

SECTION 15400

PLUMBING

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Comply with the following:
 - 1. ANSI Standard A 171.2 for Handicapped Fixtures.
 - 2. UL and NEMA for Electrical Equipment.
 - 3. P.D.I. - Plumbing Fixtures, etc.

1.2 LOCAL PLUMBING CODES - including inspection by authorities

- A. General Requirements: System shall be complete and ready for operation. No piping shall be backfilled, covered or concealed until it has been inspected, tested and approved.
- B. Fixtures and fittings of same type shall be product of one manufacturer when possible.

PART 2 - PRODUCTS

2.1 CLEANOUTS AND CLEANOUT ACCESS COVERS

- A. Provide caulked or threaded type cleanout intended to finished floor or wall surface. Provide bolted cover plate cleanouts on vertical rainwater leaders only, Ensure ample clearance at cleanout for rotting of drainage system.
- B. Floor cleanout access covers in unfinished areas round with nickel bronze scored frames and plates. Provide access covers in finished areas with depressed center section to accommodate floor finish. Wall cleanouts to have chrome plated caps.
- C. Water hammer arrestors: Fit water supply to one fixture with air chamber. Provide air chambers same size as supply line or 3/4 inch minimum, and minimum 18 inch long.
- D. Install stainless steel bellows type water hammer arrestors on water lines connected to solenoid valves, flush valves and to group fixtures complete with accessible isolation valve. Arrestors shall be in accordance with P.D.I. Standard WH 201.

2.2 WATER HEATERS: Electric size and type as drawn, factory tested UL labeled. Furnish with glass-lined tank, double coated for high, temperature, tank designed for 150 PSI working pressure complying with NSF Standard No. 5. Insulate tank to comply with ASHRAE 90-75 standard and cover with baked enamel jacket. Furnish with operating thermostat and ASME rated pressure-temperature relief valve.

2.3 DRAINS: Floor drains - Lacquered cast iron body with double drainage flange, weep holes, combined two piece body, reversible clamping device and adjustable nickel-bronze strainer. Shower and washroom floor drains with removable perforated sediment bucket. Open sight drains with polished bronze funnel type strainer and floor strainer.

2.4 FLASHING Four pound per square foot lead.

2.5 PLUMBING FIXTURES

- A. Furnish and set according to the manufacturer's directions as drawn on plans. All fixtures shall be of first quality and any fixture or fixtures which are marred or broken before the time of acceptance of the completed contract shall be replaced with new fixture or fixtures. Carefully protect all fixtures with heavy paper wrappings. Fixtures shall be carefully and thoroughly cleaned after all painting and cleaning down of the building has been done. All fixtures shall be manufactured by Crane, American Standard, Bradley, Halsey Taylor, Eljer, Kohler, Elkay, Just, Speakman, Moen, Price Pfister or Chicago Faucet. Flush valves by Sloan or Delany.
- B. All exposed metal trim shall be brass with bright surface chromium plated finish. All fixtures with submerged water supply shall be equipped with vacuum breaker or anti-siphon device.

PART 3 -EXECUTION

3.1 PIPE INSTALLATION

- A. Joints in hubless piping shall be made using connectors consisting of neoprene sleeve, corrugated stainless steel shield and stainless steel clamps. Piping shall be inserted into sleeve until seated, slide shield over sleeve, covering it completely and clamps tightened with torque wrench.
- B. Hang all cast iron piping at every-hub for pipe lengths and every other hub for fitting groups. Support vertical runs with flat steel bar clasp hangers at each floor.
- C. Hang all under slab piping to floor slab. Support at each hub with 3/8" stainless steel rods bent over floor slab, reinforcing.
- D. Provide dielectric couplings between dissimilar materials.

3.2 SERVICE CONNECTIONS: Before commencing work, check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover. Connect to water service and sewer as drawn and required. Make all arrangements with utility.

3.3 CONNECTING EQUIPMENT: Rough in for, and connect, equipment furnished by other sections. Furnish all fittings, valves, etc. required. Rough in from approved shop drawings.

3.4 SANITARY SYSTEM

- A. Connections from soil and waste stack lines shall be run to the nearest existing lines as drawn and required.
- B. All horizontal soil and waste pipes shall be graded not less than 1/8" per foot. See plans for grading other than specified above.
- C. Changes in direction in the sanitary system shall be made by the appropriate use of 45 degree Y's, long or short sweep quarter bends, sixth, eighth, or sixteenth bends, or by a combination of these or equivalent fittings. Single or double sanitary tees and short quarter bends may be used only where the flow is from the horizontal to the vertical.
- D. All fixtures not specified to be provided with traps as integral parts of their assembly shall have separate traps with cleanouts.
- E. Waste and vent lines shall be provided for all fixtures and drains, as scheduled on the drawings.
- F. Horizontal vents shall be free from sags and be graded to drip back into the waste or vent stack. Where vent pipes connect to a horizontal soil or waste, trap separately, each fixture and piece of equipment requiring connection to drainage, unless otherwise specified or shown on drawings. Place traps as near to the fixture as possible. No fixture shall be double trapped. Traps installed on hub and spigot pipe: extra heavy cast iron. Traps installed on threaded pipe: recessed drainage pattern.
- G. Cold and hot water system: connect all fixtures and appliances to services as drawn and/or required. Locate shut-off valves or steps on all equipment, or fixtures, inlets, in branches to a group of fixtures, in branches to wings or floors where shown, and at the top or bottom of risers where shown. Valve shall be accessible.
- H. Water hammer arrestors: install permanently sealed P.D.I. rated water hammer arrestors on all hot and cold water headers to plumbing fixtures. Install as per manufacturer's recommendations.
- I. Air chambers may be installed on a single fixture (not in a battery) furnished with manually controlled compression type faucets.

3.5 FLASHING: Flash all pipe passing through the roof with 4 pounds per square foot lead which shall extend 12 inches beyond the pipe in all directions. Counter flashings of the same materials shall lap the flashing a minimum of 3 inches and be carried to top of pipe with a least a 1-inch return inside the pipe.

3.6 BACKING: Proper backing shall be provided for each plumbing fixture not specified to have a chair carrier.

3.7 FIXTURES

- A. Provide all fixtures with traps, set true and plumb and securely fastened in place. Fit all supply pipes to fixtures with stop valves. All exposed metal parts, trimmings, piping, fittings, valves, etc., shall be chromium-plated brass. Heavy pattern cast iron floor flanges or threaded nipples with suitable gaskets to make joints gas and

- watertight shall be used on all china fixtures. Floor flanges shall be caulked into position. Clean and protect all fixtures and equipment.
- B. Install wall mounted lavatories, urinals, etc., with approved wall carriers to suit installation.
 - C. Mount fixtures the following heights above finished floor, unless instructed otherwise by Architect.
 - D. Water Closet: Standard - 15 inches to top of rim.
Handicapped - 17 inches to top of seat.
 - E. Urinal: Standard - 21 inches to top of bowl rim.
Handicapped - 19 inches to top of bowl rim.
 - F. Lavatory: Standard - 31 inches to top of basin rim.
Handicapped - 34 inches to top of basin rim - insulate exposed hot water supply and drains.

END OF SECTION