

SECTION 15410
PLUMBING FIXTURES

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.
- B. Requirements of Section 15050, "Basic Mechanical Methods and Materials," apply to work specified in this section.

1.02 SUMMARY

- A. This Section specifies plumbing fixtures and trim, fittings, and accessories, appliances, appurtenances, equipment, and supports associated with plumbing fixtures.
- B. Products installed but not furnished under this Section include:
 - 1. Plumbing fixtures and fittings installed into manufactured casework.
- C. Products furnished but not installed under this Section include:
 - 1. Plumbing fittings (including faucets) and piping indicated, for fixtures, appliances, appurtenances, and equipment provided by Owner.
 - 2. Plumbing fittings (including faucets) and piping indicated, for fixtures, appliances, appurtenances, and equipment specified in other sections.
- D. Related Work Specified in Other Sections:
 - 1. Plumbing fixtures in Fume Hoods: Section 11610, "Laboratory Fume Hoods."
 - 2. Plumbing fixtures in manufactured casework tops: Section 12337, "Metal Laboratory Casework."
 - 3. Valves used as supply stops: Section 15110, "Valves."

1.03 DEFINITIONS

- A. Accessible: Describes a plumbing fixture, building, facility, or portion thereof that can be approached, entered, and used by physically handicapped people.
- B. Accessory: Device that adds effectiveness, convenience, or improved appearance to a fixture but is not essential to its operation.
- C. Appliance: Device or machine designed and intended to perform a specific function.
- D. Appurtenance: Device or assembly designed to perform some useful function when attached to or used with a fixture.
- E. Equipment: Device used with plumbing fixtures or plumbing systems to perform a certain function for plumbing fixtures but that is not part of the fixture.

- F. Fitting: Fitting installed on or attached to a fixture to control the flow of water into or out of the fixture.
- G. Fixture: Installed receptor connected to the water distribution system, that receives and makes available potable water and discharges the used liquid or liquid-borne wastes directly or indirectly into the drainage system. The term "Fixture" means the actual receptor, except when used in a general application where terms "Fixture" and "Plumbing Fixture" include associated trim, fittings, accessories, appliances, appurtenances, support, and equipment.
- H. Roughing-In: Installation of piping and support for the fixture prior to the actual installation of the fixture.
- I. Support: Device normally concealed in building construction, for supporting and securing plumbing fixtures to walls and structural members. Supports for urinals, lavatories, and sinks are made in types suitable for fixture construction and the mounting required. Categories of supports are:
 - 1. Carrier: Floor-mounted support for wall-mounted water closet, and support fixed to wall construction for wall-hung fixture.
 - 2. Chair Carrier: Support for wall-hung fixture, having steel pipe uprights that transfer weight to the floor.
 - 3. Chair Carrier, Heavy Duty: Support for wall-hung fixture, having rectangular steel uprights that transfer weight to the floor.
 - 4. Reinforcement: Wood blocking or steel plate built into wall construction, for securing fixture to wall.
- J. Trim: Hardware and miscellaneous parts, specific to a fixture and normally supplied with it required to complete fixture assembly and installation.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's catalogue cuts, specifications and installation instructions for each type of plumbing fixture, trim, fittings, and accessories.
- B. Wiring diagrams for field-installed wiring of electrically operated units.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ANSI Standard A117.1, "Buildings and Facilities -- Providing Accessibility and Usability for Physically Handicapped People," and Public Law 90-480, "Architectural Barriers Act, 1968, with respect to plumbing fixtures for the physically handicapped.
- B. Listing and Labeling: Provide electrically operated fixtures specified in this Section that are listed and labeled.
 - 1. The terms "listed" and "labeled" shall be as defined in the National Electrical Code, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver plumbing fixtures in manufacturer's protective packing, crating, and covering.
- B. Store plumbing fixtures on elevated platforms in a dry location.

1.07 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials described below matching products installed, packaged with protective covering for storage, and identified with labels clearly describing contents.
 - 1. Faucet Washers and O-rings: Furnish quantity of identical units not less than 10 percent of amount of each installed.
 - 2. Faucet Cartridges and O-rings: Furnish quantity of identical units not less than 5 percent of amount of each installed.
 - 3. Flushometer Repair Kits: Furnish quantity of identical units not less than 10 percent of amount of each flushometer installed.
 - 4. Provide a hinged-top wood or metal box, or individual metal boxes, having a separate compartment for each type and size of above extra materials.
 - 5. Toilet Seats: Furnish quantity of identical units not less than 5 percent of amount of each type toilet seat installed.
 - 6. Filter Cartridges: Furnish quantity of identical filter cartridges not less than 50 percent of amount of each type and size installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Water Closets: Subject to compliance with requirements, provide products by the following manufacturer, (proprietary):
 - 1. Crane Plumbing/Fiat Products.
- B. Waterless Urinals: Subject to compliance with requirements, provide products by the following manufacturer, (proprietary):
 - 1. Falcon Waterfree Technologies.
- C. Lavatories: Subject to compliance with requirements, provide products by the following manufacturer, (proprietary):
 - 1. Crane Plumbing/Fiat Products.
- D. Stainless Steel Sinks: Subject to compliance with requirements, provide products by one of the following manufacturers:
 - 1. Elkay Manufacturing Co.
 - 2. Just Manufacturing Co.
 - 3. Advance Tabco.
- F. Mop Basins: Subject to compliance with requirements, provide products by one of the following manufacturers:
 - 1. Crane Plumbing/Fiat Products.

2. Florestone Products Co., Inc.
 3. Stern-Williams Co., Inc.
 4. Swan Corp.
- G.

- G. Water Coolers: Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Elkay Manufacturing Co.
 2. Halsey Taylor; A Household International Co.
 3. Haws Drinking Faucet Co.
- H. Toilet Seats: Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Bemis Mfg. Co.
 2. Beneke Div.; Sanderson Plumbing Products, Inc.
 3. Church Seat Co.
 4. Olsonite Corp.
- I. Flushometers: Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Sloan Valve Co.
 2. Zurn Industries, Inc.; Flush Valve Operations.
- J. Commercial/Industrial Cast-Brass Faucets: Subject to compliance with requirements, provide products by the following manufacturer, (proprietary):
1. Chicago Faucet Co.
- K. Miscellaneous Fittings (Except Faucets): Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Chicago Faucet Co.
 2. McGuire Manufacturing Co., Inc.
 3. T & S Brass and Bronze Works, Inc.
- L. Supports: Subject to compliance with requirements, provide products by one of the following manufacturers:
1. Watts Drainage, (Ancon).
 2. Josam Co.
 3. Smith (Jay R.) Mfg. Co.
 4. Wade Div.; Tyler Pipe.
 5. Zurn Industries, Inc.; Hydromechanics Div.

2.02 PLUMBING FIXTURES, GENERAL

- A. Provide plumbing fixtures and trim, fittings, other components, and supports as specified in "Plumbing Fixture Schedule" on the drawings.

2.03 FAUCETS

- A. Faucets General: Unless otherwise specified, provide faucets that are cast brass with polished chrome-plated finish.

- B. All faucets shall comply with ASME A112.18.1M and furnished complete with washers, locknuts and all required accessories for a complete installation.

2.04 FITTINGS, EXCEPT FAUCETS

- A. Fittings General: Unless otherwise specified, provide fittings fabricated of brass, with a polished chrome plated finish.
- B. Lavatory Supplies and Stops: Loose-key angle stop, having 1/2-inch NPS inlet with wall flange and 3/8-inch by 12-inch flexible tubing riser outlet.
- C. Lavatory Traps: Cast-brass, 1-1/4-inch by 1-1/2-inch NPS adjustable or offset P-trap with cleanout, 17-gage tubular waste to wall, and wall flange.
- D. Sink Supplies and Stops: Loose-key angle stop, having 1/2-inch NPS inlet with wall flange and 1/2-inch by 12-inch flexible tubing riser outlet.
- E. Sink Traps: Cast-brass, 1-1/2-inch NPS adjustable P-trap with cleanout, 17-gage tubular waste to wall, and wall flange.
- F. Sink Continuous Wastes: Polished chrome-plated, tubular brass, 1-1/2 inches, 17 gage, with brass nuts on slip inlets, and of configurations indicated.
- G. Supply and drain plumbing service fittings not listed above shall be as specified and as scheduled.
- H. Fittings installed concealed inside a plumbing fixture or within wall construction may be without chrome plate finish.
- I. Escutcheons: Polished chrome-plated, sheet steel wall flange with friction clips.
- J. Deep Pattern Escutcheons: Wall flange with set screw or sheet steel wall flange with friction clips, of depth adequate to conceal protruding roughing-in fittings.

2.05 FLUSHOMETERS

- A. Provide flushometers compatible with fixtures, with features and of consumption indicated.
- B. Construction: Cast-brass body, brass or copper pipe or tubing inlet with wall flange and tailpiece with spud, screwdriver check stop, vacuum breaker, and brass lever handle actuation except where other variations are specified. Type shall be diaphragm operation except where other type is specified.
- C. Finish: Exposed metal parts shall be polished chrome-plated, except components installed in a concealed location may be rough brass or unfinished.
- D. Water Closet Flushometers, Type 1: Furnish with following features.
 - 1. Non-hold-open feature.
 - 2. Screw Driver angle stop.
 - 3. Actuator handle operating pressure per handicapped Code(5 pounds max.).

4. Seat bumper on stop.
5. Furnish flushometers with factory-set for maximum water consumption of 1.6 gallons per flushing cycle.

2.06 TOILET SEATS

- A. General: Provide toilet seats compatible with water closets, and of type, color, and features indicated.
- B. Toilet Seats, Heavy-duty, commercial/industrial type, elongated, open front, solid plastic, with stainless steel self-sustaining check hinge.

2.09 WATER FILTERS

- A. Water Filters: Cartridge type, with stainless steel or plastic housing and mounting bracket. Cartridges shall be replaceable, 10 inches long, activated carbon, wound fiber, or pleated, 10-micron removal rating, and suitable for potable water.

2.10 PLUMBING FIXTURE SUPPORTS

- A. Supports: ASME A112.6.1M, categories and types as required for wall-hanging fixtures specified, and wall reinforcement.
- B. Support categories are:
 1. Carriers: Supports for wall-hanging water closets and fixtures supported from wall construction. Water closet carriers shall have an additional faceplate and coupling when used for wide pipe spaces. Provide tiling frame or setting gage with carriers for wall-hanging water closets.
 2. Chair Carriers: Supports with steel pipe uprights for wall-hanging fixtures. Urinal chair carriers shall have bearing plates.
 3. Chair Carriers, Heavy Duty: Supports with rectangular steel uprights for wall-hanging fixtures.
 4. Reinforcement: 2-inch by 4-inch wood blocking between studs or 1/4-inch by 6-inch steel plates attached to studs, in wall construction, to secure floor-mounted and special fixtures to wall.
- C. Support Types: Provide support of category specified, of type having features required to match fixture.
- D. Provide supports specified as part of fixture description, in lieu of category and type requirements above.

PART 3 - PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine roughing-in for potable cold water and hot water supplies and soil, waste, and vent piping systems to verify actual locations of piping connections prior to installing fixtures.

- B. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 APPLICATION

- A. Install plumbing fixtures and specified components, in accordance with designations and locations indicated on Drawings.
- B. Install supports for plumbing fixtures in accordance with categories indicated, and of type required:
 - 1. Carriers for following fixtures:
 - a. Wall-hanging water closets.
 - b. Wall-hanging fixtures supported from wall construction.
 - 2. Chair carriers for the following fixtures:
 - a. Wall-hanging urinals.
 - b. Wall-hanging lavatories and sinks.
 - c. Wall-hanging drinking fountains and electric water coolers.
 - 3. Heavy-duty chair carriers for the following fixtures:
 - a. Accessible lavatories.
 - b. Fixtures where specified.
 - 4. Reinforcement for the following fixtures:
 - a. Floor-mounted lavatories required to be secured to wall.
 - b. Floor-mounted sinks required to be secured to wall.
 - c. Recessed, box-mounted electric water coolers.

3.03 INSTALLATION OF PLUMBING FIXTURES

- A. Install plumbing fixtures level and plumb, in accordance with fixture manufacturers' written installation instructions, roughing-in drawings, and referenced standards.
- B. Install wall-hanging, back-outlet water closets with support manufacturer's tiling frame or setting gage.
- C. Install wall-hanging, back-outlet urinals with gasket seals.
- D. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction where no support is indicated.
- E. Fasten floor-mounted fixtures and special fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
- F. Fasten wall-mounted fittings to reinforcement built into walls.
- G. Fasten counter-mounting-type plumbing fixtures to casework.
- H. Secure supplies behind wall or within wall pipe space, providing rigid installation.
- I. Set mop basins in leveling bed of cement grout.

- J. Install stop valve in an accessible location in each water supply to each fixture.
- K. Install trap on fixture outlet except for fixtures having integral trap.
- L. Install escutcheons at each wall, floor, and ceiling penetration in exposed finished locations and within cabinets and millwork. Use deep pattern escutcheons where required to conceal protruding pipe fittings.
- M. Seal fixtures to walls, floors, and counters using a sanitary-type, one-part, mildew-resistant, silicone sealant in accordance with sealing requirements specified in Division 7 Section "Joint Sealers." Match sealant color to fixture color.

3.04 CONNECTIONS

- A. Piping installation requirements are specified in other sections of Division 15. The Drawings indicate general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
 - 1. Install piping connections between plumbing fixtures and piping systems and plumbing equipment specified in other sections of Division 15.
 - 2. Install piping connections indicated between appliances and equipment specified in other sections, direct connected to plumbing piping systems.

3.05 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Test fixtures to demonstrate proper operation upon completion of installation and after units are water pressurized. Replace malfunctioning fixtures and components, then retest. Repeat procedure until all units operate properly.

3.06 ADJUSTING AND CLEANING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Operate and adjust disposers, hot water dispensers, and controls. Replace damaged and malfunctioning units and controls.
- C. Adjust water pressure at drinking fountains, electric water coolers, and faucets, shower valves, and flushometers having controls, to provide proper flow and stream.
- D. Replace washers of leaking and dripping faucets and stops.
- E. Clean fixtures, fittings, and spout and drain strainers with manufacturers' recommended cleaning methods and materials.
- F. Review the data in Operating and Maintenance Manuals. Refer to Division 1 Section "Project Closeout."

3.07 PROTECTION

- A. Provide protective covering for installed fixtures and fittings.
- B. Do not allow use of fixtures for temporary facilities, except when approved in writing by the Owner.

END OF SECTION 15410