SECTION 22 40 00 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Faucets for lavatories and sinks.
2. Flush valves.
3. Toilet seats.
4. Protective shielding guards.
5. Fixture supports.
6. Dishwasher air-gap fittings.
7. Water closets.
8. Urinals.
9. Lavatories.
10. Sinks.

1.2 DEFINITIONS

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

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Diagram power wiring.

C. Operation and maintenance data.

1.4 QUALITY ASSURANCE

A. 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.

B. 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.

C. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.

D. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

E. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

F. Comply with the following applicable standards and other requirements specified for plumbing fixtures:

1. Stainless-Steel Sinks: ASME A112.19.3.
2. Vitreous-China Fixtures: ASME A112.19.2M.

G. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:

1. Faucets: ASME A112.18.1.
2. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
3. NSF Potable-Water Materials: NSF 61.
4. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
5. Supply Fittings: ASME A112.18.1.

H. 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. Dishwasher Air-Gap Fittings: ASSE 1021.
4. Manual-Operation Flush Valves: ASSE 1037.
5. Brass Waste Fittings: ASME A112.18.2.

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

1. Dishwasher Air-Gap Fittings: ASSE 1021.
2. Flexible Water Connectors: ASME A112.18.6.
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.

PART 2 - PRODUCTS

2.1 LAVATORY FAUCETS

A. Lavatory Faucets:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

   a. American Standard Companies, Inc.
   b. Bradley Corporation.
   c. Chicago Faucets.
   d. Delta Faucet Company.
   e. Eljer.
   f. Elkay Manufacturing Co.
   g. Grohe America, Inc.
   h. Just Manufacturing Company.
   i. Kohler Co.
   j. Moen, Inc.
   k. Speakman Company.
   l. T & S Brass and Bronze Works, Inc.
   m. Zurn Plumbing Products Group; Commercial Brass Operation.

2. Description: Single control mixing valve. 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, solid brass.
   b. Finish: Polished chrome plate.
   c. Maximum Flow Rate: 0.5 gpm.
   d. Centers: 4 inches. Single hole.
   e. Mounting: Deck, exposed.
   f. Valve Handle(s): Wrist blade, 4 inches. Not applicable.
   g. Inlet(s): NPS 3/8 tubing, with NPS 1/2 male adaptor.
   h. Spout: Rigid type.
   i. Spout Outlet: Plain end.
   j. Operation: Manual. Sensor.
   k. Drain: Grid.
   l. Tempering Device: Not required. Thermostatic.

2.2 SINK FAUCETS

A. Sink Faucets:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

   a. American Standard Companies, Inc.

b. Bradley Corporation.
c. Chicago Faucets.
d. Delta Faucet Company.
e. Eljer.
f. Elkay Manufacturing Co.
g. Grohe America, Inc.
h. Just Manufacturing Company.
i. Kohler Co.
j. Moen, Inc.
k. Speakman Company.
l. T & S Brass and Bronze Works, Inc.
m. Zurn Plumbing Products Group; Commercial Brass Operation.

2. Description: Faucet without spray. 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, solid brass.
b. Finish: Polished chrome plate.
c. Maximum Flow Rate: 2.5 gpm, unless otherwise indicated.
d. Centers: 4 inches.
e. Mounting: Deck, exposed.
f. Handle(s): Wrist blade, 4 inches.
g. Inlet(s): NPS 3/8 tubing with NPS 1/2 male adapter.
h. Spout Type: Swing, round tubular or shaped tube.
i. Spout Outlet: Aerator, 1-1/2 gpm flow.
j. Operation: Compression, manual.

2.3 FLUSH VALVES

A. Flush Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

a. Coyne & Delany Co.
b. Delta Faucet Company.
c. Sloan Valve Company.
d. TOTO USA, Inc.
e. Zurn Plumbing Products Group; Commercial Brass Operation.

2. Description: Flush valve 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 for water closets.
d. Trip Mechanism: Oscillating, lever-handle actuator.
e. Consumption: 1.6 gal./flush for water closets.

2.4 TOILET SEATS

A. Toilet Seats:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

   a. Bemis Manufacturing Company.
   b. Church Seats.
   c. Kohler Co.
   d. Olsonite Corp.
   e. Sperzel.

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: SC, self-sustaining, check.
   e. Class: Heavy-duty commercial.
   f. Color: Black.

2.5 PROTECTIVE SHIELDING GUARDS

A. Protective Shielding Pipe Covers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

   a. McGuire Manufacturing Co., Inc.
   b. TRUEBRO, Inc.

2. 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.

2.6 FIXTURE SUPPORTS

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

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. Water-Closet Supports:

1. Description: Combination carrier designed for standard or accessible mounting height of wall-mounting, water-closet-type fixture as shown on the Drawings. 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.

C. 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.

2.7 DISHWASHER AIR-GAP FITTINGS

A. Dishwasher Air-Gap Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

   a. Brass Craft Mfg. Co.; a Subsidiary of Masco Corporation.
   b. Dearborn Brass; a div. of Moen, Inc.
   c. Geberit Manufacturing, Inc.
   d. Sioux Chief Manufacturing Company, Inc.
   e. Watts Brass & Tubular; a division of Watts Regulator Co.

2. Description: Fitting suitable for use with domestic dishwashers and for deck mounting; with plastic body, chrome-plated brass cover; and capacity of at least 5 gpm; and inlet pressure of at least 5 psig at a temperature of at least 140 deg F. Include 5/8-inch- ID inlet and 7/8-inch- ID outlet hose connections.
3. Hoses: Rubber and suitable for temperature of at least 140 deg F.

   a. Inlet Hose: 5/8-inch ID and 48 inches long.
   b. Outlet Hose: 7/8-inch ID and 48 inches long.

2.8 WATER CLOSETS

A. Water Closets:

1. Manufacturers: Subject to compliance with requirements, provide TOTO CT-708, Kohler "Kingston" K-4330, or Crane "Placidus" 3-446, a comparable product by one of the following or approved equal:

   a. American Standard Companies, Inc.
   b. Eljer.

2. Description: Wall-mounting, vitreous-china fixture designed for flush valve operation.
3. Style: Flush valve.

   a. Bowl Type: Elongated with siphon-jet design. Include bolt caps matching fixture.
   b. Height: Standard or Accessible as shown on the Drawings.
   c. Design Consumption: 1.6 gal./flush.
   d. Color: White.

4. Flush Valve: As specified in this section.
5. Toilet Seat: As specified in this section.

2.9 URINALS

A. Urinals:

1. Manufacturers: Subject to compliance with requirements, provide AG Dry, Duravit, ZeroFlush or approved equal.
2. Description: Waterless, wall- or accessible wall-mounting as shown on the Drawings, back-outlet, vitreous-china fixture.

   a. Trapway: Include biodegradeable liquid sealant.
   b. Color: White.
   c. Outlet Size: NPS 2.
   d. Fixture Support: Two unit integrated wall hangers. Include flange bolts, fastening hardware, and gasket.

2.10 LAVATORIES

A. Lavatories:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

   a. American Standard Companies, Inc.
   b. Crane Plumbing, L.L.C./Fiat Products.
   c. Eljer.
   d. Kohler Co.

e. TOTO USA, Inc.

2. Description: Wall- and accessible wall-mounting as shown on the Drawings, vitreous-china fixture.

a. Type: With back.
b. Size: 20 by 18 inches rectangular.
c. Faucet Hole Punching: Three holes, 4-inch centers.
d. Faucet Hole Location: Top.
e. Color: White.
f. Faucet: Lavatory faucet as specified in this section.
g. Supplies: NPS 3/8 chrome-plated copper with stops.
h. Drain: See faucet.
i. Drain Piping: NPS 1-1/4 by NPS 1-1/2 chrome-plated, cast-brass P-trap; wall escutcheon.
j. Protective Shielding Guard(s): As specified in this section for accessible fixtures.
k. Fixture Support: Lavatory as specified in this section.

2.11 SINKS

A. Sinks:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:

a. Elkay Manufacturing Co.
b. Just Manufacturing Company.
c. Krindred.

2. Description: One-bowl, counter-mounting, stainless-steel sink.

a. Overall Dimensions: <**Insert dimensions.**>
b. Metal Thickness: 0.050 inch.
c. Bowl:

1) Dimensions: <**Insert dimensions.**>
2) Drain: 3-1/2-inch crumb cup.

a) Location: Centered in bowl.

d. Sink Faucet: As specified in this section.
e. Supplies: NPS 1/2 chrome-plated copper with stops.
f. Drain Piping: NPS 1-1/2 chrome-plated, cast-brass P-trap; 0.045-inch- thick tubular brass waste to wall; and wall escutcheon(s).

PART 3 - EXECUTION

3.1 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 with waste fitting and seal for back-outlet fixtures.
2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.

C. Install back-outlet, wall-mounting fixtures onto waste fitting seals and attach to supports.

D. Install wall-mounting fixtures with tubular waste piping attached to supports.

E. Install fixtures level and plumb according to roughing-in drawings.

F. 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.

G. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

H. Install flush 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 traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.
2. Exception: Omit trap on indirect wastes, unless otherwise indicated.

N. Install dishwasher air-gap fitting at each sink indicated to have air-gap fitting. Install on countertop at sink. Connect inlet hose to dishwasher and outlet hose to disposer.

O. Install escutcheons at piping wall and 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 23 Section "Common Work Results for Mechanical."

P. 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.

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."

3.3 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.

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.

3.4 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 22 40 00