

SECTION 22 40 00**PLUMBING FIXTURES****PART 1 - DESIGN DIRECTIVES****1.1 REFERENCES**

- A. ASHRAE Standard 18: "Method of Testing for Rating Drinking Water Coolers with Self-Contained Mechanical Refrigeration Systems."
- B. ARI Standard 1010: "Drinking-Fountains and Self-Contained Mechanically-Refrigerated Drinking-Water Coolers."
- C. ANSI Standard A117.1: "Specifications for Making Buildings and Facilities Accessible To and Usable By Physically Handicapped People."
- D. Public Law 101-336: Americans with Disabilities Act of 1991
- E. ANSI/NSF 61, Section 9: Drinking fountain compliance.

1.2 DESIGN REQUIREMENTS

- A. Acceptable Manufacturers for China Products: Kohler
 - 1. Alternate Manufacturers: Must conform to provisions in these design requirements.
 - a. American Standard
 - b. Toto
 - 2. Do not use Caroma Plumbing Products.
- B. Flushometers: Battery operated only
- C. Lavatories: Install with straight tailpieces and P traps. Offset tailpieces are not allowed.
- D. Shower Devices: Intended for public showers but may be used in living quarters.
 - 1. Preferred Piping System: Exposed removable cover.
 - 2. Not Preferred Piping System: Concealed in wall system.
- E. PVC Piping and Fixtures: Not acceptable in student dorms.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Store fixtures and trim in manufacturer's original shipping containers.
- B. Do not stack containers or store in a manner that may cause damage to fixtures or trim.

PART 2 - PRODUCTS**2.1 WATER CLOSET**

- A. Wall Hung, Flush Valve: 1.28-gallon water saving flush valve.
 - 1. Acceptable Manufacturer: Sloan Royal Flush Valve #111-SMO. No substitutions.
 - 2. Siphon jet action.
 - 3. Top Spud: 1-1/2 inch.
 - 4. Vitreous china.
 - 5. Extra-heavy duty elongated open front seat with check hinge.
 - 6. Compatible chair carrier.
 - 7. Mounting Height: 15-inch. 17-inch for ADA.
- B. Floor Mounted, Flush Valve: 1.28-gallon water saving flush valve.
 - 1. Acceptable Manufacturer: Sloan Royal flush valve #111-SMO. No substitutions.
 - 2. Siphon jet action.
 - 3. Top Spud: 1-1/2 inch.
 - 4. Vitreous china.
 - 5. Open front, solid plastic elongated seat.
 - 6. Bolt caps.
- C. Floor Mounted, Tank Type: 1.28-gallon water saving trim.
 - 1. Acceptable Manufacturers:
 - a. American Standard.
 - b. Toto Drake.
 - c. Zurn EcoVantage.
 - 2. Siphon jet action.
 - 3. Close coupled tank.
 - 4. Bolt caps.
 - 5. Chrome plated angle stop.
 - 6. Open front, solid plastic elongated seat.
 - 7. Floor-mounted back-flush toilets are not acceptable.

2.2 URINAL

- A. Wall Hung: Washout, 0.5-liter (0.125 gallon) battery operated water saver flush valve
 - 1. Acceptable Manufacturer:
 - a. New Installations: Zurn Omni-Flo High Efficiency Urinal.
 - b. Retrofit Installations: Zurn Omni-Flo High Efficiency Urinal.
 - 2. Top Inlet Spud: 3/4 inch.
 - 3. Vitreous china.
 - 4. Concealed chair carrier.
 - 5. Top of Rim: 24-inches above floor.
- B. Waterless urinals are not acceptable.

2.3 LAVATORY

A. Countertop:

1. Acceptable Manufacturers:
 - a. American Standard
 - b. Toto
2. Vitreous china
3. Oval: 20 x 17 inch
4. Self-rimming
5. Front overflow with faucet and waste assembly, and supplies
6. Adjustable "P" trap
7. Allow for straight tailpiece.

B. Wall Hung:

1. Acceptable Manufacturers:
 - a. American Standard
 - b. Kohler
2. Vitreous china
3. Oval: 20 x 18 inch
4. Front overflow
5. Soap depression
6. Integral backsplash
7. Concealed chair carrier
8. Faucet and waste assembly
9. Supply Stops: Chrome plated.

C. Faucet:

1. Acceptable Manufacturers:
 - a. Moeller
 - b. Chicago
2. Single lever, ADA compliant.
3. Body material: Solid brass
4. Finish: Chrome plated
5. Flow Elements: Cartridge type
6. Threaded male inlet shanks: 1/2-14 NPSM
7. Residential Applications: 1.2 gpm, maximum flow rate
 - a. Drain: Pop-up.
8. Public Applications: 0.35 gpm spray outlet (vandal proof).
 - a. Drain: Grid strainer. No Popup
 - b. Battery powered sensor faucet

2.4 ADA SHOWERS

- A. Basis of Design: Aquarius Model #S6430BF. One-piece, domed, acrylic roll-in shower. Fold-up seat, L-bar, curtain rod, shower drain, antibacterial curtain and 3/4" no recess BF threshold.
- B. Shower Head: For each shower unit. Symmons – Origins 9605-PLR-1.5-X-CHKS-VP-QD
- C. Mixing Valve: Pressure balance, anti-scald type
 - 1. Control Lever: Conform to current ADA requirements
 - 2. Stops: Hidden from view but accessible without removing entire shroud
 - 3. Showerhead: 1.5 gpm flow with vandal proof set screw

2.5 ELEVATION SUMP PUMP

- A. Basis of Design: STANCOR "Oil Minder" Model # SE50, 0.5Hp, 115 V, 1 phase. Submersible pump and control systems capable of pumping water while containing oil.
 - 1. Automatic system function: Provide for alarm and separate LED lights in event of:
 - a. The presence of oil in the sump
 - b. High liquid in the sump
 - c. High amps or a locked rotor condition
 - 2. LED Lights: Provided for (1) power and (2) pump run function
 - 3. Approved to UL 778 standards. Thermal and overload protection.
 - 4. Motor: Fractional horsepower, capable of operating continuously or intermittently.
 - a. Motor Housing: #304 stainless steel construction.
 - b. Mechanical Seats: Housed in a separate oil-filled compartment.
- B. Main Control: Approved to UL 508 standards
 - 1. Housing: Gasketed NEMA 4X enclosure. See-through window for observation of operating functions.
 - 2. Twist Lock Receptacle: 8-pin.
 - 3. Dual solid-state Oil-Minder relays with variable sensitivity settings
 - 4. Over current relay
 - 5. Self-cleaning stainless steel sensor probe
 - 6. High decibel warning horn with alarm silencing switch
 - 7. Dual floats
 - 8. Clearly marked terminal board and remote monitoring contact
 - 9. Junction Box: NEMA 4X with 8-pin twist-lock electrical receptacle and mating 8 conductor cable.
- C. Assembly: Factory assemble control unit, junction box, pump, floats and sensor as a complete, ready-to-use system.
 - 1. Tested and approved as a complete system by a nationally recognized testing laboratory. Allow for main control to be located outside of elevator hoistway to be monitored for all functions without having to enter the elevator shaft.

2.6 EYE-WASH FIXTURES

- A. Basis of Design: Guardian model G5046-vb-G3600LP. Install per manufacturer's recommendations

2.7 MOP SERVICE BASIN

- A. Floor mount, molded stone, white color
 - 1. Acceptable Manufacturers:
 - a. T&S Brass
 - b. Chicago Faucet
 - 2. Fiat basin
 - 3. Dimensions: 24" x 24" x 10" high
 - 4. Drain body
 - 5. Service faucet with integral spring check valves and vacuum breaker
 - 6. Hose and hose bracket
 - 7. Mop hanger
 - 8. Wall Guards: Stainless steel Service faucet

2.8 HYDRATION STATIONS

- A. Electric drinking fountain and bottle filling station.
 - 1. Acceptable Manufacturer: Elkay
 - 2. ADA compliant
 - 3. Filtered 8 GPH
 - 4. Push Bar: On front and sides
 - 5. Color: Light gray
 - 6. Mounting bracket
 - 7. Backsplash and Basin: One piece polished to a satin finish

2.9 SINKS

- A. Counter Top, Single Bowl (medium):
 - 1. Acceptable Manufacturer: Elkay
 - 2. Material: Stainless steel. Type 302, 18 gauge
 - 3. Self rimming, undercoated
 - 4. Compartment: 25" x 22" x 8" deep
 - 5. Faucet: With aerator, lever handles, and basket strainer
- B. Faucet:
 - 1. Acceptable Manufacturers:
 - a. Moeller
 - b. Chicago
 - 2. ADA compliant, single handle, chrome finish
 - 3. Flow Elements: Washerless, cartridge type
 - 4. Spout Length: 8"

5. Male Inlet Shanks: 1/2"-14 NPSM threaded
6. Aerator: 1.0 gpm flow
7. Spray attachments:

2.10 WALL MOUNTED SHOWER ASSEMBLIES

- A. Acceptable Manufacturer: Symmons – Hydapipe system.
- B. Features: All systems shall be considered heavy duty.
 1. Mixing Valve: Pressure balance, anti-scald type
 2. Control Lever: Conform to ADA requirements
 3. Stops: Hidden from view but accessible without removing entire shroud
 4. Showerhead: 1.5 gpm flow with vandal proof set screw
 5. Pipe Cover: 18 gage, type 304 stainless steel
 6. Integral soap dish

2.11 FIXTURE SUPPORTS

- A. Lavatory Supports:
 1. Acceptable Manufacturers:
 - a. J. R. Smith 0720 series
 - b. Watts CA-461
 - c. Zurn #Z 1253
 2. Adjustable cast iron with thin concealed arms and sleeves.
 3. Escutcheons and Mounting Fasteners: When mounting to masonry or concrete walls
- B. Lavatory Supports:
 1. Acceptable Manufacturers:
 - a. J. R. Smith 0720 series
 - b. Watts CA-461
 - c. Zurn #Z 1253
 2. Cast iron supports and tubular steel uprights with concealed arms and sleeves, mounted on adjustable headers.
 3. Escutcheons.
 4. Heavy cast-iron short feet
 5. Alignment trusses
 6. Mounting fasteners
- C. Water Closet Supports: Adjustable
 1. Acceptable Manufacturers:
 - a. J. R. Smith 0720 series
 - b. Watts CA-461
 - c. Zurn #Z 1253
 2. Factory painted

3. Cast iron face plates
4. Support base
5. Waste Fitting: Appropriate type having face plate gasket
6. Fixture Studs and Fasteners: Zinc plated steel
7. Adjustable Wall Coupling: Coated and threaded with neoprene closet outlet gasket
8. Chrome plated fixture cap nuts and fiber fixture washers
9. Appropriate model to suit deep or shallow rough-in
10. Siphon jet or blow-out water closet, and type of sanitary piping system to which it is connected

D. Concealed Arm Supports for Urinals:

1. Acceptable Manufacturers:
 - a. J. R. Smith 0720 series
 - b. Watts CA-461
 - c. Zurn #Z 1253
2. Top Plates: Steel with bolts to support fixture independent of wall. Utilize cutouts when used with back inlet urinals
3. Adjustable sleeves: Steel tubular uprights and alignment trusses
4. Steel plates with adjustable holes, bolts, nuts
5. Chrome plated cap nuts and washers

2.12 **FITTINGS, TRIM, AND ACCESSORIES**

- A. Toilet Seats: Elongated, solid white plastic, closed back, open front, less cover, and having stainless steel check hinge and replaceable bumpers.
- B. Supplies and Stops: Polished chrome plated, angle stop
1. Acceptable Manufacturer: Brass Craft #0R15C or equal
 2. Inlet: 3/8" IPS inlet
 3. Outlet: 3/8" O.D. compression x 12" long flexible tubing or braided hose
 4. Wall Flange and Escutcheon: Threaded connections only.
- C. Traps: 17 gauge minimum. Cast brass. Adjustable "P" trap with cleanout and waste to wall.
1. Kitchen Sink Drain Tail Piece: Single tube, thread connection to basket (Hi-Way style), with slip connection at the trap. The use of slip connections in the vertical rise is not acceptable.
 - a. Acceptable Manufacturer: McGuire Mfg. #111CxxG17 or 113CxxG17
- D. Chrome-plated sheet steel escutcheons with friction clips

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed, do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install plumbing fixtures level and plumb, in accordance with fixture manufacturer's written instructions.
- B. Fasten plumbing fixtures securely to supports or building structure. Secure supplies behind or within wall construction to provide rigid installation. Wall hung lavatories shall be supported by an appropriate carrier specified in Part Two of this standard. Manufacturer's wall brackets are not acceptable.
- C. Install a stop valve in an accessible location in the water connection to each fixture.
- D. Install escutcheons at each wall, floor, and ceiling penetration in exposed finished locations and within cabinets and millwork.
- E. Seal fixtures to walls and floors using a mildew resistant, flexible sealant, color to match fixture color.
- F. Install floor mount water closets using wax rings less horn. Use horn type wax rings only where required for old construction.

3.3 MOP BASIN INSTALLATION

- A. Install a dedicated cold water only faucet with anti-siphon (specified in DC Design Requirements 22 11 00) at each mop basin for connection to the owner supplied chemical dispensing station.

3.4 FIELD QUALITY CONTROL

- A. Test fixtures to demonstrate proper operation upon completion of installation and after units are water pressurized. Replace malfunctioning units, then retest.
- B. Inspect each installed unit for damage. Replace damaged fixtures.
- C. Repair or replace leaking or dripping faucets and stops.

3.5 PROTECTION

- A. Provide protective covering for installed fixtures, water coolers, and trim.
- B. Do not allow use of fixtures for temporary facilities.

END OF SECTION 22 40 00