Addendum No. 001

Subject: 2020 Classroom Modernizations  
SDP Contract Numbers: B-019 C of 19/20 & B-021 C of 19/20

Location: Ellwood School  
6701 N. 13th St, Philadelphia PA 19126

This Addendum, dated February 28, 2020, 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.

GENERAL

CLARIFICATION – Any/all scope dictated in the Asbestos Inspection Report specification and/or the Paint and Plaster specification (where applicable) shall utilize the proposed finishes as indicated on the Color Scheme Schedule within the Classroom Modernization drawings. All color selections and locations shall be approved by the architect.

SPECIFICATIONS

SPECIFICATION 262416 – PANELBOARDS
   1. ADD specification in its entirety.

SPECIFICATION 275313 – WIRELESS CLOCK SYSTEM
   1. REVISE 2.2.H. to read “H. Basis of Design: Sapling Inc. SMA 2900 3000 Series Master Clock (V8.1), Wireless Clock System. [Addendum No. 1].”

SPECIFICATION 01 1135- Asbestos Abatement Technical Specifications
   1. REMOVE Attachment A- Asbestos Location Drawings- and all references within

Specification Part B- Technical Specifications and Scope of Work for Paint and Plaster Repairs
   1. Remove and replace Scope of Work Detail (Lead Safe Certification Assessment Report)

COVER SHEETS

DRAWING CS.1 – COVER SHEET
1. REVISED cover to add Deed Address “1201-51 OAK LN, PHILADELPHIA, PA 19126-3225.”

ARCHITECTURAL DRAWINGS

DRAWSNGS D1.1 to D1.3 – DEMOLITION PLANS

1. ADD note adjacent to Storage Room 105B to read “METAL SHELVING TO BE REMOVED, STORED AND REINSTALLED IN PLACE FOR NEW WORK.”

2. REVISE demolition note 1A to read “EXISTING WALLS SHALL BE SCRAPED; REMOVE ANY/ALL ABANDONED OR UNUSED BRACKETS, PROJECTORS AND MOUNTS, PROJECTOR SCREENS, TVS AND MOUNTS, BLOCKING AND ASSOCIATED ACCESSORIES IN THEIR ENTIRETY. PATCH ANY AND ALL PENETRATIONS AND CRACKING THROUGHOUT AND PREPARE WALLS, COLUMNS, REGISTERs, HEATERS, AND ASSOCIATED ACCESSORIES TO RECEIVE NEW FINISH MATCHING ADJACENT FINISHED SURFACE AS SCHEDULED.”

3. REVISE demolition note 3A to read “EXISTING DOOR AND FRAME ASSEMBLY TO REMAIN. REMOVE ANY/ALL OBSOLETE EQUIPMENT, STAPLES AND ASSOCIATED ACCESSORIES AND FASTENERS IN THEIR ENTIRETY FROM DOOR AND FRAME ASSEMBLY. ANY/ALL PENETRATIONS IN EXISTING DOOR AND FRAME, INCLUDING OLD HARDWARE PENETRATIONS, SHALL BE PATCHED WITH SAME MATERIAL AS DOOR. SAND AND RETURN TO "LIKE NEW" CONDITION AND PREPARE FOR NEW FINISH AS SCHEDULED. ALL MISCELLANEOUS HARDWARE AND SECURITY GRILLES AND ASSOCIATED BRACKETING SHALL BE REMOVED IN ITS ENTIRETY (WHERE OCCURS). PREPARE DOOR AND/OR FRAME ASSEMBLIES TO RECEIVE NEW INFILL AS SCHEDULED (WHERE OCCURS). PREPARE DOOR FOR NEW HARDWARE AS SCHEDULED. CONTRACTOR SHALL VERIFY IN FIELD ALL DOOR, FRAME AND HARDWARE REQUIREMENTS. CONTRACTOR SHALL NOT REMOVE ANY COMPONENTS OF DOOR OR HARDWARE UNTIL ALL COMPONENTS OF NEW ASSEMBLY ARE PHYSICALLY ON SITE, INCLUDING CORES.”

4. REVISE demolition note 5A to read “EXISTING HARD CEILING AND/OR METAL CEILINGS SHALL BE SCRAPED; REMOVE ANY/ALL ABANDONED OR UNUSED FASTENERS, BRACKETS, PROJECTORS AND MOUNTS AND ASSOCIATED ACCESSORIES IN THEIR ENTIRETY. PATCH ANY AND ALL PENETRATIONS AND CRACKING THROUGHOUT AND PREPARE CEILINGS, BEAMS, AND ASSOCIATED ACCESSORIES TO RECEIVE NEW FINISH MATCHING ADJACENT SURFACE AS SCHEDULED. WHERE CAPPING OF OLD OR ABANDONED SYSTEMS OCCURS, PROVIDE COVER PLATE AND PAINT TO MATCH EXISTING SURFACES. REFER TO ENGINEERING DRAWINGS FOR FURTHER INFORMATION WHERE OCCURS.”

5. REVISE demolition note 7P to read “EXISTING UNIT VENTILATOR AND SHELVING SYSTEM AND/OR RADIATOR, RADIATOR COVER, AND ALL ASSOCIATED PIPING AND COMPONENTS TO BE REMOVED (AS APPLICABLE). SHELVING DOORS SHALL BE REMOVED IN THEIR ENTIRETY. REFINISH ASSEMBLY WITH ELECTROSTATIC PAINT AND REINSTALL AS SCHEDULED. CLEAN UNIT VENTILATOR AND/OR RADIATOR AND ALL ASSOCIATED COMPONENTS PRIOR TO REINSTALLATION OF COVER.”

6. REVISE demolition note 8A to read “EXISTING WOOD TRIM THROUGHOUT ENTIRE ROOM INCLUDING, BUT NOT LIMITED TO BASE, DOOR, CROWN MOLDING, WINDOW TRIM AND INTERMITTENT WOOD MULLIONS, SHALL BE STRIPPED OF ANY NAILS, STAPLES, TAPE, AND ETC. SAND AND PATCH ANY PENETRATIONS AND PREPARE TO RECEIVE NEW FINISH AS SCHEDULED.”
DRAWING A6.1 – ROOM FINISH SCHEDULE & DOOR SCHEDULE

1. REVISE Room Finish schedule as indicated:
   a. REVISE column “COLOR SCHEME” at ROOMS 108, 211, 212 to correspond to Color Scheme “C”.
   b. REVISE column “COLOR SCHEME” at ROOMS 208, 210 to correspond to Color Scheme “D”.

2. REVISE Color Scheme Schedule as indicated:
   a. REVISE Color Scheme A to read as: “COLOR SCHEME A – KINDERGARTEN”.
   b. REVISE item no. 6 to read as: “6. VINYL COMPOSITION TILE, ACCENT ‘2’: ARMSTRONG, NO. 51947 BASIL GREEN”
   c. ADD item no. 8 to read as: “8. VINYL BASE: JOHNSONITE, NO. 469 MYSTIFY”.
   d. REVISE Color Scheme B to read as: “COLOR SCHEME B – FIRST GRADE AND SPECIAL EDUCATION”.
   e. REVISED item no. 3 to read as: “3. ACCENT PAINT ’B’ TEACHING WALL: SHERWIN WILLIAMS, NO. SW6765 SPA”
   f. REVISE item no. 5 to read as: “5. VINYL COMPOSITION TILE, ACCENT ‘1’: ARMSTRONG, NO. 51927 FIELD GRAY”
   g. REVISE item no. 6 to read as: “6. VINYL COMPOSITION TILE, ACCENT ’2’: ARMSTRONG, NO. 57509 LEMON LICK”
   h. ADD item no. 8 to read as: “8. VINYL BASE: JOHNSONITE, NO. 469 MYSTIFY”.
   i. REVISE Color Scheme C to read as: “COLOR SCHEME C – SECOND GRADE”.
   j. ADD Color Scheme Information for Color Scheme C.
   k. REVISE Color Scheme D to read as: “COLOR SCHEME D – THIRD GRADE”.
   l. ADD Color Scheme Information for Color Scheme D.
   m. REVISE General Notes Item No. 7 to read as: “NOT USED”.

ELECTRICAL DRAWINGS

DRAWING E0.1 – ELECTRICAL GENERAL NOTES, SYMBOLS & ABBREVIATIONS
1. REVISE room controller basis-of-design to read “GREENGATE – MODEL #RC3D-PL.”

DRAWING ED1.1 - ELECTRICAL FIRST FLOOR DEMOLITION PLAN – UNIT A
1. CLARIFY general note in larger font to read “ELECTRICAL CONTRACTOR TO PROVIDE ALLOWANCE FOR REMOVAL OF 10'-0" OF SURFACE MOUNTED RACEWAY/CONDUIT AND CONDUCTORS IN EACH CLASSROOM.”

DRAWING ED1.2 - ELECTRICAL FIRST FLOOR DEMOLITION PLAN – UNIT B
1. ADD general note in larger font to read “ELECTRICAL CONTRACTOR TO PROVIDE ALLOWANCE FOR REMOVAL OF 10'-0" OF SURFACE MOUNTED RACEWAY/CONDUIT AND CONDUCTORS IN EACH CLASSROOM.”
2. REVISE MDF/IT Room layout as indicated on the drawings.

DRAWING ED1.3 - ELECTRICAL SECOND FLOOR DEMOLITION PLAN – UNIT B
1. CLARIFY general note in larger font to read “ELECTRICAL CONTRACTOR TO PROVIDE ALLOWANCE FOR REMOVAL OF 10'-0" OF SURFACE MOUNTED RACEWAY/CONDUIT AND CONDUCTORS IN EACH CLASSROOM.”

DRAWING E2.1 - ELECTRICAL FIRST FLOOR POWER AND TECHNOLOGY PLAN – UNIT A
1. ADD general sheet note #6 to read “ELECTRICAL CONTRACTOR TO RUN ALL NEW SURFACE MOUNTED CONDUITS AND RACEWAYS IN CORNERS OFF EACH
CLASSROOM TO AVOID CONFLICT WITH DISPLAY BOARDS AND OTHER CLASSROOM FURNISHINGS.”

2. REVISE data outlet locations and scope as indicated on the drawings.

**DRAWING E2.2 - ELECTRICAL FIRST FLOOR POWER AND TECHNOLOGY PLAN – UNIT B**

1. ADD general sheet note #6 to read “ELECTRICAL CONTRACTOR TO RUN ALL NEW SURFACE MOUNTED CONDUITS AND RACEWAYS IN CORNERS OFF EACH CLASSROOM TO AVOID CONFLICT WITH DISPLAY BOARDS AND OTHER CLASSROOM FURNISHINGS.”

2. REVISE data outlet locations and scope as indicated on the drawings.

3. REVISE MDF/IT Room layout as indicated on the drawings.

**DRAWING E2.3 - ELECTRICAL SECOND FLOOR POWER AND TECHNOLOGY PLAN–UNIT B**

1. ADD general sheet note #6 to read “ELECTRICAL CONTRACTOR TO RUN ALL NEW SURFACE MOUNTED CONDUITS AND RACEWAYS IN CORNERS OFF EACH CLASSROOM TO AVOID CONFLICT WITH DISPLAY BOARDS AND OTHER CLASSROOM FURNISHINGS.”

2. REVISE data outlet locations and scope as indicated on the drawings.

**DRAWING E7.1 - ELECTRICAL DETAILS**

1. REVISE 3/E7.1 Typical Classroom Lighting Controller diagram as indicated on the drawings.

**BIDDER QUESTIONS SUBMITTED TO DATE & RESPONSES ARE AS FOLLOWS:**

1. On the website, each school has an EC and GC bid. Who will be responsible for the HVAC and Plumbing work that is included?

   **Answer:** See specification section 01 1000 Summary of Work, section 1.1, “Note: All work shown on the Plumbing or Mechanical Drawings or indicated as plumbing or mechanical work is the responsibility of the General Construction Contractor.”

2. Specifications call for Sapling Master 2000 Clock. Sapling 3000 is normally the school district standard. Manufacturer comment "a 3000 can set up bell schedules where a 2000 cannot. Philly schools does not have intercom systems, so they have no way of ringing bells without the 3000." Should the specs be revised to install a 3000?

   **Answer:** Specification 275313 has been revised in this addendum. Refer to specification addendum section, above.

3. The specifications do not contain a specification for the electrical panels. Can you provide?

   **Answer:** Specification 262416 Panelboards has been added to the contract documents as part of this addendum.
4. The GC scope of work covers 19 classrooms and associated storage and toilet rooms. NOTE on page 3 of 5 says: “The General Construction Contractor is responsible for all Paint and Plaster Repairs IN ALL ROOMS OF THE BUILDING(S), in accordance with the attached Technical Specification and Scope of Work.” Please confirm that “all rooms” refers to the 19 classrooms, storage and toilet rooms as defined in the scope of work.

**Answer:** ALL ROOMS OF THE BUILDING(S) are required to be painted in accordance with the Paint and Plaster Specification Requirements. The Lead Safe Certification document locates the specified scope for stabilization. This scope is NOT limited to the Classroom Modernization locations.

5. Drawing D1.1, Demolition Note 9A states “existing unit ventilator and/or radiator, radiator cover and all associated piping and components to be removed (as applicable) and refinished with electrostatic paint and reinstalled as scheduled. Clean unit ventilator and/or radiator and all associated components prior to reinstallation of cover.” Is this the responsibility of the GC?

**Answer:** See question #1 above regarding HVAC and Plumbing responsibility. Drawing D1.1, Demolition Note 9A is amended to read:

“Existing unit ventilator cover and/or radiator cover to be removed (as applicable) and refinished with electrostatic paint and reinstalled as scheduled. Clean unit ventilator and/or radiator and all associated components prior to reinstallation of cover.”

6. The contract drawings don’t show any details regarding the scope of work. The notes on the drawings lead us to believe that the intent is to Paint the Ventilator Grilles and Radiator covers. Please clarify?

**Answer:** See Question #6, above. Also refer to Specification 105115 Electrostatic Painting for refinishing requirements for metal surfaces.

7. Drawings don’t show S.S. Corner Guard locations. Please Clarify?

**Answer:** Per Specification 102600, Section 2.3.A.7, we have indicated corner guards to be received at three schools; John B. Kelly Elementary per drawings, Overbrook Educational Center per drawings, and Fox Chase Elementary per drawings.

8. Confirm that Unit Price No. 1 and Unit Price No. 2 work is only applicable to Pollock Part Part B Scope of Work. Provide breakdown by room, location, surface type (wall or ceiling) and size (in SF) for the respective patching and repairs.

**Answer:** Unit Pricing should be included as noted in the Bid Proposal form. This applies to all schools that include a “Part B- Scope of work and technical
specifications for paint and plaster repairs.” See question 4 above, and see included revision to “Lead Safe Certification Assessment Report.”


**Answer:** This document has been revised. There aren’t floor plans for part B. Please see responses to questions 4 and 9 above.

10. Please provide Appendix A- Asbestos Location Drawings

**Answer:** For specification 01 1135 Asbestos Abatement Technical Specification, omit all references within this section referring to Appendix A- Asbestos Location Drawings. See section 1.2, Section E for the scope of work.

**ATTACHMENTS**

**SPECIFICATIONS**
SPECIFICATION 262416   PANELBOARDS
Specification Part B- Technical Specifications and Scope of Work for Paint and Plaster Repairs

**DRAWINGS**
DRAWING A6.1  ROOM FINISH SCHEDULE & DOOR SCHEDULE
DRAWING ED1.2  ELECTRICAL FIRST FLOOR DEMOLITION PLAN – UNIT B
DRAWING E2.1  ELECTRICAL FIRST FLOOR POWER AND TECHNOLOGY PLAN–UNIT A
DRAWING E2.2  ELECTRICAL FIRST FLOOR POWER AND TECHNOLOGY PLAN–UNIT B
DRAWING E2.3  ELECTRICAL SECOND FLOOR POWER AND TECHNOLOGY PLAN – UNIT B
DRAWING E7.1  ELECTRICAL DETAILS

**END OF ADDENDUM #001**
SECTION 262416 – PANELBOARDS [Addendum No. 1]

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. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

A. ATS: Acceptance testing specification.

B. GFCI: Ground-fault circuit interrupter.

C. GFEP: Ground-fault equipment protection.

D. MCCB: Molded-case circuit breaker.

E. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of panelboard.

1. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.

2. Include dimensions and manufacturers’ technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details.

2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.

3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.

4. Detail bus configuration, current, and voltage ratings.

5. Short-circuit current rating of panelboards and overcurrent protective devices.

6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

7. Include wiring diagrams for power, signal, and control wiring.
8. Key interlock scheme drawing and sequence of operations.
9. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graph paper; include selectable ranges for each type of overcurrent protective device. Include an Internet link for electronic access to downloadable PDF of the coordination curves.

C. Contractor shall submit a “specifications compliance statement” for each manufactured piece of equipment. Contractor/Supplier shall add “redlined” line-by-line notations to a PDF of the Specifications Section indicating the product or actions required “complies”. Contractor/Supplier shall itemize all deviations from the specified requirement on a line-by-line basis. List of exceptions to product specification shall include proposed materials, methods and cost difference where substitutions are allowed. If product does not comply with the specification the Contractor/Supplier shall state what modifications and actions are being implemented to ensure the product shall comply per the substitution section of the contract documents.

1.5 STATEMENT OF COMPLIANCE

A. Contractor shall submit a “specifications compliance statement” for each manufactured piece of equipment. Contractor/Supplier shall add “redlined” notations to a PDF of the Specifications Section indicating the product or actions required “complies”. If product does not comply the Contractor/Supplier shall state what modifications and actions are being implemented to ensure the product shall comply per the substitution section of the contract documents.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.
B. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in other section for "Operation and Maintenance Data," include the following:

1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: ISO 9001 or 9002 certified.
1.9 DELIVERY, STORAGE, AND HANDLING

A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.

B. Handle and prepare panelboards for installation according to NECA 407.

1.10 FIELD CONDITIONS

A. Environmental Limitations:

1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:

   a. Ambient Temperature: Not exceeding 23 deg F (minus 5 deg C) to plus 104 deg F (plus 40 deg C).

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet (2000 m).

C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Construction Manager no fewer than two days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without Construction Manager's written permission.
3. Comply with NFPA 70E.

1.11 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.

1. Panelboard Warranty Period: 18 months from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANELBOARDS COMMON REQUIREMENTS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in other section for "Seismic Controls for Electrical Systems."
B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Comply with NEMA PB 1.

E. Comply with NFPA 70.

F. Enclosures: Flush and Surface-mounted, dead-front cabinets.
   1. Rated for environmental conditions at installed location.
      a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
      b. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 5.
   2. Height: **84 inches (2.13 m)** maximum.
   3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.
   4. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
   5. Finishes:
      a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
      b. Back Boxes: Same finish as panels and trim.

G. Incoming Mains:
   1. Location: Top and Bottom.
   2. Main Breaker: Main lug interiors up to 400 amperes shall be field convertible to main breaker.

H. Phase, Neutral, and Ground Buses:
      a. Plating shall run entire length of bus.
      b. Bus shall be fully rated the entire length.
   2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
   3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.

I. Conductor Connectors: Suitable for use with conductor material and sizes.
2. Terminations shall allow use of 75 deg C rated conductors without derating.
3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.
6. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
7. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
8. Gutter-Tap Lugs: Mechanical type suitable for use with conductor material and with matching insulating covers. Locate at same end of bus as incoming lugs or main device.

J. Future Devices: Panelboards or load centers shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

1. Percentage of Future Space Capacity: 20 percent.

K. Panelboard Short-Circuit Current Rating: Match existing condition Ratings (Field coordinate).

L. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity. However, if the short-circuit & coordination study requires higher AIC rating, then the contractor shall provide higher rated panels without any additional cost to the owners. It is highly recommended that short-circuit & coordination study be prepared prior to ordering the panels.

1. Panelboards and overcurrent protective devices rated 240 V or less shall have short-circuit ratings as shown on Drawings, but not less than 10,000 A rms symmetrical.
2. Panelboards and overcurrent protective devices rated above 240 V and less than 600 V shall have short-circuit ratings as shown on Drawings, but not less than 14,000 A rms symmetrical.

2.2 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton.
2. East coast Panelboard Inc.
3. Square D; by Schneider Electric.
B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs only.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Door-in-door construction with concealed hinges; secured with multipoint latch with tumbler lock; keyed alike. Outer door shall permit full access to the panel interior. Inner door shall permit access to breaker operating handles and labeling, but current carrying terminals and bus shall remain concealed.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton
2. East coast Panelboard Inc.
3. Square D; by Schneider Electric.

B. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers:
   a. Inverse time-current element for low-level overloads.
   b. Instantaneous magnetic trip element for short circuits.
   c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

2. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6-mA trip).


4. MCCB Features and Accessories:
   a. Standard frame sizes, trip ratings, and number of poles.
   b. Breaker handle indicates tripped status.
   c. UL listed for reverse connection without restrictive line or load ratings.
   d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
   e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads.
   f. Communication Capability: Circuit-breaker-mounted communication module with functions and features compatible with power monitoring and control system specified in other section for "Electrical Power Monitoring and Control."
   g. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
   h. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
   i. Auxiliary Contacts: One, SPDT switch with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts and "b" contacts operate in reverse of circuit-breaker contacts.
   j. Alarm Switch: Single-pole, normally open contact that actuates only when circuit breaker trips.
2.5 IDENTIFICATION

A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.

B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.


   1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

2.6 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.

B. Receive, inspect, handle, and store panelboards according to NECA 407.

C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.

D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent
surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Comply with NECA 1.

C. Install panelboards and accessories according to NECA 407.

D. Equipment Mounting:
   1. Attach panelboard to the vertical finished or structural surface behind the panelboard.
   2. Comply with requirements for seismic control devices specified in other section for "Seismic Controls for Electrical Systems."

E. Comply with mounting and anchoring requirements specified in other section for "Seismic Controls for Electrical Systems."

F. Mount top of trim 90 inches (2286 mm) above finished floor unless otherwise indicated.

G. Mount panelboard cabinet plumb and rigid without distortion of box.

H. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

I. Mount surface-mounted panelboards to steel slotted supports 5/8 inch (16 mm) in depth. Orient steel slotted supports vertically.

J. Install overcurrent protective devices and controllers not already factory installed.
   1. Set field-adjustable, circuit-breaker trip ranges.
   2. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.

K. Install filler plates in unused spaces.

L. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in other section for "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in other section for "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in other section for "Identification for Electrical Systems."
E. Install warning signs complying with requirements in other section for "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.
   1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Acceptance Testing Preparation:
   1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
   2. Test continuity of each circuit.

D. Tests and Inspections:
   1. Perform each visual and mechanical inspection and electrical test for low-voltage air circuit breakers stated in NETA ATS, Paragraph 7.6 Circuit Breakers. Perform optional tests. Certify compliance with test parameters.
   2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
   3. Perform the following infrared scan tests and inspections and prepare reports:
      a. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
      b. Instruments and Equipment:
         1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

E. Panelboards will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges as specified in other section for "Coordination Studies."
C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes. Prior to making circuit changes to achieve load balancing, inform Architect of effect on phase color coding.

1. Measure loads during period of normal facility operations.
2. Perform circuit changes to achieve load balancing outside normal facility operation schedule or at times directed by the Architect. Avoid disrupting services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After changing circuits to achieve load balancing, recheck loads during normal facility operations. Record load readings before and after changing circuits to achieve load balancing.
4. Tolerance: Maximum difference between phase loads, within a panelboard, shall not exceed 20 percent.

3.6 PROTECTION

A. Temporary Heating: Prior to energizing panelboards, apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 262416
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**Door Schedule**

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<th>OPENING NUMBERS</th>
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**Door Types**

- **F**: French Doors
- **N**: Pocket Doors
- **G**: Exterior Doors
- **G1**: Exterior Doors (1st Floor)
- **FG2**: Exterior Doors (2nd Floor)

**Color Scheme Schedule**

- **Color Scheme A**: (Not applicable)
- **Color Scheme B**: (Not applicable)
- **Color Scheme C**: (Not applicable)
- **Color Scheme D**: (Not applicable)

**General Notes**

- Where indicated, provide 3/4" MDF infill required.
- Provide new hardware and/or allow for refinish door and/or frame as scheduled on both sides of assembly.
- Provide new hardware to existing door and frame.
- Refinish door and/or frame as scheduled on exterior face.
- Addendum #1 – recommended mounting height from finished floor to center line of fire exit device for hardware to "like new" condition.
- Display board trim, etc. – color to match existing and field verified by architect/owner.
- Use unobstructed.

**Floor Finish Schedule**

- All locations where specified

**General Notes**

- Use unobstructed.
- Provide new hardware and/or allow for refinish door and/or frame as scheduled on both sides of assembly.
- Provide new hardware to existing door and frame.
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**Room Finish Schedule**

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**General Notes**

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**Color Scheme Schedule**

- Color scheme A: (Not applicable)
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1. REFER TO DRAWING E0.1 FOR ELECTRICAL GENERAL NOTES, SHOWN ON THE DEMOLITION PLANS WITH DASHED LINES FROM DAMAGE THROUGHOUT THE CONSTRUCTION PROCESS.

2. DISCONNECT AND REMOVE ALL EXISTING SYNCHRONOUS CLOCK, CONDUIT/RACEWAY AND WIRING ASSOCIATED WITH THIS SYSTEMS TO ITS ENTIRETY WITHIN THE ROOM. PROVIDE PLATE AND ALONG THE REMOVED CONDUIT/RACEWAY ROUTE, NEW FINISH TO MATCH ADJACENT EXISTING WALL CONSTRUCTION.

3. ALL EXISTING WALL MOUNTED PUBLIC ADDRESS SPEAKER TO FIELD TEST FUNCTIONALITY AND REPLACE IF REQUIRED. REFER TO NEW WORK PLAN FOR ADDITIONAL INFORMATION.

4. THE CONTINUITY OF ALL EXISTING CIRCUITS TO REMAIN SHALL BE MAINTAINED.

5. KEYED SHEET NOTES TO BE REMOVED BACK TO SOURCE OF TERMINATION SERVING THIS CLASSROOM. PREPARE FOR CONNECTION OF EXISTING CIRCUIT TO THE NEW FIXTURES UNDER NEW WORK. CONTRACTOR SHALL REUSE THE EXISTING WIRING AND CONDUIT IN PLACE WHERE POSSIBLE. PROVIDE NEW WIRING/CONDUIT AS REQUIRED.

6. DISCONNECT AND REMOVE EXISTING FIXTURE, AND CONDUIT IN PLACE WHERE POSSIBLE. PROVIDE NEW WIRING/CONDUIT IF REQUIRED.

7. DEMOLISH EXISTING PANELBOARD "L-2" AND REPLACE IN PLACE WITH NEW PANELBOARD. CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL EXISTING ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF THE SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD "L-4". REFER TO NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.

8. DISCONNECT AND REMOVE EXISTING RECEPTACLE, ASSOCIATED CABLE AND CONDUIT/RACEWAY IN ITS ENTIRETY WITHIN THE ROOM. PATCH AND PAINT ALONG THE REMOVED BACKBOX AND CONDUIT/RACEWAY ROUTE, NEW FINISH TO MATCH ADJACENT EXISTING WALL CONSTRUCTION.

9. DEMOLISH EXISTING PANELBOARD "L-4" AND REPLACE IN PLACE WITH NEW PANELBOARD. CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL EXISTING ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF THE SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD "L-4".

10. DISCONNECT AND REMOVE EXISTING DATA OUTLETS WITH COVERPLATE, EXISTING CABLE TO REMAIN IN PLACE. REFER TO NEW WORK PLAN FOR ADDITIONAL INFORMATION.

11. DISCONNECT AND REMOVE ALL EXISTING ABANDONED WIRING ASSOCIATED WITH THIS SYSTEMS TO ITS ENTIRETY WITHIN THE ROOM. PROVIDE NEW BLANK JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW FIXTURES UNDER NEW WORK.

12. DISCONNECT AND REMOVE EXISTING CATV OUTLET, ASSOCIATED CABLE AND CONDUIT/RACEWAY IN ITS ENTIRETY WITHIN THE ROOM. PATCH AND PAINT ALONG THE REMOVED BACKBOX AND CONDUIT/RACEWAY ROUTE, NEW FINISH TO MATCH ADJACENT EXISTING WALL CONSTRUCTION.
GENERAL SHEET NOTES

1. REFER TO DRAWING E0.1 FOR ELECTRICAL GENERAL NOTES, LEGEND AND ABBREVIATIONS.

EXACT LOCATION OF ELECTRICAL DEVICES.

3. ALL RECEPTACLES, TELE/DATA OUTLETS WITH ASSOCIATED WALL TYPES.

REFER TO ARCHITECTURAL DRAWINGS FOR WALL TYPES.

4. ALL THE RECEPTACLES AND DATA OUTLETS WITHIN THE SCOPE OF www.philasd.org WITH NEW DEVICES. NEW DEVICE COLOR SHALL BE WHITE.


6. ELECTRICAL CONTRACTOR TO RUN ALL NEW SURFACE MOUNTED ADJUSTABLE RECEPTACLES TO AVOID CONFLICT WITH DISPLAY BOARDS AND OTHER CLASSROOM FURNISHINGS.

7. NEW PANELBOARD "L-2". CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD.

8. PROVIDE NEW BATTERY OPERATED WIRELESS CLOCK. COORDINATE WITH ARCHITECT FOR EXACT MOUNTING HEIGHT.

9. PROVIDE NEW DATA OUTLETS WITH COVER PLATE AND RECONNECT TO EXISTING CAT CABLE.

10. REINSTALL EXISTING FIRE ALARM PULL STATION IN EXISTING LOCATION TO ACCOMMODATE NEW CONSTRUCTION.

11. NEW LOCATION OF RELOCATED TELEPHONE. COORDINATE IN FIELD FOR EXACT LOCATION TO AVOID DISPLAY BOARD CONFLICT.

12. NEW PANELBOARD "A". CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD.

13. NEW SPECIALTY RECEPTACLE AND CONTROL SWITCH FOR NEW WINDOW MOUNTED Air Conditioning Unit. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR EXACT LOCATION AND MOUNTING HEIGHT PRIOR TO INSTALLATION. COORDINATE WITH ARCHITECT AND EQUIPMENT VENDOR FOR EXACT CONNECTION REQUIREMENTS.
1. REFER TO DRAWING E0.1 FOR ELECTRICAL GENERAL NOTES, EXACT LOCATION OF ELECTRICAL DEVICES.

2. PROVIDE NEW TAMPER RESISTANT RECEPTACLE WITH COVER PLATE AND RECONNECT TO EXISTING CIRCUIT.

3. PROVIDE NEW TAMPER RESISTANT DEDICATED DUPLEX OUTLET.

4. PROVIDE NEW BATTERY OPERATED WIRELESS CLOCK.

5. CONTRACTOR TO FIELD TEST FUNCTIONALITY OF EXISTING TELEPHONE OUTLETS AND ASSOCIATED PHONE, REPLACE ANY DAMAGED PHONE AS NEEDED. COORDINATE WITH SDP FOR SERVING THE INTERACTIVE SMARTBOARD TO AVOID CONFLICT WITH BASE PLATE. REFER TO ARCHITECTURAL DRAWING A5.1 DETAIL #1 AND #2 FOR EXACT LOCATION AND MOUNTING HEIGHT.

6. ELECTRICAL CONTRACTOR TO RUN ALL NEW SURFACE MOUNTED CONDUITS AND RACEWAYS IN CORNERS OF EACH CLASSROOM TO AVOID CONFLICT WITH DISPLAY BOARDS AND OTHER CLASSROOM FURNISHINGS.

7. NEW PANELBOARD "L-2". CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD.

8. NEW SPECIALTY RECEPTICAL AND CONTROL SWITCH FOR NEW WINDOW MOUNTED AIR CONDITIONING UNIT. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR EXACT LOCATION AND MOUNTING HEIGHT.

9. PROVIDE NEW DATA OUTLETS WITH COVER PLATE AND RECONNECT TO EXISTING CAT CABLE.

10. REINSTALL EXISTING FIRE ALARM PULL STATION IN EXISTING LOCATION TO ACCOMMODATE NEW CONSTRUCTION.

11. NEW LOCATION OF RELOCATED PA SPEAKER. COORDINATE IN FIELD FOR EXACT LOCATION.

12. NEW PANELBOARD "A". CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD.

13. PROVIDE ALL THE RECEPTACLES AND DATA OUTLETS WITHIN THE SCOPE OF WORK AREAS THAT ARE EXISTING TO REMAIN SHALL BE PROVIDED WITH NEW DEVICES. NEW DEVICE COLOR SHALL BE WHITE. TYPE RECEPTACLES SHALL BE TAMPER RESISTANT AS PER NEC.

14. PROVIDE NEW DATA OUTLETS WITH COVER PLATE AND RECONNECT TO EXISTING CAT CABLE.

15. NEW PANELBOARD "B". CONTRACTOR TO UTILIZE, INTERCEPT AND EXTEND ALL ACTIVE FEEDER AND BRANCH CIRCUIT WIRING/CONDUIT OF SAME SIZE VIA NEW JUNCTION BOX OR PULL BOX AND CONNECT IT TO THE NEW PANELBOARD.

16. PROVIDE NEW TAMPER RESISTANT SWITCH FOR THE EXISTING DAY CARE TOOL STORAGE CABINET.
1. REFER TO DRAWING E0.1 FOR ELECTRICAL GENERAL NOTES, LEGEND AND ABBREVIATIONS.
2. REFER TO ARCHITECTURAL DRAWINGS, ELEVATION & DETAILS FOR EXACT LOCATION OF ELECTRICAL DEVICES.
3. ALL RECEPTACLES, TELE/DATA OUTLETS WITH ASSOCIATED WIRING, CONDUIT, RACEWAYS, ETC. SHALL BE SURFACE MOUNTED ON EXISTING WALLS AND FLUSH MOUNTED ON NEW WALLS. REFER TO ARCHITECTURAL DRAWINGS FOR WALL TYPES.
4. ALL THE RECEPTACLES AND DATA OUTLETS WITHIN THE SCOPE OF WORK AREAS THAT ARE EXISTING TO REMAIN SHALL BE PROVIDED WITH NEW DEVICES. NEW DEVICE COLOR SHALL BE WHITE.
6. ELECTRICAL CONTRACTOR TO RUN ALL NEW SURFACE MOUNTED CONDUITS AND RACEWAYS IN CORNERS OF EACH CLASSROOM TO AVOID CONFLICT WITH DISPLAY BOARDS AND OTHER CLASSROOM FURNISHINGS.

1. PROVIDE NEW TAMPER RESISTANT RECEPTACLE WITH COVER PLATE AND RECONNECT TO EXISTING CIRCUIT.
2. PROVIDE NEW TAMPER RESISTANT DEDICATED DUPLEX RECEPTACLE FOR LAPTOP CART CHARGING STATION.
3. NEW LOCATION OF RELOCATED PA SPEAKER. COORDINATE IN FIELD FOR EXACT LOCATION.
4. PROVIDE NEW BATTERY OPERATED WIRELESS CLOCK. COORDINATE WITH ARCHITECT FOR EXACT MOUNTING HEIGHT.
5. CONTRACTOR TO FIELD TEST FUNCTIONALITY OF EXISTING TELEPHONE OUTLETS AND ASSOCIATED PHONE, REPLACE ANY DAMAGED PHONE AS NEEDED. COORDINATE WITH SDP FOR PHONE REPLACEMENT.
6. CONTRACTOR TO COORDINATE IN FIELD FOR EXACT LOCATION OF RECEPTACLE AND DATA OUTLET SERVING THE INTERACTIVE SMARTBOARD TO AVOID CONFLICT WITH BASE PLATE. REFER TO ARCHITECTURAL DRAWING A5.1 DETAIL #1 AND #2 FOR EXACT LOCATION AND MOUNTING HEIGHT.
7. PROVIDE NEW CAT 6 CABLE, DATA OUTLETS WITH COVER PLATE AND RECONNECT TO EXISTING PATCH PANEL.
1. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL LINE WHEREVER POSSIBLE. COORDINATE WITH ARCHITECT TO VERIFY ALL PROJECT SPECIFIC STANDARD DEVICE MOUNTING HEIGHTS PRIOR TO INSTALLATION. ARCHITECTURAL DRAWINGS TO TAKE ACCOUNT OF ALL VERTICAL MOUNTING HEIGHTS.

2.1B RATING - 1 AND 2 HR

440 NORTH BROAD STREET
(215) 400 - 4730    (215) 400 - 4731 (fax)

LESS THAN 1 CFM/SQ FT

www.philasd.org

1A WALL ASSEMBLY - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

1. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE AND SPACED MAX 24 IN. OC.

1.2. GYPSUM BOARD* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IN WOOD STUD WALLS IS 8 IN. MAX DIAM OF OPENING IN STEEL FINISHED WALL IS 25 IN. (635 MM).

2. THROUGH PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHIN THE FIRE STOP SYSTEM. THE SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE A MIN 0 IN. (POINT CONTACT) TO A MAX 2 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

2.1. STEEL PIPE - NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 5 (OR HEAVIER STEEL PIPE).

2.2. IRON PIPE - NOM 12 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.

2.4. COPPER PIPE - NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

3. FILL, VOID OR CAVITY MATERIAL* - SEALANT - MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH BETWEEN THE THROUGH PENETRANT AND CONCRETE, A MIN 3/8 IN. (10 MM) DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/THROUGH PENETRANT INTERFACE ON BOTH SIDES OF WALL.

PENETRATIONS THROUGH STRUCTURE SHALL MAINTAIN FIRE RESISTANCE AND COMPLY WITH SECTION 713.4 OF THE IBC 2018. ALL ANNULAR SPACES BETWEEN RATED STRUCTURE/ENCLOSURE SHALL BE FILLED WITH APPROVED MATERIAL COMPLYING WITH REQUIREMENTS OF UL 1479.