



## **DIVISION 22 00 00 PLUMBING**

1. GENERAL.
  - A. Add shutoff valves to all runouts in project scope area where there are none.
  - B. Allow access space for servicing all valves.
  - C. Install stop valves in a readily accessible location.
  - D. Provide motorized isolation valves with a manual override for domestic water systems as the primary means of isolating the building from the campus distribution system. Motorized isolation valves to be controlled by the campus BAS, and the associated sequence of operation is to allow for each valve's associated system to be shut down in a controlled and safe manner. Refer to section 23 09 23 for additional information regarding BAS. Provide these valves at the piping entrance to each building. The building can be shut down through the building automation system.
  - E. Provide two floor drains and one wall hydrant at each air handling unit.
  - F. Use no-burst flexible supply connectors to all lavatories, tank toilets, and sinks.
  - G. Hot water temperature should be capped at 120 degrees Fahrenheit. Safety showers and eyewash temperature should be set between 60-100 degrees Fahrenheit.
  - H. Saddle tee fittings shall not be used.
2. PRODUCTS.
  - A. SHOWER VALVES
    1. Shower valves to be pressure balance compensating.
    2. Integral checks in the cartridge preventing cross flow between hot and cold water inlets.
    3. Integral screwdriver stops with ½" universal inlets and outlets.
  - B. MIXING VALVES
    1. Symmons 5-1000.

### **SECTION 22 05 76 FACILITY DRAINAGE PIPING CLEANOUTS**

1. FLOOR DRAINS AND CLEAN-OUTS.
  - A. Floor shall be sloped to the floor drain.
  - B. Floor drains in concrete slabs to have floor-level full size clean-out.
  - C. Provide floor drains in all mechanical rooms, public restrooms, housekeeping rooms, and at safety showers.



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- D. Floor drains to have "Trap Guard" only.
  - E. Provide hose bibb with secure connection in each restroom for new construction and full-building renovations.
  - F. Ceiling clean-outs are NOT acceptable. Wall clean-outs are preferred.
  - G. Clean-outs on overhead drains shall be extended through and installed flush with the floor above.
  - H. Concealed clean-outs shall be provided with:
    - 1. An accessible access panel.
    - 2. A through-wall extension with a chrome escutcheon installed flush with the wall.
2. For all full-building renovations and others as applicable, Designers or Contractors shall be required to camera and inspect existing sanitary drain lines to determine need and/or extent of cleaning or replacement. Scope of inspection to be set specific to each project.

### **SECTION 22 13 00 FACILITY SANITARY SEWERAGE**

#### **1. GENERAL.**

- A. All renovation projects with a site component must consider existing site drainage and make improvements as necessary. New work shall not create a drainage issue for an adjacent site or building.

### **SECTION 22 13 19.26 GREASE REMOVAL DEVICES**

#### **2. GREASE TRAPS.**

- A. Must be installed with any full service kitchen.
- B. Only kitchen drains should be piped to grease trap.
- C. Trap is preferred to be installed exterior to the building and underground cover.

### **SECTION 22 40 00 PLUMBING FIXTURES**

#### **1. GENERAL.**

- A. All fixtures are to be ADA accessible for either standard or handicapped application.
- B. All fixtures are to be white.
- C. For remodeling projects, fixtures within a single restroom should match.



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- D. Escutcheons: Install at each wall and ceiling penetration in exposed locations and within cabinets and millwork.
- E. Seal fixtures to walls, floors, and counters using a sanitary type and mildew resistant white silicone sealant. Floor mounted toilets are NOT to be caulked at floor.
- F. All water closets shall be floor-mounted, floor discharge with flush valve.
  - 1. Wall-mounted water closets are only acceptable for renovations where existing conditions prevent changing to floor-mounted.
  - 2. All renovations including wall-hung water closets must include changing steel nipples to plastic.
  - 3. If building conditions allow, renovations retaining wall-hung water closets shall provide 34-36" minimum clear access space behind pipes in plumbing chase.
- G. Do not use back discharge or tank-type toilets.
- H. All auto-flush mechanisms shall be battery powered. No hardwired installations.
- I. Include at least one automatic faucet in each restroom design for touch-free operation.
  - 1. TTU prefers all faucets to be automatic operation where possible.
  - 2. High-volume use restrooms serving assembly occupancies shall have all automatic faucets.
- J. All fixtures to meet ANSI A112.19.2.
- K. ACADEMIC BUILDINGS.
  - 1. All water closets and urinals shall have auto-flush operation.
  - 2. All lavatory faucets shall have automatic operation.
- L. RESIDENCE HALLS.
  - 1. Do not include urinals in community restrooms.
  - 2. Lavatories shall not have automatic faucet operation.
  - 3. Water closets shall not have auto-flush operation.

### 2. PRODUCTS.

- A. WATER CLOSETS, FLOOR MOUNTED.
  - 1. Vitreous china construction.
  - 2. Elongated bowl.
  - 3. Siphon jet action.
  - 4. Use stainless steel metal rings on PVC closet flanges.
  - 5. Flange bolts to be a minimum 5/16".
  - 6. Flush to be 3.5 GPF minimum.



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7. Tank type toilets shall have Fluid Master Pro 54 flappers and Pro 45 fill valves (or equal) with 5-year warranties. Prefer pressure-assisted tank toilets. Note: tank toilets are only acceptable as maintenance of existing.

### B. WATER CLOSETS, WALL MOUNTED.

1. Vitreous china construction.
2. Elongated bowl.
3. Siphon jet action.
4. Chair Carriers.
5. Note: wall-mounted water closets are only acceptable in existing conditions where fixtures cannot be changed to floor-mounted.

### C. URINALS.

1. Vitreous china washout.
2. Wall hanger or Chair Carrier.
3. Include auto-flush with 1.5 GPF minimum.

### D. LAVATORIES.

1. In vanities, drop-in lavatories are preferred. Solid-surface counters with integral lavatories are also acceptable.
2. Front overflow.
3. Public access lavatories are to be equipped with scald guard faucets set at maximum 110 degrees F. Contractor must verify during construction.
4. Self-draining deck with contoured back and side splash shields.
5. Wall mounted lavatories shall have Chair Carriers.

### E. MOP SINKS. "Mop Service Basin"

1. Corner and floor mount type preferred.
2. Acid resisting surface.
3. 3" drain with screen.
4. Stainless Steel backsplash surround.

### F. STAINLESS STEEL SINKS.

1. Drop-in sinks only, no undermount sinks shall be allowed.
2. 18-gauge minimum brushed stainless steel.
3. Flat back extension with center set holes 8" on center for faucet.



Zurn Z915-XL

### G. FAUCETS AND TRIM.

1. Automatic faucets.
  - a. Basis of design: Zurn #Z915-XL 1.5 GPM
2. Traditional faucets.
  - a. Single handle Basis of design: Delta 501-DST
  - b. Double Handle Basis of Design: Delta 2502LF



Delta 501-DST



Delta 2502LF



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3. Ceramic disk or rotating cylinder or ball with stainless steel plate with replaceable non-metallic seats operating in stainless steel lined sockets with lifetime guarantee.
4. Cast brass with polished chrome plating.
5. Provide non-removable strainer with integral spud in public restrooms.
6. ADA locations may be automatic or have two wrist blade handles.

### H. HOUSEKEEPING FAUCETS.

1. Faucet must have integral check valves and vacuum breaker.
2. Include hose, connection, hose bracket, mop hanger, and pail hook.
3. Use stainless steel wall protectors if walls are porous.
4. If dedicated water heater is needed, it shall be small tank type (5 or 6 gallon.)

### I. FLUSH VALVES.

1. No piston-type flush valves to be used.
2. Water closets.
  - a. Manual: Sloan Regal or equal products by Zurn; 3.5 GPF.
  - b. Automatic Sensor: Sloan Regal 110 SMO Flushometer 3.5 GPF or equal.
3. Urinals: Sloan Regal or equal products by Zurn; 1.5 GPF.
  - a. All urinals must be automatic flush.
4. Sensor flush is to be provided as noted above in GENERAL.



*Sloan Regal 110 SMO*

### J. TOILET SEATS.

1. Injection molded plastic only.

### K. PLUMBING FIXTURE SUPPORTS.

1. ASME rating for service
2. Chair carriers
  - a. Supports for steel piping uprights for wall hanging fixtures.
  - b. Urinal chair carriers shall have bearing plates.
  - c. Heavy duty chair carriers shall have rectangular steel uprights.
  - d. Lavatory chair carriers are to be equipped with feet attached to the floor.



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### SECTION 22 47 00 DRINKING FOUNTAINS AND WATER COOLERS

#### 1. GENERAL.

- A. Quantity of drinking fountains shall be located per code, minimum one per floor of each building.
- B. Bottle-fill stations shall be provided in at least one location per floor of each building.
- C. Provide non-porous wall finish such as tile behind all drinking fountains and bottle-fill stations.

#### 2. PRODUCTS.

##### A. DRINKING FOUNTAINS.

1. Single unit dual height for accessibility.
2. One-piece stainless-steel backsplash plate and basin if walls are porous.
3. Exterior casing to be stainless steel or vinyl coated steel.
4. 8.0 gallons per hour minimum capacity.
5. Non-CFC refrigerant.
6. Basis of design: Elkay EZS8L.



Elkay EZS8L

##### B. BOTTLE-FILL STATIONS.

1. A single bottle-fill unit shall be provided as a combination drinking fountain/bottle-fill station. The bottle-fill station shall be provided on the ADA height drinking fountain where two fountains are provided. Comply with ADA reach requirements for bottle-fill stations.
2. At least one bottle-fill unit shall be provided on each floor of all new construction.
3. For residence hall applications where drinking fountains are not required, a combination fixture including a drinking fountain and bottle-fill unit shall be installed, one per floor.
4. Renovations may utilize a retrofit bottle-fill station on an existing drinking fountain if compatible, however, full unit replacement is often more economical.
5. Combination drinking fountain and bottle-fill unit:
  - a. Basis of design: Elkay LZS8WSSP.



Elkay LZS8WSSP