

**THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302**

November 27, 2017

ADDENDUM NO. 1

**TO PROSPECTIVE BIDDERS ON CONTRACT PN-654.562 – PORT NEWARK –
BUILDING 267 ROOF COLLAPSE REPAIR**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialled by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Bid will nevertheless be construed as though this communication had been so physically annexed and initialled.

CHANGES IN THE CONTRACT BOOKLET

Pages 413 - Delete these pages in their entirety and substitute therefor the new pages through 425 (10 pages) that are attached hereto and made a part hereof.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:

DIVISION 16

SECTION 16720

FIRE ALARM SYSTEMS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for Fire Alarm Systems.

1.02 REFERENCES

The following is a listing of publications referenced in this Section:

Building Officials and Code Administrators, Inc. (BOCA)

National Electrical Manufacturers Association Standards (NEMA)

National Fire Protection Association (NFPA)

NFPA 70	National Electrical Code.
NFPA 72	National Fire Alarm Code.
NFPA 90A	Installation of Air Conditioning and Ventilating Systems.
NFPA 13	Installation of Sprinkler Systems.
NFPA 92A	Smoke Control Systems.

Underwriters Laboratories, Inc. (UL)

UL 268	Smoke Detectors for Fire Protective Signaling Systems.
UL 1971	Notification Appliances for Fire Protective Signaling Systems.
UL 864	Control Units for Fire Protective Signaling Systems.

American National Standards Institute (ANSI)

ANSI 117.1	Elevator Operation.
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Americans with Disabilities Act, PL 101-336 (ADA)

	New York City Building Code NYCBC.
	New York City Electrical Code NYCEC.
	New York City Fire Prevention Code and Directives.

1.03 QUALITY ASSURANCE

A. Qualifications

1. The entity performing the Work of this Section shall have successfully completed at least three (3) installations for fire alarm system work of similar type, size and complexity, as the Fire Alarm System described in this Specification and the Contract Drawings. Said Installations shall have been in satisfactory operation for a period of not less than one (1) year, and shall have included at least one contract for the installation of a Fire Alarm System in an existing occupied building. The entity shall be licensed to perform this type of Work in the jurisdiction of said Work. Licensure shall be evidenced by a submission from the entity of the following: a copy of the entity's current license, business permit and certifications. The entity performing the Work of this Section shall be an authorized installer approved by the System manufacturer. Proof of such authorization shall be provided to the Engineer prior to the commencement of Work.
2. System Manufacturer: The System manufacturer shall be one of established reputation and experience in the fire alarm industry. The manufacturer shall have been in business a minimum of five (5) years, show substantial involvement in the development and manufacture of systems similar to the one specified in this Contract and have a minimum of (3) three qualified factory authorized full line distributors and or branch offices within fifty (50) miles of the System location. The manufacturer shall also have an in-house technical support staff accessible to the Authority for technical assistance over the phone, offer detailed technical training courses both on site and at the manufacturer's facility, and be ISO-9001 certified.
3. System Vendor: If other than the System manufacturer, shall be an authorized distributor of the System manufacturer. The distribution agreement by the manufacturer to the vendor must be one that includes full authority to distribute, sell, certify, program and maintain the manufacturer's complete product line whether included in this project or not. Service only, or sales only, System vendors will not be considered as meeting these requirements. The System vendor shall also maintain an in-house engineering department capable and experienced in the preparation of drawings, sketches, calculations and submittals which are required as part of this Contract. The System vendor shall have successfully completed at least three installations, which have included fire alarm system work, of similar type, size and complexity as described in this Specification and the Contract Drawings. Said installations shall be in satisfactory operation for a period of not less than one year, and shall have included at least one contract for the installation of a fire alarm system in an existing occupied building. The System vendor shall also maintain an in-house technical service department staffed with at least three field technicians factory trained and certified by the manufacturer to install, operate, certify and maintain the system to be installed.
4. System Maintainer: The services of the System Maintainer shall be provided by AFA Protective Systems Inc., 961 Joyce Kilmer Ave., North Brunswick, NJ 08902, (732)846-4000, no substitutions permitted.

B. Codes and Standard Requirements

1. Conform to the requirements of NFPA 70, all applicable local codes and all other publications referenced in 1.02 herein.

2. All fire alarm equipment, materials, devices and assemblies used on this Contract shall be listed and/or labeled by Underwriter's Laboratories, Inc. (UL), and by other Local jurisdiction as required, for the specific purpose for which they are used. The Contractor shall not alter, install or modify such equipment in any way so as to alter or void the listing or label.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original unopened protective packaging.
- B. Store materials in a clean, dry space and protect same from damage.
- C. Handle in a manner to prevent damage. Damaged equipment shall be replaced.
- D. Where possible protective coverings shall be installed to prevent equipment damage, and shall be remain in place until final testing and commissioning is completed.
- E. Touch up damage to finishes to match adjacent surfaces, including recoating of galvanized or plated surfaces where damaged, cut or drilled.

1.05 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with the requirements of this Section, including but not limited to 1.03 A, Furnish and install fire alarm systems of manufacturers as shown on the Contract Drawings.

2.02 GENERAL

- A. The System shall consist of those components as shown on the Contract Drawings, including but not limited to Fire Alarm Control Panel(s), Annunciator(s), Initiating Devices, Notification Appliances, Auxiliary and Accessory Devices, Test and Programming software, firmware and hardware, and all wiring and wiring methods as shown on the Contract Drawings and as specified in this Section.
- B. Furnish and install a fully operational Code compliant system. Only current equipment manufactured within six (6) months of the installation date shall be utilized.

2.03 MATERIALS

- A. Addressable Fire Alarm Systems
 1. Addressable Fire Alarm Systems, where required on the Contract Drawings, shall provide discreet identification and status information of system modules and devices via an alphanumeric visual display and hardcopy printer. The system shall be microprocessor based and user software programmable.

2. Fire Alarm Control Panel(s)

- a. Fire Alarm Control Panel(s) shall be of the type shown on the Contract Drawings.
- b. Panel(s) shall have active zones/loops/circuits as required. The spare capacity for zones/loops/circuits shall be at least 20%, or as otherwise shown on the Contract Drawings. Initiating and notification circuit loading shall be limited to 80% of the maximum specified by the manufacturer for the design configuration, with the maximum to comply with code requirements unless otherwise specified in the Contract Documents, whichever is more stringent. In no case shall the circuits be loaded as to impede proper system operation.
- c. Panel(s) shall be of modular construction using only solid state components and modules. Panels(s) shall contain all of the necessary components and modules to provide a complete operational code and specification compliant system, including spare capacity, as called for in the Contract Drawings.
- d. All Panel Door(s) shall be painted except those as specified otherwise. All System controls shall reside behind a key locked steel door provided with viewing windows made of any material other than glass accepted as part of the product listings.
- e. The System shall be programmable via an IBM compatible laptop computer and manufacturer-supplied software. The System shall be fully field programmable utilizing the laptop computer via an onboard system programming port with the System fully powered and in operation. Shutdown of the System, loss of System operation, or removal of the System memory chips shall not be acceptable as part of the normal programming method. The System program shall be stored onboard utilizing non-volatile memory IC(s). Upon power up from complete shutdown, the System shall automatically reboot using the last stored program. Operator intervention or reprogramming shall not be required.
- f. The System shall provide a text area for each addressable module or device, designated as a "Custom Message Field" which shall be reserved for the Authority's use. The "Custom Message Field" shall be capable of displaying all characters of the English alphabet in both upper and lower case and all Arabic numeric digits. The character capacity of the "Custom Message Field" shall be as specified in the Contract Drawings.
- g. The System shall incorporate an automatic "watchdog" feature that will reboot the System in any event where the operating system or processor halts. Operation of the watchdog feature shall be both visually displayed and printed at the time of occurrence.
- h. The System power supply shall be provided with two (2) sources of energy. The primary supply shall be 120 VAC single phase commercial power. The secondary supply shall be either an emergency standby generator(s) qualified as an emergency power supply for fire alarm systems of the type specified in this Contract or emergency standby batteries of the size and capacity required to meet the standby requirements of the System specified in this Contract. The system power supply shall automatically transfer between the primary and secondary power and vice versa. The power supply shall be monitored for integrity as required by applicable codes, standards and listings for the intended use.

- i. The Panel(s) shall be UL listed as a test instrument for the measurement of the sensitivity of connected intelligent ionization and photoelectric smoke detectors to comply with the testing requirements of NFPA 72.

The fire alarm control panel shall provide a display and a printed list of these sensitivity measurements as a permanent record of the required sensitivity testing.

The fire alarm control panel shall be programmed and the connected ionization and photoelectric light refracting smoke detectors shall be capable of self adjustment to compensate for the accumulation of contaminants that would change the detector sensitivity in either a more or less sensitive direction. The adjustment shall keep the relationship between the sensing chamber and the programmed alarm threshold voltage constant to prevent false indications of the failure to alarm in the presence of smoke.

The fire alarm control panel shall annunciate a trouble condition when any smoke detector approaches 80% of its alarm threshold due to gradual contamination, signaling the need for service and eliminating unwanted alarms. The trouble report shall annunciate the specific location of the smoke detector requiring service.

3. Initiating Devices - Pull Stations

Furnish and install manual fire pull stations where indicated on the Contract Drawings. Stations shall be painted red. Where specified on the Contract Drawings the station shall also include either an integral white stripe or an accessory backing plate with white stripe. The white stripe shall be (1) one-inch wide and placed diagonally from top left to bottom right of the station. The stripe shall not obscure the stations operating instructions. The station shall be operable without the use of a special key or other device not part of the station, except in the case of resetting. The station shall be constructed of materials specified in the Contract Drawings. All stations shall be single action unless otherwise specified. The device shall be field programmable.

4. Initiating Devices - Open Area Detectors

Furnish and install automatic detection devices where indicated on the Contract Drawings. All automatic detection devices shall be resettable from the control panel. Detectors shall include the use of a separate base assembly. The base assembly shall not include detection electronics which shall be housed in the detector. The detector shall be removable from the base assembly without the use of tools and without disturbing wiring connections. The device shall be field programmable.

5. Initiating Devices - System Interfaces

- a. Furnish and install System interface modules where indicated on the Contract Drawings. System interfaces shall allow for the monitoring of conventional dry contact inputs to the System. The Interface shall supervise the dry contact inputs through use of an end of line device (EOL). EOL devices shall be placed across the contacts being monitored and not at the interface. The device shall be field programmable.

- b. The System Interface Modules shall be available in the following versions:

- Dual Input
- Single input
- Single Input and Single Form C Contact Output

PART 3. EXECUTION

3.01 EXAMINATION

Inspect all system equipment and accessories prior to installation. Replace damaged items.

3.02 PREPARATION

- A. Field verify dimensions and coordination of conduit entry and all other mounting conditions with the entity manufacturing the equipment.
- B. Obtain the services of AFA Protective Systems Inc., no substitutions permitted, to provide on-site technical supervision during installation and interconnection of the system equipment. Said supervision is to ensure the proper installation and operation of the System equipment, prior to the installed System beginning the final acceptance test.
- C. After the System has been delivered, an on-site inspection will be made by the Engineer. If equipment has been damaged or does not comply with the requirements of this Section, the Contractor shall be required to replace the equipment at no additional cost to the Authority, even though the equipment has been previously inspected, tested and approved for shipment. After such satisfactory replacement, the System shall be installed.

3.03 INSTALLATION

- A. Install all materials in accordance with the codes and standards referenced in 1.02 and in accordance with the Specifications, Contract Drawings and approved shop drawings and other submittals.
- B. Wiring
 - 1. All fire alarm cables shall be type FPLP-UL (fire alarm approved cable), twisted pair #14 gauge (unless otherwise shown on the Contract Drawings), solid copper, 200° C, 600V, shielded (or unshielded as required), insulated conductors, with FEP insulation, and conductors colored black and red. All wiring, raceways, fittings, connectors and enclosures shall be UL Listed for the intended use. Conductor terminations shall be by methods as approved by the Engineer, and as indicated on the Contract Drawings.
 - 2. All fire alarm control and power wiring shall be in hot-dipped galvanized steel (thick wall) conduit, unless otherwise specified on the Contract Drawings.
 - 3. Wiring for device circuits, signaling circuits, and indicating appliance circuits shall be power-limited type. System wiring shall not be mixed in raceways with other wiring. Power-limited and non-power-limited circuits shall be run in separate raceways.

4. Minimum conduit size shall be furnished and installed as required by NFPA 70, and local codes, using the actual cross-sectional area of the wiring to be installed. Unless otherwise noted, minimum conduit size shall be 3/4".
5. All junction boxes, pull boxes, or other appurtenance which permits entry into the conduit system shall be painted red. Insulation or covering of wires and cables shall be factory color coded by use of color compounds. The color code shall be consistent throughout the performance of the work. Each pair of wires shall have a black and a red colored insulated conductor. Red shall be used for circuits with a positive (+) potential and black shall be used for circuits with a negative (-) potential.
6. All wires shall be identified with flame-retardant, low profile, labels as specified on the Contract Drawings.

C. Grounding

1. Install grounding bushings on all conduits penetrating fire alarm enclosures. Ground all equipment, wireways, enclosures and circuits as shown on the Contract Drawings. Measure, record and report shield/drain resistance utilizing an insulation resistance test meter. Submit a copy of the original test report to the Engineer for approval.

3.04 TRAINING

Operation and training for the system shall be a half-day seminar provided to Authority designated personnel through the means of practical demonstrations, technical literature and other related teaching procedures unless otherwise shown on the Contract Drawings. The training shall be conducted at the construction site.

3.05 MAINTENANCE

Furnish full preventive and remedial maintenance service for the fire alarm system, including all labor, parts, materials and supplies until the issuance of the Certificate of Final Completion. To perform these preventive and remedial maintenance services, obtain the services of AFA Protective Systems Inc., no substitutions permitted, who shall respond to service calls by responding at the site within four hours of the call 24 hours a day, 7 days a week, including holidays.

3.06 FIELD TESTING

- A. No system devices, modules, or other system electronics shall be connected to any circuit, prior to or during testing. Equipment damaged due to testing shall be replaced by the Contractor at no additional cost to the Authority.
- B. All wiring not supplied as part of the manufactured control panel shall be tested by the Contractor in accordance with the test criteria listed on the test reports specified in the Section 3.06E. Prior to testing, field wiring shall not be connected to any equipment except external terminal blocks.

- C. All testing prescribed by, and within, the test reports shall be accomplished in the presence of the Engineer only after all wiring work is completed. Conduit, conduit, pull box and junction box terminations shall be completed prior to testing. Once testing has been completed, the tested wiring shall not be disturbed. Connections and wires that must be reworked shall be re-tested. Conduit that has its contents modified in any way shall have all of its circuit conductors re-tested.
- D. Test instruments (Meggers, Volt/Ohm Meters, etc.) used for testing as part of this Contract shall have been tested and calibrated within the last twelve (12) months and shall be evidenced by a certificate. A copy of the calibration certificate for each instrument used shall be submitted.
- E. Field Wiring Test Reports shall be submitted, in duplicate, to the Engineer for approval. One copy shall be the original and one copy a photocopy. The reports shall be legibly handwritten. Typewritten reports will not be acceptable.
- F. Field wiring shall only be connected to the fire alarm equipment and devices once the test reports have been approved by the Engineer. Field wiring shall only be connected to the fire alarm panel(s) in the presence of a AFA Protective Systems Inc., no substitutions permitted, and the Engineer.
- G. All fire alarm equipment, panels, detectors, signals etc. shall be fully pre-tested and shall have passed a 30-day operational test prior to presentation for final acceptance test. Fire alarm system pre-test shall be performed by AFA Protective Systems Inc., no substitutions permitted. All Punch List items, defective or damaged equipment or backordered items shall be replaced, installed and or completed prior to the pre-test and final acceptance test. Upon satisfactory completion of the pre-test, the Engineer shall be notified in writing that the pre-test has been completed and that the system is in full conformance with the Contract Documents and ready for the final acceptance test.
- H. Obtain the services of AFA Protective Systems Inc., no substitutions permitted, to perform the final acceptance test of the fire alarm system in the presence of the Engineer. The test shall include as a minimum all fire alarm System panels, notification appliances, initiating devices, interface modules, off premise monitoring, and auxiliary functions. The Engineer will also witness the test. Ensure that the System supplies, and prepares any and all resources necessary to conduct and document the final acceptance test in accordance with this Section, the Contract Drawings and NFPA 72.

END OF SECTION

SECTION 16720

FIRE ALARM SYSTEMS

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

Shop Drawings

16720A01

Shop Drawings:

1. Layout drawings with dimensioned locations and quantities of each device
2. System riser drawings detailing system equipment location and type, and reference notation to each drawing.
3. Wiring and conduit details indicating numbered wires and terminals, and size and routing of each conduit and wire.
4. System calculations detailing system power requirements, battery standby calculations, voltage drops, resistance, and capacitance limits as set by the manufacturer and wiring size as set by the manufacturer.

Catalog Cuts

16720B01

Catalog Cuts and Installation Sheets: 1. Manufacturer's current catalog cut and installation sheet for each product utilized in the System specified including:

- a. Fire Alarm wires
- b. Speakers
- c. Horns
- d. Strobes
- e. Strobe/horn units
- f. Pull station
- g. Power wiring
- h. Warden telephones
- i. Standpipe phone jacks
- j. Air duct detectors
- k. Heat smoke detectors
- l. Supervisory switches
- m. Conduits, fittings, boxes, terminal strip cabinets
- n. Cutout switch
- o. Relays
- p. Interface modules
- q. Fire alarm command station
- r. Fire alarm control panel
- s. Computers and components
- t. Fire alarm accessory equipment
- u. Wire labeling system

END OF APPENDIX "A"

PAGES
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NOT USED