

## SECTION 16400

### CLASS "B" FIRE ALARM SYSTEM

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Furnish and install a complete automatic and manual, closed circuit, Class B, local energy auxiliary fire alarm system according to the following specifications, to be wired, connected and left in first class operation conditions. The equipment and completed installation shall be in accordance with applicable sections of the latest edition of NFPA 72B for auxiliary fire alarm systems. All equipment shall be listed by Underwriters Laboratories and shall meet with the approval of the Local and State Fire Marshall.
- B. All final connections, testing and adjusting of the systems shall be done under the direct supervision of the manufacturers representative. After completion of the installations, a trained technician employed by the system supplier shall demonstrate the system to the satisfaction of the Fire Marshall and Owner's representative as a result of this demonstration.
- C. All equipment shall be provided by a single manufacturer: Gamewell, Radionics, Fire Lite, or equal. Catalog numbers used herein are those of Gamewell, and establish the required type, quality and operating characteristics. (non-proprietary technology).

##### 1.02 SHOP DRAWINGS

- A. System shop drawings are required to be submitted for approval containing the following information:
  - 1. A detailed list of each piece of equipment with model numbers for each system component.
  - 2. Manufacturer's specification sheets on each item of equipment.
  - 3. A description of how each specified system functions.
  - 4. Confirmation that the manufacturer's representative will provide job site supervision during the installation of the system and instruct the operating personnel on the operation of each system.
  - 5. Standby battery calculations showing system power requirements and formulas utilized to compute the sixty (60) hours of required standby

power.

6. Detailed one-line schematic wiring diagrams of each specified system and the interconnection wiring between all systems.

### 1.03 OPERATION:

- A. The activation of any manual fire alarm pull station, or the automatic actuation of any thermal detector, system smoke detector, or any other alarm initiating device shall result in the following:
  1. Activate the evacuation alarm.
  2. Deactivate the door holding magnets (if any) of the doors located on fire walls. See section 08710 for the model number of the holding magnets.
  3. All visual alarm signals shall be ADA rated for synchronize flash at a rate of one hundred twenty (120) flashes per minute (per ADA regulations).
  4. If alarm signals are silenced for any reason, they shall automatically resound if another alarm zone is tripped.
  5. In the event of commercial power failure, the entire system shall immediately and automatically transfer to a standby battery source, capable of supervising the system for sixty (60) hours, then sounding the alarm signals for ten (10) minutes.
  6. A signal shall be sent either through the designated fire alarm loop to the Fire Department or to the U.L. approved alarm monitoring provider designated by Fresenius Medical Care NA as;

Securitas Systems USA  
One Harborside Drive  
Suite 302S  
Boston, MA 02128

Contact: Ted Flanagan, National Accounts Manager  
617-568-5111

Call 3 weeks in advance regarding account information and set up, as well as customer requirements.

- B. Fire System only

When Fire Alarm equipment requires monitoring by Pinkerton Response, the Fresenius Medical Care authorized Alarm vendor. The Following information must be prepared, as described below:

1. ZONE LIST

The installing technician will indicate the format and will have prepared a zone list with actual reporting codes. The description of the zone signals needs to be specific for example: E1102 Fire Alarm Zone 2.

2. SYSTEM TROUBLE

The installing technician will identify actual reporting codes, incidents such as Low Battery, A/C Fail, Phone #1 or Phone #2 Fail. This will include 24 hour com test-system ok and com test system ok but system in trouble. All panels will be programmed to send this 24-hour test signal.

3. COMPLETE TEST

The programming to the central station will be complete only after a complete test of all signals is successfully executed and Pinkerton Response records and confirms they have been received.

4. Inquires can be made by contacting:

Securitas Systems USA  
One Harborside Drive  
Suite 302 S  
Boston, MA 02128  
Contact: Ted Flanagan  
National Accounts Manager  
617-568-5111

C. Burglary Alarm Panel approved to transmit Fire Alarm signals

When a Fresenius Medical Care clinic requires burglary alarm protection a panel will be used that transmit fire and trouble signals. Pinkerton Response will inform the contractor installing the Fire Alarm equipment in advance of this requirement.

1. The installing contractor is required to bring two pairs of 18/2 red wire from the fire alarm panel to the communication room where the combo panel will be located, leaving a 15 foot length of spare cable. These two cables will be capable of providing fire alarm and fire trouble signals and will be attached by the Pinkerton Response installing technician.

The installing fire system contractor will need to be available to execute a test of these connections to the Pinkerton Response combination panel. A call will originate from Pinkerton Response to set up a date and time.

2. Inquire can be made by contacting:

Securitas Systems USA  
One Harborside Drive  
Suite 302 S  
Boston, MA 02128  
Contact: Ted Flanagan  
National Accounts Manager  
617-568-5111

## **PART 2 - PRODUCTS**

### **2.01 FIRE ALARM EQUIPMENT:**

- A. Provide fire alarm control panel as located on the drawings. Operating controls, zone and supervisory indicators shall be located behind locked hinged outer doors. The fire alarm control panel shall provide the necessary circuitry for up to two supervised indicating circuits and four supervised initiating circuits. The panels shall be of modular construction for ease of expansion and servicing and all modules shall be placement supervised. The systems shall consist of one main common control module with built-in 6 amp, 24 VDC power supply and integral battery charger, and shall contain, but not be limited to the following features:
1. LEDES for power, common alarm, control trouble indication, and smoke/fire damper status.
  2. Diagnostic LEDES for all supervised circuits.
  3. Supervised battery charging circuit consisting of a fixed high rate and an adjustable trickle rate. The high rate shall be fixed at 1 amp.
  4. One supervised, non-silenceable bell loop rated at 0.125 amps, 24 VDC.
  5. Two indicating (signal) circuits, Class A, each rated and fused at 2 amps, 24 VDC.
  6. One common alarm contact (Form C) rated at 1A, 30 VDC resistive.
  7. One common trouble contact (Form C) rated at 1A, 30 VDC resistive.

8. A supervised external trouble loop input.
  9. Connectors for city notification and marchtime cards.
  10. Receptacles for optional system voltmeter and system ammeter.
  11. The initiating module shall contain the following features:
    - a. Class A, 4 wire operation.
    - b. One Form C contact rated at 1A, 30 VDC resistive.
    - c. One 50 mA supervised alarm output.
    - d. One 50 mA unsupervised alarm output.
    - e. Red alarm LED.
    - f. Yellow trouble LED.
    - g. Initiating loop, current limited at 100 mA in alarm.
    - h. Field wiring supervised for open and ground fault conditions.
- B. Provide sealed GelCel batteries built into the control panel with capability to supervise the system for sixty (60) hours then sound the alarm signals for ten (10) minutes.
- C. Manual Fire Alarm Stations:
- Semi-flush, non-coded, break rod stations shall be furnished where shown on plans. Each station shall also have a double action option.
- D. System Photoelectric Detectors:
1. Furnish and install where indicated on the plans photoelectric detectors, complete with base. They shall be listed by Underwriters Laboratories under UL 268 for the purpose of area fire detection.
  2. The detector shall respond to a wide range of both flaming and smoldering fires. The detectors shall be interchangeable and compatible with ionization detectors using the same type basis.
- E. Duct Smoke Detectors
1. Furnish and install where indicated on the plans photoelectric, 4 wire, 24 VDC, duct detectors. Detectors shall be furnished complete with remote test station and sampling tubes.
  2. Duct smoke detectors upon activation shall shut down its associated air handling unit.

F. Audio-Visual Alarm Signal:

Provide audio-visual alarm unit. The lens shall be white with red "fire".

G. Provide lightning arrestor.

H. Municipal Connection:

All alarms only if required shall be automatically transmitted to the Fire Department by means of the Town fire alarm loop. The necessary Fire Department provides a Master Box at the location directed by the Fire Department. Provide a 3/4" conduit with 4 conductor #16 AWG IMSA cable from the Master Box to a location on the building directed by the Fire Department. Provide weatherhead on conduit; connections at the master box and fire alarm loop shall be by the Fire Department.

I. Owner Designated:

All alarms shall be a automatically transmitted to the Owners U.L. approved monitoring company. See Specification 16400, 1.03, A, 5 and 1.03 B and C for additional information.

### **PART 3 - EXECUTION**

3.01 Guarantee and Final Test:

- A. Guarantee all equipment and wiring free from inherent mechanical and electrical defects for not less that one year from the date of substantial completion.
- B. At the completion of the work, the complete system shall be tested to the satisfaction of and in the presence of an authorized representative of the State or Local Fire Marshall and or Fire Department. The test shall include all wiring and proper operation of all equipment. Tests shall also be made of the operation of each automatic and manual alarm indicating device of the system, without impairing such alarm initiating device. Each device shall also be tested to ascertain that it operates on the designated zone and proper coding. Additional tests shall be made as required by the Authorities having jurisdiction or Fire Department. Submit test report cosigned by the Electrical Subcontractor's alarm system manufacturer at completion of testing to Owner, Engineer, and Fire Department or Fire Marshall.

3.02 Documentation:

- A. At the completion of the project, a complete set of the fire alarm submittal book, point-to-point wiring diagrams, plus a complete listing of the quantity and type of initiating and signaling devices shall be left at the fire control

panels for the Fire Department's use.

3.03 Wiring:

- A. Furnish and install all wiring, conduit and outlet boxes required. Internal wiring shall be low energy fire alarm cable installed according to NEC requirements. Color coding shall be used and maintained throughout the installation of this system. All wires shall be tested to insure that they are free from grounds or crosses between conductors. The system wiring shall be carried through all equipment, no pigtail connections will be allowed. Final connections between equipment and wiring system shall be made under direct supervision of a representative of the manufacturer. All manual initiating devices shall be connected first. Smoke and heat detectors shall be wired after manual initiating devices but before the supervisory devices.
- B. Minimum conductor shall be #16 AWG copper solid Type THHN.

**END OF SECTION**