

## **SECTION 21 1300 - FIRE SUPPRESSION SPRINKLER SYSTEMS**

### **PART 1 - GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Wet-pipe sprinkler system.
- B. Dry-pipe sprinkler system.
- C. System design, installation, and certification.

#### **1.02 RELATED SECTIONS**

- A. Drawings and General Provisions of the Contract apply to this section.

#### **1.03 REFERENCES**

- A. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- B. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.
- C. NFPA 13, 2007 - Standard for the Installation of Sprinkler Systems; National Fire Protection Association.
- D. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

#### **1.04 SUBMITTALS**

- A. Product Data: Provide data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- B. Shop Drawings:
  - 1. Submit preliminary layout of finished ceiling areas indicating only sprinkler locations coordinated with ceiling installation.
  - 2. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls.
  - 3. Submit shop drawings, product data, and hydraulic calculations to authority having jurisdiction for approval. Submit proof of approval to Architect.

- C. Samples: Submit two of each style of sprinkler specified.
- D. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.
- E. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.
- F. Operation and Maintenance Data: Include components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.

#### **1.05 QUALITY ASSURANCE**

- A. Maintain one copy of referenced design and installation standard on site.
- B. Conform to UL and FM requirements.
- C. Design system under direct supervision of a Professional Engineer or Professional Fire Protection Engineer experienced in design of this type of work and licensed in the State in which the Project is located.
- D. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- E. Installer Qualifications: Company specializing in performing the work of this section with minimum three years' experience.
- F. Equipment and Components: Provide products that bear UL and FM label or marking.
- G. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. or testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

#### **1.06 MOCK-UP**

- A. Provide components for installation in mock-up.
- B. Mock-up may not remain as part of the Work.

#### **1.07 PRE-INSTALLATION MEETING**

- A. Convene one week before starting work of this section.

## **1.08 DELIVERY, STORAGE, AND PROTECTION**

- A. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

## **1.09 EXTRA MATERIALS**

- A. Provide extra sprinklers of type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
- B. Provide suitable wrenches for each sprinkler type.
- C. Provide metal storage cabinet in location designated, sized per NFPA 13, 2007

## **PART 2 - PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Sprinklers shall be UL listed/FM approved, with 175 psig minimum pressure rating.
- B. Manufacturers:
  - 1. AFAC Inc.
  - 2. Central Sprinkler Corp.
  - 3. Firematic Sprinkler Devices, Inc.
  - 4. Globe Fire Sprinkler Corporation
  - 5. Grinnell Fire Protection
  - 6. Reliable Automatic Sprinkler Co., Inc.
  - 7. Star Sprinkler Inc.
  - 8. Venus Fire Protection, Ltd.
  - 9. Victaulic Co. of America
  - 10. Viking Corp.

### **2.02 SPRINKLER SYSTEM REQUIREMENTS**

- A. Sprinkler System: Provide coverage for entire building.

- B. Occupancy and Coverage: As indicated on the drawings.
- C. Water Supply: Determine volume and pressure from water flow test data.
- D. Interface system with building fire and smoke alarm system.
- E. Provide fire department connections where indicated.

## **2.03 SPRINKLERS**

- A. Suspended Ceiling Type: Semi-recessed or concealed pendant type, per drawings, with matching push-on escutcheon plate.
  - 1. Finish: Brass or chrome. Coordinate with interior designer.
  - 2. Escutcheon Plate Finish: Chrome plated.
  - 3. Fusible Link: Fusible solder link type or glass bulb type temperature rated for specific area hazard.
- B. Exposed Area Type: Standard upright type with guard in stairwell, mechanical rooms, and storage areas.
  - 1. Finish: Brass.
  - 2. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
- C. Sidewall Type: Recessed horizontal sidewall type with matching push on, clamp on escutcheon plate and guard.
  - 1. Finish: Brass or chrome plated.
  - 2. Escutcheon Plate Finish: Chrome plated.
  - 3. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
- D. Dry Sprinklers: Recessed pendant type with matching push on escutcheon plate.
  - 1. Finish: Brass or chrome plated. Coordinate with interior designer
  - 2. Escutcheon Plate Finish: Chrome plated.
  - 3. Fusible Link: Fusible solder link type temperature rated for specific area hazard.

- E. Guards: Finish to match sprinkler finish.

## **2.04 PIPING SPECIALTIES**

- A. Dry Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber faced clapper to automatically actuate water motor alarm and electric alarm, with accelerator; with test and drain valve, inline air compressor & integral low air pressure alarm.
- B. Electric Alarm: Electrically operated red enameled gong with pressure alarm switch.
- C. Water Flow Switch: Vane type switch for mounting horizontal or vertical, with two contacts; rated 10 amp at 125 volt AC and 2.5 amp at 24 volt DC.
- D. Residential Domestic Shut-Off Valve: NFPA 13R, bronze and stainless steel construction, with sprinkler check valve assembly and poppet assembly to divert water from domestic system.
- E. Supervisory Switches: As indicated on the drawings.

## **2.05 AIR COMPRESSOR**

- A. Manufacturers:
  - 1. Viking Fire Protection Inc.
  - 2. General Air Products
- B. Compressor: Single unit, electric motor driven, motor, motor starter, safety valves, check valves, air maintenance device incorporating electric pressure switch and unloader valve.
- C. Electrical Characteristics: As scheduled on the drawings.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with referenced NFPA design and installation standard.
- B. Install equipment in accordance with manufacturer's instructions.
- C. Locate outside alarm gong on building wall as indicated.
- D. Place pipe runs to minimize obstruction to other work.
- E. Place piping in concealed spaces above finished ceilings.

- F. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.
- G. Apply masking tape or paper cover to ensure concealed sprinklers, cover plates, and sprinkler escutcheons do not receive field paint finish. Remove after painting. Replace painted sprinklers.
- H. Install and connect to fire pump system in accordance with NFPA 13.
- I. Install air compressor inline, mounted on dry pipe riser.
- J. Flush entire piping system of foreign matter.
- K. Install guards on sprinklers in storage areas, mechanical rooms and stairwells.
- L. Hydrostatically test entire system.
- M. Require test be witnessed by authority having jurisdiction.
- N. Provide the services of a competent instructor to instruct and train the Owner's staff in the proper operation of the system.
- O. Provide connection from the building sprinkler system to the kitchen hood fire protection system. Size piping in accordance with hood manufacturer's requirements.
- P. All temporary means of fire protection during construction shall be provided by fire protection contractor in accordance with NFPA 13 and office of the Fire Marshal.

### **3.02 INTERFACE WITH OTHER PRODUCTS**

- A. Ensure required devices are installed and connected as required to fire alarm system.

**END OF SECTION 21 1300**