
 - c. For example, a 24 strand Single mode fiber cable between the MDF and the Annex shall be labeled as follows:
 - i. In the MDF: "Annex-SM"
 - ii. In the Annex: "MDF-SM"
2. Additional fiber cable labeling shall include Warning Tags:
 - a. At each location where the fiber cable is exposed to human intrusion, it shall be marked with warning tags. These tags shall be yellow or orange in color, and shall contain the warning: "CAUTION

FIBER OPTIC CABLE." The text shall be permanent, black, block characters, and at least 3/16" high.

- b. A warning tag shall be permanently affixed to each exposed cable or bundle of cables, at intervals of not more than five (5) feet. Any section of exposed cable which is less than five (5) feet in length shall have at least one warning tag affixed to it.

Any additional labeling questions not addressed in this document shall be sent to SDP Tech Services for further clarification

- C. The intended function of the data communications cable system is to transmit data signals from a central location to several individual data outlet locations. Upon completion of the work outlined in this specification, the system shall be capable of transmitting data signals at a rate of 1000 Mbps minimum over Category 6 cable and over SM and MM fiber. Both SM and MM fiber shall also be capable of transmitting 10Gbps based upon the transmitting distance and number of links.
- D. Work station cable, from the IDF to the work area, shall be installed in accordance with EIA/TIA-568-B.2 specified installation practices, BICSI Guidelines, manufacturer specified installation practices, SYSTIMAX or (Other Acceptable Substitutes) Certified Cabling System installation practices, and shall be capable of transmitting a signal at 1000 Mbps with acceptable attenuation and cross-talk measurements and PSACR MARGIN. The entire workstation cable system, including wiring blocks, cable, and telecommunications outlets shall be tested for Category 6 compliance.

PART 3 -PRODUCTS AND INSTALLATION

3.1 GENERAL

- A. Throughout Part 3, material quantities are not given. It is the responsibility of the Contractor to provide appropriate quantities of materials to provide a complete, functional system according to the design drawings, specifications, and work description.
- B. General installation provisions are as follows:
 1. Cable: Where cable enters an MDF or IDF it shall be supported on horizontal or vertical cable runway. If terminations are on backboards, then from the runway support to the backboard via "D" Rings and cable ties. All cable shall be neatly bundled, combed, and tied. All cable runs, within the MDF or IDF, shall be horizontal or vertical, and bends shall comply with minimum specified cable bending radii. Copper UTP cable runs shall be provided with a ten-foot slack loop in the cable runway, in each IDF. Spread out the Cat. 6 cable in the runway and cable trays to avoid heavy stressing of the cable due to its own weight. Provide sufficient slack in the run to avoid any cinching of cables. NOTE CAT.6 CABLES SHALL NOT BE CINCHED TOO TIGHTLY. CABLE TIES AT PATCH PANEL LOCATIONS SHALL BE VELCRO TYPE TIE-WRAPS ONLY. PLASTIC WIRE TIE WRAPS ARE NOT ALLOWED TO BE USED FOR ANY CAT.6 CABLING.

2. Labeling: hand written labels are not acceptable. All labels shall be machine printed on clear or opaque tape, stenciled onto adhesive labels, or type written onto adhesive labels. The font shall be at least one-eighth inch (1/8") in height, block characters, and legible. The text shall be of a color contrasting with the label such that it may be easily read. If labeling tape is utilized, the width of the tape shall not exceed 3/8," and the font color shall contrast with the background. Patch panels shall exhibit workstation numbers, in sequential order, for all workstations served by the MDF or IDF.
 - a. Each telecommunications outlet shall be labeled with its respective workstation number (machine labels only). Workstation numbers shall be comprised of a sequential numbering scheme that meets the TIA/EIA-606 requirements, i.e. "1-1-DJ-52"(IDF #1-rack 1-data patch panel-port #52); or"1-2-VJ-48" (IDF #1-rack 2-voice patch panel-port# 48). Each workstation cable shall be labeled, using a machine based net permanent labeling medium, at each end with its respective workstation number. Each binder group shall be tied off with its respective identifying ribbon at each break-out point.
3. T-Bar Suspended Ceilings: All data drop cable above dropped ceilings shall be installed in J-hooks, cable tray, or a combination thereof, conduit, or in cable chase. In no case shall cable be supported on ceiling tiles, T-bars, or tie-wrapped to any conduit or pipes. Cable must be supported in all areas. Bridle rings and tie-wrapped supporting means are not acceptable. Wire-rod cable trays are acceptable above dropped ceilings in-lieu of J-hooks. Laying cable on a T-bar ceiling is not allowed by the NEC and is not acceptable for support of Cat. 6 cabling, j-hooks must be used between conduit stub-ups and the wire rod cable tray for support.

3.2 WORK STATION CABLE

- A. DESCRIPTION: From each IDF, 4-pair Category 6 UTP cables shall be routed to each work station (for both data and voice outlets) served by the IDF. Where the data outlet resides in a classroom, a minimum of 6 cables plus one voice drop shall be required Route drops in, conduit, j-hooks, and /or chases and sleeves as required.
- B. COPPER UTP CABLE SPECIFICATIONS
 1. HIGH SPEED LAN COMMUNICATIONS PLENUM CABLE; ENHANCED MARGIN CATEGORY 6, HORIZONTAL UNSHIELDED TWISTED PAIR (UTP).
- C. SCOPE
 1. This section defines the requirements for commercially available high-performance Category 6 plenum-rated LAN communications cable. The cable design described herein exceeds minimum ANSI/TIA/EIA 568-B Category 6 and ISO/IEC 11801 Class D standards in critical transmission characteristics and provides additional

specifications for conductor insulation. This specification provides more ACR margin (headroom) at transmission frequencies up to 200 MHz, better electrical balance, and temperature/humidity stability for superior long-term performance. (NOTE: Minimum cable fire-rating shall be CMR; plenum rating only as required if returns are ducted; however, 100% FEP cable must be supplied).

- a. The minimum Power Sum ACR, for the Worst Case Pair for a 4-Connector Channel shall be 10.9dB at 200 MHz.

2. ENGINEERING SPECIFICATIONS

- a. Cable Manufacturers' Part Numbers:

- 1) SYSTIMAX # 2071E GigaMax Cable & Gigamax Cabling System-Preferred
- 2) Mohawk/CDT: AdvanceNet with Hubbell NEXTSPEED
- 3) Berk-Tek: LanMark 2000 with Ortronics Clarity
- 4) Superior Essex: NextGain with Leviton eXtreme
- 5) Commscope : Ultrapipe with Siemon Ultra-"Uniprise Solution"

- b. Product: Jack Faceplates (WAO's) 4 pair, S110 connecting blocks, T568B pinning, Category 6 compliant, light Ivory or as selected by SDP:

- 1) Modular Outlet Jacks: SYSTIMAX MGS-400 Series jacks in M-Series Information Outlets, 8 wire, T568B pinning, Category 6 S110 type insulation displacement modular outlet. Provide couplers as required per application and drawings.
- 2) Faceplates: CommScope M10LW4SP 1-port Single Gang Stainless Steel Telephone Faceplate, part #760100891

- c. Accessories: Snap-in colored icons, blue for data and light gray for voice, 'phone' for voice and 'computer' for data/video, labels and clear label covers, quantities as required

- 1) Required Accessories and Quantities (Surface Mount Boxes):
- 2) Modular Mounting Frames: SYSTIMAX. PART #M12AP-246, Two-port, with cover, base, bezel, icons, screws, Light Ivory – surface mount with screws.
- 3) Modular Mounting Frames: SYSTIMAX, PART #M14L-246, Four-port, with cover, base, bezel, icons, screws, Light Ivory – surface mount with screws.
- 4) Modular Mounting Frames: SYSTIMAX, PART #M16L-246, Six-port, with cover, base, bezel, icons, screws, Light Ivory – surface mount with

screws.

- 5) Modular Outlet Jacks: SYSTIMAX M-Series Information Outlets or Flexible Information Outlets for HI-LO outlets and/or A/V outlets, 8 wire, T568B pinning, Category 6 S110 insulation displacement type modular outlet. Provide couplers as per application and drawings.
 - a) SYSTIMAX MGS400 Category 6 jack
 - b) single port F-type coaxial adapter
 - c) blank inserts for unused port
 - d) Icons same as surface raceway jacks

3. INSTALLATION:

- a. Installation shall be conducted in accordance with guidelines established the manufacturer and industry standards. Surface raceway jack faceplates shall be mounted in the surface raceway hanging boxes and shall be coordinated by the installation contractor. Each jack faceplate plate shall be labeled with its respective work station number. Each modular surface mounted box shall be labeled with its respective work station number. Labels shall be made by machine and shall be compliant with TIA/EIA-606 requirements.

D. TESTING AND DOCUMENTATION

1. TESTING:

- a. Contractor shall test each pair of each twisted-pair copper cable. The Owner reserves the right to have a representative present during all or a portion of the testing process. If the Owner elects to be present during testing, test results will only be acceptable when conducted in the presence of the Owner.
- b. Tests
 - 1) Multi-mode: Signal attenuation at 850 and 1300 nm.
 - 2) Single-mode: Bi-directional signal attenuation at 1310 and 1550 nm.

E. WORKSTATION CABLE:

1. Each workstation cable shall be tested from the Jack Panel to the data outlet per TIA/EIA-568-B2.1 permanent link test requirements.
 - a. Test Equipment: Minimum Level III Compliant Tester
 - 1) Wirescope 350(Agilent Technologies) or equivalent
 - a) Test Criteria: The system shall be tested to Category 6 TIA/EIA-568-B.2-1 permanent link test parameter requirements.

F. DOCUMENTATION:

1. Contractor shall provide documentation to include test results and as-built drawings,

all test results shall be computer generated. One Hard Copy shall also be provided to the District. Software for viewing the test results shall also be provided in the soft copy package.

G. WORK STATION CABLE:

1. The results of the work station cable tests shall be provided in the form of computer print-outs from the test equipment.

H. AS-BUILT DRAWINGS:

1. Contractor will be provided with clean copies of the Electrical drawings depicting data outlet locations or, if required by Addendum, shall produce drawings depicting data outlet locations as they were installed. The drawings, provided by Owner or in accordance with Addendum shall be modified to indicate actual cable routing, work station locations and workstation numbers.

3.3 INSTALLATION TESTING - COPPER

- A. The Owner/Engineer shall be notified 2 weeks prior to any testing so that the testing may be witnessed.
- B. Before requesting a final inspection, the Contractor shall perform a series of end to end installation performance tests. The Contractor shall submit for approval a proposal describing the test procedures, test result forms, and timetable for fiber optic and all copper plant wiring.
- C. Acceptance of the simple test procedures discussed below is predicated on the Contractor's use of the recommended products including but not limited to twisted pair cable, cross-connect blocks, and outlet devices specified and adherence to the inspection requirements, and practices set forth. Acceptance of the completed installation will be evaluated in the context of each of these factors.
- D. Minimum Test Parameter requirements for Enhanced Category 6 horizontal cabling.
 1. Category 6:
 - a. Each wire/pair shall be tested at both ends for the following utilizing Contractor generated test results forms:
 - 1) Wire Map
 - 2) Length
 - 3) Insertion Loss
 - 4) Near-end crosstalk (NEXT) loss
 - 5) Power sum near-end crosstalk (PSNEXT)
 - 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
 - 11) Power Sum ACR
2. When errors are found, the source of each error shall be determined, corrected, and the cable re-tested. All defective components shall be replaced and retested. Defective components not corrected shall be reported to the Owner/Engineer with explanations of the corrective actions attempted.
 3. Test records shall be maintained using the approved test results forms. The form shall record closet number, riser pair number or outlet ID, outcome of test, indication of errors found (e.g., a, b, c, d, or e) cable length, re-test results after problem resolution and signature of the technician completing the tests.
 4. Test results for each 4 pair, Category 6, UTP cable must be submitted with identification to match labels on all patch panel ports and 8 position modular jacks, and identification to match as-built associated with that cable.
 5. Owner/Engineer will observe and verify the accuracy of test results submitted.
 6. Submit in both hardcopy and electronic floppy disc format.

E. ACCEPTANCE

1. Acceptance of the Data Communications System, by Owner, shall be based on the results of testing, functionality, and the receipt of documentation. With regard to testing, all fiber segments and all workstation data cables must meet the criteria established in the Section above. With regard to functionality, Contractor must demonstrate to Owner that 1000 Mbps data signals can be successfully transmitted, bi-directionally, from the MDF to and from a minimum of 10% of individual data outlets on each floor, witness tested by the Owner. The number of outlet locations to be tested shall be determined by Owner. With regard to documentation, all required documentation shall be submitted to Owner.

F. MINIMUM WARRANTY

1. The Cabling System shall meet the performance requirements of the ANSI/TIA/EIA-568-B.2 standard. The warranty on the material, services, and operation of the cabling system to this specification must be for a period of at least 20 years. The connecting hardware shall have a lifetime extended warranty against defects in material and workmanship.
2. The warranty must include the following statements regarding the cabling system:

- a. "Will support and conform to TIA/EIA-568-B specifications covering ANY CURRENT OR FUTURE APPLICATION which supports transmission over a properly constructed horizontal cabling system premises network which meets the channel and/or basic link performance as described in TIA/EIA- 568-B."
- b. "Will be free from defects in material or faulty workmanship."

PART 4 -VOICE DISTRIBUTION

4.1 GENERAL

A. PERFORMANCE REQUIREMENTS

1. The Telephone Voice Distribution System shall be provided from the outlet locations to the IDF's with Cat.6 station cabling.

4.2 PRODUCTS AND INSTALLATION

A. General: Refer to the requirements and equipment outlined in this guideline specification.

B. Miscellaneous Hardware: Provide all terminations, cross-connects, wire management, surge protectors, etc. for a complete and operational system.

1. Jacks, wall mount only, EIA/TIA 568B Pin-out, Cat. 6; provide wall mount typejacks with studded mounts for locations as required – Classrooms shall be located in the recessed wall box enclosure-see module details
2. Auxiliary Equipment: The Contractor shall install cross-connect wire (minimum Cat. 3 rated), D-rings, wire distribution spools, 110 block labeling, organizer rings, and other appurtenances for a complete, neat, and functional system.

C. RECORD DRAWINGS

1. The Contractor shall submit record drawings showing the actual system installation and the hardware/equipment locations. Clearly drafted markings on the Bid Documents attached Drawings shall be acceptable. These drawings shall indicate actual cable routing, cable numbers, outlet jack labeling, and designations of each termination at outlets and in the IDF's/MDF. Also included shall be the test report.

PART 5 -CABLE AND WIRE MANAGEMENT

5.1 GENERAL

A. Unless indicated all data and voice cables shall be installed in conduit.

B. Cabling, voice and data shall be installed according to the general requirements, as detailed below, and as shown on the drawings or in an attached addendum.

1. No more than 50 UTP cable drops per run can be installed in Category 6 two inch "J-hooks" as called out herein (if necessary).
2. Station Cable drops from work area outlet will be installed in conduit, Category 6 "J-hooks," from outlet stub up to the cable tray.

3. Use Vertical Wire runway to support any /all risers between floors in closets or accessible locations; in no case shall any cable risers be unsupported.
4. Cables entering IDF's/MDF's shall be supported with Cable runway from entrance to rack/cabinet location.

PART 6 -CORING/SLOTTING/SLEEVING

6.1 SLEEVES:

- A. All wall penetrations shall be bored, and then sleeved; minimum is 1-inch metallic sleeve with plastic bushings or as required to size up. All floor penetrations shall be core drilled clean and true, and then installed with a metallic sleeve and plastic bushings on each side.
- B. The Contractor shall provide sleeves where required to protect equipment or facilities in the installation. Each sleeve shall extend through its respective floor, wall, or partition and shall be cut flush with each surface unless otherwise required.
- C. Sleeves in bearing and masonry walls, floors, and partitions shall be of standard weight steel pipe finished with smooth edges. For other masonry partitions, through suspended ceilings and for concealed vertical piping, sleeves shall be No. 22 U.S.G. galvanized iron.
- D. All sleeves shall be properly installed and securely cemented in place.
- E. Floor sleeves shall extend 3 inches above the finished floor. Space between floor sleeves and passing conduit shall be caulked with graphite packing and waterproof caulking compound as required for a waterproof installation. All floor sleeves shall be installed with plastic bushings to protect the cable, on both sides.
- F. Where conduits pass through waterproofed floors or walls, design of sleeves shall be such that waterproofing can be flashed into and around the sleeves.
- G. Sleeves through exterior walls below grade shall have the spaces between conduit and sleeve caulked watertight.
- H. Core drill one size larger than sleeve to accommodate the sleeve installation, caulk the void with watertight and fire rated sealing mastic (between bore and sleeve).

6.2 CHASES AND OPENINGS

- A. All openings or chases required for the installation of the telecommunications work in the building shall be provided by the Contractor.
- B. This Contractor shall seal all openings he has made in fire rated floors, ceilings or partitions after his work has been installed. The material used for sealing the openings shall have a fire rating equal to or greater than the rating of the floor, ceiling or partition material. All fire stop material shall be U.L. classified. Fire stop sealants, foams and compounds shall be as manufactured by 3M, STI, or Nelson. All floors minimum 2-hour rated fire stops and all corridor penetrations to classrooms or other areas.
- C. All Corridor Walls shall be considered fire rated and shall have a two-hour fire stop also- the Contractor has the option to install a UL Classified Sleeve/Firestop

Combination, for wall and floor applications; use the STI "EZ-PATH" System, 1.5" for corridor penetrations to classrooms and 4" for floors for risers and 4" for entering IDF's/MDF's from the corridor.

SEAL:

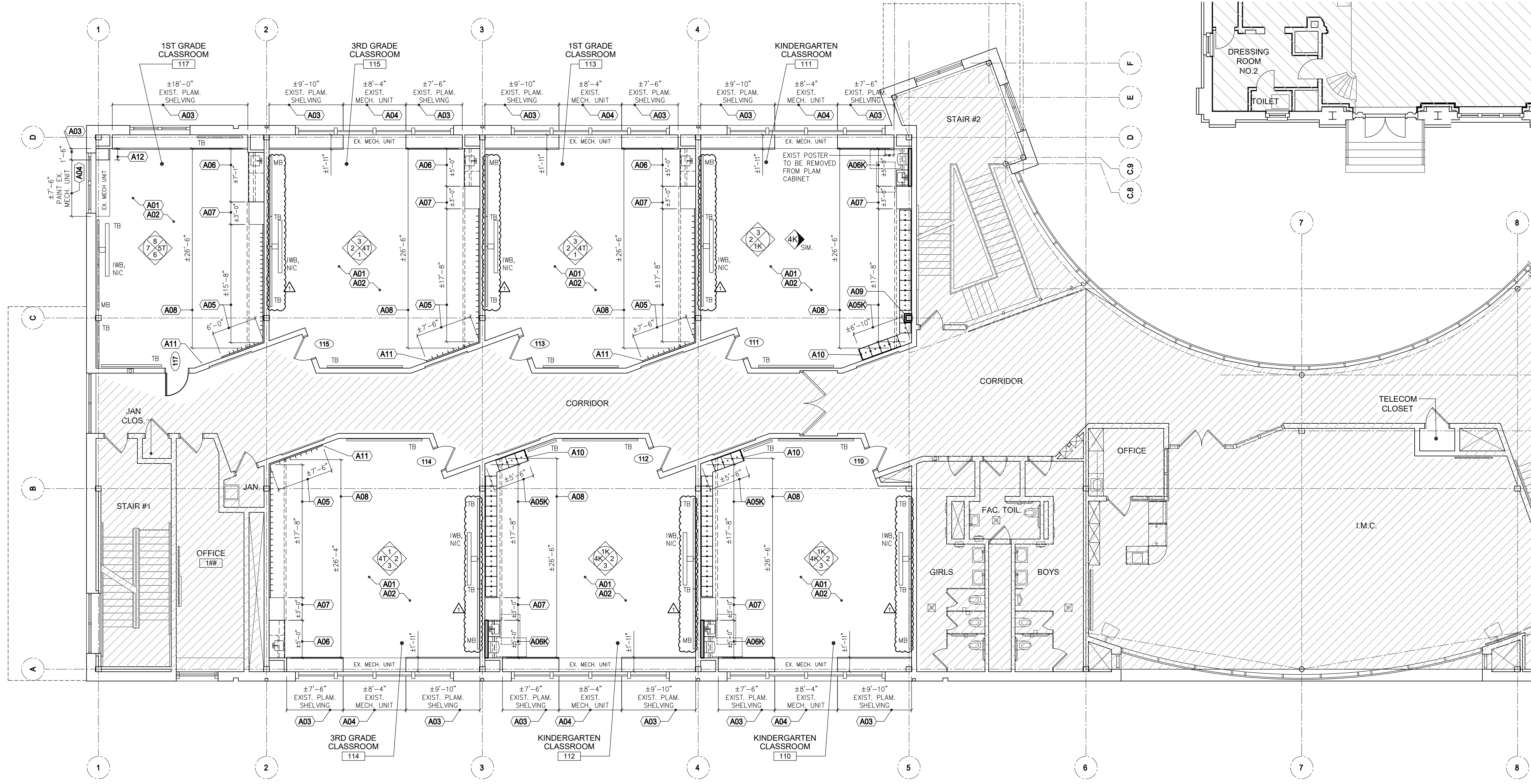


Name: Kevin Ray Goodhall DATE: 10/22/1996
STATE AND LICENSE NO: RA014783X

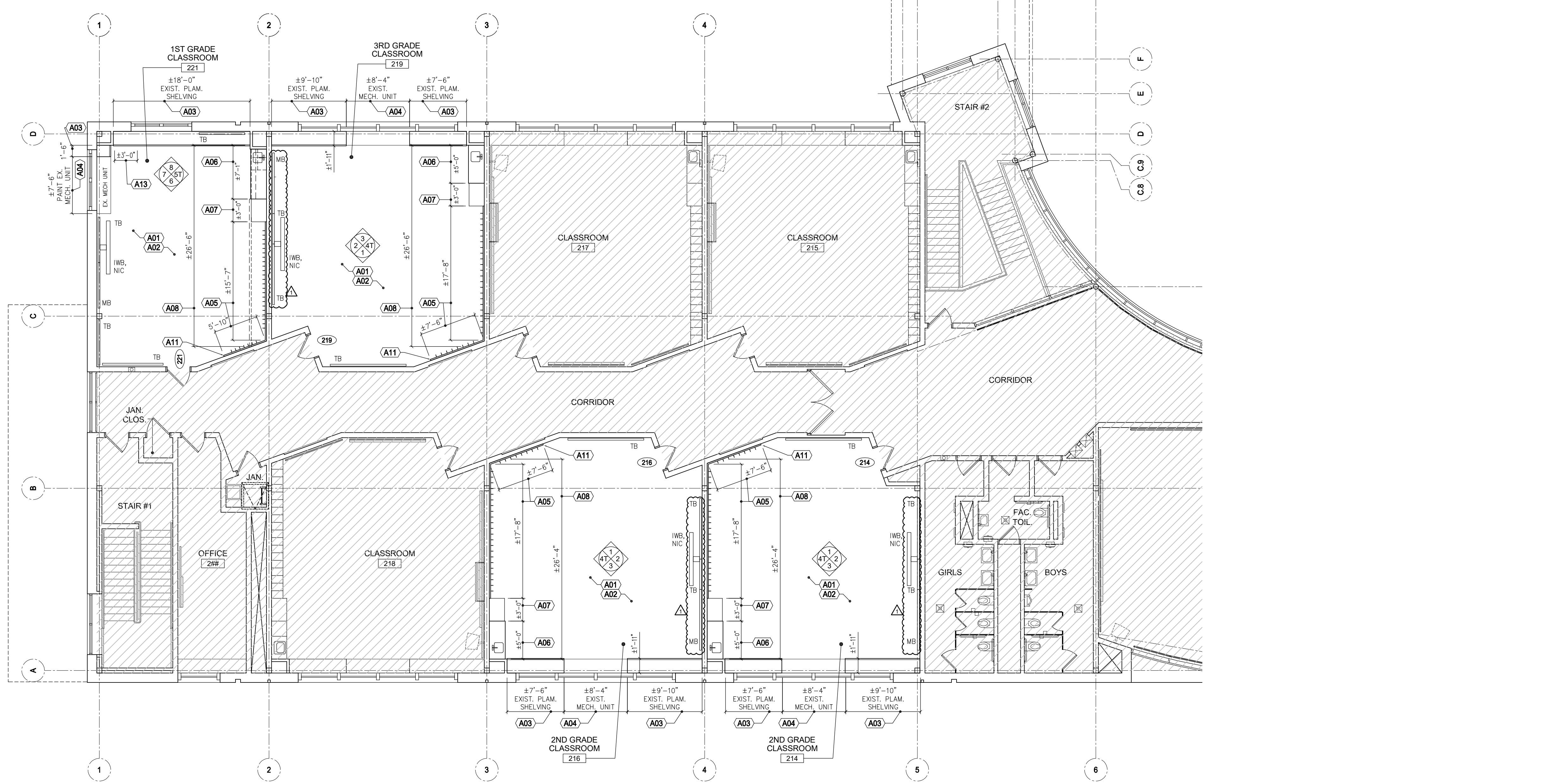
ARCHITECT:
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(GKO ARCHITECTS)
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All: GOPI PATEL

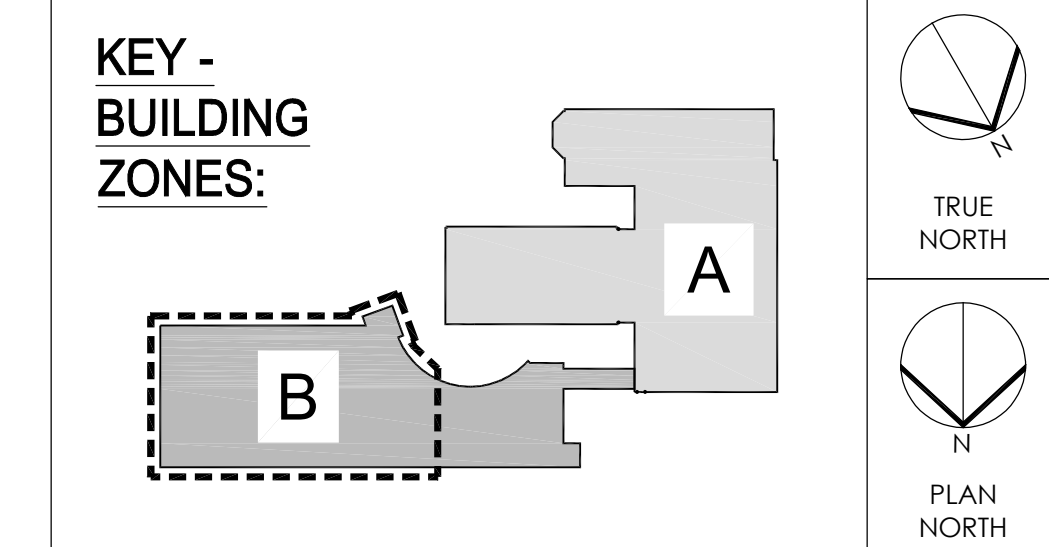
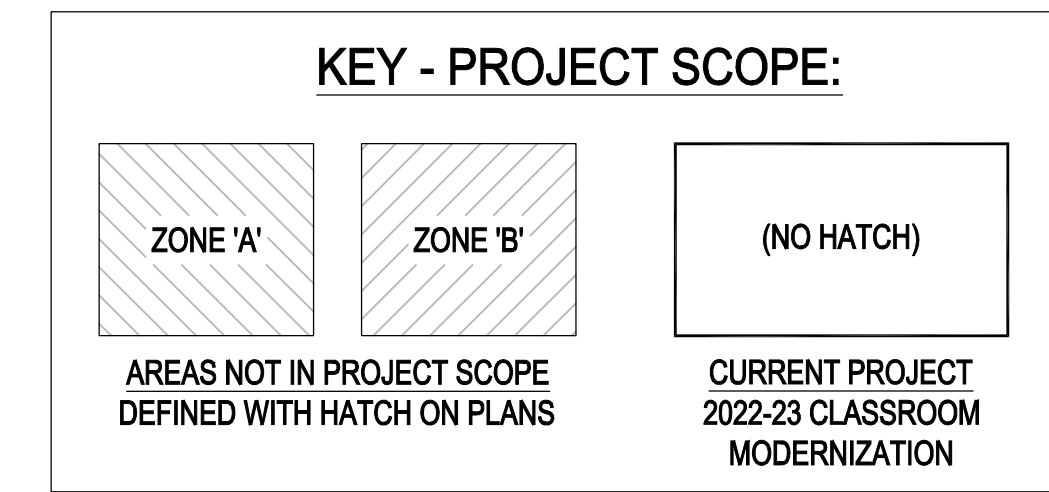
(A/B)	ARCH. FLOOR PLAN - KEYNOTES
A01	PROVIDE VCT FLOORING & RUBBER BASE. PROVIDE HYDRAULIC CEMENT UNDERLAYMENT UNDER NEW VCT INSTALLATIONS. GRIND AND TAPER SUBFLOOR AS REQUIRED TO MAKE TOP OF NEW VCT FLOOR MEET FLUSH WITH TOP OF EXISTING FLOOR FINISH AT DOOR OPENINGS.
A02	PROVIDE MARKERBOARDS (MB) & TACKBOARDS (TB), REF. INTERIOR ELEVATIONS FOR SIZE & INSTALLATION LOCATIONS.
A03	PROVIDE SOLID SURFACE MATERIAL (SSM) COUNTERTOP OVER EXIST. PLASTIC LAMINATE (PLAM) SHELVING.
A04	PREP & PAINT EXISTING MECHANICAL UNIT WITH ELECTROSTATIC PAINT
A05	COAT HOOK AREA: PREP EX. WALL & REMAINING CABINERY FOR NEW CABINERY / MILLWORK & FINISHES, REF. INTERIOR ELEV. & DETAILS.
A05K	CUBBY AREA: PREP EX. WALL & REMAINING CABINERY FOR NEW CABINERY / MILLWORK & FINISHES, REF. DETAIL 4 / A-800.
A06	CLASSROOM SINK AREA: PROVIDE SOLID SURFACE MATERIAL (SSM) COUNTERTOP OVER EXISTING CABINERY.
A06K	CLASSROOM SINK & HYDRATION STATION AREA W/ PLUMBING WALL CONSTRUCTED (BEHIND), REF. INTR. ELEVATIONS FOR CAB. & FINISHES. REF. DETAIL PLAN #4 / A-800 & SECTION #3 / A-800.
A07	PROVIDE NEW CABINET DOORS AT EXISTING "TEACHER'S WARDROBE" TALL CABINET. WHERE SIDES OF CABINET HAVE BEEN EXPOSED BY REMOVAL OF ADJACENT CABINERY OR LOCKERS, PROVIDE FINISHED PLASTIC LAMINATE END PANEL, FULL HEIGHT OF EXPOSED SURFACE.
A08	PROVIDE NEW CABINET DOORS ON EX. CABINERY; PROVIDE PLAM (PLASTIC LAMINATE) DOORS, RE-INSTALL ON EX. 5 KNUCKLE HINGES; PROVIDE WIRE PULL HANDLES; PROVIDE MAGNETIC CATCHES.
A09	CONSTRUCT ENCLOSURE AROUND EXPOSED EX. COLUMN, PROVIDE WOOD INFILL PANEL & MODIFY CUBBY UNIT INSTALLATION. REF. DETAIL #7 / A-800
A10	PROVIDE STAINED WOOD FINISHED END PANEL AT END OF CUBBY UNITS, SCRIBE TO MEET ADJACENT CMU WALL. COUNTERTOP TO OVERHANG END PANEL BY 1/2".
A11	PROVIDE STAINED WOOD FINISHED END AT COAT HOOK AREA. MATCH PROFILE OF ADJ. SOLID WOOD RAILS & PANEL.
A12	PROVIDE INFILL WOOD BLOCKING AT CABINET BASE, TO RECEIVE RESILIENT BASE FINISH
A13	PROVIDE PVC EDGE BANDING ON EXISTING ADJUSTABLE SHELF AND FIXED BOTTOM SHELF.



1 FLOOR PLAN - 1ST LEVEL
SCALE: 1/8" = 1'-0"



2 FLOOR PLAN - 2ND LEVEL
SCALE: 1/8" = 1'-0"



NOTES:
- ZONE 'A' = 1915 ORIGINAL BUILDING
- ZONE 'B' = 1999 BUILDING ADDITION
- "DASHED LINE" DEFINES PLAN AREA SHOWN ON SHEET.

ISSUE FOR BID
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1	2.17.2022	ADDENDUM 2
NO.	DATE	REVISION

SCHOOL & LOCATION
BENJAMIN FRANKLIN SCHOOL
5741 RISING SUN AVE., PHILADELPHIA, PA 19120

PROJECT TITLE
CLASSROOM MODERNIZATION

DRAWING TITLE
FLOOR PLANS

DRAWING SCALE	
LOCATION NO.	
DRAWN BY AK / AW	CHECKED BY KRG
GC - 2022-005-G	
EC - 2022-005-E	

DRAWING NO.
A - 110
SHEET 5 OF 20

SEAL:



Name: Kevin Roy Goodhart DATE: 10/22/1996
STATE AND LICENSE NO: RA014783X

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Attn: GOPI PATEL

GENERAL DEMOLITION NOTES

- ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE AS WELL AS ALL APPLICABLE STATE & LOCAL CODES & ORDINANCES.
- FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES, REFER TO ELECTRICAL LEAD SHEET.
- ALL EQUIPMENT SHOWN ON THE DEMOLITION PLANS IS EXISTING TO REMAIN UNLESS NOTED OTHERWISE.
- ALL DEMOLITION WORK SHALL BE PERFORMED WITH "DUE CARE AND DILIGENCE" SO AS TO PREVENT THE ARBITRARY DESTRUCTION OR INTERRUPTION OF CONCEALED UTILITIES WHICH ARE INTENDED TO REMAIN IN USE AND THE ROUTING OF WHICH COULD NOT BE PREDETERMINED UNTIL DEMOLITION WAS STARTED. ALL SUCH DISCOVERIES OF UTILITIES DURING THE DEMOLITION PROCESS WHICH ARE IN A LOCATION DIFFERENT FROM THAT INDICATED, CHANGE DIRECTION FROM FLOOR TO FLOOR, ETC. OR ARE UNIDENTIFIED SHALL BE REPORTED TO THE ARCHITECT AND TO THE ENGINEER BEFORE REMOVAL.
- THE DEMOLITION WORK AT ALL TIMES SHALL BE SUBJECT TO THE DIRECTION AND APPROVAL OF OWNER/LANDLORD AND BE CARRIED OUT IN SUCH A MANNER SO AS NOT TO INTERFERE WITH THE NORMAL OPERATION OF THE BUILDING.
- THE DEMOLITION DRAWINGS GENERALLY INDICATE THE REMOVAL OF ITEMS WHICH ARE IN VIEW OR BELIEVED TO BE CONCEALED (SUCH AS EXISTING COLUMNS CONCEALED WITHIN WALLS, ETC.) THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT AND THE ENGINEER, IN WRITING, OF THE FOLLOWING CONDITIONS, BEFORE SUCH CONDITIONS ARE DISTURBED AND BEFORE SIGNIFICANT DELAY OR COST IS INCURRED BY THE CONTRACTOR:
 - CONCEALED OR UNKNOWN CONDITIONS ENCOUNTERED WHICH DIFFER MATERIALLY FROM THOSE INDICATED OR REASONABLY IMPLIED BY THE CONTRACT DOCUMENTS.
 - CONCEALED PHYSICAL CONDITIONS IN THE EXISTING STRUCTURE OF AN UNUSUAL NATURE.
- EXISTING TO BE DEMOLISHED:
 - THE GENERAL CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DESIGNATED AND/OR SHOWN TO BE DEMOLISHED AND CLEAR TO RECEIVE NEW WORK AS HEREIN INDICATED.
 - ELECTRICAL CONTRACTOR SHALL REMOVE ALL DEVICES AND ITEMS PERTAINING TO ELECTRICAL FROM ALL EXISTING PARTITIONS, CEILINGS, ETC. BEING REMOVED.
 - ALL EXISTING WIRING AND CONDUIT SHALL BE REUSED, WHERE FEASIBLE. CIRCUITS NOT REUSED SHALL BE REMOVED BACK TO SOURCE. COORDINATE DEMOLITION WITH CONCURRENT GENERAL.
 - DEMOLITION, UNLESS NOTED TO BE ABANDONED, ALL ELECTRICAL WHICH PASS THROUGH OR ARE AFFECTED BY THE DEMOLITION SHALL BE MAINTAINED IN A COMPLETE AND FULLY OPERATIONAL CONDITION OR, WHERE NOTED, BE APPROPRIATELY CAPPED OFF. PROVIDE TEMPORARY SYSTEMS AS REQUIRED TO MAINTAIN FULL OPERATION OUTSIDE THE AREA OF DEMOLITION.
- EXISTING ELECTRICAL CIRCUITS, WHETHER WITHIN OR OUTSIDE THE LIMITS OF THE CONTRACT, SHALL BE REPAIRED WHERE ANY DAMAGE HAS OCCURRED DUE TO CONSTRUCTION.
- EQUIPMENT AND MATERIALS DESIRED BY OWNER/LANDLORD SHALL BE STORED AT THE SITE BY THE CONTRACTOR AT A LOCATION DIRECTED BY OWNER/LANDLORD. EQUIPMENT AND MATERIALS NOT DESIRED BY OWNER/LANDLORD SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR IMMEDIATELY. OWNER/LANDLORD SHALL PROVIDE LIST OF EQUIPMENT AND MATERIALS TO BE RETAINED.
- CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL CIRCUITS AND DIMENSIONS IN THE FIELD, AND SHALL ADVISE THE RESPONSIBLE PARTY OF ANY DISCREPANCIES BEFORE PERFORMING THE WORK.
- CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED LICENSES AND PERMITS.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING AND TEMPORARY PROTECTION. DO NOT ALTER STRUCTURAL MEMBERS SHOWN TO REMAIN UNLESS SPECIFICALLY DIRECTED TO DO SO BY STRUCTURAL ENGINEER.
- CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE DISTURBANCES TO OWNER/LANDLORD PERSONNEL DURING WORK OPERATIONS. AFTER EACH DAY'S WORK ACTIVITIES THE CONTRACTOR SHALL CLEAR THE SITE OF DEBRIS AND OTHER WORK MATERIALS.
- MAINTAIN ACCESS TO EXISTING EXITS AT ALL TIMES. FIRE ALARM AND SMOKE DETECTION SYSTEM TO REMAIN OPERATIONAL AT ALL TIMES.
- CONTRACTOR IS TO COORDINATE SHUTDOWN OF CIRCUITS WITH RESPONSIBLE PARTY. CONTRACTOR IS TO MAINTAIN OPERABILITY OF ALL CIRCUITS FOLLOWING PERFORMANCE OF ALL WORK.
- ALL LIGHTING FIXTURES, RECEPTACLES AND OTHER DEVICES INDICATED TO BE DEMOLISHED SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. DEMOLISH ALL ASSOCIATED CONDUIT AND WIRING BACK TO NEAREST JUNCTION BOX, UNLESS NOTED OTHERWISE. PATCH AND PAINT EXISTING SURFACE.
- CONTRACTOR SHALL VERIFY LOCATION AND CONFIGURATION OF ALL EXISTING CONDITIONS IN FIELD. CONFIRM ALL EXISTING CONDITIONS PRIOR TO STARTING WORK.
- COORDINATE ALL WORK WITH OWNER/LANDLORD AND OTHER TRADES.

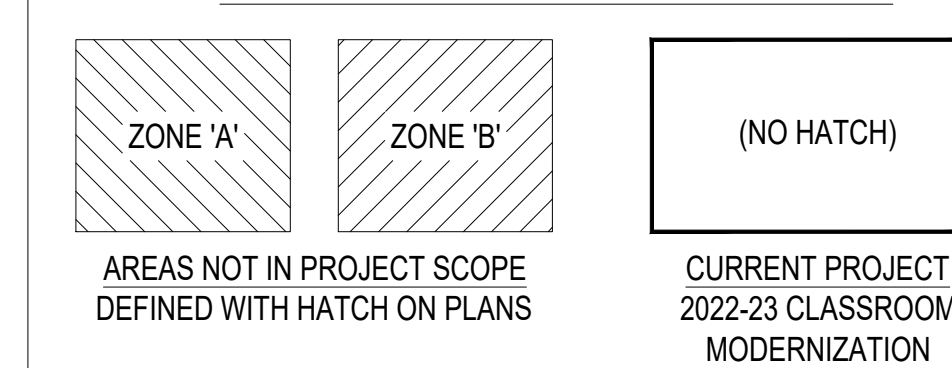
SHEET NOTES

- DEMOLISH ALL EXISTING LIGHT FIXTURES AND CONTROL DEVICES WITHIN THIS AREA, UNLESS NOTED OTHERWISE. DISCONNECT AND LEAVE EXISTING WIRING IN SAFE CONDITION FOR FUTURE REUSE.
- DEMOLISH ELECTRICAL EQUIPMENT / DEVICES AS SHOWN WITHIN THIS AREA, UNLESS NOTED OTHERWISE. DISCONNECT AND REMOVE EXISTING WIRING AND CONDUIT BACK TO SOURCE. TURN BREAKER TO OFF POSITION AND MARK AS "SPARE".
- EXISTING WALL CLOCK TO BE RELOCATED-IN-PLACE. DISCONNECT AND LEAVE EXISTING WIRING IN SAFE CONDITION FOR FUTURE REUSE.
- EXISTING RECEPTACLE TO BE REPLACED-IN-PLACE WITH NEW GFCI RECEPTACLE. DISCONNECT AND LEAVE EXISTING WIRING IN SAFE CONDITION FOR FUTURE REUSE.
- ALL EXISTING RECEPTACLES WITHIN THIS AREA TO BE REPLACED-IN-PLACE WITH NEW TAMPER RESISTANT RECEPTACLES. DISCONNECT AND LEAVE EXISTING WIRING IN SAFE CONDITION FOR FUTURE REUSE.
- EXISTING PANELBOARDS WITHIN THIS AREA TO REMAIN. MODIFY CIRCUITING AS REQUIRED. REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
- EXISTING CABLES FOR ALL VOICE / DATA DEVICES WITHIN THIS AREA TO BE REPLACED. REMOVE EXISTING CABLE BACK TO SOURCE.

LEGEND

- EXISTING TO REMAIN
- - - DEMOLISH
- (ER) EXISTING TO BE RELOCATED

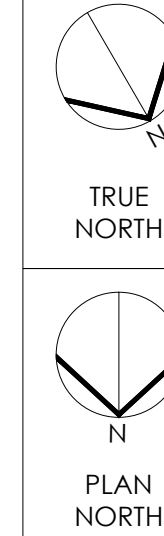
KEY - PROJECT SCOPE:



KEY - BUILDING ZONES:



- NOTES:**
- ZONE 'A' = 1915 ORIGINAL BUILDING
 - ZONE 'B' = 1999 BUILDING ADDITION
 - "DASHED LINE" DEFINES PLAN AREA SHOWN ON SHEET.



1 ELECTRICAL DEMOLITION PLAN - 1ST LEVEL
E-100 SCALE: 1/8" = 1'-0"

2 ELECTRICAL DEMOLITION PLAN - 2ND LEVEL
E-100 SCALE: 1/8" = 1'-0"

ISSUE FOR BID
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1	02/17/2022	ADDENDUM #2
NO.	DATE	REVISION

SCHOOL & LOCATION
BENJAMIN FRANKLIN SCHOOL
5741 RISING SUN AVE., PHILADELPHIA, PA 19120

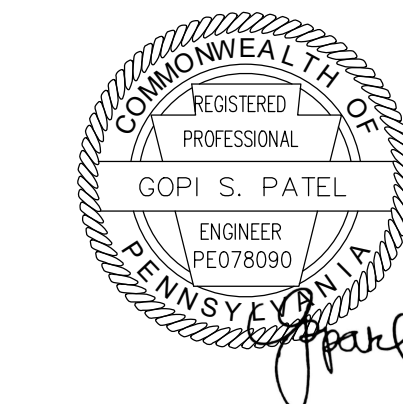
PROJECT TITLE
CLASSROOM MODERNIZATION

DRAWING TITLE
ELECTRICAL DEMOLITION PLANS

DRAWING SCALE	
LOCATION NO.	
DRAWN BY NIP	CHECKED BY GSP
GC - 2022-005-G	
EC - 2022-005-E	

DRAWING NO.
E - 100
SHEET 15 OF 20

SEAL:



Name: Kevin Ray Goodhart DATE: 10/22/1996
STATE AND LICENSE NO: RA014783X

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Attn: ALLISON KLINGLER, RA

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GENERAL NOTES

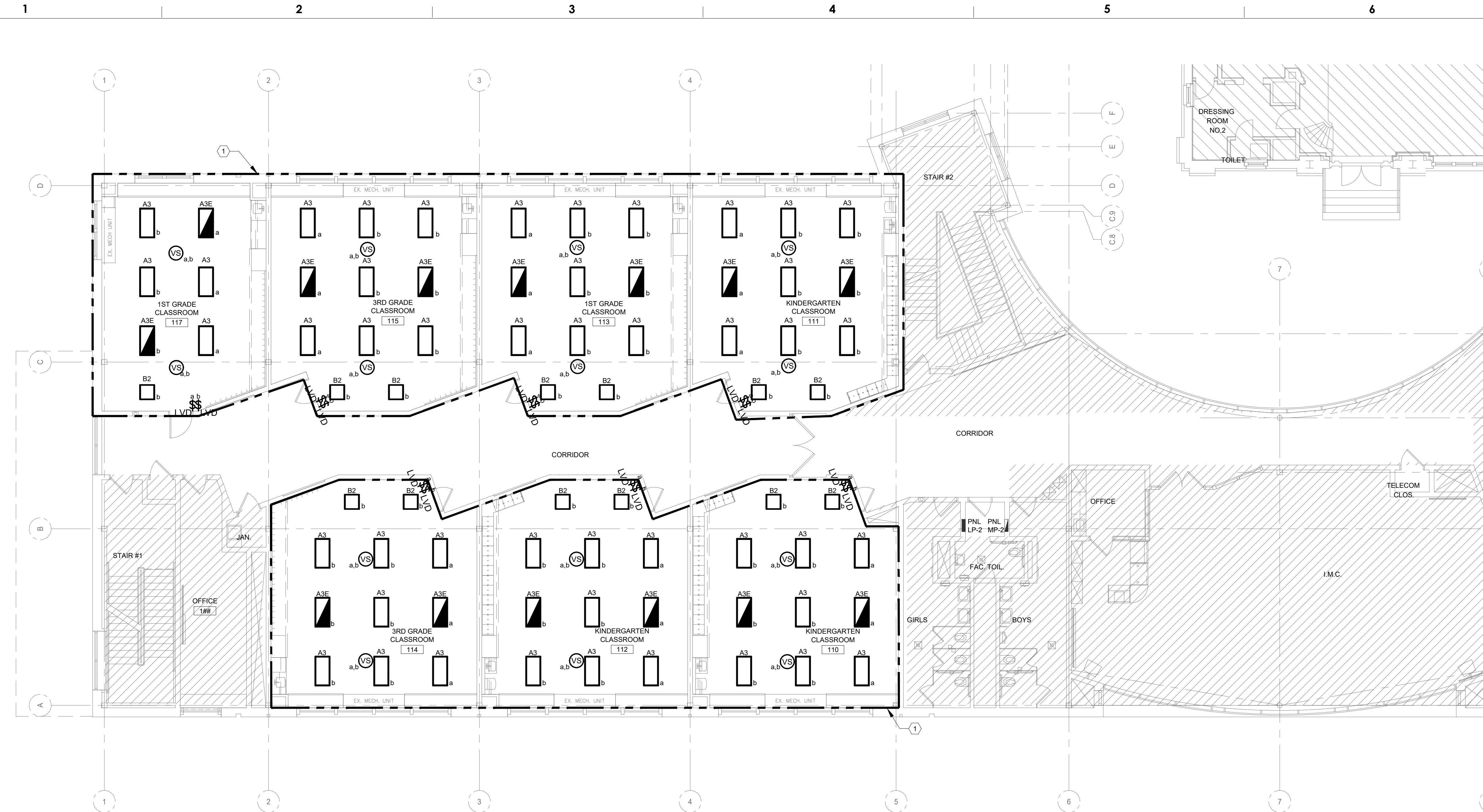
1. ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE 2017 AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES & ORDINANCES.
2. FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES, REFER TO ELECTRICAL LEAD SHEET.
3. ALL NEW DEVICES MOUNTED TO CMU BLOCK WALL SHALL BE SURFACE MOUNTED. PROVIDE SURFACE MOUNT EMT WITH BOXES AND FITTINGS AS REQUIRED. GC TO PAINT RACEWAY TO MATCH WALL SURFACE. FINAL APPROVAL ON PAINT COLOR BY ARCHITECT.

SHEET NOTES

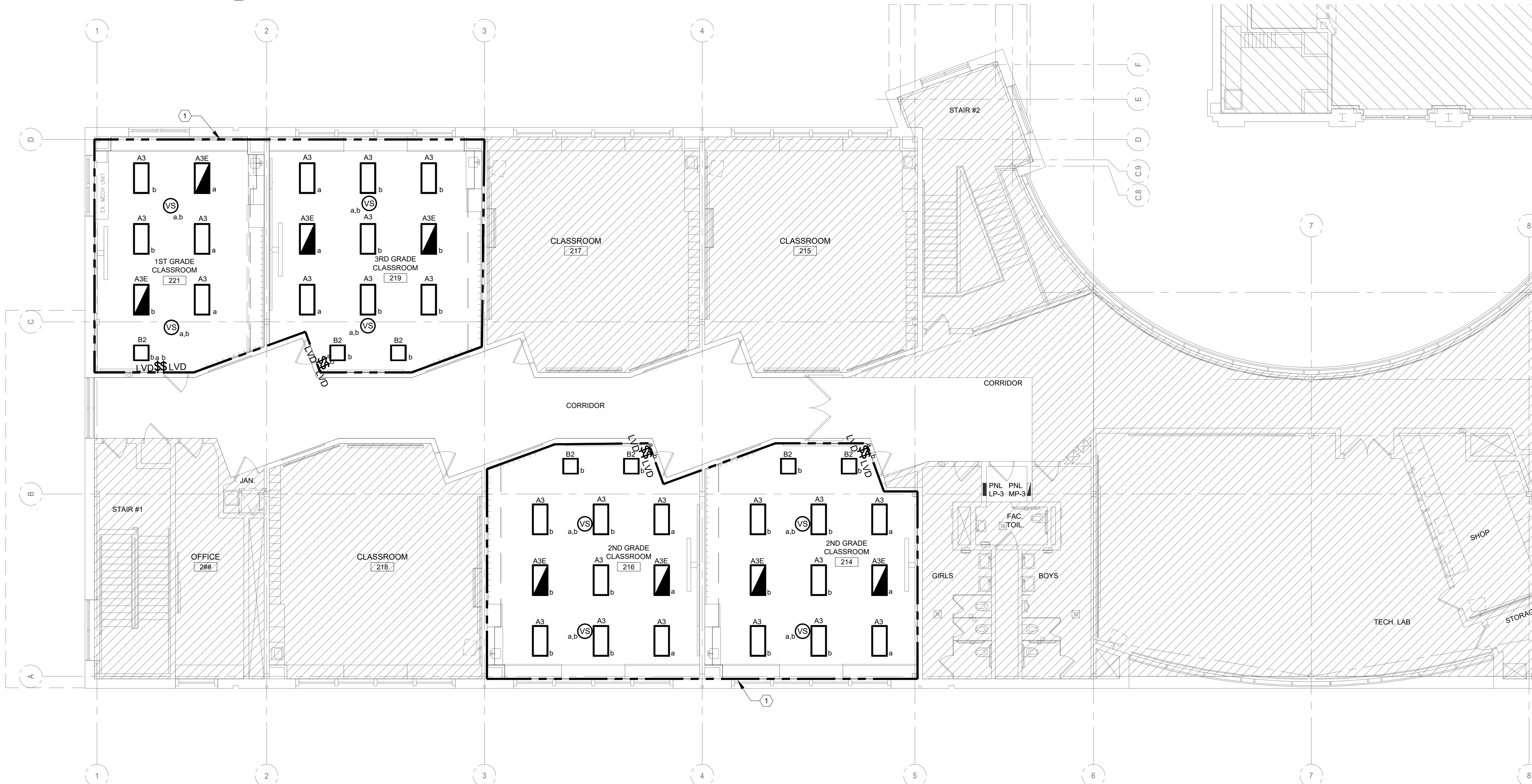
1. CONNECT LIGHT FIXTURES WITHIN THIS AREA TO EXISTING CIRCUITING LEFT IN SAFE CONDITION DURING DEMOLITION PHASE.

LEGEND

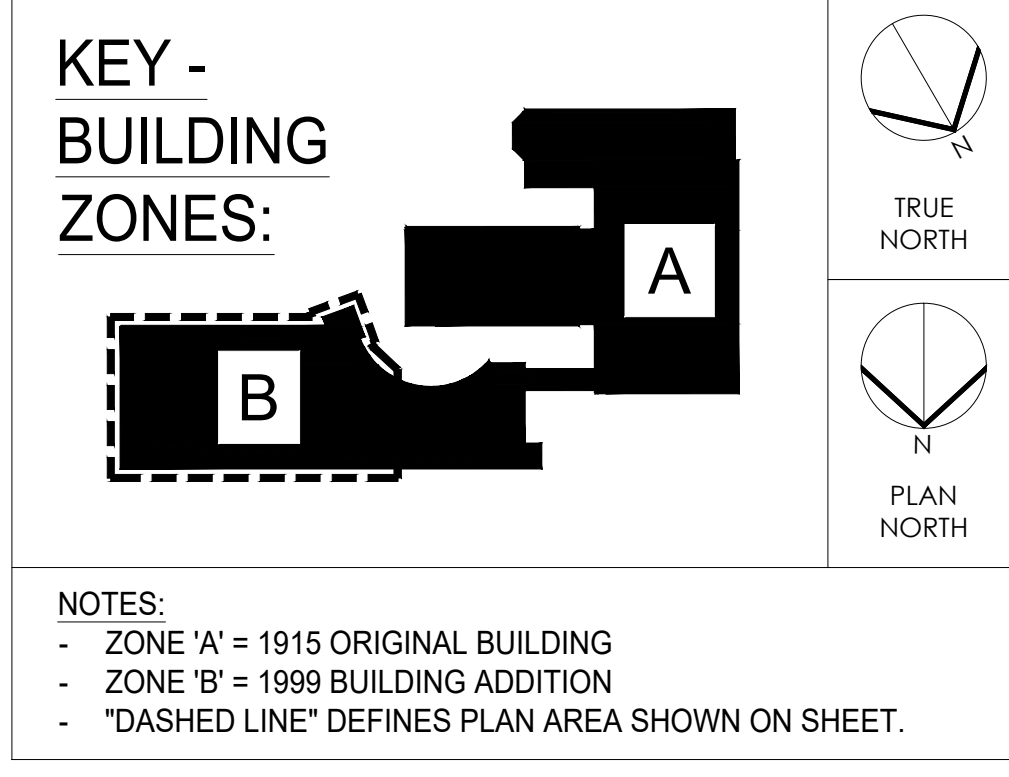
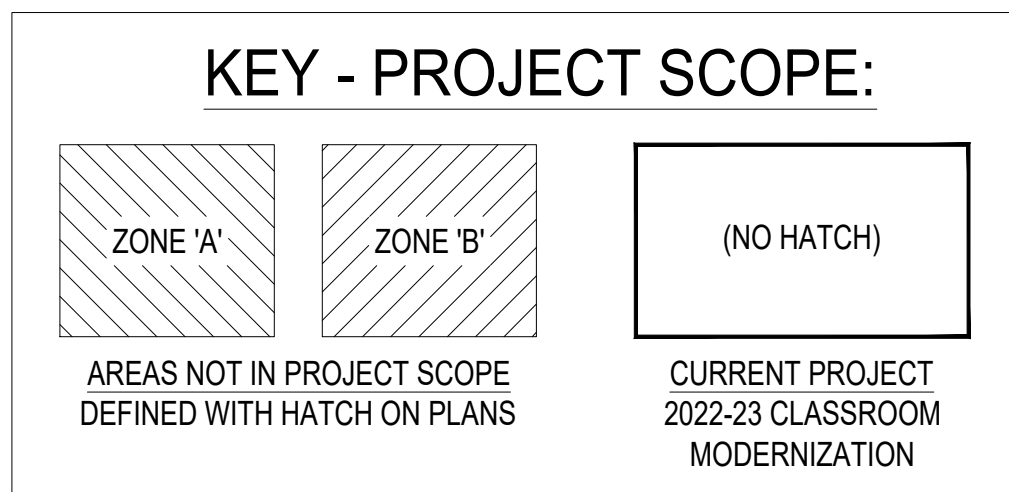
- A3 2'x4' RECESSED LED LIGHT FIXTURE WITH DIMMING DRIVER
SIGNIFY DAY-BRITE #2EVG74L840-4-R-UNV-DIM
- A3E 2'x4' RECESSED LED LIGHT FIXTURE WITH DIMMING DRIVER
AND FIXTURE WITH BATTERY PACK
SIGNIFY DAY-BRITE #2EVG74L840-4-R-UNV-DIM-EMLED
- B2 2'x2' RECESSED LED LIGHT FIXTURE WITH DIMMING DRIVER
SIGNIFY DAY-BRITE #2EVG45L840-2-R-UNV-DIM



1 LIGHTING PLAN - 1ST LEVEL
E-110 SCALE: 1/8" = 1'-0"



2 LIGHTING PLAN - 2ND LEVEL
E-110 SCALE: 1/8" = 1'-0"



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1	02/17/2022	ADDENDUM #2
NO.	DATE	REVISION

SCHOOL & LOCATION
BENJAMIN FRANKLIN SCHOOL
5741 RISING SUN AVE., PHILADELPHIA, PA 19120

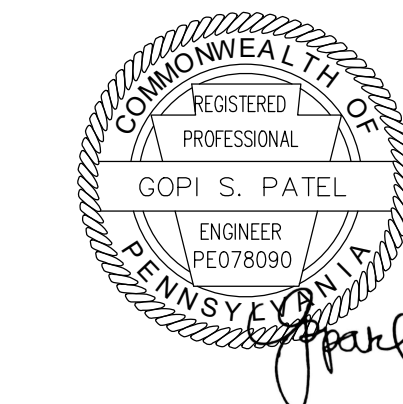
PROJECT TITLE
CLASSROOM MODERNIZATION

DRAWING TITLE
LIGHTING PLANS

DRAWING SCALE

LOCATION NO.	
DRAWN BY NIP	CHECKED BY GSP
GC - 2022-005-G	
EC - 2022-005-E	
DRAWING NO.	E - 110
SHEET 16 OF 20	

SEAL:



Name: Kevin Ray Goodhart DATE: 10/22/1996
STATE AND LICENSE NO: RAD14763X

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2. FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES, REFER TO ELECTRICAL LEAD SHEET
3. ALL NEW RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT IN ACCORDANCE WITH NEC ARTICLE 406.12.
4. ALL NEW DEVICES MOUNTED TO CMU BLOCK WALL SHALL BE SURFACE MOUNTED. PROVIDE SURFACE MOUNT EMT WITH BOXES AND FITTINGS AS REQUIRED. GC TO PAINT RACEWAY TO MATCH WALL SURFACE. FINAL APPROVAL ON PAINT COLOR BY ARCHITECT.

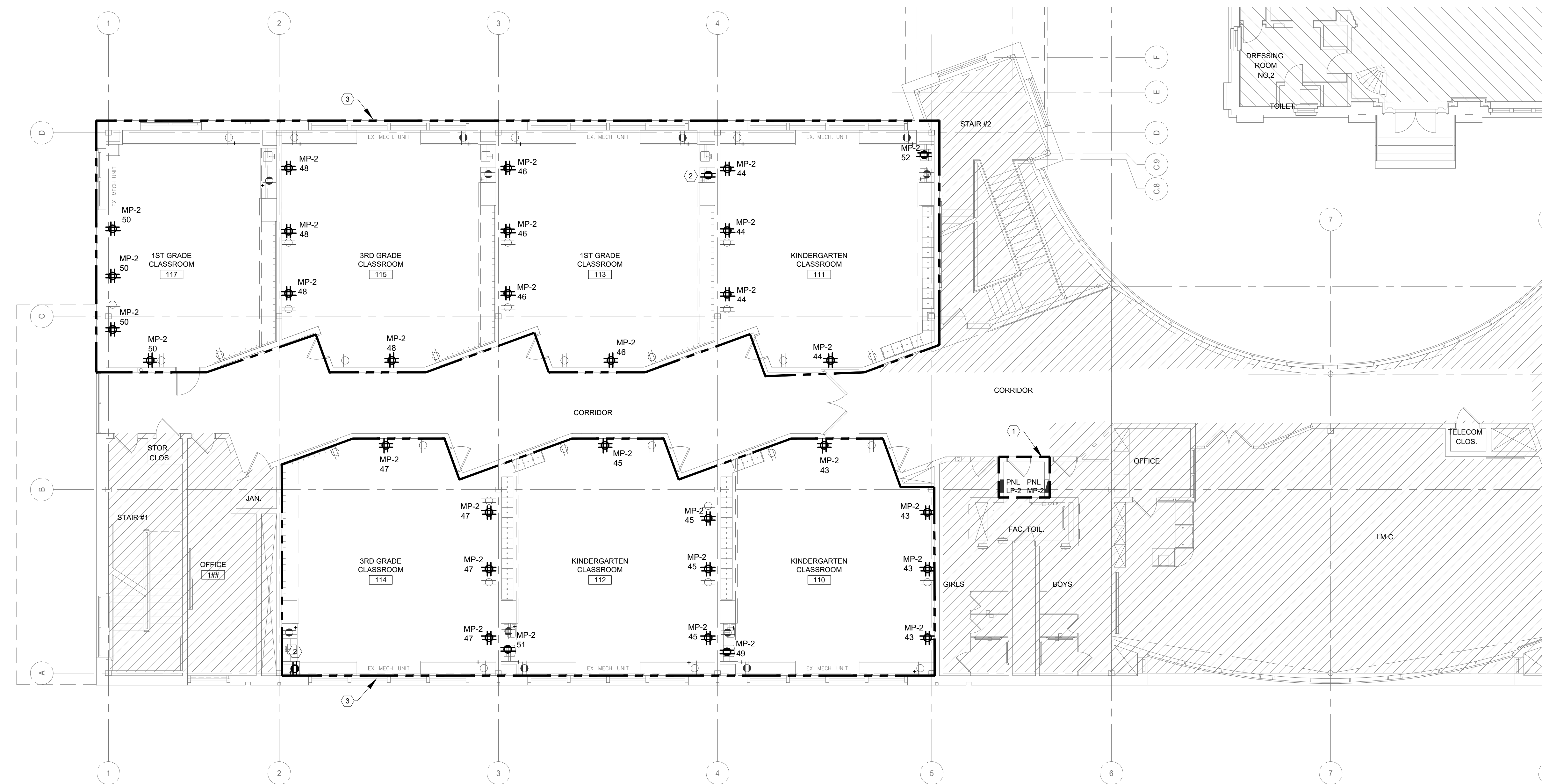
LEGEND

- EXISTING TO REMAIN, UNO.
- NEW

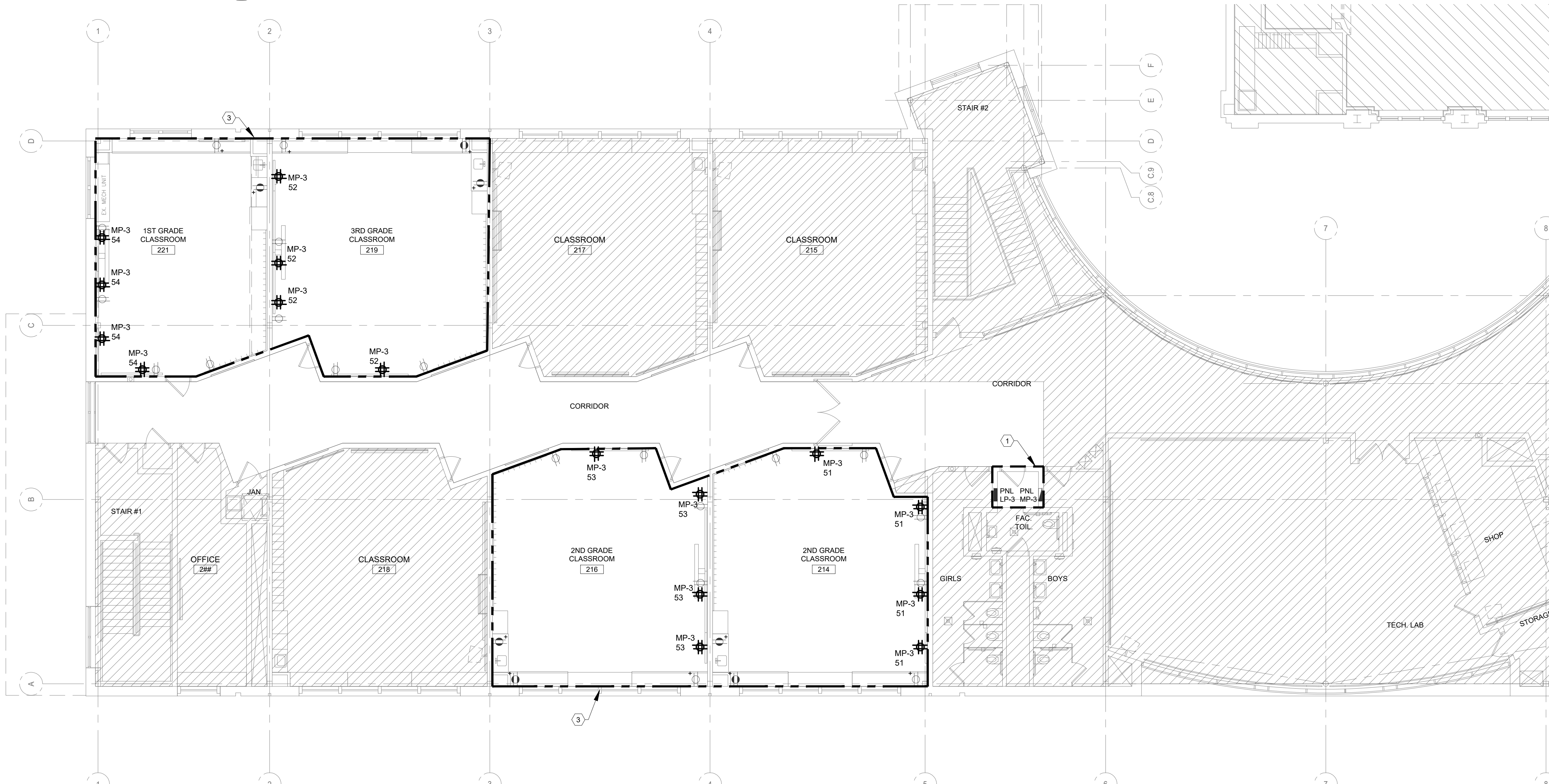
SHEET NOTES

1. EXISTING PANELBOARDS WITHIN THIS AREA TO REMAIN. MODIFY CIRCUITING AS REQUIRED. REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
2. NEW TAMPER RESISTANT GFCI RECEPTACLE. EXTEND AND CONNECT EXISTING CIRCUITING LEFT IN SAFE CONDITION DURING DEMOLITION PHASE. PROVIDE NEW AS REQUIRED.
3. REPLACE ALL EXISTING RECEPTACLES WITHIN THIS AREA WITH NEW TAMPER RESISTANT RECEPTACLE IN ACCORDANCE WITH NEC ARTICLE 406.12. EXTEND AND CONNECT EXISTING CIRCUITING LEFT IN SAFE CONDITION DURING DEMOLITION PHASE. PROVIDE NEW AS REQUIRED. NEW FACEPLATES SHALL BE STAINLESS STEEL.

1 POWER PLAN - 1ST LEVEL
E-120 SCALE: 1/8" = 1'-0"



2 POWER PLAN - 2ND LEVEL
E-120 SCALE: 1/8" = 1'-0"



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1	01/17/2022	ADDENDUM #2
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SCHOOL & LOCATION

BENJAMIN FRANKLIN SCHOOL
5741 RISING SUN AVE., PHILADELPHIA, PA 19120

PROJECT TITLE

CLASSROOM MODERNIZATION

DRAWING TITLE

POWER PLANS

DRAWING SCALE

LOCATION NO.

DRAWN BY: NIP CHECKED BY: GSP

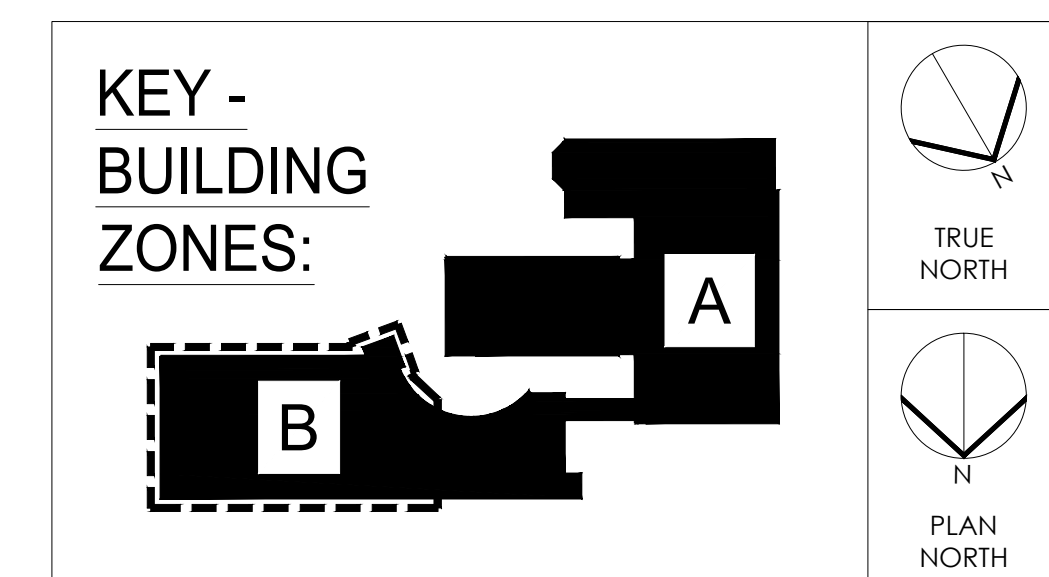
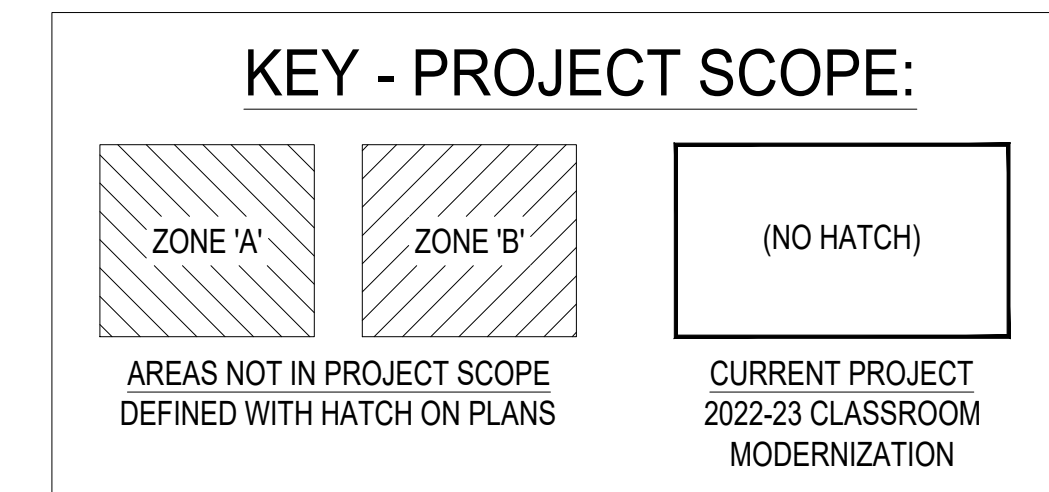
GC - 2022-005-G

EC - 2022-005-E

DRAWING NO.

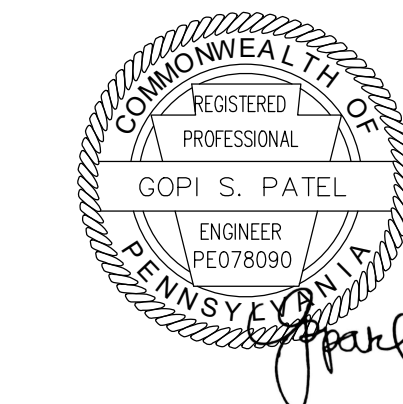
E - 120

SHEET 17 OF 20



- NOTES:
- ZONE 'A' = 1915 ORIGINAL BUILDING
 - ZONE 'B' = 1999 BUILDING ADDITION
 - "DASHED LINE" DEFINES PLAN AREA SHOWN ON SHEET.

SEAL:



Name: Kevin Ray Goodhart DATE: 10/22/1996
STATE AND LICENSE NO: RAD14763X

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Attn: GOPI PATEL

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE 2017 AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES & ORDINANCES.
2. FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES, REFER TO ELECTRICAL LEAD SHEET.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LATEST VERSION OF SCHOOL DISTRICT OF PHILADELPHIA TECHNOLOGY DESIGN STANDARDS.
4. ALL NEW DEVICES MOUNTED TO CMU BLOCK WALL SHALL BE SURFACE MOUNTED. PROVIDE SURFACE MOUNT EMT WITH BOXES AND FITTINGS AS REQUIRED. GC TO PAINT RACEWAY TO MATCH WALL SURFACE. FINAL APPROVAL ON PAINT COLOR BY ARCHITECT.

SHEET NOTES

1. NOT USED.
2. REPLACE ALL EXISTING CABLES FOR TELEPHONE AND DATA DEVICES WITHIN THIS AREA WITH NEW CAT6 CABLES.
3. PROVIDE NEW 24V-POWERED SAFPLUG SAM SERIES SAM-4BS-12R-4 ROUND CLOCK. REUSE EXISTING WIRING TO CONNECT TO EXISTING BUILDING CLOCK SYSTEM WHERE FEASIBLE. PROVIDE NEW AS REQUIRED.
4. EXISTING IDF ROOM TO REMAIN. PROVIDE NEW PATCH PANELS FOR TERMINATION OF NEW CABLING INDICATED ON PLANS. ALL PATCH PANELS SHALL BE PROVIDED INTO EXISTING RACKS. PANELS SHALL BE STEEL AND SHALL ALLOW FOR MOUNTING OF ALL CAT-5, SE (EXISTING CABLES) AND/OR CAT-6, 6A (NEW CABLES) JACKS. PANELS SHALL BE BLANK. PANELS IN 24 AND 48 PORT CONFIGURATIONS THAT ACCEPTS ALL MODULAR JACKS. PANELS SHALL HAVE REAR CABLE SUPPORT BAR FOR STRAIN RELIEF WHICH SHALL CLIP TO THE REAR OF THE PATCH PANEL OR TO THE REAR OF THE RACK RAIL. PORTS SHALL BE MARKED ON TOP OF THE OPENING BY FACTORY. LABEL ALL PANELS, CABLES WITH THE OWNER (SDP) APPROVED LABELS.

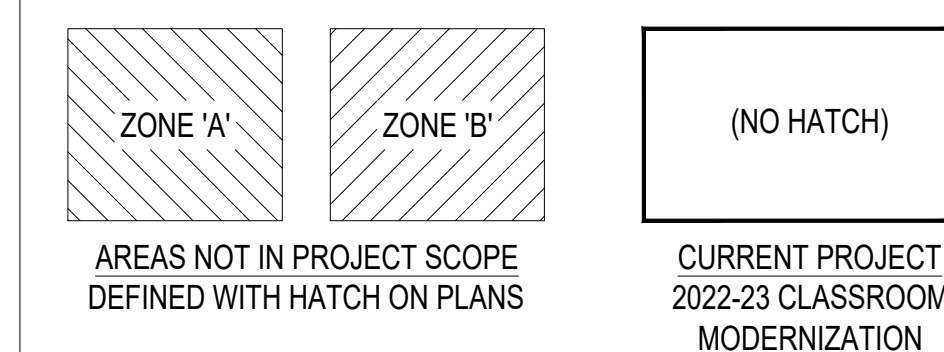
LEGEND

- EXISTING TO REMAIN
- NEW

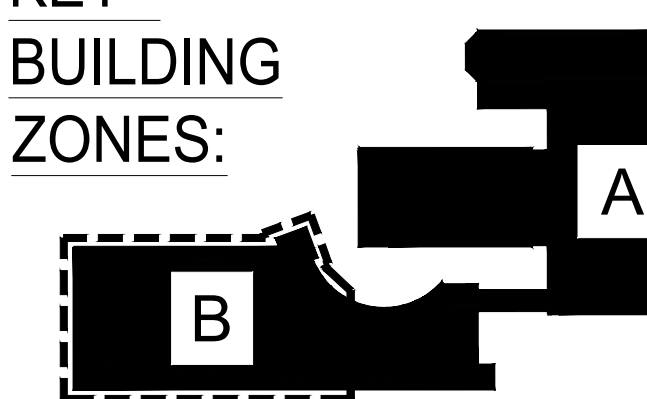
1 SPECIAL SYSTEMS PLAN - 1ST LEVEL
E-130 SCALE: 1/8" = 1'-0"

2 SPECIAL SYSTEMS PLAN - 2ND LEVEL
E-130 SCALE: 1/8" = 1'-0"

KEY - PROJECT SCOPE:



KEY - BUILDING ZONES:



- NOTES:
- ZONE 'A' = 1915 ORIGINAL BUILDING
 - ZONE 'B' = 1999 BUILDING ADDITION
 - "DASHED LINE" DEFINES PLAN AREA SHOWN ON SHEET.

ISSUE FOR BID
01/14/2022

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1	02/17/2022	ADDENDUM #2
NO.	DATE	REVISION

SCHOOL & LOCATION
BENJAMIN FRANKLIN SCHOOL
5741 RISING SUN AVE., PHILADELPHIA, PA 19120

PROJECT TITLE
CLASSROOM MODERNIZATION

DRAWING TITLE
SPECIAL SYSTEMS PLANS

DRAWING SCALE	
LOCATION NO.	
DRAWN BY NIP	CHECKED BY GSP
GC - 2022-005-G	
EC - 2022-005-E	
DRAWING NO. E - 130	
SHEET 18 OF 20	

SEAL:



Name: Kevin Ray Goodhart
STATE AND LICENSE NO: RAD14763X
DATE: 10/22/1996

ARCHITECT:
GODSHALL KANE O'ROURKE ARCHITECTS, LLC
300 BROOKSIDE AVENUE - BLDG. 18 - SUITE 150
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Phone: 215.646.2003
Email: ALLISON@GKOARCHITECTS.COM
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PLYMOUTH MEETING, PA 19462
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Email: GOPI.PATEL@PSQUAREDENG.COM
Alln: GOPI PATEL

ISSUE FOR BID
01/14/2022

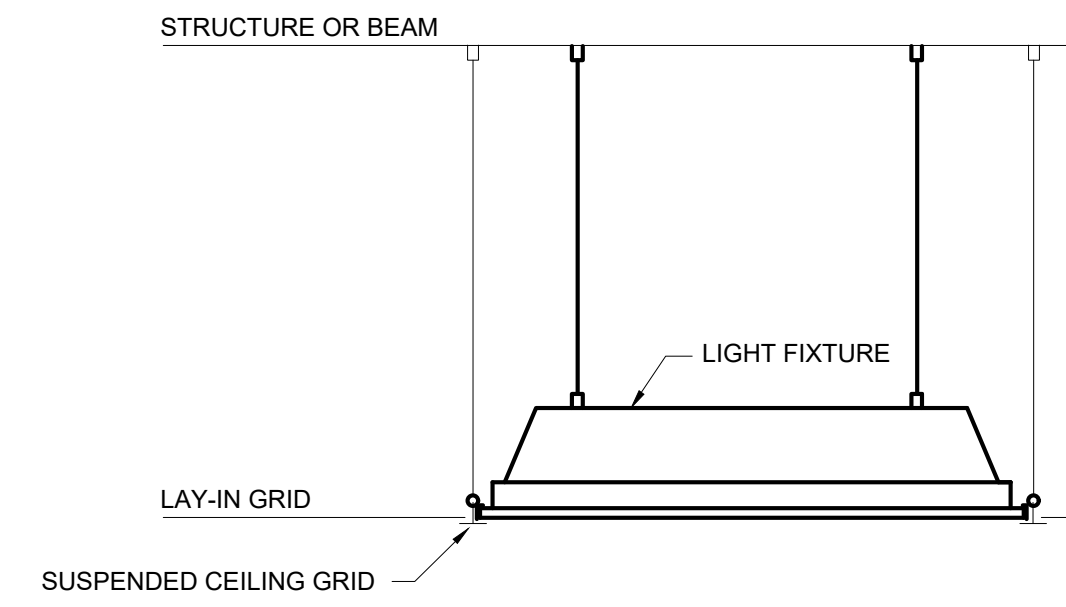
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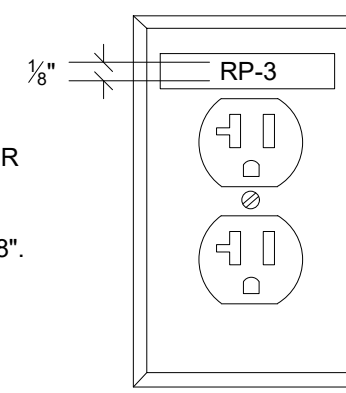
PROJECT TITLE
CLASSROOM MODERNIZATION

DRAWING TITLE
ELECTRICAL DETAILS

DRAWING SCALE	
LOCATION NO.	
DRAWN BY NIP	CHECKED BY GSP
GC - 2022-005-G EC - 2022-005-E	
DRAWING NO. E - 200	
SHEET 19 OF 20	



5 LAY-IN GRID FIXTURE MOUNTING DETAIL
E-200 NOT FOR SCALE

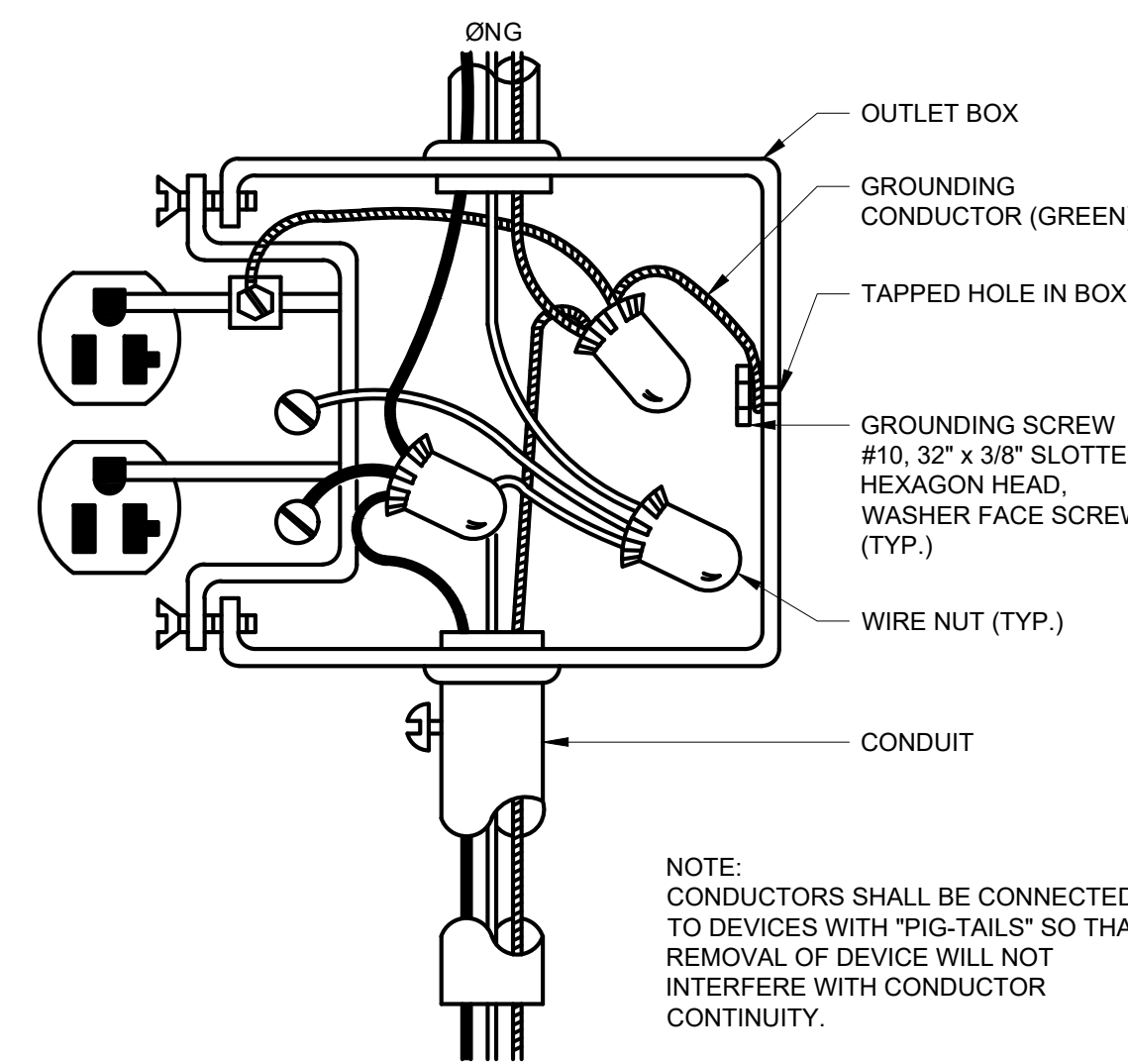


PROVIDE A LABEL FOR EACH RECEPTACLE TO INDICATE PANEL AND CIRCUIT BREAKER NUMBER SUPPLYING THE DEVICE. PROVIDE PRESSURE SENSITIVE, LABEL WITH BLACK LETTERING ON CLEAR BACKGROUND. LETTERING HEIGHT IS 1/8".

3 RECEPTACLE LABELING DETAIL
E-200 SCALE: NOT TO SCALE

1. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL
2. PROVIDE WIRING AND CONDUIT BETWEEN ALL OUTLETS/FIXTURES INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS.
3. ALL SWITCH CONTROLS SHALL BE PROVIDED WITH WIRING AND CONDUIT AS REQUIRED. ALTHOUGH ALL BRANCH CIRCUIT WIRING AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.
4. BRANCH CIRCUIT WIRING IS INDICATED ON THE DRAWINGS IN ACCORDANCE FOR BOTH LIGHTING AND POWER.
5. LIGHT SWITCH CONTROLS LIGHTS IN THE SAME ROOM UON.
- 6.

2 BRANCH CIRCUIT WIRING NOTES
E-200 SCALE: NOT TO SCALE



NOTE: CONDUCTORS SHALL BE CONNECTED TO DEVICES WITH "PIG-TAILS" SO THAT REMOVAL OF DEVICE WILL NOT INTERFERE WITH CONDUCTOR CONTINUITY.

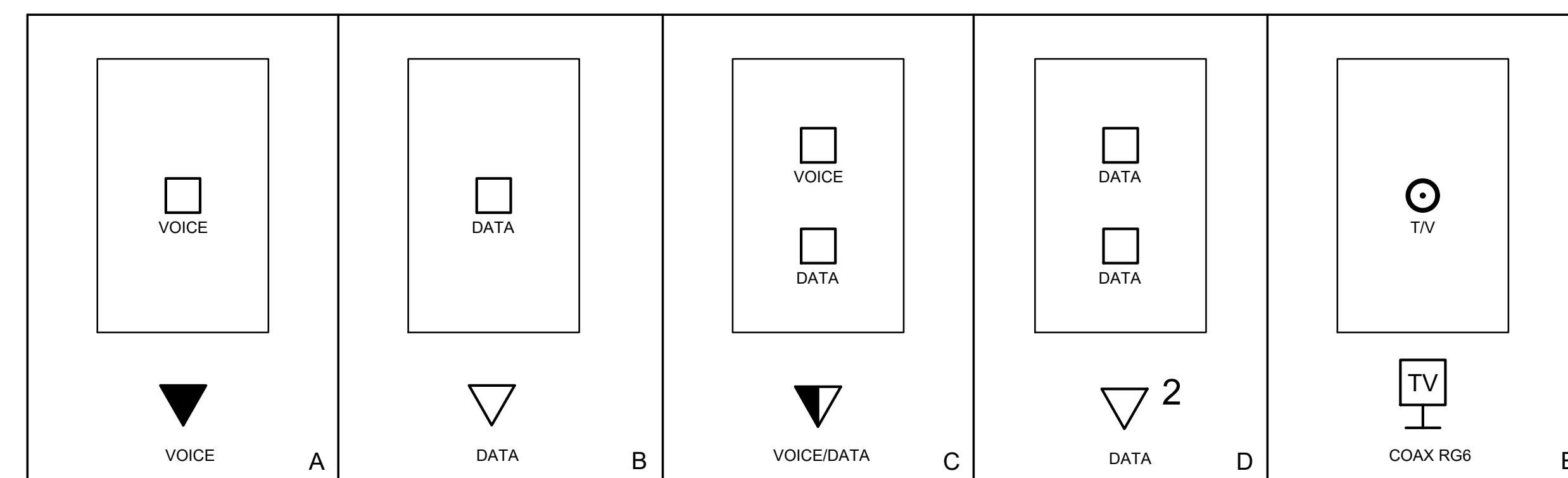
4 TYPICAL RECEPTACLE WIRING
E-200 SCALE: NOT TO SCALE

7 VOLTAGE DROP TABLE
E-200 SCALE: NOT TO SCALE

		MAX. LENGTH WHEN USING				
VOLTAGE	PHASE	AMPS	#12	#10	#8	#6
120	1	4	250'	410'	620'	-
120	1	8	125'	200'	310'	-
120	1	12	80'	135'	205'	320'
120	1	16	60'	100'	155'	240'
208	1	4	420'	700'	-	-
208	1	8	210'	350'	530'	-
208	1	12	140'	235'	350'	550'
208	1	16	105'	175'	270'	410'
277	1	6	380'	620'	-	-
277	1	8	280'	470'	-	-
277	1	10	225'	380'	560'	-
277	1	12	190'	310'	480'	-

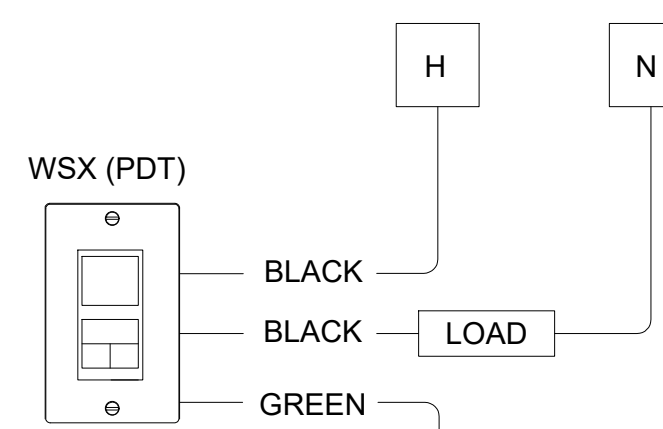
TELECOMM/ACCESS CONTROL/AUDIO-VISUAL/SURVEILLANCE/ELECTRICAL RESPONSIBILITY MATRIX													
SYMBOLS	DESCRIPTION	CONDUIT			BACKBOX			FACEPLATE		WIRING		COMMENTS	
		SIZE	FURNISHED & INSTALLED	FROM TO	SIZE	FURNISHED & INSTALLED	MOUNTING HEIGHT	DETAIL	FURNISHED & INSTALLED	TYPE	FURNISHED & INSTALLED		
TELECOM													
▼	TWO JACK COMBINATION VOICE/DATA OUTLET	3/4"	ELECTRICAL CONTRACTOR	BACK BOX	ABOVE ACCESSIBLE CEILING	4"x4"x2-1/2" MIN DOUBLE GANG BACKBOX W/ SINGLE GANG MUD RING ADAPTER	ELECTRICAL CONTRACTOR	SEE DWG. E0.00	SEE DETAIL #1/C	ELECTRICAL CONTRACTOR	(2)CAT-6	ELECTRICAL CONTRACTOR	MATCH EXISTING CABLE COLOR; STAINLESS STEEL FACEPLATE
▼	SINGLE JACK VOICE OUTLET	3/4"	ELECTRICAL CONTRACTOR	BACK BOX	ABOVE ACCESSIBLE CEILING	4"x4"x2-1/2" MIN DOUBLE GANG BACKBOX W/ SINGLE GANG MUD RING ADAPTER	ELECTRICAL CONTRACTOR	SEE DWG. E0.00	SEE DETAIL #1/A	ELECTRICAL CONTRACTOR	CAT-6	ELECTRICAL CONTRACTOR	MATCH EXISTING CABLE COLOR; COMMSCOPE M10LW45P 1-PORT SINGLE GANG STAINLESS STEEL TELEPHONE FACEPLATE
▼	SINGLE JACK SINGLE GANG DATA OUTLET	3/4"	ELECTRICAL CONTRACTOR	BACK BOX	ABOVE ACCESSIBLE CEILING	4"x4"x2-1/2" MIN DOUBLE GANG BACKBOX W/ SINGLE GANG MUD RING ADAPTER	ELECTRICAL CONTRACTOR	SEE DWG. E0.00	SEE DETAIL #1/B	ELECTRICAL CONTRACTOR	CAT-6	ELECTRICAL CONTRACTOR	MATCH EXISTING CABLE COLOR; STAINLESS STEEL FACEPLATE
▼ ²	TWO JACK SINGLE GANG DATA OUTLET	3/4"	ELECTRICAL CONTRACTOR	BACK BOX	ABOVE ACCESSIBLE CEILING	4"x4"x2-1/2" MIN DOUBLE GANG BACKBOX W/ SINGLE GANG MUD RING ADAPTER	ELECTRICAL CONTRACTOR	SEE DWG. E0.00	SEE DETAIL #1/D	ELECTRICAL CONTRACTOR	(2)CAT-6	ELECTRICAL CONTRACTOR	MATCH EXISTING CABLE COLOR; STAINLESS STEEL FACEPLATE
▲ WAP	WIRELESS ACCESS POINT	3/4"	ELECTRICAL CONTRACTOR	TOP BOX	ABOVE ACCESSIBLE CEILING	SEE DETAIL 1/E-510	ELECTRICAL CONTRACTOR	SEE DWG. E0.00	N/A	N/A	(2)CAT-6	ELECTRICAL CONTRACTOR	MATCH EXISTING CABLE COLOR; STAINLESS STEEL FACEPLATE
TV	SINGLE GANG CABLE	3/4"	ELECTRICAL CONTRACTOR	BACK BOX	ABOVE ACCESSIBLE CEILING	4"x4"x2-1/2" MIN DOUBLE GANG BACKBOX W/ DOUBLE GANG MUD RING ADAPTER	ELECTRICAL CONTRACTOR	SEE DWG. E0.00	SEE DETAIL #1/E	ELECTRICAL CONTRACTOR	RG-6	ELECTRICAL CONTRACTOR	MATCH EXISTING CABLE COLOR; STAINLESS STEEL FACEPLATE

NOTE: ALL WORK SHALL BE DONE IN ACCORDANCE WITH LATEST VERSION OF SCHOOL DISTRICT OF PHILADELPHIA TECHNOLOGY DESIGN STANDARDS



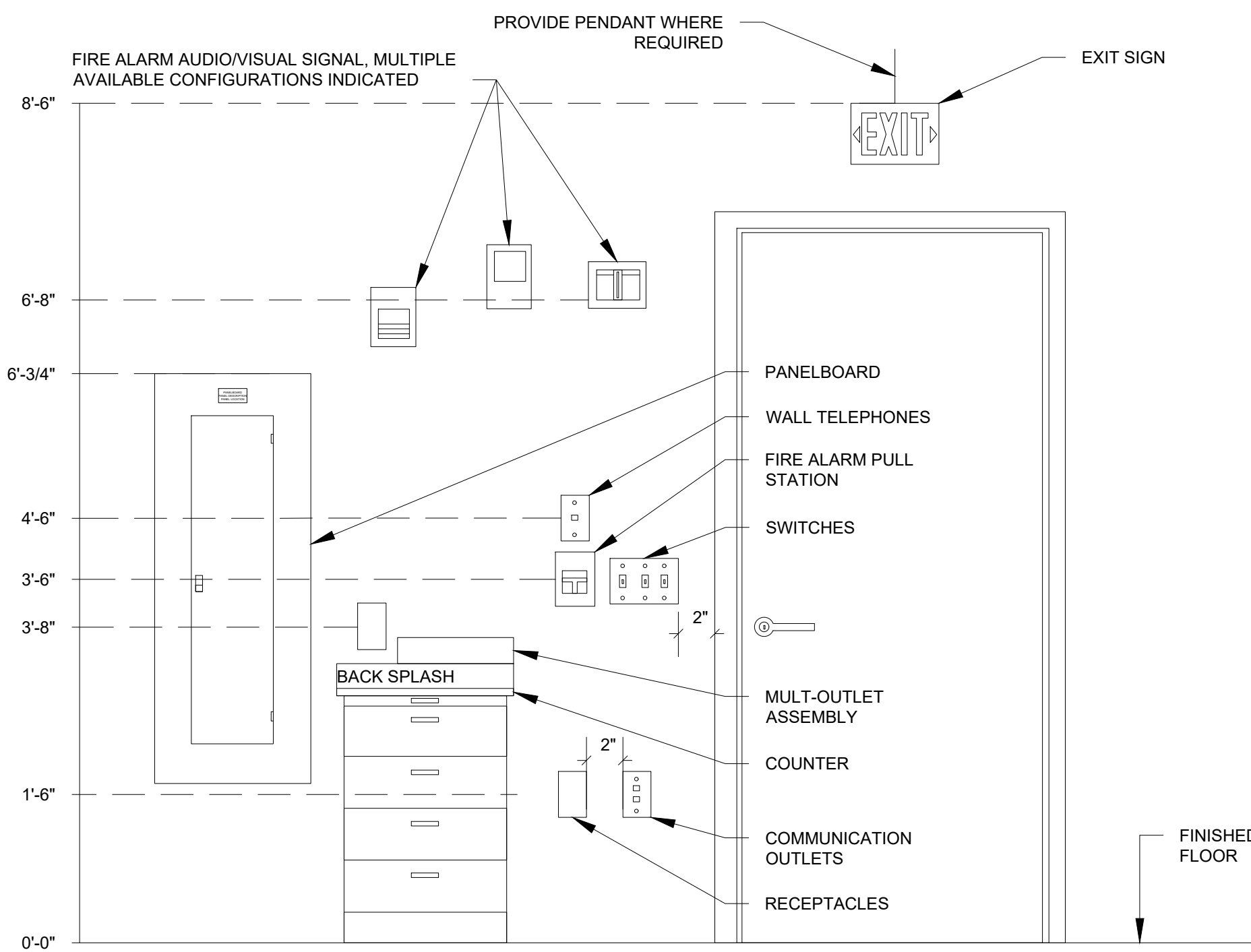
6 LOW VOLTAGE DIMMING SWITCH W/ MOTION SENSOR WIRING DIAGRAM
E-200 SCALE: NOT FOR SCALE

- NOTES:
1. LIGHTING CONTROL DEVICES BY SENSOR SWITCH OR APPROVED EQUAL.
 2. PROVIDE POWER PACKS AND RELAYS AS REQUIRED TO MEET DESIGN INTENT.
 3. QUANTITIES AS INDICATED ON FLOOR PLAN OR AS REQUIRED TO MEET DESIGN INTENT.
 4. CABLE/WIRE TYPE AS SPECIFIED BY MANUFACTURER.
 5. UP TO 8 SENSORS PER POWER PACK.



8 WALL BOX OCCUPANCY/VACANCY SENSOR WIRING DIAGRAM
E-200 SCALE: NOT FOR SCALE

1 EQUIPMENT MOUNTING ELEVATION
E-200 SCALE: NOT TO SCALE



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