

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes wet-pipe sprinkler system, system design, installation, and certification.
- B. Related Sections:
 - 1. Division 26 - Equipment Wiring Connections: Execution requirements for electric connections to equipment specified by this section.

1.02 REFERENCES

- A. National Fire Protection Association:
 - 1. NFPA 13 - Installation of Sprinkler Systems.
 - 2. Factory Mutual Global.

1.03 SYSTEM DESCRIPTION

- A. System to provide coverage for entire building areas noted in Schedule.
- B. Provide hydraulically designed system to NFPA 13 light hazard and ordinary hazard, Group 1 occupancy requirements.
- C. Interface system building fire and smoke alarm system.
- D. Provide fire department connections as indicated on Drawings.

1.04 SUBMITTALS

- A. Division 01 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate layout of finished ceiling areas indicating sprinkler locations coordinated with ceiling installation. Indicate detailed pipe layout, hangers and supports, sprinklers, components and accessories. Indicate system controls. Submit hydrant flow test, hydraulic calculations and shop drawings. Signed and sealed by professional engineer licensed in the State of New Jersey.
- 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. Samples: Submit two (2) of each style of sprinkler specified.

- E. Design Data: Submit design calculations; signed and sealed by professional engineer licensed in the State of New Jersey.
- F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.05 CLOSEOUT SUBMITTALS

- A. Division 01 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of sprinklers and deviations of piping from drawings. Indicate drain and test locations.
- C. 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.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with NFPA 13 and the State of New Jersey, IBC-NJ.
- B. Maintain one (1) copy of each document on site.

1.07 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.
- C. Design system under direct supervision of Professional Engineer experienced in design of this Work and licensed in the State of New Jersey.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Division 01 - Product Requirements: Product storage and handling requirements.
- B. Store products in shipping containers until installation.
- C. Furnish piping with temporary inlet and outlet caps until installation.

1.09 WARRANTY

- A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish five-year manufacturer warranty.

1.10 EXTRA MATERIALS

- A. Division 01 - Execution and Closeout Requirements: Spare parts and maintenance products.
- B. Furnish extra sprinklers under provisions of NFPA 13.
- C. Furnish suitable wrenches for each sprinkler type.
- D. Furnish metal storage cabinet.

PART 2 - PRODUCTS

2.01 AUTOMATIC SPRINKLERS

- A. Manufacturers: Subject to requirements of the specification, provide the following manufacturer's products by one of the following or approved equal:
 - 1. Victualic
 - 2. Automatic Sprinkler Corp.
 - 3. Reliable Automatic Sprinkler Corp.
 - 4. TYCO.
 - 5. Substitutions: Division 01 - Product Requirements.
- B. Suspended and Gypsum Board Ceiling Type:
 - 1. Type: Concealed pendant type with matching push on cover plate.
 - 2. Finish: Enamel, color white.
 - 3. Escutcheon Plate Finish: Enamel, color white.
 - 4. Fusible Link: Glass bulb type temperature rated for specific area hazard.
- C. Exposed Area Type:
 - 1. Type: Standard upright type with guard.
 - 2. Finish: Brass.
 - 3. Fusible Link: Glass bulb type temperature rated for specific area hazard.
- D. Sidewall Type:
 - 1. Type: Semi-recessed horizontal side wall type with matching push on escutcheon plate and guard.
 - 2. Finish: Enamel, color white.

3. Escutcheon Plate Finish: Enamel, color white.
 4. Fusible Link: Glass bulb type temperature rated for specific area hazard.
 5. Extended coverage type where noted.
- E. Dry Sidewall Type:
1. Type: Horizontal dry sidewall sprinkler, quick response
 2. Finish: Enamel, color white.
 3. Escutcheon Plate Finish: Enamel, color white.
 4. Fusible link: Glass bulb type temperature rated for specific area hazard.
- F. Wood Ceiling:
1. Type: Recessed pendent quick response, glass bulb type sprinklers, chrome plated with chrome plated escutcheon.
 2. Finish: Chrome plated.
 3. Fusible link: Glass bulb type temperature rated for specific area hazard.
- G. Guards: Finish to match sprinkler finish.

2.02 PIPING SPECIALTIES

- A. Alarm Check 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.
1. Grooved or flanged ends.
 2. 175 psig WWP.
- B. Electric Alarm: Electrically operated red enameled gong with pressure alarm switch.
- C. Waterflow 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. Fire Department Connections:
1. Type: Flush-mounted wall type with chrome plated finish.
 2. 2-1/2 inches x 2-1/2 inches x 4 inches [65 mm x 65 mm x 100 mm]
 3. Outlets: Two-way with fire department thread size. Threaded dust-cap and chain of matching material and finish.
 4. Drain: 3/4 inch (19 mm) automatic drip pipe to outside or connected to drain via indirect drain.

5. Valve Supervisory Switch: Locate on each valve as designated on the drawings. Switches shall be mounted so not to interfere with the normal operation of the valve and shall be adjusted to operate within two revolutions of the valve control or when the stem has moved no more than one-fifth of the distance from its normal position. The switch mechanism shall be contained in a weatherproof die-cast aluminum housing which shall provide 3/4" tapped conduit entrance and incorporate the necessary facilities for attachment to the valve. Switch housings shall be finished in red baked enamel. The switch mechanism shall have a minimum rated capacity of 7 amp, 125 volt, 0.25 amp, 24 volt D.C. The entire assembly shall be tamper proof and arranged to cause a switch operation if the housing cover is removed or if the unit is removed from its mounting. Provide Potter Model OSYSY-2 supervisory switch with two (2) sets of S.P.D.T. contacts.

PART 3 - EXECUTION

3.01 GENERAL

- A. Information included in this specification and of various agency requirements are given as a guide only. The contract documents do not relieve Contractor's responsibility to provide all work and equipment necessary to complete the installation in accordance with all requirements.

3.02 INSTALLATION

- A. Install in accordance with NFPA 13.
- B. No pipes or other apparatus shall be installed so as to interfere in any way with the full swing of the doors. The arrangement, positions and connections of pipes, drains, valves, etc., shown on the drawings, shall be taken as a close approximation and while they shall be followed as closely as possible, the right is reserved by the architect to change the locations to accommodate any conditions which may arise during the progress of the work without additional compensation to this contractor for such changes, provided that the changes are requested to the installation of this work.
- C. All piping shall drain back to the risers or be provided with drain valves. Special precautions must be taken to avoid electrical work and ventilation ducts and no piping shall pass below lighting fixtures in luminous ceilings or under skylights.
- D. All piping shall be unexposed except in no-ceiling areas. Where required, heads shall be located below ducts. Diffusers and lighting fixtures take preference in room layout.
- E. In areas with restricted head room, heads and piping shall be tight to ceilings and provided with guards.
- F. No heads shall be nearer than 6 inches to a ceiling support, and where 12" x 12", 24" x 24" or 24" x 48" ceiling panels are used, the heads shall be located in the center of the panel.
- G. Install sprinkler heads in all areas on a true axis line in both directions with a maximum deviation from the axis of 1/2" plus or minus. In acoustical tile ceilings, sprinkler heads shall be located on center of tile. At the completion of the installation, remove and reinstall any heads found to exceed the above mentioned tolerances.

- H. Install guards on sprinklers as indicated on Drawings or as verified in field as requiring a guard.
- I. Hydrostatically test entire system in accordance with NFPA 13.
- J. Require test be witnessed by Fire Authority having jurisdiction.

3.03 SPRINKLER COVERAGE

- A. For determination of sprinkler systems, spacing and sizing, the following coverage ratings as listed in NFPA 13 and as listed by the insurance company for this project shall be followed. Also, comply with local authorities' requirements.
- B. Provide sprinklers where shown on the drawings.
- C. Hydraulically Calculated System: The system shall be hydraulically designed to provide a density based on NFPA requirements and the requirements of the insurance company and the local authorities.

Area	Hazard Classification	Density GPM/Sq.Ft.	Area of Application
General Public Areas	Light	0.10	1500
Storage rooms, Laboratories, Mechanical spaces, Loading dock	Ordinary	0.16	1500

- D. Light Hazard Coverage: 225 square feet per sprinkler head
- E. Ordinary Hazard Coverage: 130 square feet per sprinkler head.
- F. Floor Openings: A curtain of sprinkler heads on 6'-0" centers shall be provided to encircle the floor opening at the draft curtain to conform to NFPA 13, 4-4.8.2.3 and A4-4.8.2.3.

3.04 DRAINS AND TEST PIPES

- A. Provide drains at base of riser, valved sections inside building, and other locations indicated or requiring same for complete drainage of systems. Siamese drains shall be equipped with automatic ball drips. Other drains shall be valves and/or plugs as indicated and/or required. Pipe drains to location as required.
- B. Test pipes shall be valved and piped to discharge through proper orifice at approved locations.
- C. Install buried shut-off valves in valve box.
- D. Approved double check valve back-flow preventer assembly installed at sprinkler system water source connection by the Plumbing Contractor.

- E. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent Siamese connectors to allow full swing of fire department wrench handle. Install pipe bollards to protect from possible damage.
- F. Locate outside alarm-gong on building wall at seismic location.
- G. Place pipe runs to minimize obstruction to other work.
- H. Install piping in concealed spaces above finished ceilings.
- I. Hydrostatically test entire system in accordance with NFPA 13.
- J. Require test be witnessed by Authority having jurisdiction and Owner's insurance underwriter.

3.05 INTERFACE WITH OTHER PRODUCTS

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

3.06 CLEANING

- A. Division 01 - Execution and Closeout Requirements: Final cleaning.
- B. Flush entire piping system of foreign matter.

3.07 PROTECTION OF INSTALLED CONSTRUCTION

- A. Division 01 - Execution and Closeout Requirements: Protecting installed construction.
- B. Apply masking tape or paper cover to protect concealed sprinklers, cover plates, and sprinkler escutcheons not receiving field paint finish. Remove after painting. Replace painted sprinklers with new.

END OF SECTION