

220000 Plumbing

Sections Included In This Standard:

- 1.1 Plumbing Piping
- 1.2 Plumbing Specialties
- 1.3 Plumbing Fixtures
- 1.4 Disinfection of Water Distribution Systems

1.1 PLUMBING PIPING

A. DOMESTIC WATER (INSIDE THE BUILDING)

1. Copper tube Type L soldered to wrought copper or cast bronze fittings.
2. Solder joints shall be provided with a lead free material approved by NSF (National Sanitation Foundation) and in compliance with ANSI 61 suitable for domestic water systems.
3. Solder paste shall be non-toxic, water-based approved by NSF for use in domestic water systems. Solder paste shall be suitable for solder based filler material used. Acid flux is prohibited. Uses of solder materials not approved by the NSF and not in compliance with ANSI 61 are prohibited and are not acceptable.
4. Use of Propress system copper and brass fittings & adapters are permitted on piping for water or air systems. Propress copper gas lines shall be permitted with approved gas fittings.
5. ACCEPTABLE MANUFACTURERS: Viega, Nibco, Muller, and Elkhart.

B. REVERSE OSMOSIS / DEIONIZED WATER: CPVC shall be used for plumbing piping for RO water systems, but may not be suitable for DI water systems.

C. PVC schedule 40 DWV piping shall be permitted in place of cast iron where Florida Building Code allows, but shall not receive hot discharge in excess of 140° F.

1.2 PLUMBING SPECIALTIES

A. ACID DILUTION OR NEUTRALIZATION PITS: Acid dilution or neutralization pits are not required, nor recommended, for any new construction or renovation project.

B. BUILDING FLOOR DRAINS

1. Provide floor drains in all toilet rooms, mechanical equipment rooms, rooms with wash-down capability, and rooms housing equipment with indirect waste.
2. Floor drains in buildings shall be self-priming.
3. Provide electronic trap primers for floor drains unless there is a permanent water supply.

C. Key-operated hose bibs shall be provided in toilet rooms with more than two waster closets or

urinals, machinery rooms, and at 200-foot intervals in exterior areas for maintenance use.

- D. Cleanouts on back-to-back or side-to-side lavatories and urinals shall be a minimum 6" above the flood level rim of fixtures being served including those cleanouts designed to rod water closets. Cleanouts shall be within 3" of the access panel.
- E. Isolation valves shall be installed in every restroom, break room, and laboratory. Valves shall be located within room before first branch feed or within a hallway no more than 10 feet from the first branch feed.

1.3 **PLUMBING FIXTURES**

A. WATER HEATERS

- 1. Provide domestic hot or tempered water as required by code(s).
- 2. Solar is an acceptable alternative means of heating water, but a positive long-term cost model that justifies the life cycle cost shall be provided during design.
- 3. Point-of-use gas or electric water heaters may be specified.

B. WATER CLOSETS

- 1. All water closets shall be wall-mounted, low-flow fixtures with 1.6 gpf auto-flush valves.
- 2. Acceptable Manufacturers: American Standard, Briggs, Kohler, Zurn, Toto, Sloan, Proflo, Moen
- 3. The harvesting and use of condensate from HVAC as the primary flushing agent for water closets is encouraged. Designers must ensure water is properly filtered before it is used as gray water.

C. URINALS

- 1. All urinals installed in new construction or renovations shall be low flow (≤ 1 pint). Urinals shall be standard white, vitreous china.
- 2. Acceptable Manufacturers: American Standard, Sloan, Zurn, Kohler, Toto, Moen
- 3. The harvesting and use of condensate from HVAC as the primary flushing agent for water closets is encouraged. Designers must ensure water is properly filtered before it is used as gray water.

D. FLUSH VALVES

- 1. Flush valves shall be automatic sensor-driven or low flow type.
- 2. Acceptable Manufacturers: American Standard, Briggs, Hydrotek, Kohler, Sloan, Zurn, Moen
- 3. Consider the use of solar-powered flush valves.

E. LAVATORIES

1. Vanity type is preferred.
2. Acceptable Manufacturers: American Standard, Briggs, Kohler, Moen

F. FAUCETS

1. Restroom faucets.
 - (a) Automatic electronic sensor-controlled faucets shall be used in all restrooms.
 - (b) All faucets shall include vandal-resistant aerators with a flow rate of 0.5 gpm or less.
 - (c) Designers shall consider the size of the faucet or location of the sensors on the faucet as compared to the vanity it serves to avoid excess water on the vanity from normal hand-washing.
 - (d) Consider the use of solar-powered faucets where applicable.
 - (e) Acceptable Manufacturers: Delta; T&S Brass; Sloan; Chicago, Hydrotek, Moen, WaterSaver
2. Spring coiled-self closing faucets shall be used when dispensing with demineralized / deionized water systems and reverse osmosis water.

G. SHOWERS

1. The drain shall have a readily removable strainer for cleaning of the trap.
2. The valve shall have internal stops or internal shutoff valves for service.
3. The shower head shall be no larger than 2.0 gpm.
4. Acceptable Manufacturers for valves and heads: Delta; T&S Brass; Sloan; Chicago, Hydrotek, Moen, WaterSaver

H. WATER FOUNTAINS

1. Fountains shall not be recessed into the wall.
2. New or replacement fountains shall have both bubblers and water bottle fillers.
3. Acceptable Manufacturers: Ebco, Elkay, Oasis

I. BACKFLOW PREVENTERS: See section 331000.

1.4 **DISINFECTION OF WATER DISTRIBUTION SYSTEMS (WITHIN BUILDINGS)**

- A. GENERAL: All piping for water distribution systems shall be cleaned and tested.
- B. POTABLE WATER LINES

1. Flushing, cleaning, sterilization and pressure testing procedures shall be explicitly specified, and shall comply with the State of Florida Health Standards.
2. Water samples shall be tested at Water samples shall be tested at HRS/Alachua County Public Health Unit, Environmental Health Division. Currently a fee is charged for this test. Test results are to be forwarded to the UF Project Manager and Physical Plant Division, Operations Engineering Section before service is turned on. A representative from PPD Operations Engineering should be present during the water sampling.

RELOCATE TO DIV. 23 (FUTURE):

- C. CHILLED, HEATING, AND CONDENSER WATER SYSTEMS: All chilled, heating, and condenser (cooling tower) water piping shall be flushed, cleaned, pre-treated, and initially treated by the builder, in accordance with the procedures of the Water Treatment Vendor under contract with PPD at the time the system is put into service. Cost of this initial treatment is to be borne by the builder. The Water Treatment Vendor shall supply chemicals at the University contract price. The builder is required to maintain treatment until the system is connected to the central system, or Substantial Completion, whichever comes first.

No equipment shall be put into service prior to initiation of water treatment. The system shall be inspected by the PPD prior to its return to service.

END OF SECTION