

## SECTION 224000 - PLUMBING FIXTURES

## PART 1 GENERAL

## 1.1 SECTION INCLUDES

- A. Water closets.
- B. Urinals.
- C. Lavatories.
- D. Sinks.
- E. Service sinks.
- F. Showers.
- G. Wash fountains.
- H. Eye wash fountains.

## 1.2 RELATED REQUIREMENTS

- A. Section 079200 - Joint Sealants: Seal fixtures to walls and floors.
- B. Section 221005 - Plumbing Piping.
- C. Section 221006 - Plumbing Piping Specialties.
- D. Section 223000 - Plumbing Equipment.

## 1.3 REFERENCE STANDARDS

- A. ANSI Z124.1.2 - American National Standard for Plastic Bathtub and Shower Units; 2005.
- B. ANSI Z358.1 - American National Standard for Emergency Eyewash and Shower Equipment; 2004.
- C. ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; The American Society of Mechanical Engineers; 1997 (Reaffirmed 2002).
- D. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2005.
- E. ASME A112.19.2 - Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals; The American Society of Mechanical Engineers; 2008.

- F. ASME A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use); The American Society of Mechanical Engineers; 2008.
- G. ASTM E 84 - s of Building Materials; 2010
- H. ISSFA-2 - Classification and Standards for Solid Surfacing Material; International Solid Surface Fabricators Association; 2001 (2002)
- I. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

#### 1.4 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Manufacturer's Instructions: Indicate installation methods and procedures.
- D. Maintenance Data: Include fixture trim exploded view and replacement parts lists.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.
  - 2. Extra Faucet Washers: One set of each type and size.
  - 3. Extra Lavatory Supply Fittings: One set of each type and size.
  - 4. Extra Shower Heads: One of each type and size.
  - 5. Extra Toilet Seats: One of each type and size.
  - 6. Flush Valve Service Kits: One for each type and size.

#### 1.5 REGULATORY REQUIREMENTS

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept fixtures on site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

#### 1.7 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

- B. Provide five year manufacturer warranty for electric water cooler.

## PART 2 PRODUCTS

### 2.1 FLUSH VALVE WATER CLOSETS (WC-1)

- A. Water Closets: Vitreous china, ASME A112.19.2, elongated rim, floor mounted, siphon jet flush action, china bolt caps.
1. Flush Volume: 1.6 gallon (6 liters), maximum.
  2. Flush Valve: Exposed (top spud).
  3. Flush Operation: Manual, oscillating handle.
  4. Supply Size: 1-1/2 inches (38 mm).
  5. Outlet Size: 2 inches (50 mm).
  6. Manufacturers:
    - a. American Standard Inc: [www.americanstandard.com](http://www.americanstandard.com).
    - b. Kohler Company; Model K-4302: [www.kohler.com](http://www.kohler.com).
    - c. Zurn industries, Inc: [www.zurn.com](http://www.zurn.com).
    - d. Substitutions: See Section 016000 - Product Requirements.
- B. Flush Valves: ASME A112.18.1, diaphragm type, complete with vacuum breaker stops and accessories.
1. Sensor-Operated Type: Solenoid operator, battery powered, infrared sensor and over-ride push button.
  2. Exposed Type: Chrome plated, escutcheon, integral screwdriver stop.
  3. Manufacturers:
    - a. Coyne & Delany Co: [www.coynedelany.com](http://www.coynedelany.com).
    - b. Sloan Valve Company; Model 8111: [www.sloanvalve.com](http://www.sloanvalve.com).
    - c. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
    - d. Substitutions: See Section 016000 - Product Requirements.
- C. Seats:
1. Manufacturers:
    - a. Bemis Manufacturing Company: [www.bemismfg.com](http://www.bemismfg.com).
    - b. Church Seat Company: [www.churchseats.com](http://www.churchseats.com).
    - c. Kohler Company; Model K-4670-CA: [www.kohler.com](http://www.kohler.com).
    - d. Substitutions: See Section 016000 - Product Requirements.
  2. Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts, without cover.

### 2.2 FLUSH VALVE WATER CLOSETS (WC-1A; HANDICAPPED)

- A. Water Closets: Vitreous china, ASME A112.19.2, elongated rim, floor mounted, siphon jet flush action, china bolt caps.

1. Flush Volume: 1.6 gallon (6 liters), maximum.
  2. Flush Valve: Exposed (top spud).
  3. Flush Operation: Manual, oscillating handle.
  4. Supply Size: 1-1/2 inches (38 mm).
  5. Outlet Size: 2 inches (50 mm).
  6. Unit and installation shall comply with the American Disabilities Act Guidelines ADA and ANSI A117.1 requirement for people with disabilities.
  7. Manufacturers:
    - a. American Standard Inc: [www.americanstandard.com](http://www.americanstandard.com).
    - b. Kohler Company; Model K-4302: [www.kohler.com](http://www.kohler.com).
    - c. Zurn industries, Inc: [www.zurn.com](http://www.zurn.com).
    - d. Substitutions: See Section 016000 - Product Requirements.
- B. Flush Valves: ASME A112.18.1, diaphragm type, complete with vacuum breaker stops and accessories.
1. Sensor-Operated Type: Solenoid operator, battery powered, infrared sensor and over-ride push button.
  2. Exposed Type: Chrome plated, escutcheon, integral screwdriver stop.
  3. Manufacturers:
    - a. Coyne & Delany Co: [www.coynedelany.com](http://www.coynedelany.com).
    - b. Sloan Valve Company; Model 8111: [www.sloanvalve.com](http://www.sloanvalve.com).
    - c. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
    - d. Substitutions: See Section 016000 - Product Requirements.
- C. Seats:
1. Manufacturers:
    - a. Bemis Manufacturing Company: [www.bemismfg.com](http://www.bemismfg.com).
    - b. Church Seat Company: [www.churchseats.com](http://www.churchseats.com).
    - c. Kohler Company; Model K-4670-CA: [www.kohler.com](http://www.kohler.com).
    - d. Substitutions: See Section 016000 - Product Requirements.
  2. Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts, without cover.

### 2.3 WALL HUNG URINALS (U-1A; HANDICAPPED)

- A. Wall Hung Urinal Manufacturers:
1. American Standard Inc: [www.americanstandard.com](http://www.americanstandard.com).
  2. Kohler Company: [www.kohler.com](http://www.kohler.com).

3. Zurn Industries, Inc; EcoVantage Z5798 High-Efficiency Urinal System: [www.zurn.com](http://www.zurn.com).
  4. Sloan Valve Company; Model WEUS-1000.1401-0.13 ECOS: [www.sloanvalve.com](http://www.sloanvalve.com).
  5. Substitutions: See Section 016000 - Product Requirements.
- B. Urinals: Vitreous china, ASME A112.19.2, wall hung with side shields and concealed carrier.
1. Unit and installation shall comply with the American Disabilities Act Guidelines ADA and ANSI A117.1 requirement for people with disabilities.
  2. Flush Volume: 0.125 gallon (0.47 liter), maximum.
  3. Flush Style: Washout.
  4. Flush Valve: Exposed (top spud).
  5. Flush Operation: Sensor operated.
  6. Trap: Integral.
  7. Removable stainless steel strainer.
  8. Supply Size: 3/4 inch (19 mm).
  9. Outlet Size: 2 inches (50 mm).
- C. Flush Valves: ASME A112.18.1, diaphragm type, complete with vacuum breaker stops and accessories.
1. Sensor-Operated Type: Solenoid operator, battery powered, infrared sensor and over-ride push button.
  2. Exposed Type: Chrome plated, escutcheon, integral screwdriver stop.
- D. Carriers:
1. Manufacturers:
    - a. JOSAM Company: [www.josam.com](http://www.josam.com).
    - b. Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
    - c. Substitutions: See Section 016000 - Product Requirements.
  2. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs.

#### 2.4 LAVATORIES (L-1A; HANDICAPPED)

- A. Lavatory Manufacturers:
1. American Standard Inc; Model \_\_\_\_\_: [www.americanstandard.com](http://www.americanstandard.com).
  2. Kohler Company; Model \_\_\_\_\_: [www.kohler.com](http://www.kohler.com).
  3. Zurn industries, Inc; Model \_\_\_\_\_: [www.zurn.com](http://www.zurn.com).

- B. Vitreous China Wall Hung Basin: ASME A112.19.2; vitreous china wall hung lavatory, 19-1/4 by 17-1/4 inch (489 by 438 mm) minimum, with 4 inch (100 mm) high back, rectangular basin with splash lip, front overflow, and soap depression.
1. Unit and installation shall comply with the American Disabilities Act Guidelines ADA and ANSI A117.1 requirement for people with disabilities.
  2. Single-hole faucet drilling.
- C. Sensor Operated Faucet: Cast brass, chrome plated, deck mounted with sensor located on neck of spout.
1. Spout Style: Standard.
  2. Power Supply: Battery, easily replaceable, alkaline or lithium, minimum 200,000 cycles.
    - a. Low battery indicator warning light at 30 days remaining life and continuous light a 2 weeks.
  3. Mixing Valve: below deck mounted thermostatic mixing valve.
  4. Water Supply: 3/8 inch (9 mm) compression connections.
  5. Aerator: Vandal resistant, 0.5 GPM (1.89 LPM), laminar flow device.
  6. Sensor range: Factory set at a minimum of 3 inch (76 mm) adjustable up to 24 inch (610 mm).
  7. Finish: Polished chrome.
  8. Sensor Operated Faucet Manufacturers:
    - a. American Standard Inc: [www.americanstandard.com](http://www.americanstandard.com).
    - b. The Chicago Faucet Company: [www.chicagofaucets.com](http://www.chicagofaucets.com).
    - c. Moen Incorporated: [www.moen.com](http://www.moen.com).
    - d. Sloan Valve Company; Model EBF-650-BDT: [www.sloanvalve.com](http://www.sloanvalve.com).
    - e. Toto USA: [www.totousa.com](http://www.totousa.com).
    - f. Zurn industries, Inc: [www.zurn.com](http://www.zurn.com).
- D. Accessories:
1. Chrome plated 17 gage (1.3 mm) brass P-trap with clean-out plug and arm with escutcheon.
  2. Offset waste with perforated open strainer.
  3. Rigid supplies.
  4. Carrier:
    - a. Manufacturers:
      - 1) JOSAM Company: [www.josam.com](http://www.josam.com).
      - 2) Zurn Industries, Inc: [www.zurn.com](http://www.zurn.com).
      - 3) Substitutions: See Section 016000 - Product Requirements.
    - b. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, concealed arm supports, bearing plate and studs.

## 2.5 SINKS (KS-1)

### A. Sink Manufacturers:

1. American Standard Inc: [www.americanstandard.com](http://www.americanstandard.com).
2. Kohler Company; Model K-3258-3: [www.kohler.com](http://www.kohler.com).
3. Substitutions: See Section 016000 - Product Requirements.

### B. Single Compartment Bowl: ASME A112.19.3; 25 by 22 by 8-1/4 inch (635 by 559 by 210 mm) outside dimensions 20 gage (0.9 mm) thick, Type 302 stainless steel, self rimming and undercoated, with ledge back drilled for trim.

1. Drain: 1-1/2 inch (38 mm) chromed brass drain.
2. Drain: 3-1/2 inch (90 mm) crumb cup and tailpiece.

## 2.6 SHOWER RECEPTORS (S-1A; HANDICAPPED)

### A. Solid Surfacing Shower Receptors: Solid molded stone casting, self-supporting, for installation over conventional subfloor; complying with ANSI Z124.1.2.

1. Material: Complying with ISSFA-2 and NEMA LD 3; molded stone resin, unfilled, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
2. Surface Burning Characteristics: Flame spread 25, maximum; smoke developed 450, maximum; when tested in accordance with ASTM E84.
3. Color and Pattern: As selected by Architect from manufacturer's full line.
4. Unit and installation shall comply with the American Disabilities Act Guidelines ADA and ANSI A117.1 requirement for people with disabilities.
5. Manufacturers:
  - a. Fiat Products; Model 36FT: [www.fiat.ca](http://www.fiat.ca)
  - b. Substitutions: See Section 016000 - Product Requirements.

### B. Drain Trim: Removable chrome plated strainer, tail piece.

## 2.7 WASH FOUNTAINS (SS-1)

### A. Wash Fountain Manufacturers:

1. Acorn Engineering Company: [www.acorneng.com](http://www.acorneng.com).
2. Bradley Corporation: [www.bradleycorp.com](http://www.bradleycorp.com).
3. Sloan Valve Company; Model EHS-1750-BDT: [www.sloanvalve.com](http://www.sloanvalve.com)
4. Substitutions: See Section 016000 - Product Requirements.

- B. Bowl: Rectangular, 19 by 16 by 6 inches (483 mm by 406 mm by 152 mm), 14 gauge type 304 stainless steel.
- C. Accessories: battery powered, sensor operated controlled self-closing valve with goose neck faucet, spray head, liquid soap dispenser, thermostatic mixing valve, supporting tube, spud and strainer, operating mechanism, combination stop, strainer and check valves.

## 2.8 SERVICE SINKS (MS-1)

- A. Service Sink Manufacturers:
  - 1. Just Manufacturing Company: [www.justmfg.com](http://www.justmfg.com).
  - 2. Zurn industries, Inc: [www.zurn.com](http://www.zurn.com).
  - 3. Fiat Products; Model TSBC1610: [www.fiat.ca](http://www.fiat.ca)
  - 4. Substitutions: See Section 016000 - Product Requirements.
- B. Bowl: 24 by 24 by 12 inch (610 by 610 by 305 mm) high white molded stone, floor mounted, with 2 inch (51 mm) wide shoulders, stainless steel strainer.
- C. Trim: ASME A112.18.1 exposed wall type supply with cross handles, spout wall brace, vacuum breaker, hose end spout, strainers, eccentric adjustable inlets, integral screwdriver stops with covering caps and adjustable threaded wall flanges.
- D. Accessories:
  - 1. 5 feet (1.5 m) of 1/2 inch (13 mm) diameter plain end reinforced rubber hose.
  - 2. Hose clamp hanger.
  - 3. Mop hanger.

## 2.9 EMERGENCY EYE WASH

- A. Emergency Wash Manufacturers:
  - 1. Bradley Corporation; Model S19-220: [www.bradleycorp.com](http://www.bradleycorp.com)
  - 2. Substitutions: See Section 016000 - Product Requirements.
- B. Emergency Wash: ANSI Z358.1; wall-mounted, self-cleaning, non-clogging eye wash with quick opening, full-flow valves, ABS eye wash receptor, twin eye wash heads, copper alloy control valve and fittings.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.



- B. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

### 3.2 PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

### 3.3 INSTALLATION

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- C. Install components level and plumb.
- D. Seal fixtures to wall and floor surfaces with sealant as specified in Section 079005, color to match fixture.

### 3.4 INTERFACE WITH WORK OF OTHER SECTIONS

- A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

### 3.5 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

### 3.6 CLEANING

- A. Clean plumbing fixtures and equipment.

### 3.7 PROTECTION

- A. Protect installed products from damage due to subsequent construction operations.
- B. Repair or replace damaged products before Date of Substantial Completion.

### 3.8 SCHEDULES

- A. Fixture Rough-In
  - 1. Water Closet (Flush Valve Type):
    - a. Cold Water: 1 Inch (25 mm).
    - b. Waste: 4 Inch (100 mm).

- c. Vent: 2 Inch (50 mm).
- 2. Urinal (Flush Valve Type):
  - a. Cold Water: 3/4 Inch (20 mm).
  - b. Waste: 2 Inch (50 mm).
  - c. Vent: 1-1/2 Inch (40 mm).
- 3. Lavatory:
  - a. Hot Water: 1/2 Inch (15 mm).
  - b. Cold Water: 1/2 Inch (15 mm).
  - c. Waste: 1-1/2 Inch (40 mm).
  - d. Vent: 1-1/4 Inch (32 mm).
- 4. Sink:
  - a. Hot Water: 1/2 Inch (15 mm).
  - b. Cold Water: 1/2 Inch (15 mm).
  - c. Waste: 1-1/2 Inch (40 mm).
  - d. Vent: 1-1/4 Inch (32 mm).
- 5. Service Sink:
  - a. Hot Water: 1/2 Inch (15 mm).
  - b. Cold Water: 1/2 Inch (15 mm).
  - c. Waste: 3 Inch (80 mm).
  - d. Vent: 1-1/2 Inch (40 mm).
- 6. Shower:
  - a. Hot Water: 1/2 Inch (15 mm).
  - b. Cold Water: 1/2 Inch (15 mm).
  - c. Waste: 1-1/2 Inch (40 mm).
  - d. Vent: 1-1/4 Inch (32 mm).

END OF SECTION