

PART 1 - GENERAL REQUIREMENTS

1.01 SUMMARY

- A. This Section includes plumbing fixtures and trim, fittings, and accessories, appliances, appurtenances, equipment, and supports associated with plumbing fixtures.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Joint Sealers," for materials and methods for sealing between plumbing fixtures and interior walls.
 - 2. Division 10 Section "Service Wall Systems" for wall modules with built-in plumbing fixtures.
 - 3. Division 22 Section "General Duty Valves for Plumbing Piping" for valves used as supply stops.
- 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. Products installed but not furnished under this Section include:
 - 1. Owner furnished fixtures, as indicated.
 - 2. Accessories, appliances, appurtenances, and equipment specified in other Sections, requiring plumbing services or fixture-related devices, as indicated.

1.02 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.
- K. Lead Free: Refers to the wetted surface of pipe, fittings and fixtures in potable water systems that have a weighted average lead content $\leq 0.25\%$ per Safe Drinking Water Act as amended January 4th 2011 Section 1417.

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data for each type of plumbing fixture specified, including fixture and trim, fittings, accessories, appliances, appurtenances, equipment, supports, construction details, dimensions of components, and finishes.
 - 2. Wiring diagrams for field-installed wiring of electrically operated units.
 - 3. Maintenance data for inclusion in Operating and Maintenance Manual specified in Division 1 and Division 22 Section "General Plumbing Requirements."

- B. Submit third party certification that faucets and trim for domestic water distribution for drinking or cooking comply with NSF 61 Annex G and / or NSF 372. The following faucets and trim need not comply:
 - 1. Electronic faucets
 - 2. Service sink faucets
 - 3. Flush valves
 - 4. Shower valves and heads

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ICC Standard A117.1, "Accessible and Usable Buildings and Facilities" and "2010 ADA Standards for Accessible Design" with respect to plumbing fixtures for individuals with disabilities.
- B. Regulatory Requirements: Comply with requirements of ATBCB (Architectural and Transportation Barriers Compliance Board) "Uniform Federal Accessibility Standards (UFAS) - 1985-494-187" with respect to plumbing fixtures for the physically handicapped.
- C. 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.
- D. Comply with NSF 61 Annex G and / or NSF 372 for wetted surfaces of faucets and trim containing no more than 0.25% lead by weight for domestic water distribution for drinking or cooking.
- E. Design Concept: The drawings indicate types of plumbing fixtures and are based on the specific descriptions, manufacturers, models, and numbers indicated. Plumbing fixtures having equal performance characteristics by other manufacturers may be considered provided that deviations in dimensions, operation, color or finish, or other characteristics are minor and do not change the design concept or intended performance as judged by the Architect. Burden of proof for equality of plumbing fixtures is on the proposer.

1.05 SPARE PARTS

- A. Deliver spare parts to Owner. Furnish spare parts described below matching products installed, packaged with protective covering for storage, and identified with labels clearly describing contents.

- B. Faucet Washers and O-rings: Furnish quantity of identical units not less than 10 percent of amount of each installed.
- C. Faucet Cartridges and O-rings: Furnish quantity of identical units not less than 5 percent of amount of each installed.
- D. Flushometer Repair Kits: Furnish quantity of identical units not less than 10 percent of amount of each flushometer installed.
- E. Provide individual metal boxes or a hinged-top wood or metal box having separate compartments for each type and size of above extra materials.
- F. Toilet Seats: Furnish quantity of identical units not less than 5 percent of amount of each type toilet seat installed.

PART 2 - PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products in each category, by one of the following listed for that category:
 - 1. Water Closets:
 - a) American Standard, Inc.
 - b) Kohler Co.
 - c) Sloan Valve Co.
 - d) TOTO KIKI USA, Inc.
 - e) Zurn Plumbing Products Group
 - 2. Urinals:
 - a) American Standard, Inc.
 - b) Kohler Co.
 - c) Sloan Valve Co.
 - d) TOTO KIKI USA, Inc.
 - e) Zurn Plumbing Products Group
 - 3. Lavatories:
 - a) American Standard, Inc.
 - b) Kohler Co.
 - c) Sloan Valve Co.
 - d) TOTO KIKI USA, Inc.
 - e) Zurn Plumbing Products Group
 - 4. Sinks:
 - a) Elkay Manufacturing Co.
 - b) Franke
 - c) Just Manufacturing Co.

5. Mop Basins:
 - a) Acorn Engineering Co.
 - b) Fiat Products.
 - c) Stern-Williams Co., Inc.
6. Water Coolers:
 - a) Acorn / Aqua
 - b) Elkay Manufacturing Co.
 - c) Halsey Taylor; A Household International Co.
 - d) Haws Drinking Faucet Co.
7. Outlet Boxes:
 - a) Guy Gray Manufacturing Co., Inc.
 - b) Symmons Industries, Inc.
 - c) Oatey Co.
8. Emergency Equipment:
 - a) Bradley Corp.
 - b) Chicago Faucet Co.
 - c) ENCON Safety Products
 - d) Guardian Equipment.
 - e) Haws Drinking Faucet Co.
 - f) Speakman Co.
 - g) Stingray Systems
 - h) Water Saver Faucet Co.
9. Toilet Seats:
 - a) Bemis Mfg. Co.
 - b) Beneke Div.; Sanderson Plumbing Products, Inc.
 - c) Church Seat Co.
 - d) Kohler Co.
 - e) Olsonite Corp.
 - f) Sperzel Industries, Inc.
10. Flushometers:
 - a) Sloan Valve Co.
 - b) Zurn Industries, Inc.; Flush Valve Operations.
11. Commercial/Industrial Cast-Brass Faucets:
 - a) Chicago Faucet Co.
 - b) Delta-Commercial
 - c) Kohler Co.
 - d) Speakman Co.
 - e) T & S Brass and Bronze Works, Inc.
 - f) Zurn Industries, LTD. "Aqua Spec"
12. Commercial Pressure Balance Bath/Shower Faucets:

- a) Acorn Engineering Co.
 - b) Bradley Corp.
 - c) Lawler Manufacturing Co., Inc.
 - d) Leonard Valve Co.
 - e) Powers Process Controls; A Unit of Mark Controls Corp.
 - f) Speakman Co.
 - g) Symmons Industries, Inc.
13. Sensor-Operated Faucets and Devices:
- a) Sloan Valve Co.
 - b) Speakman Co.
 - c) Toto Kikki, USA
 - d) Zurn Industries, LTD. "Aqua Spec"
14. Stop Valves & Supplies:
- a) Brass Craft Subsidiary; Masco Co.
 - b) Chicago Faucet Co.
 - c) Engineered Brass Company
 - d) Kohler Co.
 - e) Watts Brass and Tubular
 - f) Zurn Industries
15. P-traps, Drains & Miscellaneous Fittings:
- a) Brass Craft Subsidiary; Masco Co.
 - b) Dearborn Brass
 - c) Engineered Brass Company
 - d) Franke
 - e) McGuire Manufacturing Co., Inc.
 - f) PROFLO
 - g) Watts Brass and Tubular
 - h) Zurn Industries
16. Supports:
- a) Josam Co.
 - b) Smith (Jay R.) Mfg. Co.
 - c) Wade Div.; Tyler Pipe.
 - d) Watts Drainage Products
 - e) Zurn Industries, Inc.; Hydromechanics Div.
 - f) Mifab Manufacturing, Inc.
17. Disposers:
- a) General Electric Co.
 - b) Hotpoint; General Electric Co.
 - c) In-Sink-Erator Div.; Emerson Electric Co.
 - d) KitchenAid, Inc.
18. Insulation Kits

- a) Brocar
- b) McGuire
- c) Plumberex
- d) PROFLO
- e) Trap-Wrap
- f) Truebro, Inc.

2.02 PLUMBING FIXTURES, GENERAL

- A. Provide plumbing fixtures and trim, fittings, other components, and supports as specified on the drawings and below:

2.03 FAUCETS

- A. Faucets General: As described on the drawings.

2.04 STOP VALVES & SUPPLIES

- A. Supplies General: As described on the drawings.
 - 1. Exposed piping and parts shall be polished chrome plated.

2.05 P-TRAPS, DRAINS AND MISCELLANEOUS FITTINGS:

- A. Fittings General: As described on the drawings, except as listed below.
 - 1. Exposed piping and fittings shall be polished chrome plated.
 - 2. Fittings installed concealed inside a plumbing fixture or within wall construction may be without chrome plate finish.
 - 3. Fitting and faucet bodies for domestic water distribution shall be of lead free brass or lead free cast bronze.
- B. Sink Continuous Wastes: Polished chrome-plated, tubular brass, 1-1/2 inches, 17 gauge, with brass nuts on slip inlets, and of configurations indicated.
- C. Scullery sink Continuous Wastes: Polished chrome-plated, tubular brass, 2 inches, 17 gauge, with brass nuts on slip inlets, and of configurations indicated.
- D. Escutcheons: Wall flange with set screw.
- E. Escutcheons: Polished chrome-plated, sheet steel wall flange with friction clips.

2.06 FLUSHOMETERS

- A. Provide flushometers compatible with fixtures, with features and of consumption as described on the drawings.
 - 1. Exposed metal parts shall be polished chrome plated.
 - 2. Flush valves installed within wall construction may be without chrome plate finish.

2.07 TOILET SEATS

- A. General: As described on the drawings.

2.08 DISPOSERS

- A. Disposers: As specified on the drawings.

2.09 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 gauge 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.

2.010 INSULATION KITS

- A. Insulation kits for lavatory and sink waste and supplies of vinyl plastic with reusable fasteners and openings for access to supply stop handles.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

- A. Install fixtures, trim and supports in accordance with manufacturer's installation instructions.

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 lavatories
 - c) Wall hanging electric water coolers.
 - d) 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 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 sinks required to be secured to wall.
 - b) Wall mounted and mop sink faucets.
 - c) Urinal flush valve solid pipe ring supports.

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 gauge.
- 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 and 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.
- N. Install insulation kits on ADA compliant sink and lavatory waste, continuous wastes, hot and cold water supplies where indicated on the drawings and as required by the ADA.

3.04 CONNECTIONS

- A. Piping installation requirements are specified in other sections of Division 22. 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 22.
 - 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. Adjust faucet wrist blade handles perpendicular to the spout while in the closed position.
- G. Review the data in Operating and Maintenance Manuals. Refer to Division 1 Section "Project Closeout."
- H. Set each shower valve temperature limit stop to 110°F. Perform work after the shower head is installed and the domestic water heater is in operation. Allow the hot water to run for 5 minutes minimum or until temperature reaches equilibrium. Allow cold to run for 5 minutes minimum or until temperature reaches equilibrium. Provide the architect a report and schedule indicating the hot, cold and mixed maximum water temperature at each shower.

3.07 FIXTURE SCHEDULE

- A. Provide plumbing fixtures as specified on the drawings.
- B. Install rough-in for plumbing fixtures as scheduled on the drawings.

3.08 MOUNTING HEIGHTS SCHEDULE:

- A. Refer to the architectural drawings for plumbing fixture mounting heights. Unless indicated otherwise, install plumbing fixtures with the mounting heights as listed below with final approval by the Architect:

FIXTURE	MOUNTING HEIGHT
Ice Maker Outlet Boxes	24" floor to center of box
Washing Machine Outlet Boxes	42" floor to rim
Janitor's Sink Faucet Fittings	42" floor to centerline
Hose Bibbs	36" AFF to centerline
Non Freeze Wall Hydrant	18" AFG to centerline

END OF SECTION

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