



SECTION 21 13 16 PRE-ACTION / DRY-PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes dry-pipe sprinkler system, system design, installation, and certification.

1.2 REFERENCES

- A. General: Comply with appropriate standards.
 - 1. American Welding Society: AWS.
 - 2. Underwriter Laboratories, Inc.: U.L.
 - 3. Factory Mutual Standards: FM.

1.3 SUBMITTALS

- A. Submit data on all materials, including manufacturers' installation instructions.
- B. Shop Drawings: Indicate complete layout of all systems, including: coordinated sprinkler locations, detailed pipe layout, hangers and supports, components, accessories and system controls.
- C. Product Data: Submit data on sprinklers, valves, and specialties, including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.
- D. Design Data: Submit signed and sealed design calculations.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- F. Operation and Maintenance Data: Submit components of system, servicing requirements, record drawings, inspection data, replacement part numbers and availability, and location and numbers of service depot.
- G. System Hazard Areas: Per NFPA 13.

1.4 WARRANTY

- A. Provide one-year minimum.

1.5 EXTRA MATERIALS

- A. Furnish extra sprinklers for each sprinkler type per NFPA 13.
- B. Furnish suitable wrenches for each sprinkler type.



- C. Furnish metal storage cabinet in location designated by LAWA representative.

PART 2 - PRODUCTS

2.1 SPRINKLERS

- A. Manufacturers:
 - 1. **Viking.**
 - 2. **Reliable.**
 - 3. **Grinnell.**
- B. Suspended Ceiling Type:
 - 1. Type: Standard, Semi-recessed, Recessed, or Concealed pendant type with matching adjustable semi-recessed escutcheon plate.
 - 2. Construction: All brass frame with metal Belleville spring seal, Teflon coated, brass or chrome finish.
 - 3. Escutcheon Plate Finish: Chrome plated.
 - 4. Fusible Link: Glass bulb type, temperature rated for specific area hazard.
- C. Exposed Area Type:
 - 1. Type: Standard upright type, with guard.
 - 2. Factory applied corrosion-resistant coating.
 - 3. Fusible Link: Glass bulb type, temperature rated for specific area hazard.
- D. Side wall Type:
 - 1. Type: Standard, Semi-recessed, or Recessed horizontal side wall type with matching adjustable escutcheon plate and guard.
 - 2. Construction: All brass frame with metal Belleville spring seal, Teflon coated, brass or chrome finish.
 - 3. Escutcheon Plate Finish: Brass. Chrome plated. Enamel, color as selected.
 - 4. Fusible Link: Glass bulb type temperature rated for specific area hazard.
- E. Dry Sprinklers:
 - 1. Type: Standard, upright or side wall with matching plate.
 - 2. Construction: All brass frame with metal Belleville spring seal, Teflon coated, brass or chrome plated.
 - 3. Fusible solder link type, temperature rated for use.
- F. Guards: Finish to match sprinkler finish.



2.2 PIPING MATERIALS

- A. Pipe shall be Standard Weight, Schedule 40 Black-Steel Pipe: ASTM A53 / A53M, Type S, Grade B or ASTM A106, Grade B, seamless steel pipe. Pipe ends may be factory or field formed to match joining method.
 - 1. Threaded Fittings:
 - a. Malleable-Iron Fittings: ASTM B16.3, Class 300.
 - b. Flanges and Flanged Fittings: ASME B16.5, Class 300, unless Class 600 is indicated.
 - 2. Grooved-End Fittings: ASTM A47 malleable Iron or ASTM A536 Ductile Iron, with dimensions matching steel pipe and ends factory grooved according to AWWA C606.

2.3 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/or electric alarm, with accelerator, test and drain.
- B. Water Motor Alarm: Hydraulically operated impeller type alarm with aluminum alloy red enameled gong and motor housing, nylon bearings, and inlet strainer.
- C. Electric Alarm: Electrically operated red enameled gong with pressure alarm switch.
- D. Water Flow Switch: Vane type switch for mounting horizontal or vertical, with two contacts.
- E. Air Compressor: Shall be single unit type/electric motor driven with air maintenance device, 1/3 H.P. 120/1/60 minimum.
- F. Fire Department Connections:
 - 1. Type: Flush mounted wall type with chrome plated finish or free standing type with ductile iron pedestal red enamel finish.
 - 2. Outlets: Two-way with thread size to suit fire department hardware; threaded dust cap and chain of matching material and finish.
 - 3. Drain: 3/4 inch min. automatic drip.
 - 4. Label: "Sprinkler - Fire Department Connection"

2.4 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Controls: Supervisory switches, Water Level Supervisory Switches, Tank Temperature Supervisory Switches, Room Temperature Supervisory Switches.
- B. Disconnect Switch: Factory mount in control panel on equipment.



PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install buried shut-off valves in valve box furnish post indicator as required.
- B. Install and/or indicate location of approved double check valve assembly at sprinkler system water source connection and fire department connection.
- C. Install outside alarm-gong on building wall.
- D. Place pipe runs to minimize obstruction to other work.
- E. Install piping in concealed spaces above finished ceilings.
- F. Locate sprinklers in coordination with architectural reflected ceiling plan.
- G. Install and connect to existing fire pump system as required.
- H. Install guards on sprinklers.
- I. Hydrostatically test entire system.
- J. Under the direction of L.A.F.D. Inspector of Record and LAWA

3.2 INTERFACE WITH OTHER PRODUCTS

- A. Verify signal devices are installed and connected to fire alarm system.

3.3 LABELLING AND SIGNS

- A. Provide as required per NFPA.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

- A. Apply masking tape or paper cover to protect sprinklers not receiving field paint. Remove after painting. Replace painted sprinklers with new.

3.5 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Prepare test and inspection reports.
- C. Pre-Action System will be considered defective if it does not pass tests and inspections.



3.6 CLEANING

- A. Flush entire piping system of foreign matter.
- B. Remove and replace sprinklers with paint other than factory finish.

3.7 TRAINING

- A. Engage a factory-authorized service representative to train LAWA Maintenance personnel to adjust, operate, and maintain Pre-Action System.
- B. Provide minimum of 12 hours (3 shifts total) of classroom and hands- on training to LAWA Maintenance personnel.

END OF SECTION 21 13 16