

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Design/Builder shall design, furnish and install complete and operating fire alarm system in compliance with all applicable state and local codes and ordinances. The Design/Builder shall submit completed drawings to the governing fire code authority and obtain design approval and construction permits as required.
- B. The design/build system shall include the design, furnishing, installation, connection and testing of an addressable microprocessor controlled fire alarm system. It shall include, but not be limited to, alarm initiating devices, trouble indicating devices, main fire alarm control panel, auxiliary control devices, annunciation devices, annunciator panels, transducer panels, and wiring.
- C. The alarm system shall comply with requirements of NFPA Standard 72 (latest edition) for Protected Premises Signaling Systems except as modified and supplemented by this specification.

1.2 SCOPE

- A. The system shall monitor the following: Manual alarm, waterflow alarm switches, valve supervisory tamper switches, post indicator valves, back-flow preventer supervisory switches, smoke detectors for elevator re-call, and door release, kitchen ansul system, duct smoke detectors and/or area smoke detectors for fan stop and control of fire/smoke dampers, and heat detectors for elevator shut-down. The system shall include dry relay contacts for connection to a Digital Alarm Communicator Transmitter (DACT) for Central Station Monitoring.
- B. Basic Performance
 1. Alarm, trouble and supervisory signals from all intelligent reporting devices shall be encoded on NFPA Style 4 (Class B) Signaling Line Circuits (SLC).
 2. Initiation Device Circuits (IDC) shall be wired Class B (NFPA Style B) as part of an addressable device connected by the SLC Circuit.

1.3 BASIC SYSTEM FUNCTIONAL OPERATION

- A. When an alarm condition is detected and reported by one of the system initiating devices, the following functions shall immediately occur:
 1. The system alarm LED on the ACP shall flash.
 2. A local piezo electric signal in the control panel shall sound.
 3. A backlit 80 character LCD display on the ACP shall indicate all information associated with the alarm condition, including the type of alarm point and its location within the protected premises.
 4. History storage equipment shall log the information associated each new alarm control panel condition, along with time and date of occurrence.
 5. All system output programs assigned via control-by-event programming corresponding to the particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.

1.4 SUBMITTALS

A. General:

1. All references to manufacturer's model numbers and other pertinent information herein is NOTIFIER and is intended to establish minimum standards of performance, function and quality.
2. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

B. Shop Drawings:

1. Include manufacturer's name(s), model numbers, ratings, power requirements, voltage drop calculations, battery back-up calculations, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
2. Show annunciator layout, configurations, and termination.

C. Manuals:

1. Submit simultaneously with the shop drawings, complete operating manuals listing the manufacturer's name(s), including technical data sheets.
2. Wiring diagrams shall indicate internal wiring for each device and the interconnections between the items of equipment.
3. Provide a clear and concise description of operation that gives, in detail, the alarm, supervisory, and trouble conditions.

D. Certifications:

1. Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the installing contractor is an authorized representative of the major equipment manufacturer. Include names and addresses in the certification.

1.6 APPROVALS:

A. The system shall have proper listing and/or approval from the following nationally recognized agencies:

1. UL - Underwriters Laboratories Inc.
2. FM - Factory Mutual
3. CSFM - California State Fire Marshal

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIAL, GENERAL

- A. All equipment and components shall be new, and the manufacturer's current model.
- B. All equipment and components shall be installed in strict compliance with manufacturers' recommendations.

2.2 MAIN ALARM CONTROL PANEL

- A. The ACP shall be a NOTIFIER Model NFS-2 and shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with and control the following

types of equipment used to make up the system: intelligent addressable smoke and thermal (heat) detectors, addressable modules, printer, annunciators, and other system controlled devices.

2.3 SYSTEM COMPONENTS

- A. Waterflow Indicator:
- B. Sprinkler and Valve Supervisory Switches
- C. Serially Connected Annunciator, NOTIFIER LCD-80

2.4 SYSTEM COMPONENTS - ADDRESSABLE DEVICES

- A. Addressable Pull Box (manual station), NOTIFIER BGX-1O1L
- B. Intelligent Photoelectric Smoke Detector, NOTIFIER SDX-751
- C. Intelligent Heat Detector, NOTIFIER FDX-551R
- D. Intelligent Duct Smoke Detector, NOTIFIER DHX-502/SDX-551
- E. Addressable Dry Contact Monitor Module, NOTIFIER MMX-1
- F. Addressable Control Module, NOTIFIER CMX-2

2.5 AUDIBLE/VISUAL COMPONENTS

- A. Horns: As audible strobe appliances, series ah audible horn appliance
- B. RSS Sync Strobes
- C. Speakers

2.6 BATTERIES

- A. The batteries shall be sealed Gel Cell type, 12 volt nominal.
- B. Upon a normal AC power failure the battery shall have sufficient capacity to power the alarm system for not less than twenty-four hours plus 5 minutes of alarm.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with the CEC, NFPA 72, local and state codes, and as recommended by the major equipment manufacturer.
- B. All conduit, junction boxes, conduit supports and hangers shall be concealed in finished areas and may be exposed in unfinished areas. Smoke detectors shall not be installed prior

to the system programming and test period. If construction is ongoing during this period, measures shall be taken to protect smoke detectors from contamination and physical damage.

- C. All detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.

3.2 TESTING AND DOCUMENTATION

- A. The Design/Builder shall provide the following documents at least 7-days prior to request for inspection.

1. Notifier Installer Certification form as applicable for the system or work to be inspected.
2. State Fire Marshall stamped and approved plans showing point address descriptors. All system components shall be located per as approved plans and specifications.
3. Operation manual.
4. NFPA Fire Alarm System Inspection Form.
5. Copy of Original Equipment Submittals.
6. Manufacturer's Proper Testing and Maintenance Requirements.

- B. OPERATIONAL TESTS

1. Notify University Police dispatcher (760-750-4567), prior to testing, that testing will take place and an emergency response is not desired, unless a call is placed.
2. Notify on-site personnel, prior to testing, that testing will take place, and signal arranged in case of actual fire.
3. Smoke Detectors: every detector shall be tested in place with listed aerosol smoke into sensing chamber.
4. Heat Detectors: every detector shall be tested with a heat source per the manufacturer's recommendations for response within 1-minute. A test method shall be used that Non-restorable Fixed-Temperature elements of a combination rate-of-rise/fixed-temperature element. All Fixed Temperature, Rate and Rise, heat detectors shall be heat tested with heat source per manufacturer's recommended test method. All Fixed Temperature, Non-Restorable, Line Type or Spot Type, heat detectors shall be tested mechanically or electrically for function as applicable.
5. All Air Sampling and Duct type, detectors shall be tested per manufacturer's recommended test method.
6. Visual Warning Devices: visual warning devices (strobes) functional and when there are more than two appliances in a field of view, they need to be synchronized.
7. Pull Stations: verify function.
8. Flow Switches and Tamper Switches: verify function and response time.
9. Generator: verify in accordance with NFPA 110, Standard for Emergency and Standby Power Systems.

3.3 FINAL INSPECTION

- A. At the final inspection, a factory trained representative of the manufacturer of the major equipment shall demonstrate that the system functions properly in every respect.

3.4 INSTRUCTION

- A. Instruction shall be provided as required for operating the system. Instruction shall not be less than 80 hours. Hands-on demonstrations of the operation of all system components and the entire system including program changes and functions shall be provided.
- B. The Design/Builder and/or the systems manufacturer's representatives shall provide a typewritten "Sequence of Operation."

END OF SECTION