

## SECTION 21 13 00

### FIRE-SUPPRESSION SPRINKLER SYSTEMS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

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

##### 1.02 SCOPE OF WORK

- A. The fire protection contractor shall provide modifications and additions to the existing sprinkler system to ensure NFPA 13 (current edition) coverage for areas of renovation as shown on the architectural plans. The contractor shall relocate heads that interfere with new construction including walls, lights, and ceiling grid, and shall provide new heads required to comply with NFPA 13, for renovated and newly constructed spaces. Refer to the current architectural and plumbing plans for the exact room and ceiling layout, limits of construction, building classifications, notes and details. The fire protection contractor shall visit the site and field verify the system layout, prior to submitting a bid.
- B. Design of all modifications and additions to the existing sprinkler system shall be delegated to the fire protection contractor. The fire protection contractor shall provide shop drawings and calculations for all design modifications required in the work area. Shop drawings and calculations shall be prepared, sealed and signed by a licensed fire protection engineer.
- C. The existing fire protection system shall remain in service at all times. Service interruptions to facilitate new work shall be limited to new work areas, and coordinated with the owner's representative, and general contractor.

##### 1.02 RELATED REQUIREMENTS

- A. Section 28 31 00 - Fire Detection and Alarm.
- B. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

##### 1.03 REFERENCE STANDARDS

- A. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- B. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2009.
- C. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements; 2006.
- D. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2010.
- E. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements; 2009.
- F. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.
- G. NFPA 13 - Standard for the Installation of Sprinkler Systems; National Fire Protection Association; 2010.
- H. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

##### 1.04 ADMINISTRATIVE REQUIREMENTS

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

## 1.05 SUBMITTALS

- A. See Section 01 33 00 - Administrative Requirements, for submittal procedures.
- B. 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.
- C. 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 to authority having jurisdiction for approval. Submit proof of approval to Architect.
- D. Samples: Submit two of each style of sprinkler specified.
- E. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.
- F. Manufacturer's Certificate: Certify that system has been tested and meets or exceeds specified requirements and code requirements.
- G. 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.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
  - 2. Extra Sprinklers: Type and size matching those installed, in quantity required by referenced NFPA design and installation standard.
  - 3. Sprinkler Wrenches: For each sprinkler type.

## 1.06 QUALITY ASSURANCE

- A. Maintain one copy of referenced design and installation standard on site.
- B. Conform to UL requirements.
- C. Designer Qualifications: Design system under direct supervision of a Professional Engineer experienced in design of this type of work and licensed in 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. Equipment and Components: Provide products that bear UL label or marking.
- F. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

## 1.07 MOCK-UP

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

## 1.08 DELIVERY, STORAGE, AND HANDLING

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

## PART 2 PRODUCTS

## 2.01 MANUFACTURERS

- A. Sprinklers, Valves, and Equipment:
  - 1. Tyco Fire Suppression & Building Products: [www.tyco-fire.com](http://www.tyco-fire.com).
  - 2. Viking Corporation: [www.vikinggroupinc.com](http://www.vikinggroupinc.com).

## 2.02 SPRINKLER SYSTEM

- A. Sprinkler System: Provide coverage for all renovated spaces and building additions as shown on the architectural plans.
- B. Occupancy: Ordinary hazard, Group 1; comply with NFPA 13.
- C. Water Supply: Determine volume and pressure from water flow test data.
  - 1. Revise design when test data available prior to submittals.
- D. Provide fire department connections where indicated.

## 2.03 SPRINKLERS

- A. Suspended Ceiling Type: Semi-recessed pendant type with matching push on escutcheon plate.
  - 1. Response Type: Quick.
  - 2. Coverage Type: Standard.
  - 3. Finish: Chrome plated.
  - 4. Escutcheon Plate Finish: Chrome
  - 5. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
- B. Exposed Area Type: Pendant upright type with guard.
  - 1. Response Type: Quick.
  - 2. Coverage Type: Standard.
  - 3. Finish: Brass.
  - 4. Fusible Link: Fusible link type temperature rated for specific area hazard.
- C. Sidewall Type: Semi-recessed horizontal sidewall type with matching push on escutcheon plate.
  - 1. Response Type: Quick.
  - 2. Coverage Type: Standard.
  - 3. Finish: Chrome plated.
  - 4. Escutcheon Plate Finish: Brushed Chrome
  - 5. Fusible Link: Fusible link type temperature rated for specific area hazard.
- D. Dry Sprinklers: Semi-recessed pendant type with matching estucheon plate.
  - 1. Response Type: Quick.
  - 2. Coverage Type: Standard.
  - 3. Finish: Chrome plated.
  - 4. Cover Plate Finish: Chrome
  - 5. Fusible Link: Fusible s link type temperature rated for specific area hazard.
- E. Storage Sprinklers: Concealed upright type with guard.
  - 1. Response Type: Standard.
  - 2. Finish: Chrome plated.
  - 3. Shield Finish: Chrome.
  - 4. Fusible Link: Fusible solder link type temperature rated for specific area hazard.
- F. Guards: Finish to match sprinkler finish.

## 2.04 PIPING SPECIALTIES

- A. Wet Pipe Sprinkler Alarm Valve: Check type valve with divided seat ring, rubber faced clapper to automatically actuate water motor alarm and electric alarm, with pressure retard chamber and variable pressure trim; with test and drain valve.
- B. Water Motor Alarm: Hydraulically operated impeller type alarm with aluminum alloy chrome plated gong and motor housing, nylon bearings, and inlet strainer.
- C. Electric Alarm: Electrically operated chrome plated gong with pressure alarm switch.
- D. 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.

## **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. Install buried shut-off valves in valve box. Provide post indicator.
- D. Provide approved double check valve assembly at sprinkler system water source connection.
- E. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent siamese connectors to allow full swing of fire department wrench handle.
- F. Locate outside alarm gong on building wall as indicated.
- G. Place pipe runs to minimize obstruction to other work.
- H. Place piping in concealed spaces above finished ceilings.
- I. Center sprinklers in two directions in ceiling tile and provide piping offsets as required.
- J. 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.
- K. Flush entire piping system of foreign matter.
- L. Install guards on sprinklers where indicated.
- M. Hydrostatically test entire system.
- N. Require test be witnessed by Fire Marshal.
- O. All valves shall be fully supervised. Provide switches equal to

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

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

**END OF SECTION**