

SECTION 15400

PLUMBING FIXTURES AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The extent of plumbing fixtures and equipment work is indicated on the drawings and by the requirements of this section.
- B. The types of fixtures and equipment required for the project include but are not limited to the following:
 - 1. Floor Drains
 - 2. Cleanouts for Pipes
 - 3. Hot Water Generators (Storage type) (EWH).
 - 4. Water closet, European
 - 5. Lavatories

1.02 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of plumbing fixtures and equipment of the types, styles and configurations required, whose products have been in satisfactory use in similar service for not less than 5 years.

1.03 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's data for the plumbing fixtures and equipment including rough-in drawings, templates, instructions and directions for installation of water and drain piping.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver fixtures individually wrapped in factory-fabricated fibreboard type containers or wooden crates.
- B. Handle fixtures carefully to prevent breakage, chipping, denting, and scoring items; replace and return damaged units to equipment manufacturer.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Except as otherwise indicated, provides manufacturer's standard materials and components as indicated by published product information and as required for a complete installation. All exposed pipes, fittings and accessories shall be chrome plated. Plumbing fixtures design, style and shape shall be subject to approval by the Engineer.

2.02 PLUMBING FIXTURES AND EQUIPMENT

A. Floor Drains:

- 1. Floor Drain: Shall be made of UPVC material. Shall have one vertical outlet of 50 mm diameter. Strainer shall be made of chrome plated cast brass or plastic material.

- B. Cleanout: Cleanouts on concealed piping shall be extended through and terminate flush with finished wall or floor pits or chaps may be left in the wall or floor, provided they are of sufficient size to permit removal of the cleanout plug and proper cleaning of the system. Where it is necessary to conceal a cleanout plug a chrome plated brass cover plate or plastic plate or stainless steel as required for each building shall be provided which will permit ready access to the plug. Cleanouts shall be of the same nominal size as the pipes up to 100 mm diameter and not less than 100 mm for larger piping.

D. Electric Water Heater:

- 1. Hot water heaters shall be horizontal type installed above false ceiling shown on drawings. Heaters shall be fitted with immersion heater to give the maximum output kW. Vessel shall be constructed of thick steel pressure tested at 12 bars. Vessel shall be glass-lined with titanium or magnesium anode protection. Entire vessel and electrical controls shall be engaged in a rectangular or cylindrical sheet metal enclosure with baked enamel finish. Tank shall be insulated with minimum 25 mm injected polyurethane (0% CFC). Enclosure shall have hinged locking doors over electric controls. Heating elements shall be complete with prewired terminal leads, control with circuits, master pilot switch, etc. A thermostatic control of contacts shall be provided to balance the water heating input to the actual demand. (Five-year warranty shall be provided). A safety valve shall be provided at cold water inlet. Electric Heating Coil capacity and storage capacity as shown on drawings.
- 2. Quality Assurance:
 - a. Manufacturers: Firms regularly engaged in the manufacturer of water heaters of the types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
 - b. Comply with National Electrical Code (NFPA 70) or equivalent as applicable to installation and connection of electric water heaters.

- c. Provide water heaters and safety relief valves complying with ASME Code or equivalent and stamped with appropriate code symbols.
- 3. Product Delivery, Storage and Handling:
 - a. Handle water heaters carefully to prevent external and internal component damage, breakage, denting and scoring enclosure finish. Do not install damaged water heaters; either replace damaged components or return water heater to factory for replacement.
 - b. Store water heaters in a clean dry place. Protect water heaters from weather, dirt, fumes, water construction debris and physical damage.
- 4. Installation:
 - a. Install water heaters where shown, in accordance with equipment manufacturer's written instruction, and with recognized industry practices, to ensure that water heaters comply with requirements and serve intended purposes. Comply with requirements of local codes and applicable NFPA and ASME Boiler and Pressure Vessel Codes and Standards.
 - b. Coordinate with other work (plumbing, piping) as necessary to interface installation of water heaters with other components of system.
- E. Water Closets:
 - 1. European Water Closet: Water closet shall be wall mounted type, made of heavy duty vitreous china. It shall be provided with built-in "P" trap, plastic seat, brass holding bolts, washers, nuts, china caps. The unit shall come with the following trim and accessories.

Concealed flushing cistern 4.5-9 lit., interruptible flush cycle made of sound-insulating EPS module for masonry-in, removable front plate for inspection, WC fixing bolts, PE outlet bend DN 80, reducing piece Ø80/100mm, 15mm chrome plated angle valve.
Unit shall be insulated against condensation.
- F. Lavatories:
 - 2. European Lavatory: Lavatory shall be made of heavy duty white colored

vitreous china. It shall have an oval shape for fixing into countertop, size to suit dimensions shown on drawings. with self-closing basin mixer with mixing device similar to GROHE CONTROMIX P

It shall come with the following trim and accessories:

Fixation set kit.

15 mm chrome plated mixer with mousseur.

15 mm chrome plated angle valves with blue and red indices.

32 mm chrome plated P-trap.

32 mm chrome plated pop-up waste set.

PART 3 - EXECUTION

3.01 INSPECTION

- A. The Contractor shall examine the installation of domestic water and soil piping stubs and terminations to verify actual locations, and shall examine areas and conditions under which plumbing fixtures shall be installed. Water or drain pipes (connected with the fixtures) found to be wrongly installed, shall be corrected before installing fixtures.

3.02 INSTALLATION

- A. General: Install plumbing fixtures and equipment in accordance with manufacturer's written instructions and in accordance with the applicable regulation and recognized industry practices to insure that products serve the intended function.
- B. Coordinate with other work, including water and drain piping as necessary to interface installation of plumbing fixtures, properly with other work.

3.03 SUPPORTS

- A. All fixtures and equipment shall be mounted level, sure, rigid and flush with wall or floor as required.
- B. Drill holes carefully to avoid chipping block or tile.
- C. All supports shall be concealed unless noted otherwise.
- D. Furnish and set all hangers, supports, brackets, etc., for proper installation of all fixtures and equipment. Supports shall be in accordance with recommendations of fixture manufacturer, and if built into partitions or walls, shall be set as wall construction progresses. Contractor shall be responsible for stability of all fixtures and furnishing all chair carriers or other materials necessary to

accomplish this. Exact mounting height shall be as approved by the Engineer.

- E. If not factory primed or coated, prime all concealed supports with one coat of rust-resistant primer.

3.04 FIXTURES

- A. Locate, place, level and secure all plumbing fixtures and trim specified in this Section and make all connections to drainage system, hot water supply system, and cold water supply system.
- B. Make adequately sized connections to all supply lines and drains and make all required reductions and increases in pipe or tubing size as required to make connections to faucets, P-traps, and piping systems.
- C. Water supplies to all fixtures shall be valved at fixture.
- D. All fixtures shall be left thoroughly clean and free from all marks and foreign substances.
- E. Place and install basins and seal around edges with suitable silicone sealant.
- F. Contractor shall replace all leaky faucets and valves prior to final inspection.
- G. Adjust all flush valves for quiet operation, minimum pressure required to cleanse bowls, and period of flush.
- H. All faucets shall have visible indices. All trim shall be permanently stamped with manufacturer's identification clearly visible after installation.
- I. Caulk around all fixtures and adjacent surfaces with a white silicone sealant, fungicidal type.

**** END OF SECTION ****