

ARCHITECTURE

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SECTION 15400

PLUMBING

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.
- C. 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 Plumbing 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, to include the following items:
1. Piping – General
 2. Roof Drainage, Waste and Vent Piping
 3. Indirect Waste Piping

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4. Hot and Cold Water Piping
5. Hot Water Recirculation Piping
6. Gas Piping
7. Sump Pump Discharge Piping
8. Unions and Flanges
9. Pipe Joint Materials
10. Water Hammer Arrestors
11. Gauges and Thermometers
12. Hangers, Inserts and Supports
13. Seismic Restraints
14. Sleeves, Firestopping
15. Valves
16. Hose Bibbs in locked wall boxes – tamper proof.
17. Wall Hydrants
18. Plumbing Fixtures and Trim
19. Backflow Preventers
20. Drains – Floor, Roof, and Area as required, whether shown or not shown.
Floor drains shall be self-priming.
21. Traps
22. Cleanouts
Floor Cleanouts carpet marker type, Wall cleanouts chrome.
23. Electric Water Heaters
24. Thermostatic Mixing Valves
25. Pumps
26. Domestic Water Service Meter
27. Insulation
28. Watertight Sleeves
29. Access Panels
30. Cleaning and Testing
Chlorination treatment as required by local jurisdiction.
31. Operating and Maintenance Manuals
32. Ejector Pumps (where required)
33. Shop Drawings
34. Coordination Drawings
35. Record (As-Built) Drawings

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36. Air gap drain connections for sprinkler system testing valves, etc.

1.01 DEMOLITION

- A. Demolition shall include the relocation of the domestic water service in the existing building.

1.02 SEQUENCING OF WORK

- A. The project will be constructed in phases. The new building cannot be constructed until the existing domestic water service and existing 10" storm piping are relocated from under the foundation of the new building.
- B. Relocation, Removal, and/or reconstruction of existing area drain to be used for future hookup of roof storm drainage.
- C. Removal and Relocation of toilets in the existing building.

1.03 CODE DESIGN CRITERIA

- A. Local and state building codes and health department codes:
1. Building Code
 2. Plumbing Code: Maine State Internal Plumbing Code
 3. Cross Connection Control
 4. 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.

1.04 DOMESTIC WATER SERVICE

- A. A new 4" inch domestic water service beginning at a point 10' - 0" outside the foundation wall will be brought into the new and existing building. The service will be fed from an 8" inch main located in Fore Street. Connection to the main will be by site Utilities. The service will enter the water room, be metered and distributed throughout the building. A reduced pressure backflow preventer will be provided on the incoming service as required by the Maine State Internal Plumbing Code. Coordinate water service with Fire Protection systems.
- B. The domestic water service below ground shall be cement lined ductile iron Class 52 with mechanical joints and retainer glands.

1.05 HOT AND COLD WATER DISTRIBUTION

- A. Provide a complete domestic water distribution system including supply to fixtures, hose bibbs, wall hydrants, trap primers and HVAC make-up.
- C. All domestic water piping shall be insulated.

1.06 SANITARY WASTE AND VENT

- A. A complete sanitary waste and vent system serving all plumbing fixtures, kitchen equipment, and floor drains will be provided. A 6" inch sanitary sewer will exit the building by gravity and will extend to a point 10' - 0" outside the foundation wall in the area shown on the Civil Drawings.. Continuation of the sanitary sewer will be by site utilities.

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- B. Pipe and fittings below ground shall be service weight cast iron hub and spigot pipe with resilient gaskets. Pipe and fittings aboveground shall be cast iron hubless pipe with stainless steel couplings, service weight cast iron hub and spigot with resilient gaskets or DWV copper pipe with soldered joints.
- C. An approved reduced pressure backflow preventer shall be provided on the make-up water supply to the HVAC equipment. The backflow preventer shall be installed with shut-off valves and strainer.
- D. All plumbing at the Lower Level / Basement including, but not limited to, toilets, sinks, showers, floor drains, etc. shall be collected into a sanitary lift station with dual pumps to be located outside the area of the structural basement slab [between column lines B & C]. All work will be part of this Design / Build work and coordinated with the structural foundations of the building.

1.07 ROOF DRAINAGE

- A. The roof will be drained by means of roof drains and internal rainwater leaders. The leaders will collect below the First Floor slab and discharge by gravity to a point 10' - 0" outside the foundation wall or tie into existing storm drain system. Continuation of the roof drainage will be by site utilities.
- B. Pipe and fittings below ground shall be service weight hub and spigot pipe with resilient gaskets. Pipe and fittings above ground shall be cast iron hubless pipe with stainless steel couplings or service weight hub and spigot pipe with resilient gaskets.
- D. Horizontal piping from roof drains to vertical risers shall be insulated.

1.08 UNDERSLAB/FOUNDATION DRAINAGE

- A. Furnish and install underslab/foundation drains as noted on the structural plans. Provide cleanouts, and backwater valves as necessary. Pipe shall be PVC perforated pipe, ASTM-2729 with bell and spigot joints. Provide nonwoven filter fabric as a drainage medium.
- B. Underslab/foundation drain system shall be collected into a lift station for discharge into the street storm drain.

1.09 NATURAL GAS

- A. Natural gas will be provided for heating. Gas will be low pressure, will be fed from an existing distribution system and will be brought to the building by the Gas Company.
- B. Natural gas piping up to 2 ½ inches shall be Schedule 40 black steel with malleable iron threaded fittings. Piping 3 inches and larger shall be Schedule 40 black steel with welded joints.
- C. For pipe sizes 2 inches and smaller, valves shall be a ball valve with screwed end, T-Handle. For pipe sizes 2 ½ inches and larger, valve shall be iron body lubricated plug valve with flanged ends.

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1.10 FIXTURES

- A. Plumbing fixtures, including water closets, urinals, and lavatories shall be of the highest quality vitreous china, white in color and shall be manufactured by American Standard, Kohler or Toto.
- B. Other Plumbing Fixtures such as shower stalls, janitor sinks, etc. shall be fiberglass construction with gelcoat finish.
- C. Kitchenette and Kitchen sinks shall be Stainless Steel minimum gauge manufactured by Elkay or equal.
- D. Water coolers shall be stainless manually operated two level wheelchair access equal to Elkay model EROM28C.
- E. Flushometers shall be low consumption, chrome plated diaphragm type manufactured by Sloan, Toto or Zurn.
- F. Faucets shall be manual metering/mixing type with temperature limit and time stop adjustment. Faucets shall be manufactured by Symmons, Chicago, Zurn or approved equal.
- G. Refer to Alternates in Section 1 for infrared flush valves and faucets.

1.11 DOMESTIC HOT WATER

- A. Domestic hot water will be generated by a tank type electric water heater located in each level. The hot water storage tank shall be constructed of a heavy gauge steel jacket with foam insulation and a glass lining.
- B. Provide drain pan under water heaters connected to drain.

1.12 INSULATION

- A. Insulation will be provided on all hot and cold water piping, tempered water, horizontal roof drainage, roof drain bodies and all piping at handicapped accessible fixtures.
- B. Insulation shall be four pound density fiberglass with factory applied white fire retardant, reinforced vapor barrier jacket. Insulation shall be 1 inch thick and continuous through sleeves.
- C. Pipe fittings and valves shall be provided with pre-molded PVC covers with fiberglass inserts.

1.13 SEISMIC RESTRAINTS

- A. Plumbing 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