

22 40 00 – Plumbing Fixtures

1. General

A. Definitions

1. Section includes:
 - a. Water closets and urinals
 - b. Lavatories, sinks and service sinks
 - c. Electric water coolers, drinking fountains
 - d. Showers
 - e. Trap primers
 - f. Exterior faucets

Refer to campus sustainability documents for water efficiency targets before selecting fixtures.

2. Approved plumbing fixture manufacturers include: American Standard, Crane, Eljer, Kohler, Zurn, Toto or Owner approved equal.

B. References

1. ARI 00 (Air-Conditioning and Refrigeration Institute) – Drinking Fountains and self-contained Mechanically Refrigerated Drinking Water Coolers
2. ASME A2.6. (American Society of Mechanical Engineers) – Supports for Off-the-Floor Plumbing Fixtures for Public Use
3. ASME A2.9. (American Society of Mechanical Engineers) – Enameled Cast Iron Plumbing Fixtures
4. ASME A112.19.2 (American Society of Mechanical Engineers) - Vitreous China Plumbing Fixtures
5. ASME A112.19.3 (American Society of Mechanical Engineers) - Stainless Steel Plumbing Fixtures (Designed for Residential Use)
6. ASME A112.19.4 (American Society of Mechanical Engineers) - Porcelain Enameled Formed Steel Plumbing Fixtures

7. ASME A112.19.5 (American Society of Mechanical Engineers) - Trim for WaterCloset Bowls, Tanks, and Urinals

2. Products

A. FLUSH VALVE WATER CLOSETS

1. Bowl: ASME A112.19.2; wall mounted, siphon jet, vitreous china closet bowl, with elongated rim, 1-½ inch top back spud, china bolt caps.
2. Exposed Flush Valve: ASME A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, seat bumper, integral screwdriver stop and vacuum breaker 1.28 gallon flush volume.
3. Sensor Operated Flush Valve: ASME A112.18.1; concealed rough brass, diaphragm type with low voltage operated solenoid operator, infrared sensor and over-ride button in chrome plated plate, wheel handle stop and vacuum breaker 1.28 gallon flush volume.
4. Seat: Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts, without cover.
5. Wall Mounted Carrier: ASME A112.6.1; adjustable cast iron frame, integral drain hub and vent, adjustable spud, lugs for floor and wall attachment, threaded fixture studs with nuts and washers.

B. TANK TYPE WATER CLOSETS

1. Tank type water closets should only be used when directed by Duke project manager. Fixture selection shall be reviewed by project manager and facilities.
2. Bowl: One piece ASME A112.19.2 floor mounted, siphon jet, vitreous china closet bowl with elongated rim.
3. Gravity feed 1.28 gallon per flush tank.
4. Seat: Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts, without cover.

C. WALL HUNG URINALS

1. Urinal: ASME A112.19.2; vitreous china, wall hung washout urinal with shields, integral trap, removable stainless steel strainer, ¾ inch back spud, steel supporting hanger.
2. Exposed Flush Valve: ASME A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, escutcheon, integral screwdriver stop, vacuum breaker; maximum 1/8th gallon flush volume standard or approved equal.

3. Sensor Operated Flush Valve: ASME A112.18.1; exposed chrome plated, diaphragm type with low voltage battery operated solenoid operator, infrared sensor and override button in chrome plated plate, wheel handle stop and vacuum breaker; maximum 1/8th gallon flush volume.
4. Approved flush valve manufacturers include: Sloan, Zurn, Toto, or owner approved equal.
5. Wall Mounted Carrier: ASME A112.6.1; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs.
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D. LAVATORIES

1. Vitreous China Wall Hung Basin: ASME A112.19.2; vitreous china wall hung lavatory high back, drillings on 8 inch centers, rectangular basin with splash lip, front overflow, and soap depression.
2. Steel Counter Top Basin: ASME A112.19.4; porcelain on steel self-rimming counter top lavatory, with drillings on 8 inch centers, front overflow, soap depression, seal of putty, caulking, or concealed vinyl gasket.
3. Vitreous China Counter Top Basin: ASME A112.19.2; vitreous china self-rimming counter top lavatory, 8 inch centers, front overflow, soap depression, seal of putty, caulking, or concealed vinyl gasket.
4. Fittings: ASME A112.18.1; chrome plated combination supply, open grid strainer, water economy aerator with maximum 0.5gpm flow, indexed handles. Pop-up wastes, and chain and plug drains may only be used in residential applications.
5. Sensor Faucet: ASME A112.18.1; chrome plated metered mixing faucet with low voltage operated solenoid operator and infrared sensor, aerator and cover plate, open grid strainer. Power supply shall be battery powered. Maximum flow rate shall be 0.5 gpm.
6. Approved faucet manufacturers include: Kohler, Delta, Sloan, T&S, Chicago.
7. Approved lab faucet manufacturers include: Chicago, Water Saver, or T&S
8. Accessories: a. Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon. b. Offset waste with perforated open strainer. c. Screwdriver stops. d. Flexible supplies.

9. Clean-outs: All clean-outs must be accessible and those behind walls must be piped so that the bottom of the pipe is 18" above the fixture flood rim level to avoid spillage of effluent into wall cavity when pipe is opened to clear blockages.
10. Wall Mounted Carrier: ASME A112.6.1; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate and studs.

E. SINKS (kitchens)

1. Single Compartment Bowl: ASME A112.19.3; 20 gage thick, Type 316 stainless steel. Self-rimming and undercoated, with 2-½ inch chromed brass drain 3-1/2 inch crumb cup and tailpiece; ledge back drilled for trim.
2. Double Compartment Bowl: ASME A112.19.3; outside dimensions 20 gage thick, Type 316 stainless steel. Self-rimming and undercoated, with 1-1/2 inch chromed brass drains 3-1/2 inch crumb cups and tailpieces, ledge back drilled for trim.
3. Trim: ASME A112.18.1; chrome plated brass supply with high rise swing spout, vandal proof water economy aerator with maximum 2.2 gpm flow, indexed lever handles.
4. Accessories: Chrome plated 17 gage brass P-trap with clean-out plug and arm with escutcheon, screwdriver stop, and flexible supplies.

F. SHOWERS

1. Trim: ASME A112.18.1; concealed shower supply with pressure balanced thermostatic mixing valves, integral service stops, bent shower arm with flow control and adjustable spray ball joint shower head with maximum 1.75gpm flow, and escutcheon
2. Showerhead: ASME A112.18.1; chrome plated vandal-proof institutional head with integral wall bracket, built-in 1.75gpm flow control.

G. ELECTRIC WATER COOLERS

1. Fountain: a. ARI 1010; recessed handicapped mounted electric water cooler with stainless steel top, stainless steel body, elevated anti-squirt bubbler with stream guard, automatic stream regulator, push button, mounting bracket, refrigerated with integral air cooled condenser [and stainless steel grille]. b. Electrical: Per design c. Clean out in "P" tray and at wall. d. Equipped with bottle filling station e. Approved manufacturers include: Elkay or Halsey-Taylor.

H. SERVICE SINKS

1. Bowl: Stainless steel with concealed hanger, stainless steel strainer, stainless steel rim guard, cast iron P-trap with adjustable floor flange.

2. Trim: ASME A112.18.1 exposed wall type supply with lever handles, spout wall brace, vacuum breaker, non-threaded spigot spout, strainers, eccentric adjustable inlets, integral screwdriver stops with covering caps and adjustable threaded wall flanges.
3. Accessories: a. 5 feet of ½ inch diameter plain end reinforced rubber hose. b. Hose clamp hanger. c. Mop hanger. d. Separate threaded spigot connected to cold water only adjacent to sink e. In-line check valve should be installed on mop sink faucets and hose bibs f. In-line ball valves should be installed upstream of the mop sink faucets

I. TRAP PRIMERS

1. Automatic trap primers shall be used to prevent p-traps from drying out in areas where drains may not be used regularly.
2. Trap primers shall be equipped with a simple flow switch on the incoming water feed.
 - a. Switch shall be tied in to BAS system and programmed to send alarm if switch is made for more than 5 minutes. This setting shall be adjustable.

J. EXTERIOR FAUCETS

1. Exterior frost-proof water faucets shall be installed around the perimeter of the building, no more than 100 feet apart.