THE SCHOOL DISTRICT OF PHILADELPHIA

BOARD OF EDUCATION
Office of Capital Programs
440 North Broad Street, 3rd Floor – Suite 371
Philadelphia, PA 19130

TELEPHONE: (215) 400-4730

Addendum No. 1

Subject: **Conwell Middle School Annex Fire Alarm Replacement: SDP Project No. B-064(c) of 2018/19**

Location: **Conwell Middle School Annex**

This Addendum, dated October 14, 2020, shall modify and become part of the Bid Documents. Any items not mentioned herein, or affected by, shall remain strictly in accordance with the original document.

Notice:
Bids are due October 20th at 2:00PM

Questions and Answers:

1. **Question:**
   Does code require a smoke detector over each NAC extender panels? Annunciators?

   Response:
   Smoke detectors are required per Code over each NAC extender panel, as well as at the fire alarm control panel. Code does not require smoke detectors for annunciator panels.

2. **Question:**
   Is an annunciator required at main entrance?

   Response:
   Yes. The fire alarm annunciator shown in VP Office 107 is to be relocated to the main entrance.

3. **Question:**
   Section 283100, 2.01: Are Silent Knight and Notifier acceptable manufacturers?

   Response:
   Yes, Silent Knight and Notifier will be added to the list of acceptable manufacturers.

   NOTE: Requests for substitutions are not considered during the bidding period.
   Submission of equipment or products other than the Basis of Design by the awarded Contractor must follow the procedures and requirements of GC-4.23 SUBSTITUTIONS (OR EQUAL), whether or not included in the list of acceptable manufacturers.

   Question:
   Drawing E-102, Notes 10 & 11: Are we installing new flow & tamper switches or new monitor modules to connect to existing switches? If new switches are required, can you provide sprinkler pipe sizes and a basis of design for new switches?

   Response:
   Furnish and install new flow and tamper switches for existing sprinkler system. Provide addressable interface modules and monitor switches via the new fire alarm system. Sprinkler pipe size is 4". The

basis of design is Potter Electric Signal Company; Models VSR (flow switches) and OSYSU (tamper switches).

5. Question:
Drawing E-102: Please confirm per the spec's GRC is required for all FA devices in Rooms 001 Electric, 005 Oil & Tank and the Mechanical Equipment Room?

Response:
Yes, provide GRC for these areas as per specifications. Utilize EMT with compression fittings in all other areas, including above accessible ceilings. All wiring for this project shall be installed in metallic conduit; no "bare" or "exposed" cabling, plenum rated or otherwise, shall be permitted at any location or under any circumstance.

6. Question
Are stopper covers required for pull stations?

Response:
Provide "stopper covers" for manual pull stations located in areas accessible to students. STI Stopper II, STI-1130 or approved equal.

7. Question:
What is the scope of work associated with the sprinkler system?

Response:
See response to Question 4 above.

8. Question:
Please confirm if wire guards are required on any devices, and if so, provide locations. In spec section 283100-2.17, it only lists gymnasium devices as requiring wire guards, but there is no "gym" shown on plans.

Response:
There are no locations or devices on this project that require wire guards. Provide "stopper covers" for manual pull stations as per response to Question 6 above.

9. Question
In reference to the (5) different heat detectors listed in the extra materials list on DWG E-001 and in the specs, please clarify what type of heat detector is shown on the plans. The symbols list only describes the symbols as "heat detector".

Response:
All heat detectors shall be 135-degree fixed temperature with 15-degree rate of rise.

10. Question:
Plans are missing walls and doors in many locations. Please provide updated backgrounds if possible.

Response:
Updates to floor plan backgrounds are incorporated in the revised drawings issued with this addendum.

11. Question
Please confirm ceiling types in each room with new devices.

Response:
Contractor shall be responsible to field verify all existing conditions, but ceilings on the basement level and in First Floor corridor, vestibules, etc. generally consist of exposed overhead structure (concrete

slab and beams). Accessible ceilings (suspended ceiling tiles) exist in First Floor and Second Floor Classroom areas and in the First Floor Administrative Office.

12. Question:
It appears a voice system is being specified, but drawings neither indicate an audio notification system panel, nor do they show the voice circuits on the riser diagram. Are any additional audio only devices required to meet intelligibility? Please clarify design.
Response:
The fire alarm voice system is to consist of distributed voice amplification located in the fire alarm control panel and notification appliance circuit (NAC) extender panels. (A separate voice amplification headend panel may be located adjacent to the main FACP). The fire alarm riser diagram and specification section are being revised as part of this addendum to provide further clarification. Refer to revised floor plan drawings issued with this addendum for required quantities and locations of fire alarm devices.

13. Question:
Our understanding is that the environmental coordination specification section is just for reference and that we do not need to hire an asbestos abatement subcontractor or include cost in bid. Please confirm our assumption correct.

Response:
Correct. Per the District and the Summary of Work specification section, it is not anticipated that asbestos containing materials will be encountered and therefore no asbestos abatement is to be included in the contractor's bid. Note, the requirements of Section 01 1100, Environmental Coordination, still apply.

Specifications:

REVISE the following Sections:
28 3100 – FIRE DETECTION AND ALARM

- This Section is revised and reissued with this addendum in its entirety; specific revisions are too numerous to list here but are indicated by strike-through (deleted text) or underline (added text) in the revised document.

26 0500 – COMMON WORK RESULTS FOR ELECTRICAL

- Paragraph 1.01 B 8: Delete this subparagraph (there are no surface raceways on this project)
- Paragraph 2.01 E 1 c: Delete this subparagraph (there are no surface raceways on this project)

Drawings:

The following Drawings are REVISED AND REISSUED in their entirety with this addendum; drawing revisions are too numerous to list here but are clouded and denoted as incorporated under Addendum 1:

- G-001 – COVER SHEET
- E-001 – SYMBOLS AND ABBREVIATIONS
- E-101 – ELECTRICAL FIRE ALARM DEMOLITION – BASEMENT
- E-102 – ELECTRICAL FIRE ALARM NEW WORK – BASEMENT
- E-103 – ELECTRICAL FIRE ALARM DEMOLITION – FIRST FLOOR
  (no revisions on sheet E-103; sheet included to maintain continuity of drawing set)
- E-104 – ELECTRICAL FIRE ALARM NEW WORK – FIRST FLOOR
- E-105 – ELECTRICAL FIRE ALARM DEMOLITION – SECOND FLOOR
- E-106 – ELECTRICAL FIRE ALARM NEW WORK – SECOND FLOOR

- E-107 – ELECTRICAL FIRE ALARM DEMOLITION – THIRD FLOOR
- E-108 – ELECTRICAL FIRE ALARM NEW WORK – THIRD FLOOR

End of Addendum #1

SECTION 28 31 00

FIRE DETECTION AND ALARM

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Fire alarm system; complete, including all wiring, raceways, terminal cabinets, pull boxes, outlet and mounting boxes, initiating devices, alarm indicating devices, annunciator(s), control equipment, tests, and all other accessories and miscellaneous items required for a complete operating system even though each item is not specifically mentioned or described.

B. Verify requirements with Jurisdictional authorities, i.e.: Insurance authority or Underwriter, Fire Department or Marshal, or Building Department. Provide system complete, functional and acceptable to Jurisdictions without penalty of any type to the insurance premium rate. This Contractor shall be completely responsible for all aspects of coordination with other sections of these specifications and drawings. No change will be issued for lack of coordination or lack of verification of requirements of Jurisdictional Authorities.

C. Related Sections
   1. Section 26 05 00 – Common Work Results for Electrical
   2. Section 26 05 28 – Hangers and Supports for Electrical Systems
   3. Section 26 05 33 – Conduits for Electrical Systems
   4. Section 26 05 34 – Surface Raceways for Electrical Systems
   5. Section 26 05 35 – Boxes for Electrical Systems

1.02 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI/ASME A117.1, A117.3 Standard for Accessible and Usable Building and Facilities.

B. National Electrical Manufacturer's Association (NEMA)

C. National Fire Protection Association (NFPA):
   1. NFPA 70 – National Electrical Code
   2. NFPA 72 – National Fire Alarm Code
   3. NFPA 90A – Standard for the Installation of Air conditioning and Ventilating Systems
   4. NFPA 101 – Life Safety Code

D. Underwriters Laboratory, Inc. (UL):
   1. UL-864 – Control Units and Accessories for Fire Alarm Systems
   2. UL-1076 – Proprietary Burglar Alarm Units and Systems

E. International Fire Code (IFC)

F. The Americans with Disabilities Act (ADA)
   1. Public Law 101 - 336.

G. Underwriters Laboratories (UL) or Factory Mutual (FM) Approval.

H. Philadelphia Electrical Code.

I. Philadelphia Fire Alarm Code.

1.03 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is an authorized representative of the FACP manufacturer for both installation and maintenance of units required for this Project. Installer shall be able to produce, upon request, references and proof of five (5) years minimum experience in the installation of systems of comparable size and performance to that specified.

B. Manufacturer's Representative: The system shall be provided and commissioned by the authorized Manufacturer's Local Representative. This representative shall provide documentation that the organization is factory certified on the system. This organization must maintain a qualified technical and engineering staff to program and service the system. This distributor shall fully stock and show evidence that they maintain a complete inventory of spare parts to properly and promptly service the system. Before commencing work, submit data showing the commissioned fire alarm systems of the same type and design as specified. He shall include the names and locations of at least five such installations within one hundred miles of the project. Specify type and design for each system and furnish documentation that the system has performed satisfactorily for the preceding 48 months.

1.04 SYSTEM DESIGN REQUIREMENTS

A. Verify requirements with jurisdictional authorities (i.e. Insurance Carrier or Underwriter, Fire Department or Marshall, or local Building Code Department). This contractor shall be responsible for providing a complete and functional system, acceptable to the jurisdictions involved.

B. Qualification of System Technician: Installation drawings, shop drawing and as-built drawings shall be prepared by or under the supervision of an individual who is experienced with the type of work specified herein and is currently certified by the National Institute of Certification in Engineering Technologies (NICET) as an engineering technician with minimum Level III certification in the fire alarm and detection system program. Contractor shall submit data for approval showing the name and certification of all involved individuals with such qualifications at or prior to submittal of drawings. All submittals shall be stamped by a Registered Fire Protection Engineer.

C. Notification circuits shall be designed with 20 percent spare capacity for future visual notification devices.

1.05 SUBMITTALS

A. Contractor shall submit shop drawings, product data and calculations to the Authority Having Jurisdiction, Fire Department/Marshall, Owner's Insurance Underwriter and/or other regulatory agency, and obtain approvals prior to submission to Engineer for review. Include approval documentation with submission to Engineer.

B. Provide complete submittals, which shall include schematic wiring drawings of the control panel showing internal and external control panel wiring and all devices. Floor plans/device layout drawings, sequence of operation, annunciator wiring schematics, battery calculations, and specification sheets for all equipment, all devices shall be provided. Drawings shall be done on full size sheets and to scale (1/8"=1'-0" minimum). Partial submittals will not be accepted.

C. System Operation Description: Detailed description for this Project, including method of operation and supervision of each type of circuit and sequence of operations for manually and automatically initiated system inputs and outputs. Manufacturer's standard descriptions for generic systems are not acceptable.

1.06 OPERATION AND MAINTENANCE DATA

Submit to Engineer the following operation and maintenance information in accordance with the requirements of this section and General Conditions of Contract:

1. Instruction books and/or leaflets
2. Recommended renewal parts list
3. Final as-built drawings
4. Complete Wiring diagrams
5. NFPA 72 Test Report/Certificate

1.07 DEFINITIONS

A. Alarm-Initiating Device: A system component that originates transmission of a change-of-state condition, such as a manual pull station, smoke detector, heat detector, supervisory switch, etc.

B. Alarm Signal: Signifies a state of emergency requiring immediate action. Pertains to signals such as the operation of a manual station, the operation of a sprinkler system flow switch, etc.

C. Class A Wiring: Circuits arranged and electrically supervised so a single break or single ground fault condition will be indicated by a trouble signal at the fire alarm control panel (FACP) and the circuit will continue to be capable of operation for its intended service in the faulted condition no matter where the break or ground fault condition occurs.

D. Class B Wiring: Circuits electrically supervised such that a single break or a single ground fault condition will be indicated by a trouble signal at the FACP no matter where the break or ground fault condition occurs.

E. Hard-Wired System: Alarm, supervisory, and initiating devices directly connected, through individual dedicated conductors, to a central control panel without the use of multiplexing circuits or devices.

F. Multiplex System: One using a signaling method characterized by the simultaneous or sequential transmission, or both, and the reception of multiple signals in a communication channel, including means for positively identifying each signal (also referred to as an Addressable System).

G. Supervisory Signal: Indicates abnormal status or need for action regarding fire suppression or other protective system.

H. Trouble Signal: Indicates that a fault, such as an open circuit, ground, etc. has occurred in the system.

I. Zone: A building area that has all initiating devices located within it programmed to initiate an alarm and to give a common location indication on the system FACP and annunciator.

1.08 SYSTEM DESCRIPTION

A. General: UL and FM listed. Complete, zoned, non-coded, addressable, microprocessor-based fire detection and alarm system with manual and automatic alarm initiation, intelligent analog

addressable smoke detectors, and automatic alarm verification for alarms initiated by certain smoke detectors as indicated.

B. Signal Transmission: Multiplex signal transmission dedicated to fire alarm service only.

C. Voice evacuation and Visual Alarm Indication: By sounding of audible notification devices and visual alarms.

D. System connections for alarm-initiation and alarm-indicating circuits: Class B (Style 4) wiring.

E. Existing Fire Alarm Equipment: Maintain fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service and label existing fire alarm equipment "NOT IN SERVICE" until removed from the building. Building owner shall be notified 48 hours in advance if normal building operations are to be interrupted - building interruptions shall occur only at the convenience of the owner.

1.09 RECORD DOCUMENTS

A. The As-Built drawings shall include three (3) complete sets of 30" x 42" contract base sheet drawings with any and all changes included and noted. The approved contract panel drawings and annunciator panel drawings shall also be provided on 30" x 42" reproducible. The Conduit Plan shall show the device address for all intelligent/analog-initiating devices. The As-Built drawings shall be kept up to date continuously by the electrician in charge of the system installation. These drawings shall be reviewed on a weekly basis for accuracy and completeness.

B. The Operation and Maintenance Manual shall include a complete set of equipment, component and device specification and data sheets as well as a reduced size paper copy (half-size or 11” x 17”) of the complete set of system drawings described in paragraph 1.4. A copy of the NFPA 72 Test Report/Certificate, a printed record of all test activity including the sensitivity readings for all intelligent/analog smoke detectors, the required system and component warrantee papers, and the name and address of the installer shall be included. The manual shall be bound in a black three ring loose leaf binder with dividers and a table of contents. Three (3) duplicate sets are required.

C. Five (5) sets of keys to all locks shall be provided in a proper key box or binder with each set of keys properly and legibly marked and tagged. Loose keys will not be accepted.

D. All locks and keys for fire alarm panel and power booster panel shall be keyed alike and keyed to the master key system of the School District of Philadelphia. Locks and pulls for doors of cabinets shall be Corbin #15767. The master key shall be #CAT60.

E. All documents and items described above shall be submitted for approval and turnover prior to the final testing and system certification with the exception of the NFPA 72 Test Report/Certificate which shall be delivered by hand to the owner within two (2) days of the actual test and acceptance. One copy of the Test Report/Certificate shall be submitted to the Engineer.

F. THE PHILADELPHIA SCHOOL DISTRICT SHALL RETAIN COMPLETE RIGHTS AND OWNERSHIP TO ALL SOFTWARE RUNNING IN THE SYSTEM. This fire alarm equipment vendor shall provide useable hard and soft copies of the software database to the Philadelphia School District at the end of the warranty period. The database provided shall be useable by an authorized and certified distributor of the product line, and shall include all applicable

passwords necessary for the total and unrestricted use and modification of the database. The database shall contain all information relevant to the installed system.

1.10 ACCEPTANCE OF SYSTEM

A. Total acceptance of the system will only be made after the required tests, complete record document package and the instruction period have been provided.

1.11 GUARANTEE

A. Guarantee the labor, materials and equipment provided under this contract against system defects for a period of three (3) years after the date of final acceptance of this work by the Owner.

B. Provide service by the equipment supplier during the guarantee period, seven (7) days a week, including holidays, within four (4) hours after notification. Repairs shall be affected within twenty-four (24) hours of notification.

C. Should the Contractor fail to comply with the above requirements, the Owner will then have the option to make the necessary repairs and back charge the Contractor without any loss of warranty or guarantee as provided by the contract.

D. Any guarantee which is in conflict with the above will not be acceptable.

1.12 WARRANTY

A. The contractor shall warranty all materials, installation and workmanship for three (3) years from date of acceptance, unless otherwise specified. A copy of the manufacturer's warranty shall be provided with close-out documentation and included with the operation and installation manuals.

B. The system supplier shall maintain a service organization with adequate spare parts stock with 50 miles of the installation. Any defects that render the system inoperative shall be repaired with 24 hours of the owner notifying the contractor.

1.13 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning with Substantial Completion, maintenance service shall in three (3) years full maintenance by skilled employees of manufacturer's designated service organization. Included preventative maintenance, replacement of worn or defective components, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
    1. Include visual inspections according to "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
    2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection Testing and Maintenance" in chapter in NFPA 72
    3. Perform test per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
    4. Test and recertify the fire alarm system at the end of the first year, at the end of second year, and at the end of third year, before expiration of the warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers for the fire alarm system:
1. Edwards System Technology (EST)
2. Siemens Building Technologies
3. Notifier by Honeywell
4. Honeywell Silent Knight.

B. Manufacturers submitted by the bidder as equals or substitutions shall comply with specification Section 26 05 00.

2.02 FUNCTIONAL DESCRIPTION OF SYSTEM

A. Control of System: By the FACP. Provide all programming required for a complete and operating fire alarm and detection system, to the complete satisfaction of the Owner and the Engineer. Backup of program shall be provided.

B. System Supervision: Automatically detect and report open circuits, shorts, and grounds of wiring for initiating device, signaling line, and notification-appliance circuits.

~~B.~~C. Fire Alarm Signals: The system shall have an automatic digitized voice fire alarm signal with emergency manual voice override. The digitized voice message shall provide a general evacuation fire alarm signal in accordance with ASA S3.41 to notify all occupants in the building to evacuate.

~~C.~~D. Priority of Signals: Automatic alarm response functions resulting from an alarm signal from one zone or device are not altered by subsequent alarm, supervisory, or trouble signals. An alarm signal is the highest priority. Supervisory and trouble signals have second- and third-level priority. Higher-priority signals take precedence over signals of lower priority, even when the lower-priority condition occurs first. Annunciate and display all alarm, supervisory, and trouble signals regardless of priority or order received.

~~D.~~E. Noninterference: A signal on one zone shall not prevent the receipt of signals from other zones.

~~E.~~F. Transient voltage Protection: Provide protection on all circuits in accordance with manufacturer's recommendation.

~~F.~~G. System Reset: All zones are manually resettable from the FACP after initiating devices are restored to normal.

~~G.~~H. Transmission to Remote Alarm Receiving Station: Automatically route alarm, supervisory, and trouble signals to a remote alarm station by means of a digital alarm communicator transmitter and two (2) telephone lines.

~~H.~~I. Loss of primary power at the FACP initiates a trouble signal at the FACP and the annunciator. An emergency power light is illuminated at both locations when the system is operating on the secondary power supply.

~~I.~~J. Basic Alarm Performance Requirements: Unless otherwise indicated, operation of a manual station, automatic alarm operation of a flame or heat detector, operation of a sprinkler flow device, or verified automatic alarm operation of a smoke detector initiates the following:

1. Notification-appliance operation.
2. Audible and visual annunciation of ‘alarm’ condition at the FACP and the remote annunciator(s).
3. Identification, in plain-text English via alpha-numeric display, at the FACP and the remote annunciator(s) of the device originating the alarm.
4. Transmission of an alarm signal to the remote alarm receiving station.
5. Shutdown of fans and other air-handling equipment serving zone where alarm was initiated.
6. Closing of smoke dampers in air ducts of system serving zone where alarm was
7. Recording of the event in the system memory.
8. Alarm Silencing, System Reset and Indication: Controlled by switches on the FACP and the remote annunciator.
9. Silencing-switch operation halts alarm operation of notification appliances and activates an "alarm silence" light. Display of identity of the alarm zone or device is retained.
10. Subsequent alarm signals from other devices or zones reactivate notification appliances until silencing switch is operated again.
11. When alarm-initiating devices return to normal and system reset switch is operated, notification appliances operate again until alarm silence switch is reset.

~~J.~~K. Smoke detection for zones or detectors with alarm verification initiates the following:

1. Audible and visible indication of an "alarm verification" signal at the FACP.
2. Activation of a listed and approved "alarm verification" sequence at the FACP and the detector.
3. General alarm, once the alarm condition is verified. Activation of a second smoke detection device during the verification period shall automatically activate general alarm.
4. Cancellation of the FACP indication and system reset if the alarm is not verified.

~~K.~~L. Supplemental extinguishing systems (Kitchen hoods) initiates the following:

1. A supervisory, audible, and visible "sprinkler trouble" signal indication at the FACP and the annunciator(s).
2. Identification, in plain-text English via alpha-numeric display, at the FACP and the remote annunciator(s) of the device that has operated.
3. Recording of the event by the system printer.
4. Transmission of trouble signal to remote central station.

~~L.~~M. Removal of an alarm-initiating device or a notification appliance initiates the following:

1. A "trouble" signal indication at the FACP and the annunciator(s).
2. Identification, in plain-text English via alpha-numeric display, at the FACP and the remote annunciator(s) of the device or zone involved.
3. Recording of the event by the system printer.
4. Transmission of trouble signal to remote alarm receiving station.

~~M.~~N. Permissible Signal Time Elapse: The maximum permissible elapsed time between the actuation of any fire alarm or fire-detection system alarm-initiating device and its indication at the FACP is ten seconds.

~~N.~~O. Circuit Supervision: Indicate circuit faults by means of both a zone and a trouble signal at the FACP. Provide a distinctive indicating audible tone and (LED) indicating light. The maximum elapsed time between the occurrence of the trouble condition and its indication at the FACP is 200 seconds.

~~O.~~P. FACP Alphanumeric Display: Plain-English-language descriptions of alarm, supervisory, and trouble events; and addresses and locations of alarm-initiating or supervisory devices originating the report. Display monitoring actions, system and component status, system commands, programming information, and data from the system's historical memory.

2.03 MANUAL PULL STATIONS

A. Description: Fabricated of metal or plastic, and finished in red with molded, raised-letter operating instructions of contrasting color.
   1. Single-action mechanism, with positive visual indication of activation, initiates an alarm. Pull stations shall incorporate a key reset device.
   2. Integral Addressable Module: Arranged to communicate manual-station status (normal, alarm, or trouble) to the FACP.
   3. Pull station body shall be red, with clearly visible operating instructions provided on the cover. The word "**FIRE**" shall appear on the front of the station in raised letters of contrasting color.
   4. Provide a sign adjacent to each manual pull station. The sign shall read "**IN CASE OF FIRE: SOUND ALARM AND CALL THE FIRE DEPARTMENT**". The sign is 12" wide x 6" high plastic laminate. The sign is white with red letters. Firmly affix the sign with a stainless-steel screw at each corner. The lettering is no less than 1" tall.
   5. Provide sample of sign to owner, construction manager, and engineer for review before purchasing final signs. Refer to Specification Section on Submittals before submitting sample.
   6. Sign layout:

IN CASE OF FIRE:
SOUND THE ALARM AND
CALL THE FIRE DEPARTMENT

2.04 SMOKE DETECTORS

A. General requirements:
   1. Operating Voltage: 24-V dc, nominal.
   2. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
   3. Plug-in Arrangement: Detector and associated electronic components are mounted in a module that connects in a tamper-resistant manner to a fixed base with a twist-locking plug connection. Terminals in the fixed base accept building wiring.
   4. Integral Visual-Indicating Light: LED type. Indicates detector has operated.
   5. Sensitivity: Can be tested and adjusted in-place after installation.
   6. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
   7. Photoelectric Smoke Detectors include the following features:
      a. Sensor: LED or infrared light source with matching silicon-cell receiver.
      b. Detector Sensitivity: Between 2.5 and 3.5 percent/foot (0.008 and 0.011 percent/mm) smoke obscuration when tested according to UL 268A.
      c. Where combination smoke/thermal detectors are noted to be utilized on the drawings, provide integral Thermal Detector: Fixed-temperature type with 135 degrees F setting.
   8. Beam-Type Smoke Detectors: Each detector consists of a separate transmitter and receiver with the following features:
      a. Adjustable Sensitivity: More than a six-level range, minimum.

b. Linear Range of Coverage: 600 feet, minimum.

c. Tamper Switch: Initiates trouble signal at the central FACP when either transmitter or receiver is disturbed.

d. Separate Color-Coded LEDs: Indicate normal, alarm, and trouble status. Any detector trouble, including power loss, is reported to the central FACP as a composite "trouble" signal.

9. Duct Smoke Detectors: Photoelectric type with duct-mounted housing.

a. Sampling Tube: Design and dimensions as recommended by the manufacturer for the specific duct size, air velocity, and installation conditions where applied. Sampling tube shall be sloped downward from the detector housing. Sampling tube holes shall be oriented toward the air stream in the duct.

b. Smoke Detector: Shall be photoelectric type with UL listed air velocity range of 300-4,000 feet per minute.

c. Relay Fan Shutdown: Isolated auxiliary contact, rated to interrupt fan motor-control circuit.

i. Wiring between aux. contact and ATC system provided by Contractor.

d. Locate duct detector remote test switch on adjacent wall at 5'-6" above floor.

2.05 HEAT DETECTORS

A. Heat Detector, Fixed-Temperature/Rate-of-Rise Type: Actuated by temperature that exceeds a fixed temperature of 135 degrees F. Rate-of-rise element shall be rated at 15 degrees F per minute.
1. Mounting: Plug-in base, interchangeable with smoke detector bases.
2. Provide and install remote test switches for all heat detectors that are more than 10 feet above finished floor.

~~B. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 190 degrees F.~~
~~1. Mounting: Plug-in base, interchangeable with smoke detector bases.~~
~~2. Provide and install remote test switches for all heat detectors that are more than 10 feet above finished floor.~~

~~C. Heat Detector, Fixed-Temperature/Rate-of-Rise Type: Actuated by temperature that exceeds a fixed temperature of 190 degrees F. Rate-of-rise element shall be rated at 15 degrees F per minute.~~
~~1. Mounting: Plug-in base, interchangeable with smoke detector bases.~~
~~2. Provide and install remote test switches for all heat detectors that are more than 10 feet above finished floor.~~

~~D. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 135 degrees F.~~
~~1. Mounting: Plug-in base, interchangeable with smoke detector bases.~~
~~2. Provide and install remote test switches for all heat detectors that are more than 10 feet above finished floor.~~

~~E. Weatherproof Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature of 135 degrees F.~~
~~1. Mounting: Plug-in base, interchangeable with smoke detector bases.~~

~~2. Provide and install remote test switches for all heat detectors that are more than 10 feet above finished floor.~~
~~3. System Sensor Model 885WP-B or approved equal.~~
~~4. Provide and install remoted test switches for all weatherproof heat detectors.~~

2.06 NOTIFICATION DEVICES

A. Description: Equip for mounting as indicated and have screw terminals for system connections.

B. Fire Alarm speakers shall ~~be of the polarized 24-V dc operation. The speaker shall~~operate on either 25 VRMS or 70.7 VRMS inputs ~~and be~~with field selectable ~~power~~ output taps from 0.25 to 2 watts. Speakers shall provide a minimum sound output of 80 dBA at 10 feet with the 1/2-watt tap. Speaker shall have frequency response of 400 to 4,000 Hz and be UL Listed for fire alarm voice evacuation use. Speakers shall be designed to be wall or ceiling mounted.

~~C. Fire Alarm speaker & strobe combination: shall be of the polarized 24-V dc operation. The speaker shall 70.7 VRMS inputs and be field selectable power taps from 0.25 to 2 watts. Speaker shall have frequency response of 400 to 4,000 Hz and be UL Listed for fire alarm voice evacuation use. The device shall also have a Xenon strobe light listed under UL 1971 with clear polycarbonate lens. Mount lens on aluminum faceplate. Housing shall be red in color, with the word "FIRE" clearly printed in white. The strobe intensity output shall field selectable. Combination devices shall be designed to be wall or ceiling mounted.~~

~~D.~~C. Visible Alarm Devices: Xenon strobe lights listed under UL 1971 with clear polycarbonate lens. Mount lens on an aluminum faceplate. Housing shall be red in color, with the word "FIRE" clearly printed in white.
1. Strobe Leads: Factory connected to screw terminals.
2. Minimum strobe intensity for devices is noted on drawings.
3. All strobe lights visible within the same area shall be fully synchronized.
4. Device shall have field selectable output for visual settings.
5. Strobe light shall produce a minimum of 15 candelas at approximately one flash per second with continuously applied voltage.

~~E.~~D. Combination Fire Alarm Speaker/Strobes: Comply with applicable requirements listed above for fire alarm speakers and visible alarm devices. Combination devices shall be designed to be either wall or ceiling mounted.

2.07 CARBON MONOXIDE DETECTOR

A. Carbon monoxide detector shall be listed to UL 2075 for Gas and Vapor detectors and sensors. The detector shall be equipped with a trouble relay.

B. The detector shall provide dual-color LED indication which blinks to indicate normal standby, alarm or end-of-life. When the sensor supervision is a trouble condition, the detector shall send a signal to the control panel.

C. The detector shall provide a means to test CO gas entry into the CO sensing cell. The detector shall provide this with a test mode that accepts CO gas from a test agent and alarms immediately upon sensing CO entry.

D. The detector shall be operated at 24 volts DC.

E. The detector shall be mounted to a single gang back box.

F. End of life timer: When the detectors internal sensor has reached the end of its life, a trouble signal shall be sent to the control panel.

2.08 WATER FLOW DETECTOR (SWITCH)

A. Furnish and install water flow switches in existing sprinkler system piping where and as indicated on the drawings. Water flow switches shall be UL Listed for its intended purpose. Individual addressable modules shall be provided for each switch and each switch shall be monitored by the new fire alarm system to initiate an 'alarm' condition.

B. Vane-type waterflow detectors shall be installed on system piping as designated on the design drawings.

C. Install water flow detectors on any clear of the appropriate nominal size, either a vertical upflow or horizontal run, at least 6" from any fittings which may change water direction, flow rate, or pipe diameter; or no closer than 24" from a valve or drain.

D. Waterflow detectors shall have a sensitivity of in the range of 4 to 10 gallons per minute and a static pressure rating of 450 psi for 2" to 8" pipes.

E. The waterflow detector shall respond to waterflow in the specified direction after a preset time delay which is field adjustable. The delay mechanism shall be a sealed mechanical pneumatic unit with visual indication of actuation. The actuation mechanism shall include a polyethylene vane inserted through a hole in the pipe and connected by a mechanical linkage to the delay mechanism.

F. Outputs shall consist of dual SPDT (single pole, double throw) From C contacts.

G. Two conduit entrances for standards fittings of commonly used electrical metallic tubing shall be provided on the detectors.

H. All housing shall be NEMA 4 Listed by UL for indoor or outdoor use.

~~H.~~I. Basis of Design: Potter Electric Signal Company, Model VSR vane-type waterflow alarm switch with retard.

2.09 TAMPER SWITCH

A. Furnish and install valve tamper switches on existing sprinkler system control valves where and as indicated on the drawings. Tamper switches shall be UL Listed for its intended purpose. Individual addressable modules shall be provided for each switch and each switch shall be monitored by the new fire alarm system to initiate a 'supervisory' condition; valve operation shall **not** cause an alarm.

B. Outputs shall consist of dual SPDT (single pole, double throw) From C contacts.

C. The switch assembly shall include two switches each with a rated capacity of 2.5 amps at 24 VDC.

D. Two conduit entrances for standards fittings of commonly used electrical metallic tubing shall be provided on the detectors.

E. The entire installed assembly shall be tamper-proof and arranged to cause a switch operation if the housing cover is removed or if the unit is removed from its mounting.

~~D.~~F. Basis of Design: Potter Electric Signal Company, Model OSYSU outside screw and yoke valve supervisory switch.

2.10 REMOTE DEVICE LOCATION-INDICATING LIGHTS AND IDENTIFICATION PLATES

A. Description: LED indicating light near each smoke detector that may not be readily visible, and each sprinkler water-flow switch and valve-tamper switch. Light is connected to flash when the associated device is in an alarm or trouble mode. Lamp is flush mounted in a single gang plate. A red, laminated, phenolic-resin identification plate at the indicating light identifies, in engraved white letters, device initiating the signal and room where the smoke detector or valve is located.

B. Mounting: Mounted at an accessible location in ceiling/wall in close proximity to smoke detector.

2.11 FIRE ALARM CONTROL PANEL (FACP) / AUDIO CONTROL UNIT

A. Fire alarm audio control panel shall provide complete voice annunciation of the fire alarm system. Panel shall include ability to select paging zone by area or all call. The panel shall support both live paging and prerecorded digital messages. The fire alarm control panel shall include the following performance features:
   1. Audio Channels: one simultaneous 70.7 VRMS channel, minimum
   2. Audio Levels: As required by NFPA 72
   3. Digital Message: As recorded by Owner's representative
   4. Preamp supervision and Automatic changeover.
   5. Amplification: supports 3 distributed or central bank amplifiers.
   6. Remote microphone for all-call paging.

B. Cabinet: Lockable steel enclosure. Arrange interior components so operations required for testing or for normal maintenance of the system are performed from the front of the enclosure. If more than one unit is required to form a complete control panel, fabricate with matching modular unit enclosure to accommodate components and to allow ample gutter space for field wiring and interconnecting panels.
   1. Identify each enclosure with an engraved, red, laminated, phenolic-resin nameplate with lettering not less than 1 inch high. Identify individual components and modules within cabinets with permanent labels.
   2. Mounting: As noted/shown on drawings.

C. Alarm and Supervisory Systems: Separate and independent in the FACP. Alarm-initiating zone boards consist of plug-in cards. Construction requiring removal of field wiring for module replacement is unacceptable.

D. Control Modules: Include types and capacities required to perform all functions of fire alarm systems.

E. Indications: Local, visible, and voice signals announce alarm, supervisory, and trouble conditions. Each type of audible alarm has a different sound.

F. Resetting Controls: Prevent the resetting of alarm, supervisory, or trouble signals while the alarm or trouble condition still exists.

G. Alphanumeric Display and System Controls: Arranged for interface between human operator at the FACP and addressable system components, including annunciation, supervision, and control.

1. Display: Back-lit, 80-character minimum LCD display, utilizing plain-text English, for alarm, supervisory, and component status messages; and indication of control commands to be entered into the system for control of smoke detector sensitivity and other parameters.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

H. The fire alarm control panel shall be capable of operating remote displays and/or printers. The output shall be serial ASCII from an EIA RS-232-C connection with and adjustable baud rate of 300, 1200, 2400, 48000 or 9600 to allow use of compatible UL864 listed display, keyboard, or printer.

I. The fire alarm control panel shall be provided with a coded one-man walk test feature and program the fire alarm control panel for this feature.

J. Provide signature device programming / service tool to allow programming of signature devices with using the PC and use for retrieving information from signature device history log and trouble codes. Also provide necessary accessories including communication and power cables.

K. Provide memory stick with complete copy of points list.

L. The FACP cannot have a map fault feature.

M. Speaker Circuit Control Unit: The speaker circuit control unit shall include switches to manually activate or deactivate speaker circuits grouped by floor in the system. The speaker circuit control unit shall include visual indication of active or trouble status for each group of speaker circuits in the system.
   1. A trouble indication shall be provided if a speaker circuit group is disabled.
   2. A lamp test switch shall be provided to test all indicator lamps.
   3. A single “all call” switch shall be provided to activate all speaker circuit groups simultaneously.
   4. A push-to-talk microphone shall be provided for manual voice messages.
   5. A voice message disconnect switch shall be provided to disconnect automatic digitized voice messages from the system. The system shall be arranged to allow manual voice messages and indicate a system trouble condition when activated.

N. Speaker Circuit Arrangement: Speaker circuits shall be arranged such that there is one speaker circuit per floor or smoke zone. Audio amplifiers and control equipment shall be electrically supervised for normal and abnormal conditions. Speaker circuits and control equipment shall be arranged such that loss of any one speaker circuit will not cause the loss of any other speaker circuit in the system.

O. Digitized Voice Module (DVM): The Digital Voice Module shall provide prerecorded digitized evacuation and instructional messages. The messages shall be professionally recorded and approved by the District prior to programming.
   1. The DVM shall be configured to automatically output to the desired circuits/smoke zones following a 10-second slow whoop alert tone. The digitized message capacity shall be not less than 15 seconds in length. Message shall be transmitted three (3) times.
   2. The DVM shall be supervised for operational status. Failure of the DVM shall result in the transmission of a constant alarm tone.
   3. The DVM memory shall have a minimum of 50 percent spare capacity after those messages identified in this section are recorded. Multiple DVM’s may be utilized to obtain required capacity.

P. Audio Amplifiers: Audio Amplifiers shall provide a minimum of 50 watts at either 25 or 70.7 VRMS output voltage levels. Amplifiers shall be continuously supervised for operational status and configured for either single or dual channel application.

Q. Tone Generator(s): Tone Generator(s) shall be capable of providing a distinctive 3-pulse temporal pattern fire alarm signal as well as a slow whoop. Tone generators shall be continuously supervised for operational status.

~~L.~~R. System Expansion: Control units, amplifiers, power supplies, and enclosures shall be designed such that the system can be expanded in the future (to include the addition of a minimum of 20 percent more alarm initiating and alarm notification devices) without disruption or replacement of the existing control unit, NAC panels, or secondary power supply(s).

2.12 REMOTE ANNUNCIATOR

A. Description: Duplicate annunciator functions of the FACP for alarm, supervisory, and trouble indications. Also, duplicate manual switching functions of the FACP, including acknowledging, silencing, reset, and test.

B. Display Type and Functional Performance: Alphanumeric display same as the FACP. Controls with associated LEDs permit acknowledging, silencing, resetting, and testing functions for alarm, supervisory, and trouble signals identical to those in the FACP.

2.13 EMERGENCY POWER SUPPLY

A. General: Components include valve-regulated, recombinant lead acid battery; charger; and an automatic transfer switch.
   1. Battery Nominal Life Expectancy: 20 years, minimum.
   2. Battery Capacity: Comply with NFPA 72. Batteries shall be sufficient to operate the system for a minimum of 24 hours in 'Standby', followed by 5 minutes in 'Alarm.' If required, provide remote power panels with battery backup same as the main control panel. Extend 120 VAC source from the main control panel. Coordinate location of remote power supply panel(s) in the field with the Owner/Architect.

B. Battery Charger: Solid-state, fully automatic, variable-charging-rate type. Provide capacity for 150 percent of the connected system load while maintaining batteries at full charge. If batteries are fully discharged, the charger recharges them completely within four hours. Charger output is supervised as part of system power supply supervision.

C. Integral Automatic Transfer Switch: Transfers the load to the battery without loss of signals or status indications when normal power fails.

2.14 ADDRESSABLE INTERFACE DEVICE

A. Description: Microelectronic monitor module listed for use in providing a multiplex system address for alarm-initiating devices (with normally open contacts).

B. Provide an Integral Addressable Interface (IAI) device or relay and associated circuitry, etc., for each fire protection alarm initiating device as required.
   1. Provide additional addressable relays/addressable monitors, and associated circuitry, to perform auxiliary functions indicated on the drawing or required by applicable codes.
   ~~2. Coordinate exact quantities with Fire Protection Contractor.~~

C. Locate Addressable Interface Device in conditioned spaces. Do not locate Addressable Interface Device in Boiler Rooms, Fan Rooms, or Basement type areas.

2.15 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Listed and labeled under UL 864 and NFPA 72.

B. Functional Performance: Unit receives an alarm, supervisory, or trouble signal from the FACP panel, and automatically captures one or two telephone lines and dials a preset number for a remote central station. When contact is made with the central station(s), the signal is transmitted. The unit supervises up to two telephone lines. Where supervising two lines, if service on either line is interrupted for longer than 45 seconds, the unit initiates a local trouble signal and transmits a signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. When telephone service is restored, unit automatically reports that event to the central station. If service is lost on both telephone lines, the local trouble signal is initiated.

C. Provide standalone digital alarm communicator transmitter (DACT) to transmit alarm signals to a Central Monitoring Station (CMS). The DACT shall be a manufactured by Silent Knight, model 5129 or an approved equal by the school district. Provide (2) CAT6 cables from the fire alarm control panel to the telephone demarcations station in the Main Mechanical Room to transmit alarm signal to the security officer at School District Main Office.

D. Secondary Power: Integral rechargeable battery and automatic charger. Battery capacity shall be adequate to comply with NFPA 72 requirements.

E. Self Test: Conducted automatically every 24 hours with report transmitted to central station.

F. The digital alarm communicator transmitter (DACT) and the fire alarm control panel shall be arranged to transmit all zones to the central monitoring station. Zones to be transmitted shall be defined by the Owner. The system shall be capable of transmitting a distinct signal for each zone to the monitoring station's facilities, including spare zones. A trouble or low battery condition associated with the DACT shall be transmitted to the monitoring station.

G. The supplier of the DACT shall coordinate compatibility with the central monitoring station. All labor and hardware required to obtain compatibility with the monitoring station shall be the included. Forward a letter to the Architect/Engineer stating that this coordination has been done and that the proposed communicator system is completely compatible with the central monitoring station's equipment.

H. Provide two dedicated telephone lines for use by the DACT in the fire alarm control panel. Coordinate requirements with Owner's Representative.

2.16 INTERNET & 4G COMMERCIAL FIRE COMMUNICATOR

A. Functional Performance: Unit receives an alarm, supervisory, or trouble signal from the FACP panel, and automatically dials a preset number for remote central station. When contact is made with the central station, the signal is transmitted. The unit is capable of using either cellular or voice over internet protocol (VOIP). The unit is set up for VOIP primary and cellular backup. The unit transmits the signal to a central monitoring station (CMS).

B. Provide standalone internet and 4G commercial fire communicator as manufactured by Honeywell Security model iGSMCFP4G or approved equal by the school district. Provide (2) CAT6 cables from the communicator to the main telecommunications room in the building. Terminate the cable at both ends with RJ-45 jacks. Test the cabling per the TIA standards.

C. Primary power: Provide 120-volt to 12-volt transformer. Connect to adjacent branch circuit feeding fire alarm control panel. Secondary power: Integral rechargeable battery and battery charger. Battery capacity shall be adequate to comply with NFPA 72 requirements, but no less

than 24 hours.

D. Encryption: Furnish a unit with 256-bit encryption.

E. Diagnostic LED: Furnish a unit diagnostic LED that show signal strength and status indications. The status indications include: power, VOIP available, cellular available.

F. The communicator and the fire alarm control panel shall be arranged to transmit all zones to the central monitoring station. Zones to be transmitted shall be defined by the Owner. The system shall be capable of transmitting a distinct signal for each zone to the monitoring station's facilities, including spare zones. A trouble or low battery condition associated with the communicator or FACP shall be transmitted to the monitoring station.

G. The supplier of the communicator shall coordinate compatibility with the central monitoring station. All labor and hardware required to obtain compatibility with the monitoring station shall be the included. Forward a letter to the Architect/Engineer stating that this coordination has been done and that the proposed communicator system is completely compatible with the central monitoring station's equipment.

2.17 GUARDS FOR PHYSICAL PROTECTION

~~A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.~~
~~1. Utilized on all devices in gymnasium and on other devices as noted on drawings.~~
~~2. Factory fabricated and furnished by the manufacturer of the device.~~
~~3. Finish: Paint of color to match the protected device.~~
~~4. Provide guards for audio, visual and initiation devices in the gymnasium.~~

A. For each manual pull station located in an area accessible to students, provide and install a clear polycarbonate cover with local horn. The horn is powered by a 9-volt dc battery and produces a sound of no less than 95db.
~~5.~~1. STI Stopper II, STI-1130; or approved equal.

2.18 EXTRA EQUIPMENT INSTALLED & WIRED

A. ~~Fire alarm~~Manual pull station~~s~~ – provide a total of one (1) manual pull station install, wired, and programmed at location~~s~~ determined by the owner in the field. If the owner chooses not to add ~~an~~ any additional pull stations to the project, the pull station become the property of the School District of Philadelphia.

B. Fire alarm strobe~~s~~ – provide two (2) fire alarm strobe units installed, wired, and programmed at locations determined by the owner in the field. If the owner chooses not to add any fire alarm strobes to the project, the fire alarm strobes become the property of the School District of Philadelphia.

C. Smoke detector~~s~~ - provide five (5) ~~fire alarm~~spot-type smoke detector units installed, wired, and programmed at locations determined by the owner in the field. If the owner chooses not to add any ~~fire alarm~~ smoke detectors to the project, the smoke detectors become the property of the School District of Philadelphia.

D. Fire alarm speaker/ strobe~~s~~ – provide one (1) fire alarm speaker/ strobe unit installed, wired, and programmed at location~~s~~ determined by the owner in the field. If the owner chooses not to install to add any additional fire alarm speaker/ strobes to the project, the fire alarm speaker/ strobe become the property of the School District of Philadelphia.

E. Heat detectors – provide two (2) ~~fire alarm~~ heat detectors units installed, wired, and programmed at the locations determined by the owner in the field. These heat detectors are rated for 135 degrees F and 15 degrees F rate of rise. If the owner chooses not to install to add any additional heat detectors to the project, the heat detectors become the property of the School District of Philadelphia.

~~F. Heat detectors – one (1) fire alarm heat detectors units installed, wired and programmed at the locations determined by the owner in the field. These heat detectors are rated for 190 degrees F and 15 degrees F rate of rise. If the owner chooses not to install to add any additional heat detectors to the project, the heat detectors become the property of the School District of Philadelphia.~~

~~G. Heat detectors – one (1) fire alarm heat detectors units installed, wired and programmed at the locations determined by the owner in the field. These heat detectors are rated for 135 degrees F fixed temperature. If the owner chooses not to install to add any additional heat detectors to the project, the heat detectors become the property of the School District of Philadelphia.~~

~~H. Heat detectors – one (1) fire alarm heat detectors units installed, wired and programmed at the locations determined by the owner in the field. These heat detectors are rated for 190 degrees F fixed temperature. If the owner chooses not to install to add any additional heat detectors to the project, the heat detectors become the property of the School District of Philadelphia.~~

~~I. Heat detectors – one (1) fire alarm heat detectors units installed, wired and programmed at the locations determined by the owner in the field. These heat detectors are rated for 135 degrees F fixed temperature, weatherproof. If the owner chooses not to install to add any additional heat detectors to the project, the heat detectors become the property of the School District of Philadelphia.~~

2.19 WIRE

A. Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 degrees C, color-coded insulation.

1. Low-Voltage Circuits: No. 16 AWG, minimum.
2. Line-Voltage Circuits: No. 12 AWG, minimum.
3. Power-Limited Circuits: NFPA 70, Types FPL, FPLR, or FPLP, as recommended by manufacturer.

2.20 PULL BOXES AND TERMINAL CABINETS

A. Pull boxes shall be Pentair NEMA type 1 hinged cover cabinets only. Sizes as shown on the fire alarm system drawings. Paint all pull box doors red and label F/A PULL BOX. Pull boxes shall be rated for the environment they are placed in (i.e. NEMA 1, NEMA 3R, NEMA 4X, etc.)

B. Terminal cabinets shall be Pentair NEMA type 1 hinged cabinets with a painted steel removable subplate and 'T' handle latch. No locks are required. Each terminal cabinet shall have a factory painted red finish. Provide on the door of each terminal cabinet a red lamacoid nameplate with ¾ inch white letters to read Fire Alarm Terminal Cabinet #__. Flush cabinets shall be the same type except for factory supplied flush mounting trim. Provide one (1) IDEAL (389-061) terminal block per wire entering and leaving the terminal cabinet, plus 10% spare terminal blocks. Mount terminal blocks vertically and use the appropriate terminal block mounting channel and terminal block end plates (89-062) as recommended by the manufacturer. Each terminal shall be properly identified and the respective Terminal Cabinet Directory as shown in the drawings shall be attached to the inside cover with an adhesive backed vinyl envelope.

2.21 PRINTER

A. Provide and install a system printer in or adjacent to the fire alarm control panel. The printer shall print messages that appear on the fire alarm control panel screen and be programmable to either alarm only or full event logging output.

B. The printer shall show all operator commands and shall be capable of providing a printer list of system conditions, such as: detector sensitivities, thresholds, analog voltages, device type, and custom messages. A *TROUBLE* condition shall be generated when the printer paper has run out. An internal buffer shall continue to store events when paper is out.

~~B.~~C. Power supply for external printers shall be coordinated with the District and taken from the existing building emergency service, as applicable and as directed. Provide external printers with a printer and paper stand.

PART 3 EXECUTION

3.01 INSTALLATION

A. SCOPE
1. The system shall electrically supervise all wiring between the control panel and all initiating and indicating devices.
2. The system shall be capable of differentiating between a system trouble condition and the activation of a supervisory device.
3. A complete NFPA 72 test shall be done and a system status report issued prior to the start of any demolition of the existing functioning fire alarm systems.

B. EQUIPMENT INSTALLATION
1. All wiring shall be installed in metallic conduit ~~except as otherwise shown~~. Entire conduit system housing fire alarm cabling shall be red in color. Prepainted EMT conduit shall be as manufactured by Allied Tube and Conduit or approved equal.
2. All conduits, cabinets, and device back boxes shall be ~~recessed~~ surface mounted unless otherwise specified, shown ~~otherwise~~ on the drawings, ~~and as~~ or directed by the Architect or Engineer.
   a. Where accessible ceilings exist, conduits shall be concealed above the existing ceiling
   ~~a.~~b. Devices installed on accessible ceilings shall be flush mounted.
~~2.~~3. Provide smoke detector above fire alarm control panel and each auxiliary power supply (if not shown on floor plans).
~~3.~~4. All spot type detectors shall be located on the suspended ceilings, except as noted. If suspended ceilings do not exist, the detectors shall be mounted on the slab.
~~4.~~5. All detectors shall be centered in the ceiling tiles and back boxes and conduits shall be recessed in areas with suspended ceilings. The back boxes and conduits for detectors on the slab shall be surface mounted with conduits run perpendicular/parallel to the walls.
~~5.~~6. All detectors shall be located at the highest point on the ceiling or slab except as specifically noted.
~~6.~~7. Exact location of all automatic detectors shall be as directed by the manufacturer's representative.
~~7.~~8. Smoke detectors shall not be located within three (3) feet of or in the direct air stream from supply air diffusers. Additionally, smoke detectors shall not be located within three (3) feet of return air grilles.
~~8.~~9. Automatic detectors shall not be mounted on or within three (3) feet of doorways, beams, columns or walls, except smoke detectors at doors with door holders shall be mounted between two (2) and four (4) feet from the doors.

9.10. The Electrical Contractor shall furnish and install duct smoke detectors utilizing workmen skilled in appropriate trades. The Electrical Contractor shall provide all fire alarm wiring and interconnections. All power and/or control wiring required for the operation of smoke dampers or for the shutdown of air handling units shall be provided by this Contractor.

10.11. All manual stations located at egress doors shall be located adjacent to and within five (5) feet of the respective egress doors.

11.12. All detectors mounted on suspended ceilings shall be connected to pull boxes mounted on the slab with flexible conduit that shall be long enough to move the detector five (5) feet in any direction.

12.13. Detector bases shall be mounted on ceiling outlets so that indicator lamps are visible from the floor below, or from the nearest equipment aisle, or from the doorway entering the room, as applicable.

13.14. The conduit, device back boxes, pull boxes, terminal cabinets, panels and wiring as shown on the Fire Alarm System drawings shall be installed as shown. The device back boxes and conduit wire fill shall be in compliance with the National Electrical Code.

14.15. Provide white lamacoid nameplates on the ceiling grid with ¼ inch red letters to identify all above ceiling devices.

15.16. The fire detection and alarm system shall be operational at all times, except that when work is being performed on the system during normal working hours only those portions actually undergoing modification shall be out of service. All detectors in the construction area shall be bagged with plastic bags during the working hours and de-bagged after working hours.

16.17. At the end of each workday, and before workmen leave the site, proper operation of the system shall be demonstrated to the designated Owner's representative.

C. WIRING INSTALLATION

1. All alarm initiating devices and supervisory initiating devices shall be connected on Class B (Style 4) ~~OR Class A~~ two (2) wire Signaling Line Circuits (SLC). Unsupervised wiring (point wires) shall not be permitted. T-tapping and parallel branch circuit wiring shall be permitted on the addressable SLCs, in accordance with the manufacturer's recommendations.
2. All alarm indicating devices shall be connected on Class B OR Class A two (2) wire electrically supervised circuits and on a minimum of two active circuits.
3. Wiring to initiating and supervisory devices and to fire alarm annunciators shall be with two- (2) conductor, twisted solid copper UL listed fire alarm system wire subject to manufacturer's recommendations (#16 AWG minimum).
4. Wiring to alarm indicating devices shall be with two- (2) conductor twisted solid copper UL listed jacketed fire alarm system wire subject to manufacturer's recommendations (#14 AWG minimum).
5. All other wiring shall be as recommended by the system manufacturer.
6. No splicing of wires is permitted except on terminal blocks in annunciators, control panels or properly labeled terminal cabinets as shown on the drawings. The use of wire nuts or similar type devices is not permitted. All devices shall have terminals for each wiring connection. No splicing of any type shall be permitted in pull boxes, to include crimp terminals.
7. All wires shall be labeled at both ends with ¾" x 1-3/9" ScotchCode SWD Write-On Tape and SMP Write-On Marking Pen only.
8. Use plastic wire ties and wire tie mounts to ensure a neat quality appearance.

3.02 TESTS

A. Prior to the acceptance test of the project by the Owner, a factory-trained technician from the equipment supplier shall inspect, test and adjust the complete Fire Alarm System according to NFPA-72, including, but not limited to, the following:

1. Visual inspection of all equipment.
2. Verification of alarm, supervisory and trouble signals at all receiving locations and circuits, including audible and visual alarms, annunciators, control panels, and central monitoring control panel.
3. Test each alarm initiation device for alarm and correct annunciation.
4. Test each alarm strobe light for proper operation.
5. Test the sensitivity of each smoke detector with a manufacturer's detector test set (the fire alarm control panel shall be UL listed for this purpose). Retain a printed recorded of all firing voltages. Correlate firing voltage records to the device addresses as shown on the as-built drawings.
6. Check all end of line devices for proper installation and polarity.

B. All smoke detector sensitivity adjustments and tests shall be performed:

1. From the Fire Alarm Control Panel with each detector in its exact operating location and not at some convenient place.
2. Only under normal, balanced and completed maximum air flow conditions, with supply air systems constant and not undergoing balancing or other alterations, and air conditioning refrigeration systems operating properly.
3. A complete printout showing all sensitivity readings shall submitted.

C. After the system has been installed, the DACT shall be completely tested by the equipment manufacturer's representative for proper operation. A letter shall be provided to the Owner by the manufacturer's representative confirming the test, indicating their approval and that all zones are capable of being transmitted to and satisfactorily received by the central monitoring station.

D. The Owner’s acceptance test will only be made after the above tests are made and the copy of the NFPA 72 Test Report/Certificate results is turned over to the Owner for evaluation. The Owner's test will be the same as the above Contractor’s tests. Demonstrate to the Owner that no wire nuts or similar devices have been used in the system. Perform these tests in the presence of the Owner or the Owner's representative.

E. Per NFPA 72, submit to the owner, construction manager, and engineer – FIRE ALARM SYSTEM RECORD OF COMPLETION.

F. Per NFPA 72, submit to the owner, construction manager, engineer, and Pennsylvania Department of Labor & Industry – FIRE ALARM SYSTEM INSPECTION & TESTING. This form must be accepted with no exceptions.

3.03 FIELD ADJUSTMENTS

A. Repair or replace at his expense any defective devices, equipment or wiring and perform additional testing required to demonstrate that the system is in full compliance with the drawings and specifications.

B. The cost of any re-testing as a result of the failure of the system to operate in accordance with these specifications and/or non-compliance with the drawings or applicable codes shall be paid by the Contractor to the Owner. A purchase order shall be delivered to the Owner before the re-testing is scheduled or started.

3.04 TRAINING

A. Upon the completion of all work and of all tests, furnish the necessary skilled labor for providing operating instructions of all systems and equipment for a period of one (1) day of eight (8) hours for each building or as otherwise directed. During this period, instruction will be

given to the owner or his representative(s) in the full operation, adjustment and maintenance of all equipment furnished or provided.

B. The contractor will provide video taping of all the training, and 3 copies of the training on a DVD to the owner.

END OF SECTION

THE SCHOOL DISTRICT OF PHILADELPHIA

CONWELL MIDDLE SCHOOL ANNEX

3080 EMERALD STREET, PHILADELPHIA, PA 19134

FIRE ALARM REPLACEMENT

GENERAL: SDP PROJECT NO. B-064(c) OF 2018/19

BID DOCUMENTS: 04 MARCH 2020

GENERAL NOTES:

1. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE EXISTING CONDITIONS AFFECTING THIS PROJECT AND COORDINATE WITH OTHER DISCIPLINES.
2. THE WORK IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS SHALL CONSIST OF PROVIDING ALL EQUIPMENT, MATERIALS, LABOR, SERVICES AND PERFORMED IN COMPLIANCE WITH THE APPLICABLE CODES AND STANDARDS.
3. ALL EQUIPMENT SHALL BE HANDLED, STORED, AND PROTECTED TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
4. ALL EQUIPMENT SHALL BE INSTALLED AND ADEQUATE CLEARANCES BE PROVIDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND CODE.
5. ALL NEW EQUIPMENT SHALL BE TESTED IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS. LEAKS, IF ANY, SHALL BE REPAIRED AND THE PIPING SHALL BE RETESTED TO MEET THE REQUIREMENTS.
6. ALL NEW EQUIPMENT IS SHOWN IN APPROXIMATE POSITION. THE CONTRACTOR SHALL FIELD VERIFY THE ROUTING AND TIE-INS OF NEW AND EXISTING PIPING. ALL NEW PIPING SHALL BE INSTALLED AND ADEQUATELY SUPPORTED IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS.
7. THE CONTRACTOR SHALL CHECK AND FIELD VERIFY ALL CONDITIONS AND DIMENSIONS AT THE SITE PRIOR TO SUBMITTING BID AND BEFORE START OF CONSTRUCTION.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL EQUIPMENT SHOWN ON THE DRAWINGS, INCLUDING COORDINATION IF ANY EQUIPMENT OF ALTERNATE MANUFACTURER. THE CONTRACTOR SHALL PROVIDE COMPOSITE DRAWINGS AS REQUIRED FOR THE INSTALLATION OF EQUIPMENT AS SHOWN ON PLAN FOR APPROVAL BY ENGINEER.
9. ANY EQUIPMENT, MATERIALS, LABOR OR SERVICES NOT SPECIFICALLY MENTIONED HEREIN WHICH MAY BE NECESSARY TO COMPLETE OR PERFECT ANT PART OF INSTALLATION IN A SUBSTANTIAL MANNER SHALL BE FURNISHED WITHOUT EXTRA COST TO THE OWNER.
10. ALL WORK SHALL COMPLY WITH LOCAL AND NATIONAL CODES AND STANDARDS, UNDERWRITERS LABORATORY APPROVAL, AND ALL STATE AND FEDERAL OSHA SAFETY REQUIREMENTS.
11. LOCAL CODES SHALL SUPERCEDE INTERNATIONAL BUILDING CODES WHERE CONFLICTS OCCUR.
12. PROVIDE DIELECTRIC UNIONS AND PROPERLY ISOLATE CONTACT BETWEEN DISSIMILAR METALS TO INHIBIT GALVANIC CORROSION.
13. THE SCHOOL DISTRICT OF PHILADELPHIA MAY RESTRICT WORK HOURS DURING THE SCHOOL DAY.
14. THE CONTRACTOR IS RESPONSIBLE TO LABEL AND/OR PAINT ALL NEW EQUIPMENT, PIPING, INSTRUMENTS, AND ACCESSORIES.
15. ALL WIRING FOR THIS PROJECT SHALL BE INSTALLED IN METAL CONDUIT. NO EXCEPTIONS. CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT) EXCEPT AS OTHERWISE NOTED OR SPECIFIED. REFER TO SPECIFICATION SECTION 26 05 33, CONDUITS FOR ELECTRICAL SYSTEMS, FOR REQUIREMENTS.
16. CONTRACTOR SHALL INCLUDE THE COST OF FIFTY (50) NEW 2' x 4' ACCOUSTICAL TILES AND INSTALLATION OF SAME TO REPLACE TILES DAMAGED DURING THE COURSE OF CONSTRUCTION. TILES PROVIDED SHALL MATCH EXISTING STYLE/FINISH AS CLOSELY AS POSSIBLE. ANY NEW TILES NOT REQUIRED TO BE INSTALLED SHALL BE TURNED OVER TO THE DISTRICT FOR OWNER'S STOCK. 1

APPLICABLE CODES:

1. PHILADELPHIA BUILDING CONSTRUCTION AND OCCUPANCY CODE (2018 ICC)
   - SUBCODE "A": THE PHILADELPHIA ADMINISTRATIVE CODE
   - SUBCODE "B": THE PHILADELPHIA BUILDING CODE
   - SUBCODE "E": THE PHILADELPHIA ELECTRICAL CODE
   - SUBCODE "EB": THE PHILADELPHIA EXISTING BUILDING CODE
   - SUBCODE "EC": THE PHILADELPHIA ENERGY CONSERVATION CODE
   - SUBCODE "F": THE PHILADELPHIA FIRE CODE
   - SUBCODE "G": THE PHILADELPHIA FUEL GAS CODE
   - SUBCODE "M": THE PHILADELPHIA MECHANICAL CODE
   - SUBCODE "P": THE PHILADELPHIA PLUMBING CODE
   - SUBCODE "PC": THE PHILADELPHIA CODE FOR BUILDINGS AND MAINTENANCE
   - SUBCODE "PM": THE PHILADELPHIA PROPERTY MAINTENANCE CODE
   - PHILADELPHIA CROSS CONNECTION CODE
2. NFPA 70-2017, NATIONAL ELECTRICAL CODE
3. NFPA-72-2013, NATIONAL FIRE ALARM CODE 1
4. PHILADELPHIA GAS WORKS (PGW) PIPING SPECIFICATION AND EQUIPMENT INSTALLATION MANUAL

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND TURN OFF ALL IMPACTED UTILITIES BEFORE STARTING WORK.
2. ALL DEMOLITION/REMOVAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE STANDARDS AND REGULATIONS.
3. DEMOLITION WORK SHALL BE SCHEDULED AND IMPLEMENTED WITH MINIMAL DISRUPTION TO ADJACENT OCCUPIED AREAS.
4. REMOVE ALL MATERIALS IN A SAFE WORKMANLIKE MANNER AND DISPOSE OF PER ALL APPLICABLE CODES & SAFETY REQUIREMENTS.
5. CONSTRUCTION DEBRIS MUST BE REMOVED FROM OCCUPIED SPACES AT THE END OF EACH WORK SHIFT.

OWNER

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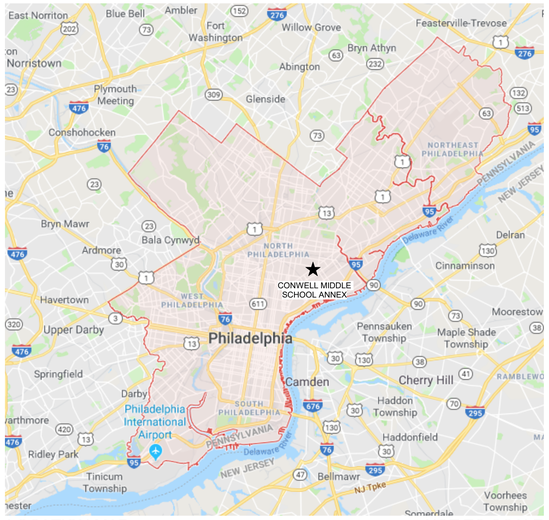

LOCATION MAP NOT TO SCALE

DRAWING LIST

SHEET #	DRAWING #	SHEET NAME
	A002	BUILDING INFORMATION & CODE DATA
	A401	LARGE SCALE DRAWINGS - PLANS, SECTIONS, ELEVATIONS
	A003	ADA ACCESSIBILITY NOTES
	A104	ROOF PLAN
	A001	GENERAL NOTES, SYMBOLS, LEGENDS & ABBREVIATIONS
	A105	REFLECTED CELING PLAN
	G002	FIRST FLOOR CODE PLAN
	A201	ELEVATIONS
	A301	SECTIONS
	A501	DETAILS
	A601	SCHEDULES
	A101	FLOOR PLAN
1	G-001	COVER SHEET
2	E-001	SYMBOLS AND ABBREVIATIONS
3	E-101	ELECTRICAL FIRE ALARM DEMOLITION BASEMENT
4	E-102	ELECTRICAL FIRE ALARM NEW WORK BASEMENT
5	E-103	ELECTRICAL FIRE ALARM DEMOLITION FIRST FLOOR
6	E-104	ELECTRICAL FIRE ALARM NEW WORK FIRST FLOOR
7	E-105	ELECTRICAL FIRE ALARM DEMOLITION SECOND FLOOR
8	E-106	ELECTRICAL FIRE ALARM NEW WORK SECOND FLOOR
9	E-107	ELECTRICAL FIRE ALARM DEMOLITION THIRD FLOOR
10	E-108	ELECTRICAL FIRE ALARM NEW WORK THIRD FLOOR

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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
COVER SHEET

DRAWING SCALE	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

B-064(c) of 2018/2019

DRAWING NO.
G-001

SHEET 1 OF 10

Local File: BIM 360://0636894.013 - SDP Conwell Annex Fire Alarm Replacement/636894_013_M_Central_R19.rvt
Project Number: N/A
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GENERAL POWER

- NEMA 5-20R, SPECIFICATION GRADE
- (J) JUNCTION BOX
- DISCONNECT SWITCH
- PANELBOARD-208/120V, 3-PHASE

CONDUIT, FEEDERS & BRANCH CIRCUITS

- TYPICAL BRANCH CIRCUIT WITH NO SIZE IDENTIFICATION, BY DEFAULT; 2#12 + 1#12G - 3/4" CONDUIT FOR SINGLE PHASE CIRCUITS.

FIRE ALARM

(SEE RISER DIAGRAM AND SPECIFICATIONS TO SPECIFY FLUSH OR SURFACE MOUNTED EQUIPMENT)

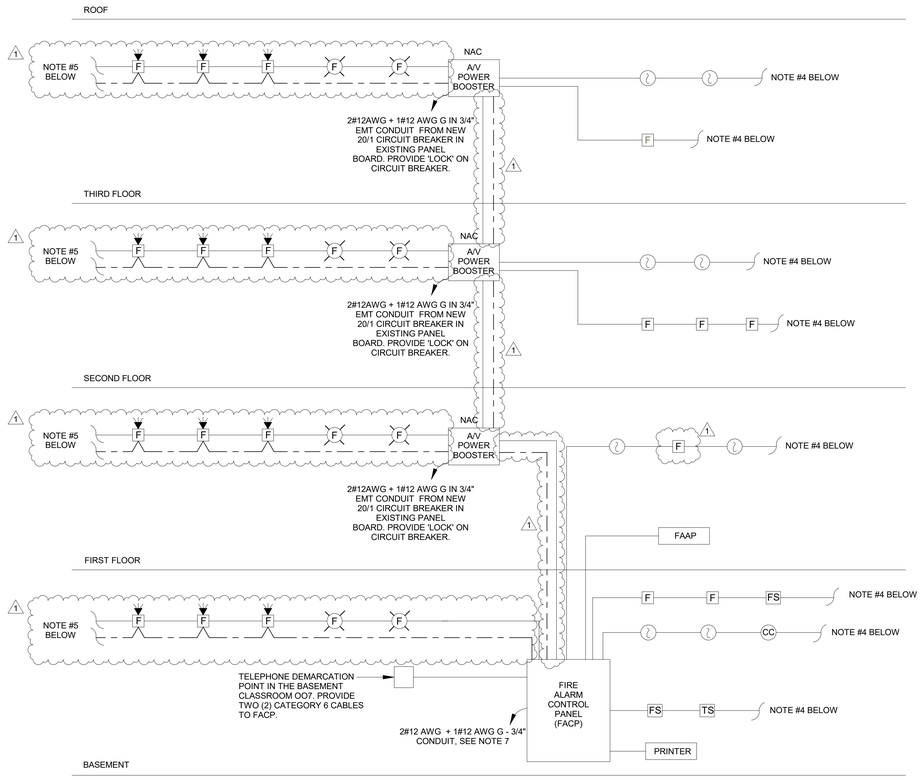
- FACP — FIRE ALARM CONTROL PANEL
- FAAP — FIRE ALARM ANNUNCIATOR PANEL
- F — MANUAL PULL STATION
- SMOKE DETECTOR
- SMOKE DETECTOR (WALL MOUNTED)
- HEAT DETECTOR
- D — DUCT DETECTOR
- SW R — REMOTE TEST SWITCH WITH LED ALARM INDICATOR
- NC — NETWORK CONTACT
- NCM — NETWORK CONTACT MONITOR
- NAC — NOTIFICATION APPLIANCE CONTROLLER
- F, 15 — FIRE ALARM STROBE; INDICATES No OF CANDELAS
- F, 15 — SPEAKER / STROBE; INDICATES No OF CANDELAS
- F — FIRE ALARM BELL (EXISTING TO BE REMOVED)
- MM — MONITORING MODULE
- DH — MAGNETIC DOOR HOLD (EXISTING TO REMAIN)
- B — MULTITONE BELL
- P — PRINTER
- RL — REMOTE INDICATOR LIGHT
- IAM — INDIVIDUAL ADDRESSABLE RELAY MODULE
- CC — CARBON MONOXIDE DETECTOR
- FS — SPRINKLER FLOW SWITCH
- TS — SPRINKLER VALVE TAMPER SWITCH
- B/T — PROJECTED BEAM-TYPE SMOKE DETECTOR (TRANSMITTER)
- B/R — PROJECTED BEAM-TYPE SMOKE DETECTOR (REFLECTOR/RECEIVER)

ABBREVIATIONS

- A/V AUDIBLE VISIBLE
- WP WEATHERPROOF
- WG WIREGUARD (INDICATED EQUIPMENT TO BE PROVIDED WITH WIREGUARD)
- (D) DEMOLISH

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL BE PROPERLY GROUNDED AND SHALL MEET ALL REQUIREMENTS OF THE APPLICABLE SECTIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ANY AUTHORITIES HAVING JURISDICTION.
2. ALL WORK SHALL BE PERFORMED AS REQUIRED BY APPLICABLE SECTIONS OF THE NATIONAL ELECTRICAL CODE 2017, AND ALL GOVERNING LOCAL CODES, LAWS, AND/OR REGULATIONS.
3. FURNISH, INSTALL AND TEST ALL ELECTRICAL EQUIPMENT, COMPONENTS, FITTINGS, DEVICES, WIRES, CABLES, RACEWAYS AND APPURTENANCES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED. ANY REQUIRED ITEMS NOT SPECIFIED OR SHOWN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALL ITEMS PURCHASED BY OWNER AND NOT INSTALLED SHALL BE SURRENDERED TO OWNER AT PROJECT COMPLETION.
4. DRAWINGS ARE DIAGRAMMATIC IN NATURE, CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. CONTRACTOR SHALL COORDINATE LOCATION OF FIXTURES, DEVICES, ETC. WITH OTHER TRADES IN ORDER TO AVOID INTERFERENCES.
5. ARCHITECTURAL FEATURES SHOWN ON THESE DRAWINGS ARE FOR BACKGROUND INFORMATION ONLY.
6. ALL CIRCUITS SHALL CONTAIN A SEPARATE EQUIPMENT GROUNDING CONDUCTOR, WHETHER OR NOT IT IS INDICATED ON THE DRAWINGS. CIRCUITS SHOWN WITHOUT TICK MARKS, OR SPECIFICALLY LABELED OTHERWISE, SHALL HAVE 1 HOT, 1 NEUTRAL AND 1 EQUIPMENT GROUNDING CONDUCTOR OF THE SIZE SHOWN.
   6.1. ALL SINGLE PHASE POWER SHALL BE 3/4" WITH 2#12 AWG WIRE, UNLESS NOTED OTHERWISE. IN ADDITION, ALL SUCH CONDUITS SHALL CONTAIN A SEPARATE EQUIPMENT GROUNDING CONDUCTOR (SIZE AS REQ'D). ALL ANALOG CONTROL WIRING SHALL BE A MINIMUM OF #16 AWG AND DIGITAL CONTROL WIRING SHALL BE #14 AWG.
7. EXACT CONDUIT STUB-UP LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR BASED ON THE APPROVED MANUFACTURER'S DRAWINGS OF THE RESPECTIVE EQUIPMENT. CONDUITS SHALL BE INSTALLED TO AGREE WITH THE EQUIPMENT FURNISHED.
8. WALL & FLOOR PENETRATIONS SHALL BE BY THE CONTRACTOR. PROVIDE FIRESTOP AS REQUIRED FOR ALL PENETRATIONS MADE FOR ELECTRICAL WORK.
9. ANY ELECTRICAL CABLES, WIRING DEVICES, COMPONENTS OR APPURTENANCES THAT ARE NOT SHOWN OR SPECIFIED BUT ARE REQUIRED FOR PROPER OPERATION OF A SYSTEM, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PURCHASING AND/OR INSTALLATION.
10. PROVIDE CONDUIT SLEEVES AND HYDROSTATIC SEALS FOR ALL CONDUITS PENETRATING FLOORS OR WALLS BELOW GRADE.
11. ALL POWER CONDUITS ARE SHOWN DIAGRAMMATICALLY. EXACT RUNS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD, EXCEPT WHERE SPECIFICALLY DIMENSIONED ON PLANS. ALL CABLE, CONDUITS, PULL BOXES, JUNCTION BOXES AND SUPPORTING DEVICES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS REQUIRED TO COMPLETE EACH RUN OF CONDUIT BASED ON FIELD CONDITIONS.
12. THE CONTRACTOR SHALL VISIT THE SITE OF WORK PRIOR TO PREPARING HIS BID IN ORDER TO FAMILIARIZE HIMSELF WITH DIFFICULTIES TO THIS PROJECT FROM THE STANDPOINT OF UNDERSTANDING ALL FIELD CONDITIONS. WHENEVER A CONFLICT OCCURS BETWEEN THE CONTRACT DRAWINGS, SPECIFICATIONS, AND THE REQUIREMENTS OF THE ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL BID ON THE MOST EXPENSIVE METHOD OF CONSTRUCTION AND WILL NOT BE ENTITLED TO AN EXTRA COST UNLESS MATERIALS OR EQUIPMENT NOT SHOWN ON THE DRAWINGS OR SPECIFICATIONS OR REQUIRED BY FIELD CONDITIONS MUST BE INSTALLED.
13. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL TO BUILDING WALLS AND BEAMS. ALL CONDUIT IN MECHANICAL AND, ELECTRICAL ROOMS, GALVANIZED RIGID. ALL CONDUIT ABOVE CEILINGS AND IN FINISHED AREAS IS EMT. IF CEILING IS ACCESSIBLE - RUN CONDUIT ABOVE CEILING.
14. EXPOSED CONDUIT SHALL BE SUPPORTED FROM WALLS AND/OR CEILING BY APPROVED HANGERS AS SPECIFIED IN SECTION 26 05 28 HANGERS AND SUPPORTS.
15. EXPANSION FITTINGS SHALL BE FURNISHED AND INSTALLED WHERE CONDUITS EXPOSED OR CONCEALED PASS THROUGH STRUCTURAL JOINTS OR CONSTRUCTION.
16. SEE SPECIFICATIONS FOR OTHER SPECIFIC MOUNTING HEIGHTS UNLESS OTHERWISE NOTED ON PLANS.
17. ALL CONDUCTORS ON THIS PROJECT SHALL BE COPPER.
18. SEE SPECIFICATION 26 05 23 FOR ELECTRICAL IDENTIFICATION PROCEDURES.
19. ALL ANCILLARY COMPONENTS SUCH AS AUXILIARY CONTACTS, CONTACTORS, RELAYS, COILS, TERMINAL BLOCKS, TIMERS, WIRES, ETC., SHALL BE FULLY RATED IN TERMS OF VOLTAGE, AMPERAGE, VA AND INSULATION RATINGS TO OPERATE CONTINUOUSLY AND UNDER ALL MAKE/BREAK CONDITIONS AS THEY ARE INSTALLED IN THEIR ASSOCIATED SYSTEM CONFIGURATIONS, WHETHER OR NOT ALL COMPONENTS ARE SHOWN OR SPECIFIED. ANY COMPONENT FOUND PRIOR TO OR DURING THE WARRANTY PERIOD TO BE INADEQUATELY RATED TO PERFORM ITS CONTROL FUNCTION, AS INSTALLED, SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE INTENT OF THIS CLAUSE IS TO HOLD THE CONTRACTOR LIABLE FOR PROVIDING FULLY INTEGRATED SYSTEMS, MADE UP OF FULLY RATED COMPONENTS THAT WILL WORK TOGETHER RELIABLY. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, ANY ANCILLARY DEVICES DESIGNED TO FUNCTION INTEGRALLY WITHIN GIVEN LARGER COMPONENTS.
20. THE SYMBOLS AND ABBREVIATIONS LISTED REPRESENT A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON THE PROJECT. THEREFORE, NOT ALL OF THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THESE PARTICULAR DRAWINGS.
21. WHEREVER THE INSTALLATION OF ELECTRICAL EQUIPMENT AS SHOWN ON THE DRAWINGS IS IMPRACTICAL DUE TO LOCAL INTERFERENCE OR OTHER REASONS, THE CONTRACTOR SHALL INSTALL THE EQUIPMENT AT NEW LOCATIONS AS DIRECTED BY THE ENGINEER, AT NO EXTRA COST, PROVIDED DISTANCES AND REQUIRED INSTALLATION EFFORT IS EQUIVALENT.
22. REMOVE ALL EXISTING FIRE ALARM EQUIPMENT AND ASSOCIATED WIRING AND CONDUITS INDICATED ON THE DEMOLITION PLANS.
23. CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRIC WIRE AND CABLE FOR ALL ELECTRICAL EQUIPMENT AND ALL INTERCONNECTING WIRES FOR COMPONENTS PROVIDED UNDER ALL TRADE DRAWINGS.



FIRE ALARM RISER DIAGRAM

NO SCALE

RISER DIAGRAM NOTES

1. REFER TO FLOOR PLANS FOR THE EXACT QUANTITIES OF FIRE ALARM DEVICES AND LOCATIONS.
2. INSTALL ALL WIRING IN CONDUIT. EMT WITH COMPRESSION FITTINGS UNLESS OTHERWISE SPECIFIED.
3. ZONE THE FIRE ALARM SYSTEM PER FLOOR, AND AREAS NOT TO EXCEED 20,000 SQUARE FEET. NAC PANELS AND FACP HOUSE LOCAL VOICE AMPLIFICATION REQUIRED FOR ZONE(S) SERVED.
4. TO NEXT DEVICE ON THE SAME ADDRESSABLE LOOP.
5. TO NEXT DEVICE ON THE SAME NOTIFICATION APPLIANCE CIRCUIT.
6. REFER TO PROJECT SPECIFICATIONS FOR WIRE SIZE AND TYPE.
7. ADD NEW 20/1 CIRCUIT BREAKER TO EXISTING PANELBOARD. PROVIDE 'LOCK' ON CIRCUIT BREAKER.
8. VOICE/AUDIO SPEAKER CIRCUITS DENOTED BY 'CENTERLINE' LINE TYPE (—— – —— – ——).

EXTRA MATERIALS

INCLUDE ALL THE EXTRA ITEMS NOTED BELOW. THE WORK IS TO INCLUDE INSTALLATION, WIRING, PROGRAMMING AND TESTING. IF NONE OF THE EXTRA ITEMS ARE INSTALLED, THEY BECOME PROPERTY OF THE OWNER.

A. FIVE (5) SPOT-TYPE SMOKE DETECTORS, WITH BASES.
B. TWO (1) HEAT DETECTORS, 135 DEGREES F AND 15 DEGREE RATE OF RISE, WITH BASES.
C. ONE (1) SPEAKER / STROBE DEVICE, SELECTABLE 15-30-75 CD OUTPUT.
D. TWO (2) STROBE ONLY DEVICES, SELECTABLE 15-30-75 CD OUTPUT.
E. ONE (1) MANUAL PULL STATION, WITH CLEAR LEXAN COVER & SOUNDER/ALARM.

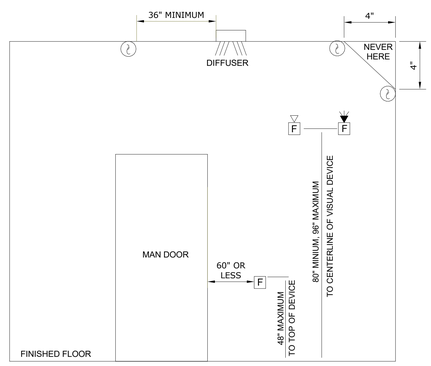
INPUTS / CONDITION	A	B	C	D	E	F	G	H	I	J	K	L
1 FIRE ALARM SYSTEM AC POWER FAILURE	●					●						
2 FIRE ALARM SYSTEM LOW BATTERY	●					●						
3 OPEN CIRCUIT	●			●		●						
4 GROUND FAULT	●			●		●						
5 NAC SHORT CIRCUIT	●			●		●						
6 MANUAL PULL STATION			●	●				●				
7 SMOKE DETECTOR				●	●	●			●			
8 DUCT SMOKE DETECTOR		●		●	●		●			●		
9 KITCHEN FIRE SUPPRESSION		●		●			●					

SYSTEM OUTPUTS: FACP / FAAP | NOTIFICATION | CONTROL

- A: ACTUATE TROUBLE INDICATOR & AUDIBLE SIGNAL
- B: ACTUATE SUPERVISORY INDICATOR & AUDIBLE SIGNAL
- C: ACTUATE ALARM INDICATOR & AUDIBLE SIGNAL
- D: INDICATE ZONE OR DEVICE ADDRESS
- E: ACTUATE NOTIFICATION APPLIANCES
- F: TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION
- G: TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION
- H: TRANSMIT ALARM SIGNAL TO CENTRAL STATION
- I: SHUTDOWN AHU
- J: RELEASE DOOR HOLDERS
- K: RELEASE ELEVATORS
- L: RELEASE DAMPERS

FIRE ALARM SYSTEM OPERATIONAL MATRIX

NO SCALE



FIRE ALARM DEVICE MOUNTING HEIGHTS

NO SCALE

PANEL DESIGNATION: EXISTING PNL 'A'

TYPE: BRANCH CIRCUIT
NUMBER OF POLES: 42
MAIN BUS RATING: 225A
MAIN RATING: 225A MAIN LUG ONLY
LOCATION: BASEMENT ELECTRICAL ROOM
VOLTAGE: 120/240V, 1-PHASE, 3-WIRE
PANEL MOUNTING: SURFACE
PANEL ENCLOSURE (NEMA): 1
SHORT CIRCUIT: 10kA

CIR. No.	CIR. BKR.	DESCRIPTION	WIRE	GROUND	CONDUIT	LOAD - KVA ΦA	ΦB	ΦC	LOAD - KVA ΦA	ΦB	ΦC	CONDUIT	GROUND	WIRE	DESCRIPTION	CIR. BKR.	CIR. No.
1	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	2
3	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	4
5	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	6
7	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	8
9	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	10
11	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	12
13	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	14
15	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	16
17	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	18
19	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	20
21	201	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	22
23	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	24
25	20/1	EXISTING CIRCUIT										3/4"	#12	#12	**FACP PANEL (BASEMENT)**	20/1	26
27	20/1	EXISTING CIRCUIT										3/4"	#12	#10	**NAC POWER BOOSTER (1ST Floor)**	20/1	28
29	20/1	EXISTING CIRCUIT										3/4"	#12	#10	**NAC POWER BOOSTER (2nd Floor)**	20/1	30
31	20/1	EXISTING CIRCUIT										3/4"	#12	#10	**NAC POWER BOOSTER (3rd Floor)**	20/1	32
33	20/1	EXISTING CIRCUIT													SPARE	20/1	34
35	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	36
37	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	38
39	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	40
41	20/1	EXISTING CIRCUIT													EXISTING CIRCUIT	20/1	42
					TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	*TOTAL*					

PANEL CONNECTED LOAD
ΦA 0.00
ΦB 0.00
ΦC 0.00
0.00 *TOTAL*

X SOLID NEUTRAL BUS
X EQUIPMENT GROUND BUS

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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
SYMBOLS AND ABBREVIATIONS

DRAWING SCALE: N/A
LOCATION NO.: 5230
FILE NO.: N/A
DRAWN BY: FJR
CHECKED BY: MPM

B-064(c) of 2018/2019

DRAWING NO.
E-001
SHEET 2 OF 10

Local File: BIM 360://063694 013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
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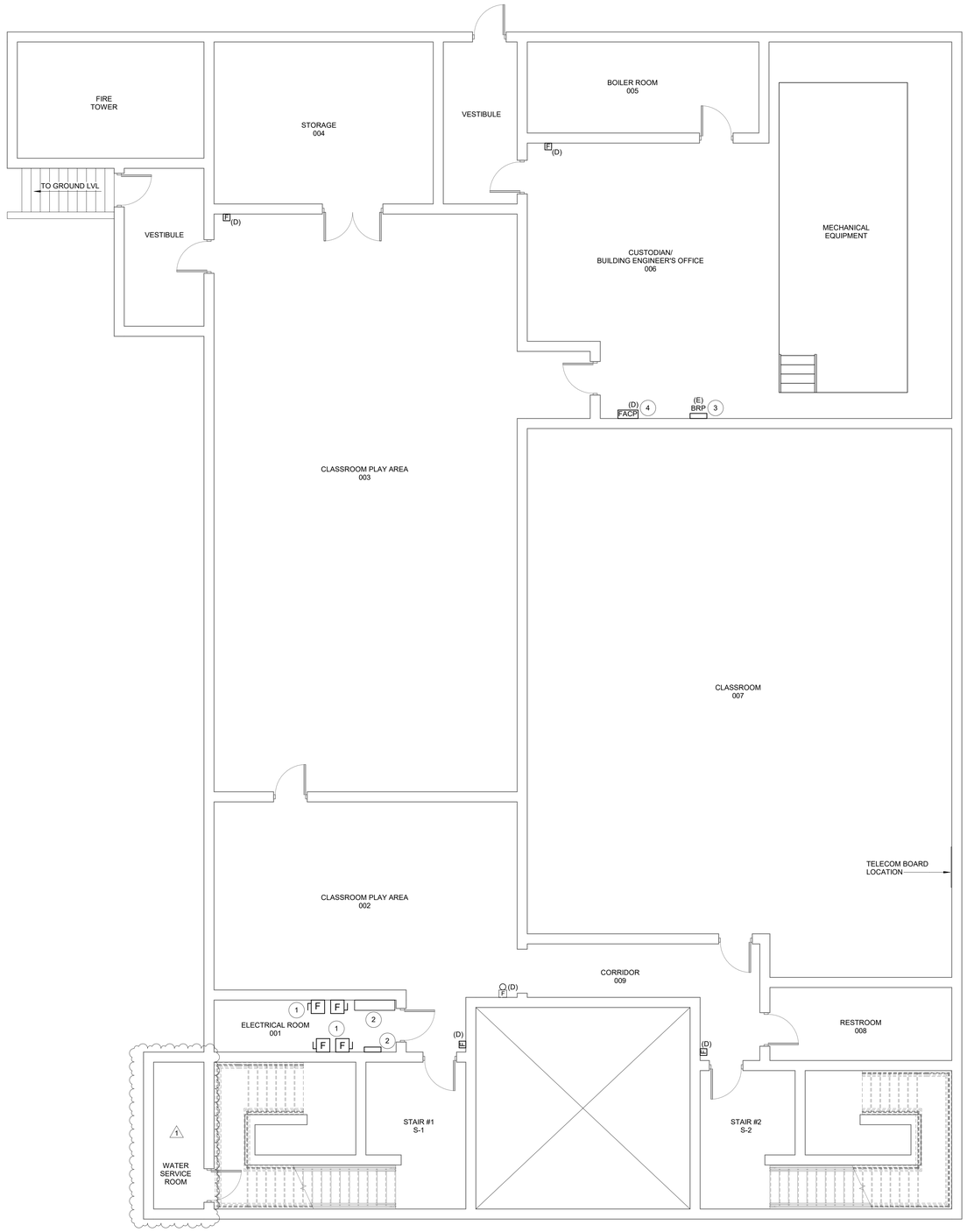


1 ELECTRICAL FIRE ALARM DEMOLITION BASEMENT FLOOR PLAN

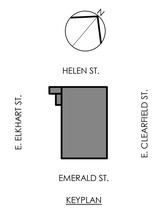
SCALE: 3/16" = 1'-0"

GENERAL DEMO NOTES:

1. REMOVE EACH EXISTING FIRE ALARM DEVICE.
2. PROVIDE AND INSTALL BLANK METALLIC COVE PLATE OVER OPENING.
3. PAINT COVER PLATE TO MATCH EXISTING SURFACE.
4. DEMOLISH ANY FIRE ALARM CONDUIT AND WIRING THAT IS ACCESSIBLE.
5. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION .
6. ONCE THE FIRE ALARM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION, REMOVE THE ENTIRE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY.
7. DEMOLISH ALL VISIBLE FIRE ALARM CONDUIT AND WIRING, INCLUDING ABOVE ACCESSIBLE CEILINGS. ABANDON ALL CONDUIT BURRIED IN WALLS OR FLOOR. CAP ALL ABANDONED CONDUITS ON BOTH ENDS.
8. THE CONTRACTOR IS RESPONSIBLE TO PROPERLY DISPOSE OF ALL FIRE ALARM SYSTEM COMPONENTS, WIRING AND CONDUIT.
9. THE OWNER HAS THE RIGHT TO KEEP ANY FIRE ALARM DEVICES THAT ARE REMOVED.
10. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING AND CONDUIT BEFORE SUBMITTING A BID.

KEYED DEMOLITION NOTES

1. EXISTING DISCONNECTS TO REMAIN.
2. EXISTING PANELS TO REMAIN.
3. EXISTING BOILER ROOM PANEL TO REMAIN.
4. EXISTING FACP TO BE REMOVED.



KEYPLAN

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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM DEMOLITION BASEMENT

DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

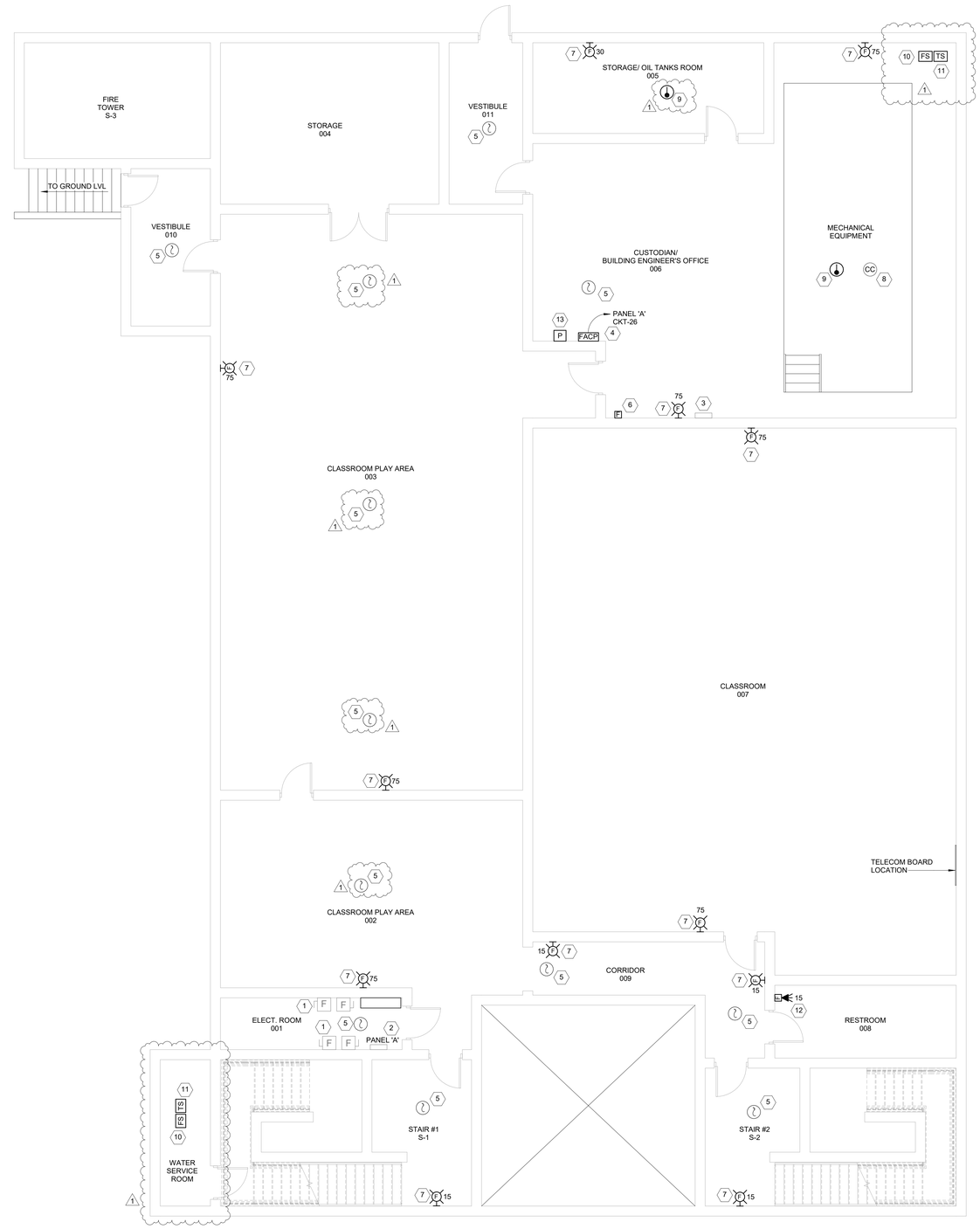
B-064(c) of 2018/2019

DRAWING NO.
E-101

SHEET 3 OF 10

Local File:BIM 360://063694.013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:37 PM

EXISTING FIRE ALARM SYSTEM MUST REMAIN FULLY FUNCTIONAL DURING CONSTRUCTION.



NOTE:
PER EXCEPTION NO. 3 TO ARTICLE 907.2.3 OF NFPA 72-2013, AUTOMATIC SMOKE DETECTION IS BEING PROVIDED IN INTERIOR CORRIDORS; AUDITORIUMS, CAFETERIAS, GYMNASIUMS, AND/OR SIMILAR SPACES; AND SHOPS OR LABS, IN LIEU OF PROVIDING MANUAL PULL STATIONS THROUGHOUT THE BUILDING.

1 ELECTRICAL FIRE ALARM NEW WORK BASEMENT FLOOR PLAN

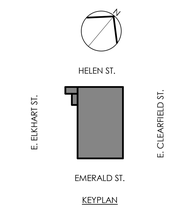
SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS, NOTES, ABBREVIATIONS AND RISER DIAGRAM SEE DRAWING E-001.
2. FOR DEVICES MOUNTING HEIGHTS SEE DRAWINGS E-001.
3. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO POWER FIRE ALARM PRINTER.
4. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO NAC. PROVIDE NEW 20A/1P CIRCUIT BREAKER.
5. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING, CONDUIT AND BUDGET BEFORE SUBMITTING A BID.
6. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
7. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO FACP. PROVIDE NEW 20A/1P CIRCUIT BREAKER.

KEYED NEW WORK NOTES

1. EXISTING DISCONNECTS TO REMAIN.
2. EXISTING PANEL "A" TO REMAIN.
3. EXISTING BOILER ROOM PANEL TO REMAIN.
4. PROVIDE NEW FACP. PROVIDE AND WIRE TO A NEW 20/1 CIRCUIT BREAKER IN PANEL "A" LOCATED IN ELECTRICAL ROOM.
5. PROVIDE NEW SMOKE DETECTOR. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH OVERHEAD "POCKET BEAMS" TO ENSURE ADEQUATE COVERAGE FOR EACH CEILING POCKET. (1)
6. PROVIDE MANUAL PULL STATION. PROVIDE INSTRUCTIONAL LAMINATE SIGN ADJACENT TO EACH MANUAL PULL STATION.
7. PROVIDE SPEAKER/ STROBE ALARM.
8. PROVIDE NEW CARBON MONOXIDE ALARM.
9. PROVIDE NEW HEAT DETECTOR.
10. PROVIDE NEW WATER FLOW SWITCH INSTALLED IN EXISTING 4-INCH SPRINKLER PIPING. PROVIDE ADDRESSABLE INTERFACE MODULE AND CONNECT/MONITOR SWITCH VIA THE NEW FIRE ALARM SYSTEM. (1)
11. PROVIDE NEW TAMPER SWITCH INSTALLED ON EXISTING 4" SPRINKLER VALVE. PROVIDE ADDRESSABLE INTERFACE MODULE AND CONNECT/ MONITOR EXISTING SWITCH VIA THE NEW FIRE ALARM SYSTEM.
12. PROVIDE STROBE ALARM AT OFFICES AND RESTROOMS.
13. PROVIDE FIRE ALARM SYSTEM PRINTER. REFER TO SPECIFICATIONS. (1)



KEYPLAN

THE SCHOOL DISTRICT OF PHILADELPHIA
OFFICE OF CAPITAL PROGRAMS
440 NORTH BROAD STREET
PHILADELPHIA, PA 19130 - 4015
(215) 400 - 4730 | (215) 400 - 4731 (fax)
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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM NEW WORK BASEMENT

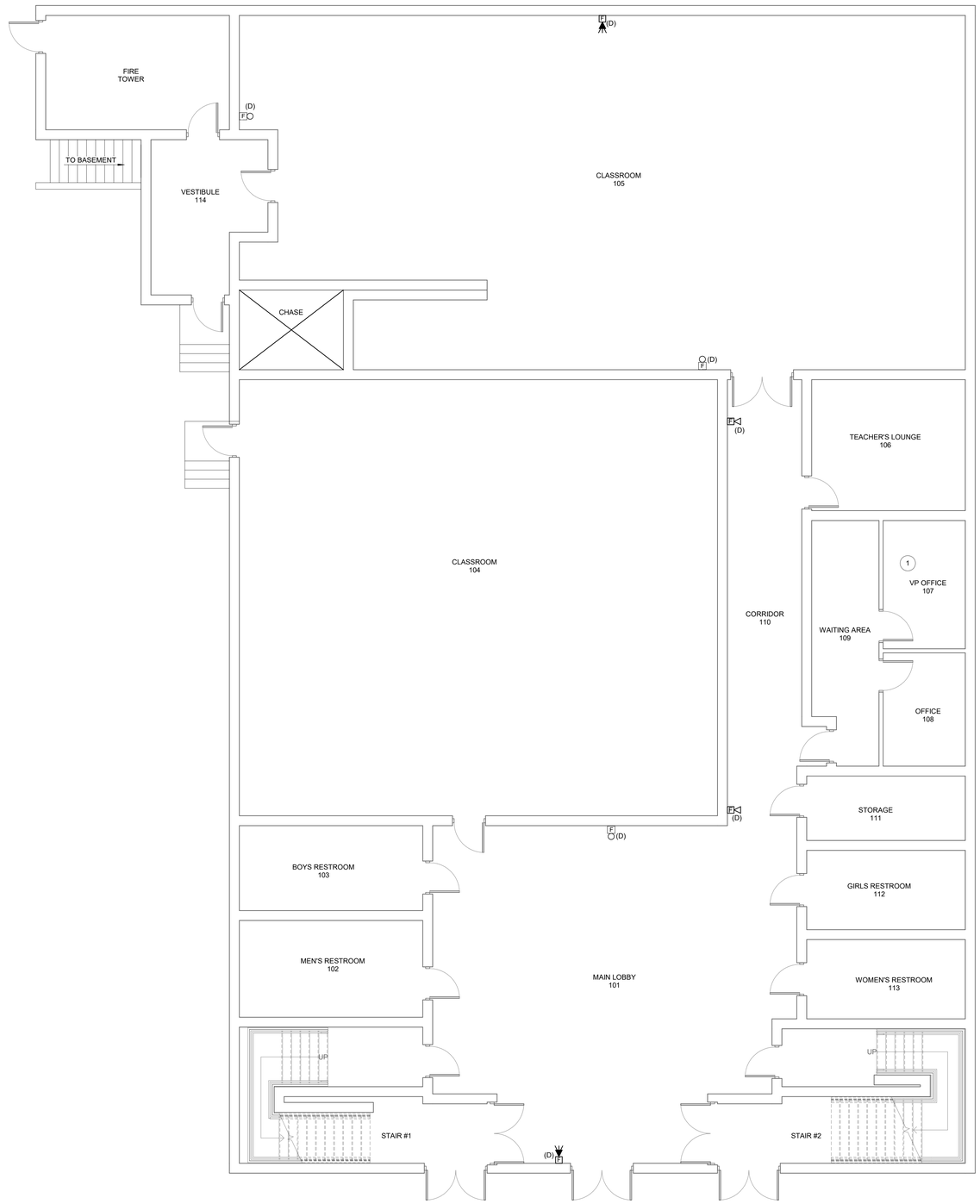
DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

B-064(c) of 2018/2019

DRAWING NO.
E-102

SHEET 4 OF 10

Local File:BIM 360://063694.013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
10/14/2020 4:18:34 PM



1 ELECTRICAL FIRE ALARM DEMOLITION FIRST FLOOR PLAN

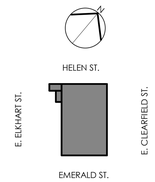
SCALE: 3/16" = 1'-0"

GENERAL DEMO NOTES:

1. REMOVE EACH EXISTING FIRE ALARM DEVICE.
2. PROVIDE AND INSTALL BLANK METALLIC COVE PLATE OVER OPENING.
3. PAINT COVER PLATE TO MATCH EXISTING SURFACE.
4. DEMOLISH ANY FIRE ALARM CONDUIT AND WIRING THAT IS ACCESSIBLE.
5. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION .
6. ONCE THE FIRE ALARM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION, REMOVE THE ENTIRE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY.
7. DEMOLISH ALL VISIBLE FIRE ALARM CONDUIT AND WIRING, INCLUDING ABOVE ACCESSIBLE CEILINGS. ABANDON ALL CONDUIT BURRIED IN WALLS OR FLOOR. CAP ALL ABANDONED CONDUITS ON BOTH ENDS.
8. THE CONTRACTOR IS RESPONSIBLE TO PROPERLY DISPOSE OF ALL FIRE ALARM SYSTEM COMPONENTS, WIRING AND CONDUIT.
9. THE OWNER HAS THE RIGHT TO KEEP ANY FIRE ALARM DEVICES THAT ARE REMOVED.
10. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING AND CONDUIT BEFORE SUBMITTING A BID.

KEYED DEMOLITION NOTES

(1) EXISTING FACP TO BE REMOVED.



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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM DEMOLITION FIRST FLOOR

DRAWING SCALE: As indicated	
LOCATION NO.: 5230	FILE NO.: N/A
DRAWN BY: FJR	CHECKED BY: MPM

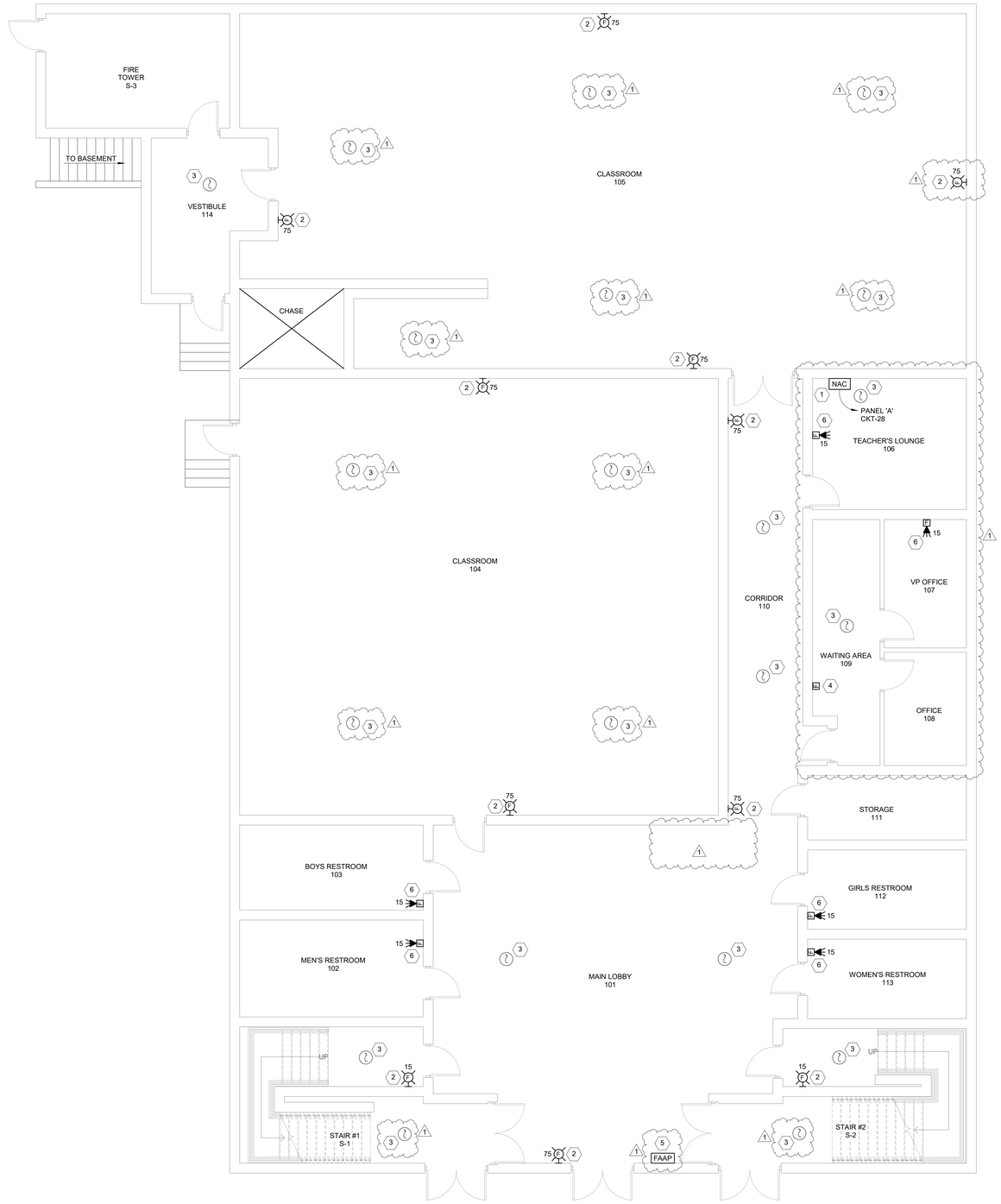
B-064(c) of 2018/2019

DRAWING NO.
E-103

SHEET 5 OF 10

Local File: BIM 360://003694 013 - SDP Conwell Annex Fire Alarm Replacement/f3694_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:38 PM

EXISTING FIRE ALARM SYSTEM MUST REMAIN FULLY FUNCTIONAL DURING CONSTRUCTION.



GENERAL NOTES:

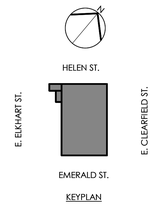
1. FOR ELECTRICAL SYMBOLS, NOTES, ABBREVIATIONS AND RISER DIAGRAM SEE DRAWING E-001.
2. FOR DEVICES MOUNTING HEIGHTS SEE DRAWINGS E-001.
3. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO POWER FIRE ALARM PRINTER.
4. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO NAC. PROVIDE NEW 20A/1P CIRCUIT BREAKER.
5. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING, CONDUIT AND BUDGET BEFORE SUBMITTING A BID.
6. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
7. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO FACP. PROVIDE NEW 20A/1P CIRCUIT BREAKER.

KEYED NEW WORK NOTES

1. PROVIDE NEW FIRE ALARM NAC PANEL. PROVIDE AND WIRE TO A NEW 20/1,CIRCUIT BREAKER IN PANEL"A" LOCATED IN ELECTRICAL ROOM.
2. PROVIDE SPEAKER/ STROBE ALARM.
3. PROVIDE NEW SMOKE DETECTOR. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH "POCKET BEAMS" TO ENSURE ADEQUATE COVERAGE OF CEILING POCKETS.
4. PROVIDE MANUAL PULL STATION. PROVIDE INSTRUCTIONAL LAMINATE SIGN ADJACENT TO EACH MANAL PULL STATION. PROVIDE HINGED, CLEAR LEXAN COVER WITH INTEGRAL SOUNDER ON EACH MANUAL PULL STATION. STOPPER II STI-1130 OR APPROVED EQUAL.
5. PROVIDE NEW FIRE ALARM ANNUNCIATOR PANEL. COORDINATE EXACT LOCATION WITH THE DISTRICT AND THE FIRE MARSHALL.
6. PROVIDE STROBE ALARM AT OFFICES AND RESTROOMS.

NOTE:
PER EXCEPTION NO. 3 TO ARTICLE 907.2.3 OF NFPA 72-2013, AUTOMATIC SMOKE DETECTION IS BEING PROVIDED IN INTERIOR CORRIDORS; AUDITORIUMS, CAFETERIAS, GYMNASIUMS, AND/OR SIMILAR SPACES; AND SHOPS OR LABS, IN LIEU OF PROVIDING MANUAL PULL STATIONS THROUGHOUT THE BUILDING.

1 ELECTRICAL FIRE ALARM NEW WORK FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"



KEYPLAN

THE SCHOOL DISTRICT OF PHILADELPHIA
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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM NEW WORK FIRST FLOOR

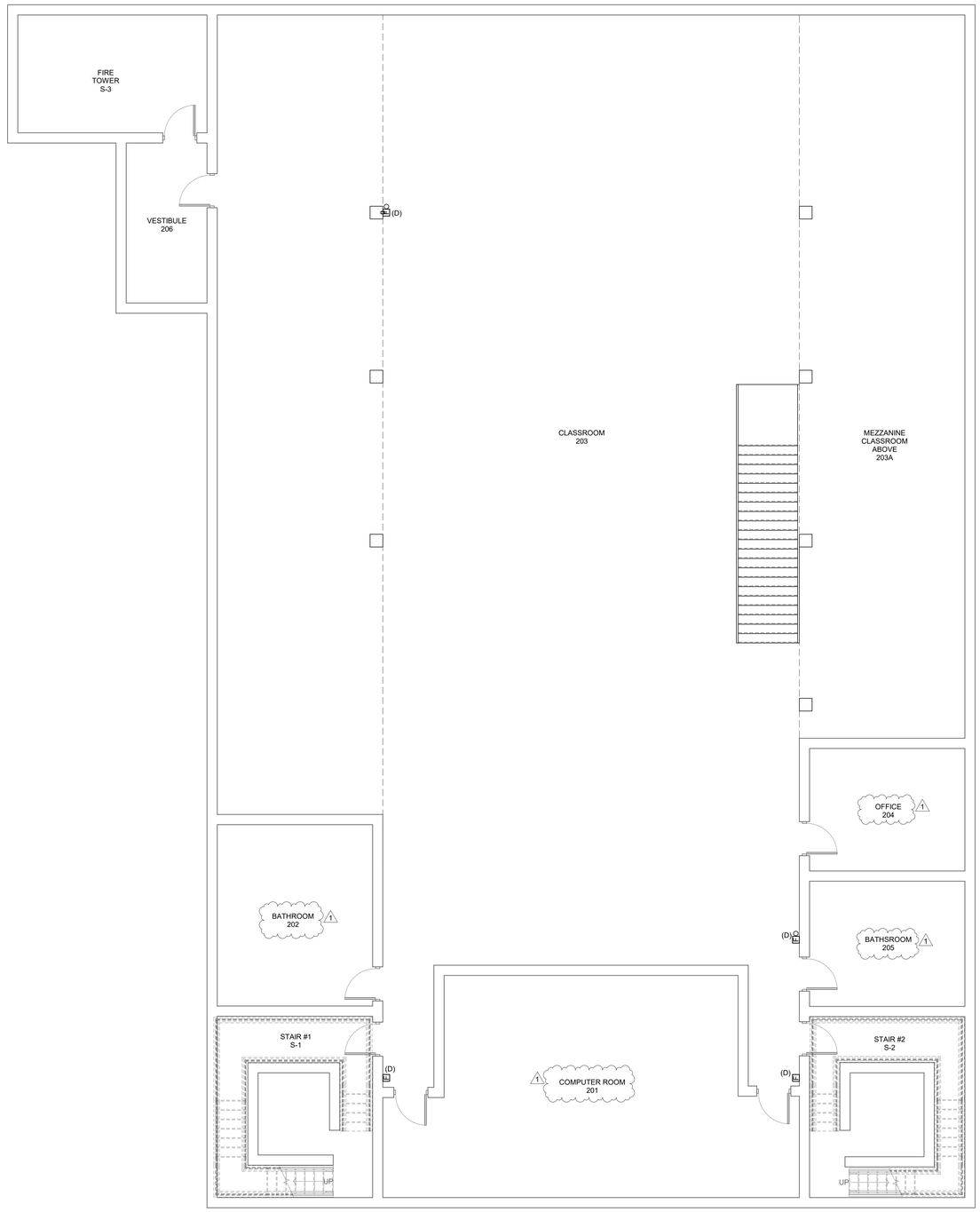
DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

B-064(c) of 2018/2019

DRAWING NO.
E-104

SHEET 6 OF 10

Local File:BIM 360://063694.013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:59 PM

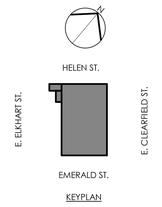


1 ELECTRICAL FIRE ALARM DEMOLITION SECOND FLOOR PLAN

SCALE: 3/16" = 1'-0"

GENERAL DEMO NOTES:

1. REMOVE EACH EXISTING FIRE ALARM DEVICE.
2. PROVIDE AND INSTALL BLANK METALLIC COVE PLATE OVER OPENING.
3. PAINT COVER PLATE TO MATCH EXISTING SURFACE.
4. DEMOLISH ANY FIRE ALARM CONDUIT AND WIRING THAT IS ACCESSIBLE.
5. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION .
6. ONCE THE FIRE ALARM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION, REMOVE THE ENTIRE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY.
7. DEMOLISH ALL VISIBLE FIRE ALARM CONDUIT AND WIRING, INCLUDING ABOVE ACCESSIBLE CEILINGS. ABANDON ALL CONDUIT BURRIED IN WALLS OR FLOOR. CAP ALL ABANDONED CONDUITS ON BOTH ENDS.
8. THE CONTRACTOR IS RESPONSIBLE TO PROPERLY DISPOSE OF ALL FIRE ALARM SYSTEM COMPONENTS, WIRING AND CONDUIT.
9. THE OWNER HAS THE RIGHT TO KEEP ANY FIRE ALARM DEVICES THAT ARE REMOVED.
10. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING AND CONDUIT BEFORE SUBMITTING A BID.



KEYPLAN

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OFFICE OF CAPITAL PROGRAMS

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(215) 400 - 4730 | (215) 400 - 4731 (fax)
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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION

CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE

FIRE ALARM REPLACEMENT

DRAWING SCALE

ELECTRICAL FIRE ALARM DEMOLITION SECOND FLOOR

DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM
B-064(c) of 2018/2019	

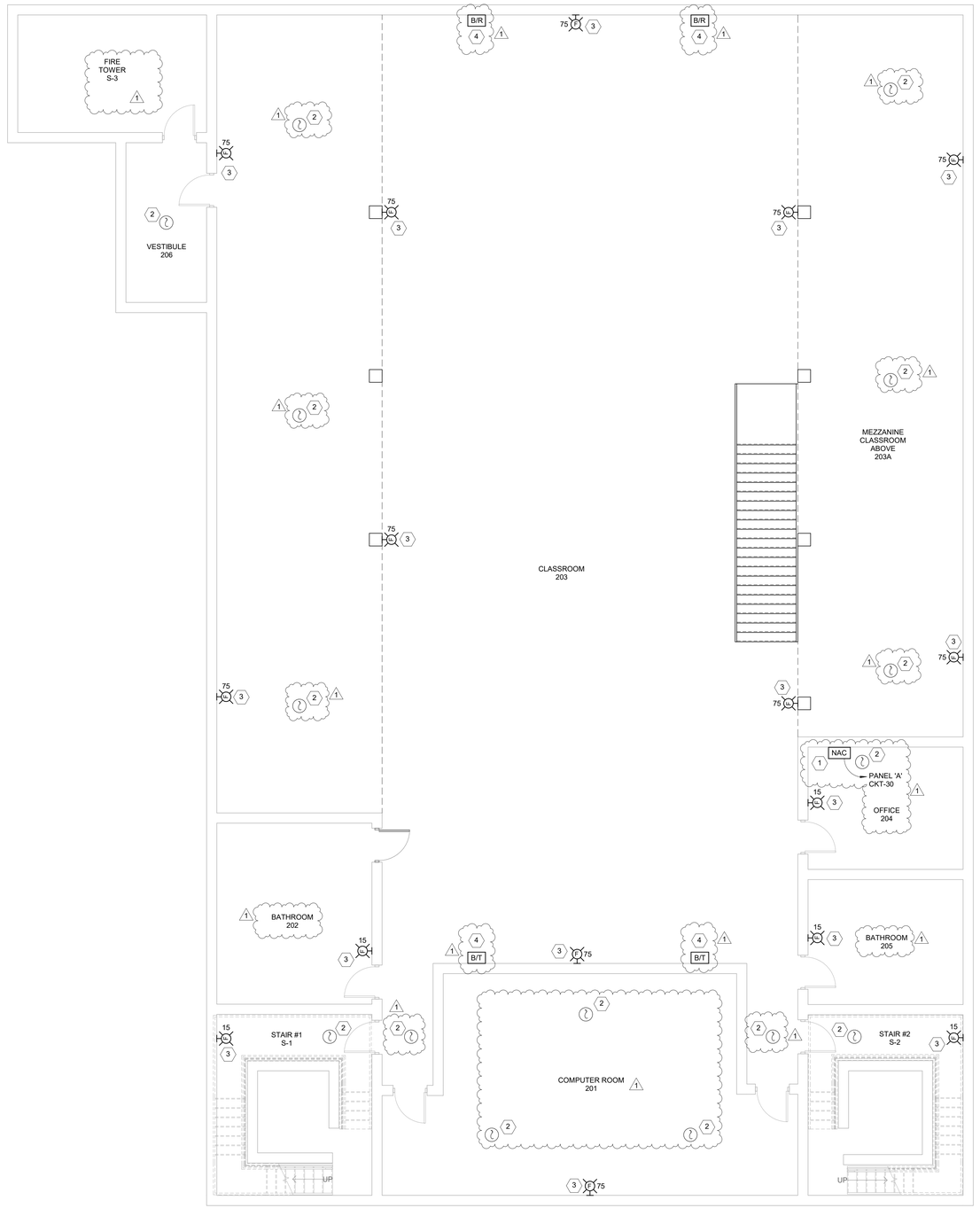
DRAWING NO.

E-105

SHEET 7 OF 10

Local File:BIM 360://063694.013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:39 PM

EXISTING FIRE ALARM SYSTEM MUST REMAIN FULLY FUNCTIONAL DURING CONSTRUCTION.



NOTE:
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1 ELECTRICAL FIRE ALARM NEW WORK SECOND FLOOR PLAN

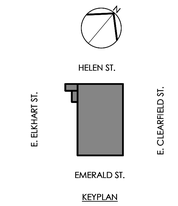
SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS, NOTES, ABBREVIATIONS AND RISER DIAGRAM SEE DRAWING E-001.
2. FOR DEVICES MOUNTING HEIGHTS SEE DRAWINGS E-001.
3. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO POWER FIRE ALARM PRINTER.
4. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO NAC. PROVIDE NEW 20A/1P CIRCUIT BREAKER.
5. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING, CONDUIT AND BUDGET BEFORE SUBMITTING A BID.
6. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
7. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO FACP. PROVIDE NEW 20A/1P CIRCUIT BREAKER.

KEYED NEW WORK NOTES

1. PROVIDE NEW NAC TO BE INSTALLED ABOVE ACCESSIBLE CEILING. PROVIDE AND WIRE TO A NEW 20/1,CIRCUIT BREAKER IN PANEL"A" LOCATED IN ELECTRICAL ROOM.
2. PROVIDE NEW SMOKE DETECTOR. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH OVERHEAD "POCKET BEAMS" TO ENSURE ADEQUATE COVERAGE FOR EACH CEILING POCKET.
3. PROVIDE SPEAKER/ STROBE ALARM.
4. PROVIDE NEW PROJECTED BEAM-TYPE SMOKE DETECTOR (RECEIVER/ TRANSMITTER PAIR) INSTALLED +/- 10'-0" AFF. COORDINATE EXACT LOCATION WITH EXISTING LIGHT FIXTURES TO AVOID LINE OF SIGHT OBSTRUCTION.



KEYPLAN

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SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM NEW WORK SECOND FLOOR

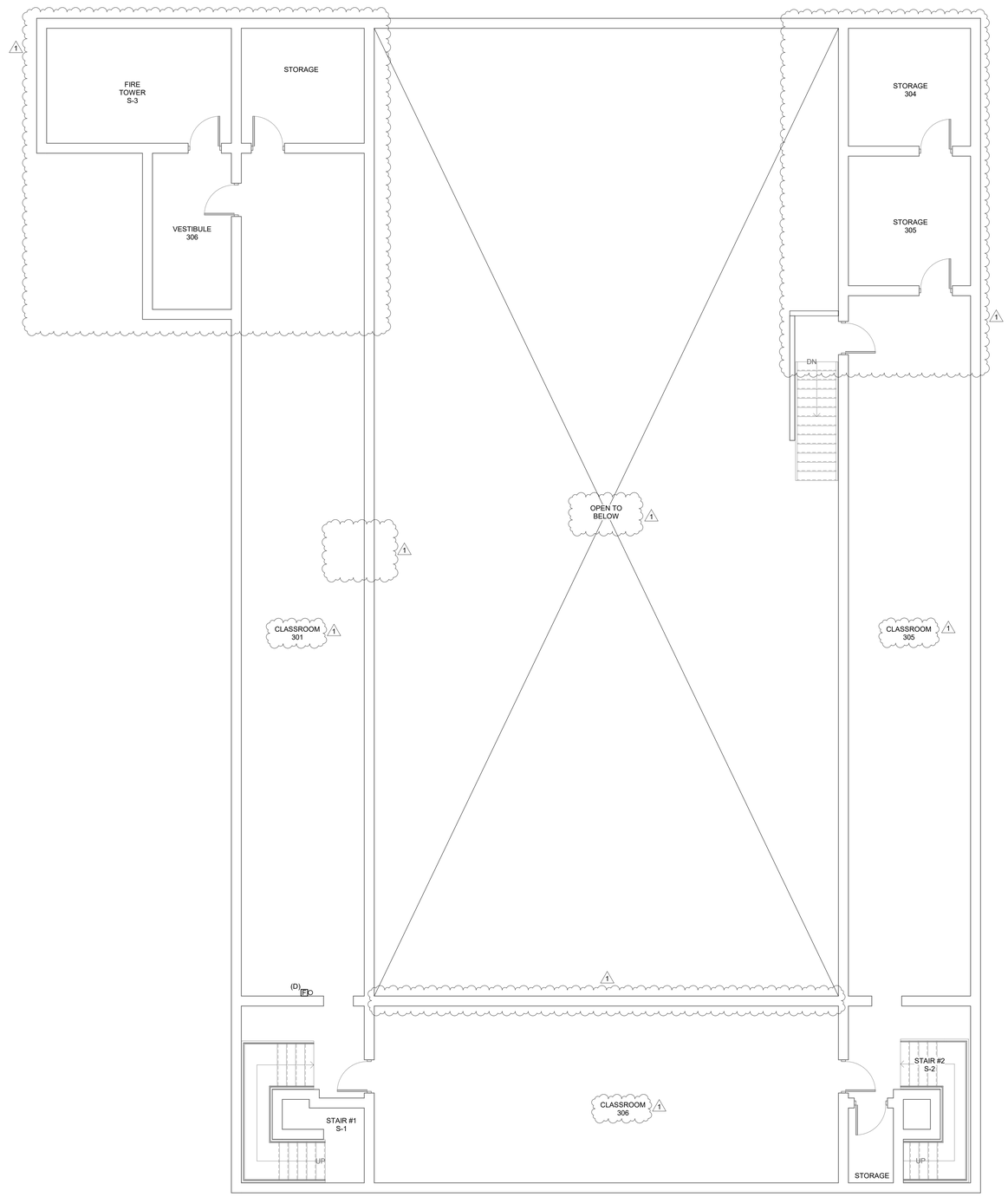
DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

B-064(c) of 2018/2019

DRAWING NO.
E-106

SHEET 8 OF 10

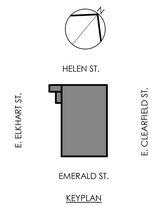
Local File:BIM 360://063694.013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:40 PM



1 **ELECTRICAL FIRE ALARM DEMOLITION THIRD FLOOR PLAN**
SCALE: 3/16" = 1'-0"

GENERAL DEMO NOTES:

1. REMOVE EACH EXISTING FIRE ALARM DEVICE.
2. PROVIDE AND INSTALL BLANK METALLIC COVE PLATE OVER OPENING.
3. PAINT COVER PLATE TO MATCH EXISTING SURFACE.
4. DEMOLISH ANY FIRE ALARM CONDUIT AND WIRING THAT IS ACCESSIBLE.
5. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION .
6. ONCE THE FIRE ALARM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION, REMOVE THE ENTIRE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY.
7. DEMOLISH ALL VISIBLE FIRE ALARM CONDUIT AND WIRING, INCLUDING ABOVE ACCESSIBLE CEILINGS. ABANDON ALL CONDUIT BURRIED IN WALLS OR FLOOR. CAP ALL ABANDONED CONDUITS ON BOTH ENDS.
8. THE CONTRACTOR IS RESPONSIBLE TO PROPERLY DISPOSE OF ALL FIRE ALARM SYSTEM COMPONENTS, WIRING AND CONDUIT.
9. THE OWNER HAS THE RIGHT TO KEEP ANY FIRE ALARM DEVICES THAT ARE REMOVED.
10. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING AND CONDUIT BEFORE SUBMITTING A BID.



KEYPLAN

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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM DEMOLITION THIRD FLOOR

DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

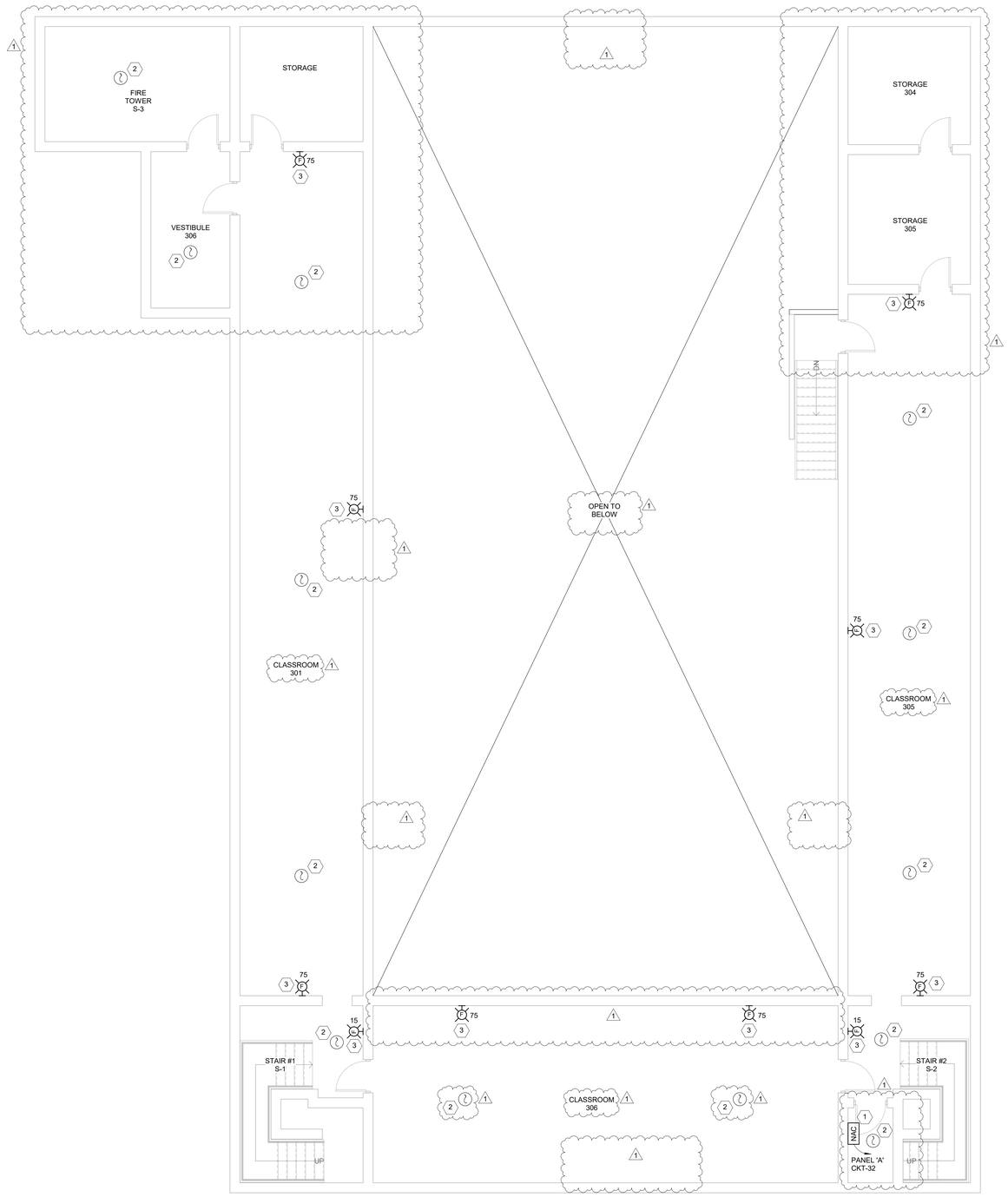
B-064(c) of 2018/2019

DRAWING NO.
E-107

SHEET 9 OF 10

Local File:BIM 360://0036894 013 - SDP Conwell Annex Fire Alarm Replacement/R36894_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:41 PM

EXISTING FIRE ALARM SYSTEM MUST REMAIN FULLY FUNCTIONAL DURING CONSTRUCTION.



GENERAL NOTES:

1. FOR ELECTRICAL SYMBOLS, NOTES, ABBREVIATIONS AND RISER DIAGRAM SEE DRAWING E-001.
2. FOR DEVICES MOUNTING HEIGHTS SEE DRAWINGS E-001.
3. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO POWER FIRE ALARM PRINTER.
4. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO NAC. PROVIDE NEW 20A/1P CIRCUIT BREAKER.
5. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE EXACT NUMBER OF SYSTEM COMPONENTS, WIRING, CONDUIT AND BUDGET BEFORE SUBMITTING A BID.
6. THE EXISTING FIRE ALARM SYSTEM MUST REMAIN IN PLACE AND WORKING UNTIL THE NEW SYSTEM HAS BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
7. PROVIDE 2 #12, 1 #12G - 3/4"C FROM PANEL 'A' LOCATED IN ELECTRICAL ROOM TO FACP. PROVIDE NEW 20A/1P CIRCUIT BREAKER.

KEYED NEW WORK NOTES

1. PROVIDE NEW NAC TO BE INSTALLED ABOVE ACCESSIBLE CEILING. PROVIDE AND WIRE TO A NEW 20/1,CIRCUIT BREAKER IN PANEL"A" LOCATED IN ELECTRICAL ROOM.
2. PROVIDE NEW SMOKE DETECTOR. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH OVERHEAD "POCKET BEAMS" TO ENSURE ADEQUATE COVERAGE FOR EACH CEILING POCKET.
3. PROVIDE SPEAKER/ STROBE ALARM.

NOTE:
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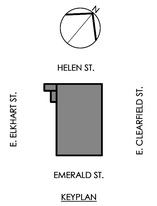
1 ELECTRICAL FIRE ALARM NEW WORK THIRD FLOOR PLAN

SCALE: 3/16" = 1'-0"



KEYPLAN

THE SCHOOL DISTRICT OF PHILADELPHIA
OFFICE OF CAPITAL PROGRAMS
440 NORTH BROAD STREET
PHILADELPHIA, PA 19130 - 4015
(215) 400 - 4730 | (215) 400 - 4731 (fax)
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SEAL:

BRIAN A. SEIP

BID DOCUMENTS
04 MARCH 2020

NO	DATE	REVISION
1	10/14/20	ADDENDUM NO. 1

SCHOOL & LOCATION
CONWELL MS ANNEX
3080 EMERALD ST, PHILADELPHIA, PA 19134

PROJECT TITLE
FIRE ALARM REPLACEMENT

DRAWING SCALE
ELECTRICAL FIRE ALARM NEW WORK THIRD FLOOR

DRAWING SCALE As indicated	
LOCATION NO. 5230	FILE NO. N/A
DRAWN BY FJR	CHECKED BY MPM

B-064(c) of 2018/2019

DRAWING NO.
E-108

SHEET 10 OF 10

Local File:BIM 360://063694 013 - SDP Conwell Annex Fire Alarm Replacement/063694_013_M_Central_R19.rvt
Project Number: N/A
10/13/2020 5:25:41 PM