

## **283000 FIRE ALARM**

1. Standard fire alarm system for the University is a Simplex True Alarm system (no substitutions). System shall be equipped or designed to interface with a network system, with appropriate communications card for data transmission via copper and fiber optic cable. Coordinate with the Simplex representative and the University Environment Health and Safety Specialist.
2. Comply with ADA requirements for sound and light accessories of fire alarm system. Notification (audio-visual) devices shall comply with ADA requirements.
3. Magnetic door holders shall be provided on doors where applicable. Typically, these locations include busy egress paths and stair towers.
4. Fire Alarm Panels shall be located where accessible to firefighters. Do not locate in mechanical rooms.
5. Duct smoke detector remote test stations shall be located where readily accessible for testing.
6. All smoke detectors shall be photoelectric type.
7. Heat Detectors shall be utilized where required by conditions.
8. Spare devices shall be provided as follows:
  - a. Addressable bases
  - b. Addressable pull stations
  - c. Notification appliances to include audio-visual and visual-only devices
  - d. Smoke sensors
  - e. Heat sensors
9. Typical System Description
  - a. Fire Alarm System: NFPA 72, addressable automatic local fire alarm system with connections to campus central monitoring panel.
  - b. Alarm Sequence of Operation: Actuation of initiating device causes the following system operations:

1. Local fire alarm signaling devices sound an alarm signal.
  2. Non-coded common alarm signal transmits to central monitoring panel.
  3. Location of alarm device indicates on fire alarm control panel.
- c. Drill Sequence of Operation: Manual drill function causes alarm mode sequence of operation.
- d. Trouble Sequence of Operation: System or circuit trouble causes the following system operations:
1. Visual and audible trouble alarm indicates at fire alarm control panel.
  2. Trouble signal transmits to central monitoring panel.

## 10. Products

- a. Control Panel
1. Model 4100U Fire Alarm System manufactured by Simplex/Grinnell.
  2. Modular addressable fire alarm control panel with surface wall mounted enclosure with the following features:
    - Five primary operator keys and system status LED's
    - Expansion card slots for Simplex 4120 network interface, RS-232 or DACT modules.
    - Operator programming and maintenance keys.
    - Site programmable status indicators.
    - Battery meter module.
    - 80 character LCD display with up to 40 characters for custom label information.
    - 4 amp expansion power supply.
    - One piece chassis.
    - Auto programming.
    - "Almost" Dirty Detector Maintenance Report
    - Automatic Drift Compensation.
    - Peak Value Logging.

3. Power Supply: Adequate to serve control panel modules remote detectors, relays, and alarm signaling devices. Include battery-operated emergency power supply with capacity for operating system in standby mode for 24 hours followed by alarm mode for 5 minutes.
4. System Supervision: Component or power supply failure places system in trouble mode.
5. Initiating Device Circuits: Supervised addressable initiating loop with alarm and trouble indication. Occurrence of single ground or open condition places circuit in trouble mode but does not disable circuit from initiating alarm.
6. Indicating Appliance Circuits: Supervised signal module, sufficient for signal devices connected to system. Occurrence of single ground or open condition places circuit in trouble mode but does not disable circuit from initiating alarm.

b. Ceiling Smoke Detector

1. Manufactured by Simplex/Grinnell
2. NFPA 72 analog/addressable photoelectric type with the following features:
  - Adjustable sensitivity ☉ Plug-in base.
  - Auxiliary relay contact.
  - Visual indication of detector actuation.
  - Two-wire detector with common power supply and signal circuits

c. Individual Addressable Monitoring Modules

1. Manufactured by Simplex/Grinnell
2. Individual addressable module to be connected to the fire alarm system addressable initiating loop to provide a specific address to monitor existing zoned smoke detectors and contact closure type devices.

- d. Remote Annunciator
  - 1. Manufactured by Simplex/Grinnell.
  - 2. Supervised remote audible and alphanumeric indication of fire alarm by addressable device as well as audible and visual indication of system trouble.
- e. Wire and Cable
  - 1. Power limited fire-protective signaling cable, copper conductor, 300 volts insulation rated 105 degrees C.

11. Installation

- a. Install 14 AWG minimum size conductors for fire alarm detection and signal circuit conductors in conduit.
- b. Mount end-of-line device box with last device or separate box adjacent to last device in circuit.
- c. Connect conduit and wire to sprinkler flow switches and sprinkler valve tamper switches.
- d. Provide transient voltage surge suppression on both ends of all fire alarm wiring run outside of buildings in underground conduit or duct banks.
- e. Paint all fire alarm junction box covers red.

12. Demonstration and Training

- a. Furnish four hours of instruction each for two persons, to be conducted at the project site with manufacturer's representative.