

SECTION 15500FIRE PROTECTIONPART 1 - GENERAL1.1 GENERAL PROVISIONS

A. PART A and DIVISION 1 of PART B are hereby made a part of this SECTION.

1.2 WORK TO BE PERFORMED

A. Work included:

1. Design, fabricate and install a complete fire protection automatic wet pipe sprinkler system in the Hyypochlorite Building, as shown on the DRAWINGS and in accordance with the standards set forth in this SECTION of these specifications. System shall be designed for light hazard coverage. DRAWINGS of system shall be reviewed by and acceptable to Fire Rating Bureau having jurisdiction.
2. Work begins where shown on DRAWINGS.
3. Portable fire extinguishers shall be provided by the OWNER.

1.3 RELATED WORK

A. Electric alarm wiring and electric alarm bell: DIVISION 16, ELECTRICAL.

1.4 QUALITY ASSURANCE

A. Qualifications of installers:

1. The entire fire protection automatic sprinkler system shall be fabricated, installed and tested by a Contractor well qualified to install sprinkler systems. He shall submit evidence of his qualifications to Engineer upon request.

B. Codes and Standards:

1. In addition to complying with all pertinent codes and regulations, comply with:
 - a. All pertinent requirements of National Board of Fire Underwriters.
 - b. All pertinent requirements of the Fire Rating Bureau and Fire Marshal having jurisdiction.

1.5 SHOP DRAWINGS

A. Shop drawings:

1. Before any fire sprinkler system materials are delivered to the job site, submit complete shop drawings for review and no exceptions taken by the Engineer in accordance with the requirements of the GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS of these specifications.
2. Prior to submittal for Engineer's review, secure the approval and stamp of review of the Fire Rating Bureau having jurisdiction.

3. Shop Drawings shall include:
 - a. Layout drawing of the complete overhead sprinkler system indicating relationship of all other overhead items including ducts, ceiling air diffusers, lighting fixtures, beams, piping and all other items.
 - b. All items and data required to be shown by the Fire Rating Bureau having jurisdiction.
 - c. Complete details and sections as required to clearly define and clarify the design, including a materials list with catalog cuts describing all proposed materials by manufacturer's name and catalog number.
 - d. Submit complete installation drawings, hydraulic design calculations and details in accordance with NFPA 13 stamped by a Professional Engineer registered in the State of Maine. Installation drawings shall be drawn at a minimum scale of 1/8-in = 1-ft.
- B. As-built Drawings:
 1. During progress of the Work, maintain an accurate record of all changes made in the fire sprinkler system installation from the layout and materials shown on the approved Shop Drawings.
- C. Manual:
 1. Upon completion of this portion of the Work, and as a condition of its acceptance, deliver to the Engineer for the Owner two copies of a Manual describing the system. Prepare manuals in durable plastic binders approximately 8-1/2 by 11 inches in size with at least the following:
 - a. Identification on or readable through, the front cover stating general nature of the manual.
 - b. Neatly typewritten index near the front of the manual, furnishing immediate information as to location in the manual of all emergency data regarding the installation.
 - c. Complete instructions regarding operation and maintenance of all equipment involved.
 - d. Complete nomenclature of all replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
 - e. Copy of all guarantees and warranties issued.
 - f. Copy of the As-built Drawings.
 - g. Where contents of manuals include manufacturers' catalog pages, clearly indicate the precise items included in this installation and delete, or otherwise clearly indicate, all manufacturers' data with which this installation is not concerned.

1.6 PRODUCT HANDLING

- A. Protection:
 1. Use all means necessary to protect fire sprinkler system materials before, during and after installation and to protect the installed work of all other trades.
- B. Replacements:
 1. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

1.7 GUARANTEE

- A. This Contractor shall guarantee all materials and workmanship furnished by him or his subcontractors to be free from all defects for a period of one (1) year from date of final acceptance of completed system and shall make good, repair or replace any defective work which may develop within that time at his own expense and without expense to the Owner.

PART 2 - PRODUCTS

2.1 DESIGN

- A. General:
1. The design shall be complete in all regards and shall include, but not necessarily be limited to:
 - a. Connection to main water service entrance, including all required valves, fittings, and other items.
 - b. Overhead sprinkler system for those areas where indicated on the DRAWINGS.
 2. All piping in areas having ceilings shall be concealed.
 3. Sprinkler work shall be laid out to adequately cover the areas of the building in accordance with the requirements of all authorities having jurisdiction over its installation and to afford adequate clearance with the work of the other Contractors. Piping shall generally be run parallel to walls and girders. Before installing any piping, Sprinkler Contractor shall consult with the Contractors for the other trades to avoid interfering with their work and he shall be responsible for any expense involved due to negligence in not so doing.

2.2 MATERIALS

- A. The quality of materials required for this installation shall be that required by the agencies having jurisdiction.
1. Sprinkler heads:
 - a. All sprinkler heads in areas with finished ceilings shall be chrome plated pendant spray type with chrome plated escutcheons; heads in areas of exposed piping may be bronze pendant or upright. Temperature ratings of the heads installed shall be proper for the particular area involved.
 - b. In addition to the heads actually required, Contractor shall furnish extra sprinkler heads of each finish, including six heads of each type and temperature rating used and two suitable wrenches contained in a metal cabinet. The cabinet shall be installed in sprinkler service room.
 2. Alarm valve:
 - a. Approved dry pipe valve complete with all trim and air compressor shall be installed where indicated on the drawing.
 - b. Approved O. S. & Y gate valve shall be installed on street side of the alarm valve.
 - c. Water motor gong shall be installed in location reviewed by the Engineer.

3. Water flow alarm devices:
 - a. All conduit, wiring and connections for the alarm systems including providing and installing the electric alarm bell shall be by Electrical Contractor, but the Fire Protection Subbidders shall provide and install gate valve, flow switches and alarm valve complete with trim to receive A.D.T. or similar type system.
 - b. Alarm equipment shall be of the same manufacturer as the building alarm system.
4. Pipe:
 - a. All pipe inside the building shall be black steel pipe. Steel pipe shall conform to the latest Standard Specification for Welded Seamless Steel Pipe of the ASTM A-135 and A-795.
5. Valves:
 - a. All valves shall be the product of an approved manufacturer and shall be designed for pressures suitable for the duties to be imposed upon them in the system. They must be in accordance with the requirements of authorities having jurisdiction over the work.
6. Fittings:
 - a. All fittings shall be the products of an approved manufacturer standard weight ASA B-16.4 and shall be designed for pressure suitable for the duties to be imposed upon them in the system. They shall be sprinkler pattern of gray cast iron.
 - b. Screwed fittings shall have clean cut tapered threads.
 - c. All fittings on mains and risers shall be flanged, long turn pattern.
7. Pipe hangers:
 - a. All horizontal piping shall be supported at intervals of not more than 10 feet, 0 inches by adjustable clevis type hangers from toggle bolts with rod couplings in the concrete ceilings. Where pipe sizes require, spacing shall be such as to prevent sag in the lines.
 - b. All vertical piping shall be securely anchored and provided with alignment guides where necessary.
 - c. Pipe hangers and supports shall be of the type approved and listed in NFPA 13.
 - d. Pipe shall not be supported from piping of other trades.
 - e. Provide seismic restraint on all piping in accordance with NFPA 13.
8. Sleeves and escutcheons:
 - a. Contractor shall set sleeves for all piping penetrating walls and floors. Sleeves through masonry shall be steel pipe sleeves two sizes larger than the pipe. Piping passing through walls other than masonry shall be provided with #24 gauge galvanized steel tubes with wired or hemmed edges.
 - b. Sleeves set in concrete floors shall finish flush with the underside but extend a minimum of 1 inch above the finish floor. Weld clips to sleeves for support in concrete precast planks of a size which will be covered by concrete topping. Sleeves set in partitions shall finish flush with each side.
 - c. Where piping passes through finish walls, floors, ceilings and partitions, provide and set two piece nickel plated steel floor and ceiling plates.

- d. Space between sleeves and pipes shall be packed with oakum and ends sealed with sealant in accordance with specification section 15092. Provide fire rated sealant in fire rated walls.

2.3 EXPANSION AND CONTRACTION

- A. Long runs of pipe shall be provided with suitable means to permit free movement resulting from expansion and contraction of the pipe.

2.4 INSPECTORS TEST AND DRAIN

- A. Provide and install an Inspectors Test connection as required by NFPA 13. Also provide the necessary main drains and auxiliary drains at all low points in the system.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Inspection:
 1. Prior to commencement of each stage of the fire sprinkler system installation, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 2. Verify that fire sprinkler system may be installed in complete accordance with all pertinent codes and regulations and the approved Shop Drawings.
- B. Discrepancies:
 1. In the event of discrepancy, immediately notify the Engineer.
 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been completely resolved.

3.2 CUTTING AND PATCHING

- A. All cutting and patching incidental to the installation of the apparatus and the work shall be executed by the General Contractor under the direction of this Contractor, who shall furnish the General Contractor with all locations and details as required. Failure on his part to furnish the proper locations or details shall make this Contractor responsible for this work.

3.3 INSTALLATION

- A. Install the complete fire sprinkler system in strict accordance with all pertinent codes and regulations and the requirements of the Fire Rating Bureau having jurisdiction.

3.4 TESTING

- A. Upon completion of the fire sprinkler system installation, furnish all personnel and equipment required and test and retest the complete system, making all adjustments necessary to secure the approval of the Fire Rating Bureau and Fire Marshal having jurisdiction.

3.5 ACCEPTANCE

- A. After the fire sprinkler system has been completely approved, secure a letter of final acceptance from the Fire Rating Bureau having jurisdiction and deliver three copies of the letter to the Engineer.

END OF SECTION