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ARCHITECTURE
SECTION 15300 FIRE PROTECTION

PART 1 -SYSTEM DESCRIPTION / OUTLINE SPECIFICATIONS

1.00 PROJECT OVERVIEW

A. This project includes the construction of an approximately 66,800 square foot new 5–story office building addition with Lower Level / Basement located at 300 Fore Street in Portland, Maine.

B. The Work of this section shall include applicable criteria as listed in Section 15050 – "General MEP / FP Criteria as well as Division 1 as if bound herein.

C. Related Documents:

1. Section 01100 – "SUMMARY AND GENERAL REQUIREMENTS
2. Section 15050 – "GENERAL MEP / FP CRITERIA"
3. Provisions established within the Drawings and within General Conditions of the Contract, including General and Supplementary Conditions and Division 1 - General Requirements are collectively applicable to this Section as if rewritten and bound herein.
4. All Contractors, Subcontractors, Suppliers, etc. shall be governed by all applicable Sections of these Documents with reference to their respective areas of work including coordination of their work with other trades.

a. Each Contractor, Subcontractor, Supplier, etc. shall review **all Sections of the Specifications and all Drawings** and shall be responsible for all work pertaining to their trade regardless of Drawing or Section of Specifications within which it is written.

b. Construction details of the building are illustrated on Architectural and Structural Drawings. This Contractor shall thoroughly acquaint himself with the details before submitting his bid or proceeding with engineering as no allowance will be made because of unfamiliarity with these details. Any discrepancies in the architectural construction documents shall be submitted to the Owner in writing in the form of a "Clarification Request" (CR) or a "Request for Information" (RFI) for review and response prior to the subcontractor submitting a proposal for the work or proceeding with the work.

c. This Trade Contractor shall place all inserts to accommodate the ultimate installation of the work of this trade. Set sleeves in place in forms before concrete is placed, and in masonry walls while they are under construction.

D. The work under this Section shall include the furnishings of all materials, labor, equipment and supplies and the performance of all operations to provide complete working Fire Protection systems, properly tested, and ready for operation. The work includes all necessary minor details and accessories required to make the work complete, even though such items may not be expressly shown or specified in the contract documents.

In general, the work includes, but is not limited toS the following items:

1. Hydrant flow test
2. Belowground fire service to 10'-0" outside the exterior building wall
3. Pipe sleeves

4. Backflow preventer (double check valve assembly)
5. Wet pipe alarm check valve
6. Fire Department inlet connection
7. Check valve with ball drip
8. Electric alarm bell
9. Provide all valves, drains, gauges, plus related accessories required for a complete installation of each system specified and indicated.
10. Manual standpipe system
11. Combined sprinkler / standpipe system
12. Drain / test riser
13. Wet pipe sprinkler system
14. Supervisory (tamper) switches
15. Water flow switches
16. Zone control valves
17. Isolation valves
18. Check valves
19. Pressure gauges
20. Inspector's test connection
21. Sprinkler drain
22. Piping
23. Hangers, inserts and anchors
24. Sprinkler heads
25. Fire Department hose valves (2½" with 1½" reducer)
26. Expansion joints
27. Fire Department outlet connection
28. Access panels
29. Supplementary steel for piping and equipment supports
30. Seismic restraints
31. Valve tags, charts and pipe identification
32. Shop drawings and hydraulic calculations in accordance with NFPA 13
33. Fire Protection coordination drawings in tight areas
34. Record drawings
35. Testing of systems in accordance with NFPA
36. Operating and maintenance manuals

37. Cleaning and rubbish removal for trade related items
38. Provide supervision and coordination information to other trades involved.
39. Guarantee

1.01 DEMOLITION

A. Demolition shall include the relocation of the existing sprinkler service for the existing building.

1. Do not interrupt utilities serving used areas without obtaining permission from the Owner.

1.02 SEQUENCING OF WORK

A. Relocation of the sprinkler service to the existing building shall be completed prior to the construction of the new building.

1.03 DESIGN CRITERIA

A. Local and state building codes and health department codes:

1. Building Code
2. Fire Safety Code
3. State Elevator Code

B. Refer to Section 01000 for a more complete listing of Applicable Codes.

C. Refer to Section 01100 article 10 for Design/Build trade Engineering and insurance requirements

C. Design Standards

1. National Fire Protection Association NFPA standards 13 and 14 as adopted by the state building codes.
2. Site water piping: NFPA-24.

D. Standpipe System:

1. Combined Standpipes -Design Flow: 500 gpm at first and 250 gpm from each additional standpipe to a maximum of 1000 gpm building to be 100% sprinkled

1.04 WATER SUPPLY

A. Water service for the existing building and new building shall be fed from Fore Street with a new connection to the municipal service main. Provide a new 6” service main into the lower level sprinkler room. There will be one main 6” double check valve assembly to alarm check valves. Furnish OS&Y gate valves, outside fire department inlet connection, main drain connection and electric bell.

B. Water supply flow tests available at this time indicate the following:

.	Service:	Municipal
.	Static Pressure:	psi 99

.	Residual Pressure:	psi 51
.	Flow:	gpm 1198
.	Source:	Water Department
.	Location:	Corner of Fore St. & Custom House St.
.	Approx. distance from Sprinkler Room:	100 ft

1.05 BUILDING FIRE SERVICE

A. The main sprinkler service header shall service a wet alarm valve.

1. The wet alarm valves serve the automatic sprinkler and standpipe systems for the common, office, and storage areas of the building. In addition, the lower level is designed on wet pipe systems.

B. Sprinkler floor service provided by combined riser-standpipes systems. Provide shutoff valves at the base of standpipe equipment. Each sprinkler service routed from floor zone stations with a water flow alarm, isolation valve, check valve, and an inspector's test for zone control. Each standpipe shall have 2-½" fire department valves at each floor level.

C. Sprinkler mains shall be located in main lower level heated corridors and thus feed the combined system at the egress stair enclosures where floor feeder zone stations are set.

D. Top of the riser: provide pressure gauges, two 2-½" fire department connections with chain and cap for high rise buildings, provide one 4" roof manifold with a 4" control valve in the highest stair.

E. The above fire protection proposal is based on basic building code and NFPA requirements.
Any additional demands made by Insurance Underwriters will be considered an addition to the base contract.

1.06 OCCUPANCIES AND HAZARD CLASSIFICATIONS

A. Common and general space

1. Sprinklers: Shell Space, administration, office, conference rooms, lobbies, meeting rooms, toilet cores, and common areas
   a. Classification: Light Hazard
      1) Design Pressure: To meet end head requirements
      2) Design Density: 0.1 gpm per square foot
      3) Area of Operation: 1500 square feet
      4) Hose allowance: 100 gpm
      5) Head spacing: 120 square feet per head normal up to 225 sf
      6) Heads: concealed in drop ceiling areas and upright in exposed ceiling areas.

2. Sprinklers: Mechanical Spaces and small storage rooms:
   a. Classification: Ordinary Hazard
      1) Design Pressure: To meet end head requirements
      2) Design Density: .20 gpm per square foot
      3) Area of Operation: 1500 square feet [Dry System Area 1950

square feet]

4) Hose allowance: 250 gpm
5) Head spacing: 130 square feet per head maximum
6) Heads: upright brass, 212°F with head guards in exposed ceiling areas and concealed in drop ceiling areas.

1.07 SPRINKLER HEAD SCHEDULE

Sprinkler Head Summary				
Area	**Finish**	**Type**	**Link**	**Orientation**
Office, corridors, toilets, etc.	Chrome	Quick Response	Glass Bulb	Concealed
Mechanical Room	Brass	Quick Response	Fusible Link with head guards	Upright
Storage	Brass	Quick Response	Fusible Link with head guards	Pendent Or Upright
Conference Rooms and Building Lobby	White	Quick Response	Listed	Concealed

A. Concealed heads are to be used when located in drywall soffits or suspended ceiling systems, otherwise open office areas will use white upright or pendent heads as allowed by code.

1.08 AREAS WHERE SPRINKLER PROTECTION MAY BE OMITTED AS ALLOWED BY APPLICABLE CODES AND STANDARDS

A. Properly rated noncombustible mechanical shafts.

B. Noncombustible elevator hoistways.

C. Properly rated main electrical switch-gear room[s].

D. Transformer vaults not contained within a building.

1.09 SEISMIC RESTRAINTS

A. Fire Protection piping and equipment shall be braced, anchored or supported to withstand seismic displacements in accordance with the Building Code.

B. Supports, hangers and bracing for required piping and equipment shall be designed by a professional engineer. Submittals shall include shop drawings calculations and cut sheets for all seismic restraints.

END OF SECTION