

SECTION 21 13 13 - WET-PIPE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. The work covered by this Section of the specifications includes the furnishing of labor, materials, equipment, transportation, permits, inspections and incidentals and the performing of operations required to design, install and test a pressurized, fully supervised, wet or dry pipe fire protection system for full building protection in accordance with NFPA, IBC, and the Owner's insurance underwriter. Areas subject to freezing including the Parking Garage and other unheated areas on the first floor shall have a dry pipe system. Other areas subject to freezing (if any) shall have dry pendent or sidewall heads, or glycol-and-water loop per NFPA. Provide a 4" standpipe in each stairwell with a 2½" valve and hose connection at each floor per the Portland Fire Department requirements. Coordinate the exact locations with the Architect and Portland Fire Department.
- B. The sprinkler systems design shall be based on NFPA13 requirements.

1.2 RELATED DOCUMENTS

- A. The drawings and the specifications including SECTION 23 05 00 "Common Work Results for HVAC" are hereby made a part of the work of this section.

1.3 QUALIFICATIONS

- A. The Fire Protection Work shall be performed by a qualified Contractor primarily engaged in the design and installation of Fire Protection Systems. The fire protection system design shall be performed under the direction of, and sealed by, a professional engineer registered in the State of New Hampshire or NICET III certification.
- B. Welding qualifications of individuals installing welded piping shall be certified by the National Certified Welding Bureau for the type(s) of weld(s) proposed for use in piping assembly.

1.4 SUBMITTALS

- A. Items for which the submittal requirements of section 23 05 00 Common Work Results for HVAC, apply are as Follows:
 - 1. Hydrant flow test.
 - 2. System components.
 - 3. Hydraulic calculations.
 - 4. Piping layout, details and control diagram.
 - 5. Flushing and testing records.
 - 6. Certificate of installation.
 - 7. Copy of Fire Protection Contractors License.
 - 8. Welding certificates of individual welding technicians.
 - 9. Sprinkler heads.
 - 10. Alarm valve(s).

11. Fire department connection(s).
12. Firestopping materials and methods.

Submit hydrant flow test, equipment descriptive data, hydraulic calculations and system layout for review by the Owner's Insurance Underwriter. Submit the system layout to the Architect for review. The Architect's review will be limited to checking for conformance with the design concept of the project and general compliance with the contract documents and will in no way assume liability for review for compliance with codes, standards and laws.

1.5 SPRINKLER COVERAGE

- A. Sprinkler head coverage shall conform with NFPA requirements for the use of the building. Coverage shall be increased accordingly where required by the Authority having jurisdiction.
- B. If the requirements of the inspection agency or the Owner's insuring agent are more rigorous than those stated herein, then the more rigorous requirements shall govern.
- C. Provide above ceiling sprinkler protection where required to protect combustibles (wood structure).

PART 2 - PRODUCTS

2.1 SYSTEM COMPONENTS AND HARDWARE

- A. Pipe, Fittings, Joints, Hangers, Valves, Fire Department Connections, Alarms: Conform to NFPA-13, Installation of Sprinkler Systems.
- B. Sprinkler Heads:
 1. Interior Heated Spaces: Conform to NFPA-13, commercial quick response type. Provide semi-recessed type with white finish for acoustical tile ceilings. Sprinkler heads in GWB ceilings, Corridors, Lobbies, and other public areas shall be "concealed" type. Dry pendent or sidewall heads, where required, may be standard response type.
 2. Provide a spare head cabinet with wrenches, the amount of spare heads for each orifice size, finish, temperature classification, pattern and length furnished in the project shall be in accordance with the following schedule:

<u>Sprinkler Heads on Project</u>	<u>Number of Spare heads of each type.</u>
Less than 300	6
300-999	12
1000 or more	24
 3. Provide head protection guards where required.
 4. Sprinkler heads in unheated areas shall be dry pendent or sidewall type, or served by a glycol and water loop or separate dry-pipe system.

- C. Fire Department Connection: Provide a 4" Storz connection or siamese connection (as verified with the local fire department) at a location coordinated with the local fire department and the Architect.

2.2 WATER SUPPLIES

- A. Connect to the sprinkler water service provided.

2.3 DEVICES

- A. Detection and monitoring devices and associated wiring both within the fire protection system and to the building Fire Alarm System shall be the responsibility of the Sprinkler Contractor.

2.4 BACKFLOW PREVENTER

- A. Provide AMES MODEL 2000.

2.5 PIPING SYSTEM IDENTIFICATION

- A. Piping system and valve identification and color coding shall be in accordance with ANSI.

2.6 SPRINKLER SYSTEM ZONING

- A. The building shall have area zone alarms to connect to the building fire alarm panel as indicated on the drawings (two (2) total zones). Buildings A and B shall be separate sprinkler system zones. Each zone alarm shall consist of a flow switch, isolation valve with tamper switch and other components per NFPA. See Architectural Drawings for additional information. Coordinate with the Portland Fire Department.

2.7 ELEVATOR SHAFTS AND MACHINE ROOM

- A. Sprinkler elevator shafts and elevator machine room per NFPA and the Maine State Elevator Code.

2.8 CEILING CAVITIES

- A. Ceiling cavities above all suspended acoustical tile ceilings in corridor areas and certain other areas contain bundled electrical cables and individual wires and shall be sprinklered. Coordinate sprinkler requirements with the Electrical Drawings

PART 3 - EXECUTION

3.1 PIPING LAYOUT AND DESIGN

- A. System requirements, installation requirements, design, plans, and calculations: Conform to NFPA-13, Installation of Sprinkler Systems.
- B. Sprinkler piping shall be run concealed above ceilings in occupied areas. Piping in other areas may be run exposed. Piping shall not be exposed in occupied spaces unless indicated on the drawings.

- C. Pipe penetrations through walls and floors shall be in accordance with Section 23 05 00 – Common Work Results for HVAC. Traverse points of piping shall be escutcheoned with split chrome floor and ceiling plates and spring anchors, where visible to occupancy. Penetrations through walls shall be sleeved in accordance with Section 23 05 00. Sleeves shall be provided by the Fire Protection Contractor.
- D. Coordinate design and layout with building structure and building systems. The work shown in the contract documents has precedence for space requirements. Work of other trades may be modified or moved only with permission of the trade involved. Costs associated with modifications or relocations shall be the same as for "Substitutions" Section 23 05 00.
- E. Architect shall review proposed system layout and reserve the right to relocate heads, substitute head system and in general review final layout for components visible in occupied spaces.

3.2 SYSTEM ACCEPTANCE

- A. Approval, flushing, hydrostatic testing, instructions, and certificates of installation: Conform to NFPA-13, Installation of Sprinkler Systems.
- B. Disinfect the water piping in accordance with AWWA C601. Fill the piping systems with solution containing a minimum of 50 parts per million of available chlorine and allow solution to stand for minimum of 24 hours. Repeat disinfection if chlorine residual is less than 10 parts per million after 24 hours. Flush the solution from the systems with clean water until maximum residual chlorine contents is not greater than 0.2 parts per million.
- C. Closing in Work:
 - 1. General: Cover up or enclose work after it has been properly and completely reviewed.
 - 2. No additional cost to the Owner will be allowed for uncovering and recovering, work that is covered or enclosed prior to required review and acceptance.
- D. Cleanup and Corrosion Prevention:
 - 1. Upon completion of the work thoroughly clean and flush piping systems to the sewer with water.
 - 2. Piping and equipment shall be thoroughly cleaned. Dirt, dust, and debris shall be removed and the premises left in a clean and neat condition.
 - 3. Before uncovered piping is permitted to be concealed, corrosion and rust shall be wire brushed and cleaned and in the case of iron products, a coat of approved protective paint applied to these surfaces. When corrosion is from the effects of hot solder paste, the areas shall be cleaned and polished and a wash of bicarbonate of soda and water used to neutralize the acid condition.
- E. Instructions: On completion of the project, provide a technician familiar with the system to thoroughly instruct the Owner's representative in the care and operation of the system. The total period of instruction shall not exceed four (4) hours. The time of instruction shall be arranged with the Owner.

- F. Warranty: For a period of one (1) year after completion of the installation repair or replace any defective materials or workmanship. Upon completion of the installation, the system shall be turned over to the Owner fully inspected and tested, and in operational condition.

3.3 FIRESTOPPING

- A. Firestopping shall be performed in accordance with Specification Section 07 84 00 "Firestopping". All penetrations of fire-rated assemblies including walls and floors by mechanical system components (piping, ductwork, conduits, etc.) shall be firestopped as specified.

* END OF SECTION *