

CHAPTER 16D

ALARM AND DETECTION SYSTEMS

16D-01 GENERAL

a. Definition

This chapter covers materials, equipment, and good workmanship practices for the installation of fire alarm and detector system. The inspector must closely coordinate this chapter with Chapter 15A, 16A and 16B. It is important that the inspector have a thorough knowledge of the NEC and applicable NFPA codes, contract specifications, and the fire protection plan for the whole building. Any missing or non consistent application of the various fire protection parts should be called to the attention of your supervisor. See specification and 1984 NEC, Article 760, Fire Protective Signaling System. Paragraph 760-1 lists NFPA codes applicable to the several protective systems.

b. Approvals

Insure that all materials, equipment, and shop drawings are approved prior to preparatory inspection and installation. Obtain helpful manufacturer's installation information.

c. Storage and Handling

- (1) Insure that all materials and equipment are new and handled carefully to prevent damage. Reject damaged materials or equipment and have it removed from the site.
- (2) Check storage facility for adequate weather protection, possible damage, and safety hazard.

d. Layout of Work

- (1) Check equipment requirements and locations on contract drawings and specifications.
- (2) Check approved shop drawings for complete wiring and schematic diagram for equipment furnished, equipment layout, and other details required to demonstrate that the system has been coordinated and will function as a unit.
- (3) Check contract specification for requirements for contractor to furnish spare parts and spare parts data, operating instruction manual, maintenance instructions manual, and performance test reports. Note requirement in specifications which items are to be turned over and which items are to be posted permanently in the building.

a. Coordination of Work

- (1) Continually check for interferences between electrical, mechanical, architectural, and structural features. Insure that paint is not accidentally applied to sensors, nameplates on equipment, or on posted operating instructions.
- (2) Electrical work is to be installed under the guidance of Section, 16A Interior Electrical. Other coordination

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requirements are with Section 15H; Fire Protection Systems; and 15A, Piping Systems. Mechanical installation will normally be in accordance with NFPA 13 unless otherwise specified in the contract specification.

16D-02 FIRE DETECTING DEVICES

Fire detecting device will be located as shown or otherwise indicated. Unless otherwise shown the devices will be surface mounted. Smoke detectors will not be located in direct supply air flow nor closer than 3 feet from an air supply diffuser.

a. Smoke Detectors, Ionization Types

Check for dual chamber design. Check for sensitive adjustment. Check for correct operating voltage and type of current (AC or DC). Check for indicator lamp. Check duct-mounted detector to see if the air sampling tube length is equal to width of duct. Smoke detectors located in the underfloor spaces will only be mounted in upper portion of the space with the detector facing downwards, or mounted sideways.

b. Smoke Detectors, Photo-electric Type

Check for factory calibration and not field adjustment. Check for light source lamp or LEO of specified voltage.

c. Heat Detectors

1. Check heat detector requirements for fixed temperature or combination fixed temperature and rate-of-rise ratings. Check for replaceable fixable elements. Check for specified locations of detectors.

2. Heat detectors located in spaces where the ambient temperature can be over 100 degrees F will be rated higher than ordinary temperature; e.g. Detectors located in attic spaces should have an intermediate temperature rating.

16D-03 FIRE ALARM STATIONS

Check for type of station specified. Check for coded or non-coded requirement. Check for test key requirement. Check locks for being keyed alike with fire alarm control panel. Check mounting requirements.

16D-04 SIGNALING DEVICES

Check for locations as indicated on contract documents. Bells are normally mounted on removable adapter plates over electrical outlet boxes. Exterior bells: check for weather proof type bells with metal housing and protection grills. Visual fire alarm indicators are mounted same as bells. Trouble Indicators are normally mounted in flush mounted panels.

16D-05 CONTROL UNITS

Check control unit for complying with approved shop drawings. Check for proper operating voltage. Check to see that upon failure of power supply, that system shall operate from back-up power supply. Check panel for metal construction, with factory applied red enamel finish, accessible from the front, and surface mounted unless otherwise indicated. Check for proper labeling of control panels such as descriptive labeling of zones.

a. Smoke Detector Panel

Check for proper voltage power supply. Check for back up power system. Panel fabrication; paint color, and mounting same as control units.

b. Annunciator Panel

Check annunciation panel for complying with approved unit. Check for tamper proof.

16D-06 POWER SUPPLY

Check specifications for power feed, overload protection, conductor hook-up equipment. Check specifications for back up power requirements, i.e. primary, batteries, and charges.

16D-07 TESTING

Check specifications for 30 day contractor*s notification to contracting office before conducting performance end acceptance tests. Test to be conducted in presence of CO or his authorized representative. Check specification for description of tests to be conducted. Check to see that all quality control records, test reports, and records of corrective actions are furnished to the Government.