

SECTION 224000 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following conventional plumbing fixtures and related components:

1. Faucets for lavatories and sinks.
2. Flushometers.
3. Toilet seats.
4. Protective shielding guards.
5. Fixture supports.
6. Water closets.
7. Urinals
8. Lavatories.
9. Kitchen sinks.
10. Service sink.

- B. Related Sections include the following:

1. Division 22 Section "Domestic Water Piping Specialties" for backflow preventers, floor drains, and specialty fixtures not included in this Section.
2. Division 22 Section "Drinking Fountains and Water Coolers."

1.3 DEFINITIONS

- A. ABS: Acrylonitrile-butadiene-styrene plastic.
- B. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.
- C. Cast Polymer: Cast-filled-polymer-plastic material. This material includes cultured-marble and solid-surface materials.
- D. Cultured Marble: Cast-filled-polymer-plastic material with surface coating.
- E. Fitting: Device that controls the flow of water into or out of the plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, shower heads and tub spouts, drains and tailpieces, and traps and waste pipes. Piping and general-duty valves are included where indicated.

- F. FRP: Fiberglass-reinforced plastic.
- G. PMMA: Polymethyl methacrylate (acrylic) plastic.
- H. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

- A. Product Data: For each type of plumbing fixture indicated. Include selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.
- B. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.
- C. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.
 - 1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities" "Americans with Disabilities Act" for plumbing fixtures for people with disabilities.
- D. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.
- E. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.
- F. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.
- G. Comply with the following applicable standards and other requirements specified for plumbing fixtures:
 - 1. Vitreous-China Fixtures: ASME A112.19.2M.
- H. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:

1. Faucets: ASME A112.18.1.
2. Hose-Connection Vacuum Breakers: ASSE 1011.
3. Hose-Coupling Threads: ASME B1.20.7.
4. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
5. NSF Potable-Water Materials: NSF 61.
6. Pipe Threads: ASME B1.20.1.
7. Supply Fittings: ASME A112.18.1.
8. Brass Waste Fittings: ASME A112.18.2.

I. Comply with the following applicable standards and other requirements specified for shower faucets:

1. Combination, Pressure-Equalizing and Thermostatic-Control Antiscald Faucets: ASSE 1016.
2. Faucets: ASME A112.18.1.
3. High-Temperature-Limit Controls for Thermal-Shock-Preventing Devices: ASTM F 445.
4. Hose-Coupling Threads: ASME B1.20.7.
5. Manual-Control Antiscald Faucets: ASTM F 444.
6. Pipe Threads: ASME B1.20.1.
7. Pressure-Equalizing-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.

J. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:

1. Atmospheric Vacuum Breakers: ASSE 1001.
2. Brass and Copper Supplies: ASME A112.18.1.
3. Plastic Tubular Fittings: ASTM F 409.
4. Brass Waste Fittings: ASME A112.18.2.

K. Comply with the following applicable standards and other requirements specified for miscellaneous components:

1. Flexible Water Connectors: ASME A112.18.6.
2. Floor Drains: ASME A112.6.3.
3. Hose-Coupling Threads: ASME B1.20.7.
4. Off-Floor Fixture Supports: ASME A112.6.1M.
5. Pipe Threads: ASME B1.20.1.
6. Plastic Toilet Seats: ANSI Z124.5.
7. Supply and Drain Protective Shielding Guards: ICC A117.1.

1.6 WARRANTY

- A. Warranty Period for Commercial Applications: One year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets, L-1 & L-2:

1. Basis of Design Product: Subject to compliance with requirements, provide products Sloan EBF-650-BDT.
 - a. Zurn Plumbing Products Group
2. Description: Battery powered electronic sensor operated faucet.
 - a. Body Material: Brass.
 - b. Finish: Polished chrome plate.
 - c. Maximum Flow Rate: 0.5 gpm.
 - d. Mounting: Wall.
 - g. Inlet(s): NPS 3/8 tubing, with NPS 1/2 male adaptor.
 - h. Spout: Rigid type.
 - i. Spout Outlet: Aerator 0.5 gpm.
 - j. Drain: Grid Strainer.

2.2 SINK FAUCETS

A. Sink Faucets, S-1:

1. Basis of Design Product: Subject to compliance with requirements, provide products American Standard 4175.500.
 - a. Kohler
2. Description: Kitchen faucet, four-hole fixture. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
 - a. Body Material: Commercial.
 - b. Finish: Polished chrome plate.
 - c. Mixing Valve: Single-lever handle.
 - d. Mounting: Deck.
 - e. Handle(s): Lever.
 - f. Inlet(s): NPS 3/8 tubing with NPS 1/2 male adapter.
 - g. Spout Type: Swing, shaped tube.
 - h. Vacuum Breaker: Not required.
 - I. Operation: Compression, manual.
 - j. Drain: Grid Lift and turn.

2.3 SINK FAUCETS

A Sink Faucets, JS-1:

1. Basis of Design Product: Subject to compliance with requirements, provide products T&S Brass B-0699.
 - a. American Standard Companies, Inc.
 - b. Zurn Plumbing Products Group; Commercial Brass Operation.
2. Description: Service sink facet with stops in shanks, vacuum breaker, hose-thread outlet, and pail hook. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
 - a. Body Material: Solid Brass.
 - b. Finish: Rough Brass.
 - c. Maximum Flow Rate: 2.5 gpm, unless otherwise indicated.
 - d. Mixing Valve: Two-lever handle.
 - e. Backflow Protection Device for Hose Outlet: Required.
 - f. Backflow Protection Device for Side Spray: Not required.
 - g. Centers: 8 inches Adjustable.
 - h. Mounting: Back/wall, concealed.
 - i. Handle(s): Knob.
 - j. Spout Type: Rigid, solid brass with wall brace.
 - k. Spout Outlet: Hose thread.
 - l. Vacuum Breaker: Required.
 - m. Operation: Compression, manual.
 - n. Drain: Grid.

2.4 FLUSHOMETERS

A. Flushometers, WC-1 & WC-2:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Sloan SOLIS 8113-1.28 or a comparable product by one of the following:
 - a. Zurn Plumbing Products Group.
2. Description: Flushometer for water-closet-type fixture. Include brass body with corrosion-resistant internal components, battery powered, sensor operated control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.
 - a. Internal Design: Diaphragm operation.
 - b. Style: Concealed.
 - c. Inlet Size: NPS 1.
 - d. Trip Mechanism: Sensor operated.
 - e. Consumption: 1.28 gal./flush.
 - f. Tailpiece Size: NPS 1-1/4 length to top of bowl.

B. Flushometers, UR-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Sloan Solis 8186-0.125 or a comparable product by one of the following:
 - a. Zurn Plumbing Products Group.
2. Description: Flushometer for urinal type fixture. Include brass body with corrosion-resistant internal components, hard wired, sensor operated, control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.
 - a. Internal Design: Diaphragm operation.
 - b. Style: Concealed.
 - c. Inlet Size: NPS 3/4.
 - d. Trip Mechanism: Sensor operated.
 - e. Consumption: 0.125 gal./flush.

2.5 TOILET SEATS

A. Toilet Seats, WC-1 & WC-2:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bemis Manufacturing Company.
 - b. Centoco Manufacturing Corp.
 - c. Olsonite Corp.
 - d. Sperzel.
2. Description: Toilet seat for water-closet-type fixture.
 - a. Material: Molded, solid plastic with antimicrobial agent.
 - b. Configuration: Open front without cover.
 - c. Size: Elongated.
 - d. Hinge Type: SS, self-sustaining.
 - e. Class: Standard commercial.
 - f. Color: White.

2.6 PROTECTIVE SHIELDING GUARDS

A. Protective Shielding Pipe Covers, L-2:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Plumberex Specialty Products Inc.
 - b. TCI Products.
 - c. TRUEBRO, Inc.
3. Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

2.7 FIXTURE SUPPORTS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Josam Company.
 2. Smith, Jay R. Mfg. Co.
 3. Zurn Plumbing Products Group; Specification Drainage Operation.
- B. Water- Closet Supports, WC-1 & WC-2:
 1. Description: Combination carrier designed for accessible and standard mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.
- D. Lavatory Supports, L-2:
 1. Description: Type II, lavatory carrier with concealed arms and tie rod wall-mounting, lavatory-type fixture. Include steel uprights with feet.
 2. Accessible-Fixture Support: Include rectangular steel uprights.
- E. Urinal Supports, UR-1:
 1. Description: Type I, urinal carrier with fixture support plates and coupling with seal and fixture bolts and hardware matching fixture for wall-mounting, urinal-type fixture. Include steel uprights with feet.
 2. Accessible-Fixture Support Include rectangular steel uprights.

2.8 WATER CLOSETS

- A. Water Closets, WC-1:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide product American Standard 3353:
 - a. Kohler Co.

2. Description: Wall-mounting, back-outlet, vitreous-china fixture designed for flushometer valve operation.
 - a. Style: One piece.
 - a. Bowl Type: Elongated with siphon-jet design. Include bolt caps matching fixture.
 - b. Height: Standard
 - c. Design Consumption: 1.28 gal./flush.
 - d. Color: White.

B. Water Closets, WC-2:

1. Basis-of-Design Product: Subject to compliance with requirements, provide product American Standard 3353:
 - a. American Standard
 - b. Kohler Co.
2. Description: Accessible wall-mounting, back-outlet, vitreous-china fixture designed for flushometer valve operation.
 - a. Style: One piece.
 - a. Bowl Type: Elongated with siphon-jet design. Include bolt caps matching fixture.
 - b. Height: Accessible
 - c. Design Consumption: 1.28 gal./flush.
 - d. Color: White.

2.9 URINALS

A. Urinals, UR-1:

1. Basis of Design Product: Subject to compliance with requirements, provide products American Standard 6515-001:
 - a. Kohler Co.
2. Description: Accessible wall and wall-mounting, back-outlet, vitreous-china fixture designed for flushometer valve operation. Provide with selectronic battery powered flush valve.
 - a. Type: Washout with extended shields.
 - b. Strainer or Trapway: Open trapway with integral trap.
 - c. Design Consumption: 0.125 gal./flush.
 - d. Color: White.
 - e. Supply Spud Size NPS 3/4.
 - f. Outlet Size NPS 1-1/2
 - g. Fixture Support: Urinal carrier

- h. Install urinal at ADA requirements.

2.10 LAVATORIES

A. Lavatories, L-1:

1. Basis of Design Product: Subject to compliance with requirements, provide products American Standard 0476.028:
 - a. Kohler Co.
2. Description: Self-rimming, vitreous-china fixture.
 - a. Type: Countertop.
 - b. Size: 20 by 17 inches oval.
 - c. Faucet Hole Punching: 4-inch centers.
 - d. Faucet Hole Location: Top.
 - e. Color: White.
 - f. Supplies: NPS 3/8 chrome-plated copper with stops.
 - g. Drain: See faucet.
 - h. Drain Piping: NPS 1-1/4 by NPS 1-1/2 chrome-plated, cast-brass P-trap; NPS 1-1/4, 0.032-inch- thick tubular brass waste to wall, wall escutcheon and cleanout.
 - i. Drain Piping: Schedule 40 tubular waste to wall; and wall escutcheon.

B. Lavatories, L-2:

1. Basis of Design Product: Subject to compliance with requirements, provide products American Standard 0355-012:
 - a. Kohler Co.
2. Description: Accessible, wall-mounting, vitreous-china fixture designed for people in wheelchairs.
 - a. Type: Ledge back.
 - b. Size: 20 by 18 inches minimum; rectangular.
 - c. Faucet Hole Punching: 4-inch centers
 - d. Faucet hole location: Top
 - e. Color: White.
 - f. Supplies: NPS 3/8 chrome-plated copper with stops.
 - g. Drain: See faucet
 - h. Drain Piping: NPS 1-1/4 by NPS 1-1/2 chrome-plated, cast-brass P-trap; NPS 1-1/4, 0.032-inch- thick tubular brass waste to wall; and wall escutcheon.
 - i. Drain Piping: Schedule 40 NPS 1-1/4 by NPS 1-1/2 P-trap; NPS 1-1/4 NPS 1-1/2, tubular waste to wall, wall escutcheon and cleanout.
 - j. Fixture Support: Lavatory.

2.11 KITCHEN SINKS

A. Kitchen Sinks, S-1:

1. Basis of Design Product: Subject to compliance with requirements, provide products Elkay LR2521:
 - a. Just.
2. Description: Single-bowl, commercial, counter-mounting, stainless-steel kitchen sink.
 - a. Overall Dimensions: 25 x 21 x 7 5/8 inches minimum
 - b. Metal Thickness: 0.050 inch (1.3 mm).
 - c. Drain: 3-1/2-inch
 - d. Location: Center in bowl.

B. Supplies: NPS 1/2 chrome-plated copper with stops.

C. Drain Piping: NPS 1-1/2 (DN 40) chrome-plated, cast-brass P-trap; 0.045-inch- thick tubular brass waste to wall; continuous waste, wall escutcheon(s) and cleanout.

2.12 SERVICE SINKS

A. Service Sinks, JS-1:

1. Basis of Design Product: Subject to compliance with requirements, provide products American Standard 7745.811:
 - a. Kohler Co.
2. Description: Floor-mounting, enameled, cast-iron fixture with front apron, raised back, and coated, wire rim guard.
 - a. Size: 28 by 28 inches.
 - b. Color: White.
 - c. Drain: Grid with NPS 3 outlet.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing fixture installation.
- B. Examine cabinets, counters, floors, and walls for suitable conditions where fixtures will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

- D. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.
- E. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.
 - 1. Use carrier supports without waste fitting for fixtures with tubular waste piping.
 - 2. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.
- F. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.
- G. Install wall-mounting fixtures with tubular waste piping attached to supports.
- H. Install counter-mounting fixtures in and attached to casework.
- I. Install fixtures level and plumb according to roughing-in drawings.
- J. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
- K. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
- L. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.
- M. Install flushometer valves for accessible water closets with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
- N. Install toilet seats on water closets.
- O. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- P. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
- Q. Install shower flow-control fittings with specified maximum flow rates in shower arms.
- R. Install traps on fixture outlets.
 - 1. Exception: Omit trap on fixtures with integral traps.
 - 2. Exception: Omit trap on indirect wastes, unless otherwise indicated.
- S. Install disposer in outlet of sink indicated to have disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.
- T. Install escutcheons at piping wall ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings. Escutcheons are specified in Division 22 Section "Escutcheons for Plumbing Piping."

- U. Seal joints between fixtures and walls, floors, and countertops using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Sealants are specified in Division 07 Section "Joint Sealants."

3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.

3.3 FIELD QUALITY CONTROL

- A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.
- B. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.
- C. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.

3.4 ADJUSTING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Operate and adjust disposers and controls. Replace damaged and malfunctioning units and controls.
- C. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.
- D. Replace washers and seals of leaking and dripping faucets and stops.

3.5 CLEANING

- A. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:
 - 1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
 - 2. Remove sediment and debris from drains.
- B. After completing installation of exposed, factory-finished fixtures, faucets, and fittings, inspect exposed finishes and repair damaged finishes.

3.6 PROTECTION

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

~~3.7 LEED COMMISSIONING~~

- ~~A. Provide all required labor and materials needed to support the commissioning of plumbing fixtures and the building plumbing systems as directed by the Commissioning Authority. Refer to commissioning requirements in section 019115.~~

END OF SECTION 224000