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PLUMBING FIXTURES

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PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

B. Related Sections include the following:
   1. Division 10 Section "Toilet and Bath Accessories."
   2. Division 20 Section "Mechanical General Requirements."
   3. Division 20 Section "Basic Mechanical Materials and Methods."
   4. Division 22 Section "Drinking Fountains and Water Coolers."
   5. Division 22 Section "Domestic Water Piping Specialties" for backflow preventers; individual-fixture, water tempering valves; and specialty fixtures not included in this Section.
   6. Division 22 Section "Drainage Piping Specialties" for floor drains, and specialty fixtures not included in this Section.

1.02 DEFINITIONS


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.


1.03 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. Coordination Drawings: Counter cutout templates for mounting of counter-mounted plumbing fixtures.

D. Operation and Maintenance Data: For plumbing fixtures and trim to include in operation and maintenance manuals.

1.04 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 an NRTL acceptable to authorities having jurisdiction, and marked for intended use.


E. Regulatory Requirements: Comply with requirements in Public Law 111-380, "Reduction of Lead in Drinking Water Act," about lead content in materials that will be in contact with potable water for human consumption.

F. Comply with NSF 61, "Drinking Water System Components - Health Effects; Sections 1 through 9," and NSF 372 Drinking Water System Components – Lead Content for potable domestic water piping and components.

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

H. Comply with applicable ANSI, ASME, ASSE, ASTM, ICC, NSF, and UL standards and other requirements specified for plumbing fixtures, trim, fittings, components, and features.

PART 2 PRODUCTS

2.01 HIGH EFFICIENCY TOILETS

A. High Efficiency Toilets, WC-1:

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

      a. American Standard Companies, Inc.; Afwall FloWise Elongated 1.6GPF.
b. Kohler Co.; Kingston. (Base Bid)
c. Sloan Valve Company.
d. Zurn Plumbing Products Group.

2. Description: Wall-mounting, back-outlet, low water consumption, vitreous-china fixture designed for flushometer valve operation.
   a. Style: Flushometer valve.
      1) Bowl Type: Elongated with siphon-jet design.
      2) Supply Spud Location: Top.
      3) Design Consumption: 1.6 gal./flush.
      4) Color: White.
   b. Flushometer:FV-1.
d. Fixture Support: Water-closet support combination carrier.

2.02 TOILET FLUSHOMETERS

A. Flushometers, HET-FV-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. American Standard Companies, Inc.; Selectronic Exposed AC 1.6 GPF.
      b. Zurn Plumbing Products Group (Base Bid).
   2. Description: Flushometer for water closet fixture. Include brass body with corrosion-resistant internal components, non-hold-open feature, courtesy flush 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.
      d. Trip Mechanism: Hard-wired proximity sensor actuator.
      e. Consumption: 1.6 gal./flush.
      f. Tailpiece Size: NPS 1-1/2 and standard length to top of fixture.
      g. Transformer: UL approved, hard-wired.

2.03 HIGH EFFICIENCY URINALS

A. High Efficiency Urinals, UR-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. American Standard Companies, Inc.; Washbrook FloWise 0.125.
      b. Kohler Co.; Bardon. (Base Bid)
      c. Sloan Valve Company; WEUS Series.
      d. Zurn Industries, Inc..
   2. Description: Wall-mounting, back-outlet, ultra-low water consumption, vitreous-china fixture designed for flushometer valve operation.
      a. Type: High efficiency.
      b. Strainer or Trapway: Open trapway with integral trap.
      c. Design Consumption: 1/8 gal./flush.
      f. Supply Spud Location: Top.
      g. Outlet Size: NPS 2.
      h. Flushometer: HEU-FV-1.
      i. Fixture Support: Urinal chair carrier.

2.04 HIGH EFFICIENCY URINAL FLUSHOMETERS

A. Flushometers, HEU-FV-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. American Standard Companies, Inc.; Selectronic Exposed AC 0.125 GPF.
b. Zurn Plumbing Products Group. (Base Bid)

2. Description: High efficiency flushometer for high efficiency water closet fixture. Include brass body with corrosion-resistant internal components, non-hold-open feature, courtesy flush 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.
   d. Trip Mechanism: Hard-wired proximity sensor actuator.
   e. Consumption: 0.125 gal./flush.
   f. Tailpiece Size: NPS 3/4 and standard length to top of fixture.
   g. Transformer: UL approved, hard-wired.

2.05 TOILET SEATS
A. Toilet Seats, TS-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      b. Centoco Manufacturing Corp.
      c. Church Seats; 295SSC/295SSCT.
      d. Ferguson Enterprises, Inc.; ProFlo PFTSCOF2000WH.
      e. Olsonite Seat Company; Model 10SSC/10SSCT.
      g. Zurn Plumbing Products Group; 5955STS-WH.
   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: Standard commercial.

2.06 LAVATORIES
A. Lavatories, LAV-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      b. Ferguson Enterprises, Inc.; ProFlo PF5504.
      c. Kohler Co.; K 2005 Kingston. (Base Bid)
      d. Sloan Valve Company.
      e. Zurn Plumbing Products Group; Z5344.
   2. Description: Accessible, wall-mounting, vitreous-china fixture.
      a. Type: With contoured back and side shields.
      b. Size: 20 by 18 inches rectangular.
      c. Faucet Hole Punching: Three holes, 2-inch centers.
      e. Faucet: LF-1.
      f. Water Temperature Limiting Device: Required.
      g. Drain: Grid with offset waste.
      h. Drain Piping: NPS 1-1/4 chrome-plated, cast-brass P-trap; NPS 1-1/4, 17 gage tubular brass waste to wall; and wall escutcheon.
      i. Fixture Support: Lavatory with concealed arms.

2.07 LAVATORY FAUCETS
A. Lavatory Faucets, LF-1:
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1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. American Standard Companies, Inc.; Innsbrook Model 6518 VA.2AC.
   b. Chicago Faucets; Model 115.736.21.1.
   c. Delta Faucet Company; Model 591-LGHGMPHD or 591T Series.
   d. Moen Manufacturing, Inc.
   e. Kohler Co.
   f. Moen Commercial.
   g. Sloan Valve Company.
   h. Speakman Company.
   i. Zurn Plumbing Products Group; Z6915-F-CWB. (Base Bid)

2. Description: Faucet suitable for 4 inch centers, grid strainer, and no lift rod hole.
   b. Finish: Polished chrome plate.
   c. Mounting: Deck, concealed.
   d. Inlet(s): NPS 1/2.
   e. Spout Outlet: Vandal proof spray, 0.5 gpm.
   g. Step-Down Transformers: Required.

2.08 COUNTER-MOUNTING SINKS

A. Sinks, SK-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Elkay Manufacturing Co. (Base Bid)
      c. Just Manufacturing Company.
      d. Moen Commercial.
      a. Overall Dimensions: 15 inches left to right by 17 1/2 inches front to back.
      b. Metal Thickness: 18 gage, with sound dampened underside.
      c. Bowl:
         1) Dimensions: 12 inches by 12 inches by 10 inches deep.
         2) Drain: Outlet for disposer as required.
            a) Location: Centered in bowl.
      d. Sink Faucet: SF-1.
      e. Water Temperature Limiting Device: Not required.
      f. Drain Piping: NPS 1-1/2 chrome-plated, cast-brass P-trap; 17 gage tubular brass waste to wall; and wall escutcheon(s).

B. Sinks, SK-2:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Elkay Manufacturing Co. (Base Bid)
      c. Just Manufacturing Company.
      d. Moen Commercial.
   2. Description: Double-bowl, counter-mounting, lay-in stainless-steel sink. 3 hole faucet drilling with 4th hole for drinking water faucet.
      a. Overall Dimensions: 33 inches left to right by 19 inches front to back.
      b. Metal Thickness: 18 gage, with sound dampened underside.
      c. Left Bowl:
         1) Dimensions: 14 inches by 14 inches by 7-1/2 inches deep.
         2) Drain: 3-1/2-inch grid or outlet for disposer as required.
            a) Location: Centered in bowl.
      d. Right Bowl:
1) Dimensions: 14 inches by 14 inches by 7-1/2 inches deep.
2) Drain: 3-1/2-inch grid.
   a) Location: Centered in bowl.

e. Sink Faucet: SF-2.
f. Water Temperature Limiting Device: Not required.
g. Drain Piping: NPS 1-1/2 chrome-plated, cast-brass P-trap; 17 gage tubular brass waste to wall; and wall escutcheon(s).

2.09 SINK FAUCETS

A. Sink Faucets, SF-1:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. American Standard Companies, Inc.
      b. Chicago Faucets; No. 201-AGN8AE3-317XKCP. (Base Bid)
      c. Delta Faucet Company; Model 23C632-R7LS.
      d. Kohler Co.
      e. Moen Commercial.
      f. Speakman Company.
      g. T & S Brass and Bronze Works, Inc.
      h. Zurn Plumbing Products Group; Z831C4-140.
   2. Description: Sink faucet. Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
      b. Finish: Polished chrome plate.
      c. Mixing Valve: Two handle.
      d. Centers: 8 inches.
      e. Mounting: Deck.
      f. Handle(s): Wrist blade, 4 inches.
      g. Operation: Noncompression, manual.
      h. Inlet(s): NPS 1/2.
      i. Spout Type: 70-degree restricted swing gooseneck.
      j. Spout Outlet: Aerator.
         1) Aerator.
         2) Laminar flow or plain end for patient care areas.
      k. Maximum Flow Rate:
         1) 1.5 gpm.

B. Sink Faucets, SF-2:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Brizo Kitchen Faucets; Model 63063LF-BLGL.
   2. Description: Single handle sink faucet; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.
      b. Finish: Matte black with gold, knurled pull down spout and handle.
      c. Mixing Valve: Single handle
      d. Drilling: Siingle hole
      e. Mounting: Deck.
      f. Handle(s): Knurled, lever spindle handle.
      g. Operation: Noncompression, manual.
      h. Inlet(s): NPS 1/2.
      i. Maximum Flow Rate:
         1) 1.8 gpm.
2.10 FIXTURE SUPPLIES
   A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1. BrassCraft; a Masco Company.
      3. Any of the approved plumbing fixture manufacturers.
   B. Description: Chrome-plated brass, loose-key or screwdriver angle stops with brass stems; rigid, chrome-plated copper risers; and chrome-plated wall flanges.

2.11 PROTECTIVE SHIELDING GUARDS
   A. Protective Shielding Pipe Covers (PSG-1):
      1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
         a. Engineered Brass Co.
         b. Insul-Tect Products Co.; a Subsidiary of MVG Molded Products.
         c. McGuire Manufacturing Co., Inc.
         d. Plumberex Specialty Products Inc.
         e. TCI Products; SG-200BV.
         f. TRUEBRO, Inc.
         g. Zurn Plumbing Products Group; Z8946-3-NT.
      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.

2.12 FIXTURE SUPPORTS
   A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1. Josam Company.
      2. MIFAB Manufacturing Inc.
      4. Tyler Pipe; Wade Div.
      5. Watts Drainage Products Inc.; a div. of Watts Industries, Inc.
   B. Water-Closet Supports:
      1. Description: Combination carrier designed for 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.
   C. Urinal Supports:
      1. Description: For wall-mounting, urinal-type fixture. Include steel uprights with feet.
   D. Lavatory Supports:
      1. Description: Lavatory carrier with concealed arms and tie rods for wall-mounting, lavatory-type fixture. Include steel uprights with feet.
   E. Sink Supports:
      1. Description: For wall-mounting sink-type fixture. Include steel uprights with feet.
         a. Type I, sink carrier with exposed arms and tie rods.
         b. Type II, sink carrier with hanger plate, bear studs, and tie rod.
         c. Type III, sink carrier with hanger plate and exposed arms.

2.13 DISPOSERS
   A. Disposers, D-1:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. In-Sink-Erator; a div. of Emerson Electric Co.
2. Description: Continuous-feed, household type food-waste disposer. Include reset button; wall switch; corrosion-resistant chamber with jam-resistant, cutlery- or stainless-steel grinder or shredder; NPS 1-1/2 outlet; quick-mounting, stainless-steel sink flange; antisplash guard; and combination cover/stopper.

**PART 3 EXECUTION**

**3.01 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.

**3.02 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 counter-mounting fixtures in and attached to casework.

F. Install fixtures level and plumb according to roughing-in drawings. Install accessible fixtures at heights required by local codes.

G. 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: Fixtures with flushometer valves, and faucets or valves with integral stops.

H. Install ASSE 1070 water-temperature limiting devices on supplies for lavatories and sinks that will be used for handwashing, and where specified. Refer to Division 20 Section “Domestic Water Piping Specialties.”

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

J. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.

K. Install protective shielding guards PSG-1 on exposed traps and supplies of lavatories, and sinks used for hand washing.

L. Install toilet seats on water closets.

M. 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.

N. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.

O. 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.
P. Install shower flow-control fittings with specified maximum flow rates in shower arms.

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

R. 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.

S. 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 20 Section "Basic Mechanical Materials and Methods."

T. 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 7 Section "Joint Sealants."

3.03 CONNECTIONS
A. Piping installation requirements are specified in other Division 20 and 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. Individual water line branches, waste lines, vents, and traps for connection to individual fixtures, fixture fittings and specialties shall be in accordance with the schedule on the Drawings.
D. Ground equipment according to Division 26 Section "Grounding and Bonding."
E. Connect wiring according to Division 26 Section "Conductors and Cables."

3.04 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.

3.05 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, or cartridges of leaking and dripping faucets and stops.

3.06 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.
3.07 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 42 00