283100 Fire Detection And Alarm

Sections Included In This Standard:
1.1 General
2.1 Equipment
3.1 Installation
3.2 Operation
3.3 Warranty
3.4 Closeout Submittals

PART 1 – GENERAL

1.1 GENERAL

A. BASIC REQUIREMENT FOR INSTALLATION:
1. All new buildings, and buildings undergoing major renovations, shall be equipped with a complete fire alarm system which meets Florida Building Code, Chapter 11 Accessibility Code for Building Construction (Section 11-4.28) and current code requirements.

2. Provide all hardware necessary to tie-in with the existing campus monitoring system.

   i. As of Fall 2019 this tie in is no longer done via land phone line.
   ii. All fire systems on campus report to the campus monitoring system (UPD) via RF Communications via the UF owned FCC Licensed AES Intellinet network. All RF communications equipment permitting the fire system to report must be purchased through the University or its approved vendor.

3. For renovations and additions matching the existing addressable digital fire system in use in a facility is required.

4. All new Fire Alarm Control Panels (FACP's) shall be available through wholesale distribution and meet the below specifications.

B. COORDINATION

1. Coordinate all installations with Facilities Services Fire Safety Shop
2. To insure compatibility, the Facilities Services Fire Alarm Safety Shop supervisor (or supervisor's designated representative) shall be informed of the proposed type of fire alarm control panel.

C. LICENSING:
1. All work on fire alarm systems shall be performed by an individual, or firm, licensed as an "Alarm System Contractor I" as required by Florida Statute 489.505(a), other parts of said Statute, and complies with all other licensing requirements of relevant codes and laws.

2. This individual or firm shall be either the prime Builder on such work or a subcontractor to the prime Builder.

3. The technicians doing the work must be FASA, NICET 2 and Factory certified.

PART 2 – PRODUCTS

2.1 EQUIPMENT

   A.   PANELS

      1. Central Fire Control Panel: Provide programmable central fire control panel with programmable field devices. Fire control panel shall meet NFPA 72 detector sensitivity readout/printout requirements. A history of a minimum of 1000 events shall be readable on the fire alarm control panel display (1000 events for alarm and 1000 events for trouble).

      2. Annunciator Panel:

          a. Annunciator panel shall be located where the fire department will enter building.
          b. Annunciation panel shall duplicate all functions of the fire control panel.
          c. The display panel on the annunciator panel shall have a minimum of 180 characters.

      3. Renovations:
          a. When the existing fire alarm control panel does not support the type of renovation being performed in a building, a second (or third) fire alarm control panel shall be installed.
          b. The fire alarm control panels installed for the renovation shall be of sufficient capacity to handle the entire building when the existing fire system(s) is (are) changed.
          c. No panel shall exceed 90% of its intended point capacity.

      4. Acceptable manufacturers:
          a. Existing equipment requiring interface may be Simplex 4010 or 4100~~UES~~; Pyrotronic; Notifier, AFP or Edwards Systems Technologies.
          b. New equipment shall be
               i. Potter AFC series
              ii. Simplex ~~4020 or~~ 4100 or equivalent
             iii. Pyrotronics MXL or MXLSS
             iv. Notifier ONYX series ~~1010 or 2020~~
              ~~v.~~ AFP ~~200 or 400~~
             vi. Edwards Systems Technologies EST2 or EST Quickstart or EST iO500/iO64
             vii. Siemens
            viii. Or equivalent that meets performance specifications

   B.   PULL STATIONS

      4. Pull stations shall be single action type.

      5. The protective shield shall be a clear Lexan cover that emits a loud piercing noise when disturbed. The cover shall be battery powered and shall silence itself by lowering and realigning the shield. Stopper II as manufactured by Safety Technology International, Inc. (STI), are acceptable covers. Protective shields shall only be used to protect pull stations from the elements, or in locations where vandalism is likely (such as next to exterior exits). They are not required throughout the interior of a building.

      6. Glass rods for pull stations are discouraged.

   C.   WIRING

      1. Fire alarm conductors shall be color coded as follows:

Horns:	Red	+
	Black	-
Strobes: (if separate)	White	+
	Purple	-
Alarms:	Blue	+
	Yellow	-
A/C Ventilation: Shut Down	Brown	+
	Orange	-
Magnetic Doors:	Pink	+
	Grey	-
Misc. Circuits:	Violet	+
	Tan	-

2. Data line wiring shall be twisted shielded 18 gauge FPLP wire in a red jacket. All data wire shall meet current code requirements and manufacturer's specifications.

3. Speaker wiring shall meet current code requirements and manufacturer's specifications, and have a different color jacket than the data wiring (minimum 18 gauge twisted shielded).

4. SLC, MAPNET, or IDNET wiring must be shielded.

5. On renovations, always remove existing wiring and install new, properly color coded wiring. On retrofit projects that involve adding to existing wiring, the Builder shall exactly match the colors of the new wiring with the existing.

6. All connections shall be made on terminal strips. No more than two conductors under one connection. Wires on these terminals shall be labeled.

A. AUDIO/VISUAL DEVICES

1. Audio/Visual devices shall be combination audible alarm and strobe light.

2. These devices can be addressable or not, based on the panel / system being used.

   i. If they are addressable the devices shall not need to be programmed if being replaced.

3. The audible alarm shall be a horn, not a bell, as a bell could be confused with a class bell.

4. Provide separate power for horns and lights, so that lights can be checked without sounding horn, unless this can be accomplished through software programming.

5. Horns and lights shall be provided in machine rooms and loft/attic areas that have mechanical equipment or work areas.

D. AIR HANDLING UNIT SHUTDOWN RELAY: The Air Handling Unit shutdown relay shall be supervised.

E. JUNCTION BOXES AND CONDUIT: All junction boxes and conduit on the fire alarm system shall be painted fire-truck red. and all conduit shall be spot painted red.

F. CAMPUS MONITORING SYSTEM INTERFACE RELAYS: Trouble contacts shall be Normally Closed; Alarm contacts shall be Normally Open. Provide a Digital Alarm Communicator Transmitter (DACT) for digital, secondary reporting to the University Police.

G. DUCT-MOUNTED SMOKE DETECTORS: If duct-mounted smoke detectors are not immediately visible from inside the mechanical room, then provide a remote, labeled L.E.D indicator for each detector, mounted in a convenient, visible location. Non-radioactive smoke detectors and duct detectors are preferred (i.e. photoelectric). Provide stand-alone, duct mounted smoke detectors where no fire alarm system is present. The operation shall be to shut down the unit, and provide notification.

H. SENSORS: All fire and smoke alarm sensors shall be resettable.

I. MAINTENANCE ITEMS

1. Provide a spare parts kit that shall include one of every type of field device (one pull station, one horn, one strobe).

2. No special tools shall be necessary to program devices and maintain the systems.

3. Any special tools, equipment, programming devices and cables needed to maintain or repair the system shall be provided.

4. All keys or tools provided with any devices from the manufacturer shall be given to the University.

5. Existing panel logbooks should be updated for the work done, and the panels re-tagged.

6. New installations should include vendor supplied logbooks.

7. All programming software must be provided to the University and the default passcode shall not be changed unless written approval is granted by the University.

PART 3 – EXECUTION

3.1   INSTALLATION

A. All equipment shall be installed as to provide adequate access for service and repair.

B. The Builder shall certify and tag the system after all modifications are made and prior to Substantial Completion.

C. The Builder and the Facilities Services Fire Safety Shop shall test the fire alarm system before any renovation or modification is made. Any part of the system not working properly shall be noted or repaired before any construction begins.

D. On renovations, in addition to the renovation prints and/or drawings, the existing prints are to be updated to include any changes.

E. Programming of the fire alarm shall be as specified by the University. Consult with Facilities Services Fire Safety Shop (or other appropriate University maintenance department, if directed by the UF Project Manager) concerning the requirements. Programming includes, but is not limited to: function keys, FAAP, software zones, etc.

F.   Provide protection from damage caused by lightning and electrical surges.

3.2   Facility Management Software

A. All new FACP's installed shall have an IP communicator included on the FACP.

B. A new FACP's shall have the ability to send and receive e-mails with no additional fees or costs.

3.3   OPERATION

A.   AIR HANDLING UNITS: Air handling units shall shut down only in the area where the fire is detected or the area actually alarmed (floor above and below). Other air handling equipment shall remain on line. This shall not supersede any code requirement.

B.   ELEVATORS: A reset procedure for resetting the elevators after an alarm shall be submitted.

C.   TROUBLE SIGNAL: Trouble signal shall sound piezoelectric alarm on the fire alarm control panel.

D.   STAND ALONE DUCT DETECTORS: Provide an annunciator panel to provide notification of trouble alarm and reset feature. Panel to be 120 Volts.

3.4   WARRANTY

The warranty period shall commence at Substantial Completion and be for a minimum of one year and five years on all equipment.

3.5   CLOSEOUT SUBMITTALS

A.   OPERATION AND MAINTENANCE MANUALS

1. General: The manuals shall include installation, operation, and service manuals.

2. Programmable Systems: If the system is programmable, a copy of the operating program the appropriate cable to load the program from a laptop computer, and a programming manual shall be provided. A port and method for downloading detector sensitivity shall be provided.

B.   AS-BUILT DRAWINGS

1. Point-to-point Wiring Diagram: A point-to-point wiring diagram shall be included with the "as-built" drawings.

2. As-Built Drawings: All as-built drawings shall be submitted.

3. Field Devices: All field devices installed in the fire alarm control panel shall be included in all diagrams. These devices include, but are not limited to, air handler shut down relays and remote reporting relays.

4. Zone Map: A zone map of the building showing the physical location of the devices and the layout of the fire alarm zones shall be provided.

3. Function Diagram: A one-line function diagram of the fire alarm control panel shall be

provided.

C.   MAINTENANCE ITEMS

1. Keys to the system and associated equipment shall be given to the Facilities Services Safety Shop when the system is accepted.

2. All spare parts, special tools, equipment, keys, etc. required for maintenance or operation shall be turned over to the Facilities Services Safety Shop when the system is accepted.

3. A copy of the field prints, drawings, etc. shall be given to the Facilities Services Safety Shop when the system is accepted.

<u>END OF SECTION</u>