

## 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, showers and sinks.
  - 2. Flushometers.
  - 3. Toilet seats.
  - 4. Fixture supports.
  - 5. Water closets.
  - 6. Lavatories.

#### 1.3 DEFINITIONS

- A. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.
- B. 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.

#### 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. Shop Drawings: Diagram power, signal, and control wiring.
- C. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.
- D. 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.

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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"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "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. Backflow Protection Devices for Faucets with Hose-Thread Outlet: ASME A112.18.3M.
  2. Faucets: ASME A112.18.1.
  3. Hose-Connection Vacuum Breakers: ASSE 1011.
  4. Hose-Coupling Threads: ASME B1.20.7.
  5. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
  6. NSF Potable-Water Materials: NSF 61.
  7. Pipe Threads: ASME B1.20.1.
  8. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
  9. Supply Fittings: ASME A112.18.1.
  10. Brass Waste Fittings: ASME A112.18.2.
- I. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:
  1. Brass and Copper Supplies: ASME A112.18.1.
  2. Manual-Operation Flushometers: ASSE 1037.
  3. Brass Waste Fittings: ASME A112.18.2.
- J. Comply with the following applicable standards and other requirements specified for miscellaneous components:
  1. Off-Floor Fixture Supports: ASME A112.6.1M.
  2. Pipe Threads: ASME B1.20.1.
  3. Plastic Toilet Seats: ANSI Z124.5.
  4. Supply and Drain Protective Shielding Guards: ICC A117.1.

PART 2 - PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets; LF-1:

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
  - a. American Standard Companies, Inc.
  - b. Chicago Faucets.
  - c. Delta Faucet Company.
  - d. Kohler Co.
  - e. Moen, Inc.
  - f. Sloan
  - g. T & S Brass and Bronze Works, Inc.
  - h. Zurn Plumbing Products Group; Commercial Brass Operation.
2. Description: Sensor operated valve. Coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
  - a. Body Material: Commercial, solid brass.
  - b. Finish: Polished chrome plate and nonmetallic.
  - c. Maximum Flow Rate: 0.5 gpm.
  - d. Centers: 4 inches three whole.
  - e. Mounting: Deck, exposed.
  - f. Inlet(s): NPS 1/2 male shank.
  - g. Spout: Rigid type.
  - h. Spout Outlet: Spray, 0.5 gpm.
  - i. Operation: Sensor.
  - j. Drain: Grid.
  - k. Tempering Device: Thermostatic.

2.2 FLUSHOMETERS

A. Flushometer; FV-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. Sloan Valve Company.
  - b. Zurn Plumbing Products Group; Commercial Brass Operation.
2. Description: Flushometer for water-closet-type fixture. Include brass body with corrosion-resistant internal components, non-hold-open feature, control stop with check valve, vacuum breaker, copper or brass tubing, and polished chrome-plated finish on exposed parts.
  - a. Internal Design: Diaphragm or piston operation.
  - b. Style: Exposed.
  - c. Inlet Size: NPS 1 1/4.
  - d. Trip Mechanism: Dual-flush, oscillating, lever-handle actuator.
  - e. Consumption: 0.8 gal./flush / 1.6 gal./flush
  - f. Tailpiece Size: NPS 1-1/4 and standard length to top of bowl.

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2.3 TOILET SEATS

A. Toilet Seat; TS-1:

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

2.4 FIXTURE SUPPORTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Josam Company.
2. MIFAB Manufacturing Inc.
3. Smith, Jay R. Mfg. Co.
4. Tyler Pipe; Wade Div.
5. Watts Drainage Products Inc.; a div. of Watts Industries, Inc.
6. Zurn Plumbing Products Group; Specification Drainage Operation.

B. Lavatory Supports:

1. Description: Type II, lavatory carrier with concealed arms and tie rod for wall-mounting, lavatory-type fixture. Include steel uprights with feet.
2. Accessible-Fixture Support: Include rectangular steel uprights.

2.5 WATER CLOSETS

A. Water Closets:

1. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:
  - a. American Standard Companies, Inc.
  - b. Crane Plumbing, L.L.C./Fiat Products.
  - c. Eljer.
  - d. Kohler Co.
2. Description Accessible or standard mounting, wall-mounting, back-outlet, vitreous-china fixture designed for flushometer-valve operation.

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- a. Style: Flushometer valve.
  - 1) Bowl Type: Elongated with siphon-jet design. Include bolt caps matching fixture.
  - 2) Height: Standard or Accessible.
  - 3) Design Consumption: 1.6 gal./flush.
  - 4) Color: White.
- b. Flushometer: FV-1
- c. Toilet Seat: TS-1

## 2.6 LAVATORIES

### A. Lavatories:

- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Kohler Co. or a comparable product by one of the following:
  - a. American Standard Companies, Inc.
  - b. Eljer.
- 2. Description: Accessible, wall-mounting, vitreous-china fixture.
  - a. Faucet Hole Punching: Three holes, 2-inch centers.
  - b. Faucet Hole Location: Top.
  - c. Color: White.
  - d. Faucet: LF-1.
  - e. Supplies: NPS 3/8 chrome-plated copper with stops.
  - f. Drain: Grid
  - g. Drain Piping: NPS 1-1/4 by NPS 1-1/2 chrome-plated, cast-brass P-trap; NPS 1-1/2, 0.032-inch- thick tubular brass waste to wall; and wall escutcheon.
  - h. Protective Shielding Guard
  - i. Fixture Support: Lavatory.

## 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.

### 3.2 INSTALLATION

- A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.
- B. 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.
  - C. Install wall-mounting fixtures with tubular waste piping attached to supports.
  - D. Install fixtures level and plumb according to roughing-in drawings.
  - E. 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.
    1. Exception: Use ball valves if supply stops are not specified with fixture. Valves are specified in Division 22 Section "General-Duty Valves for Plumbing Piping."
  - F. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
  - G. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.
  - H. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
  - I. Install toilet seats on water closets.
  - J. 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.
  - K. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.
  - L. 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.
  - M. Install shower flow-control fittings with specified maximum flow rates in shower arms.
  - N. Install traps on fixture outlets.
    1. Exception: Omit trap on fixtures with integral traps.
    2. Exception: Omit trap on indirect wastes, unless otherwise indicated.
  - O. Install disposer in outlet of each sink indicated to have disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.
  - P. 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 "Common Work Results for Plumbing."
  - Q. 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."
- 3.3 CONNECTIONS
- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

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- B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- C. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."
- D. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.4 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.
- D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.
- E. Install fresh batteries in sensor-operated mechanisms.

3.5 ADJUSTING

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

3.6 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.

3.7 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.

END OF SECTION 224000