

The Design Guidelines, which follow, are intended to supplement the Educational Specifications and State Requirements for Educational Facilities (SREF). **Note: All fittings shall be installed by no less than a journeyman level plumber.**

The Design Professional (DP) shall provide General Plumbing Design Criteria and information with the Phase II submittal. This shall include the following information as a minimum:

- A The location and source of water supply. Water supply shall be from a utility. The maximum estimated water demand and the anticipated pipe size for additions, provide a brief review of the adequacy of the existing water service and/or the need for replacement and/or upgrading.
- B The location and sanitary system to which connection will be made. Connect sanitary to utility where available. Provide an estimate of the number of fixture units, which will be on the system and the anticipated pipe size. For additions, provide a brief review of the existing sanitary systems' ability to handle the additional load.
- C Provide a plan, which identifies points of connection, proposed general site routing of water and sanitary piping and where it will enter each building.
- D On all projects, a second backflow preventer shall be added at 50% of size or minimum 2 inch to maintain line pressure above 20 psi during service of main domestic backflow preventer. **Note: All Exterior Backflow Devices Shall Have Protection Consisting of Concrete Bollards and/or Hot Box with Concrete Pad.**
- E For renovations and additions, Design Engineer, shall add a note to the Plans stating that the General Contractor shall hire a Survey/Locator Company to locate/identify all underground piping, etc. DCSB maintenance personnel will not be available to provide this service.

The plumbing system shall be designed and materials and components selected with ease of maintenance and simplicity as prerequisites.

- A Piping should not be located beneath a concrete slab or other inaccessible locations where possible. This is particularly true for water piping. Water service piping should rise from below grade just inside an exterior wall and then run above the ceiling.
- B All underground pipe which extends beyond the building, regardless of pipe material (metallic or non-metallic), shall have a stainless steel locator wire #12 gage installed. Locator wire shall be securely terminated at all ends where the piping rises above ground and phenolic nameplates shall be permanently secured beside terminations with a brief description of the piping service and where it extends.
- C Water piping isolation valves shall be provided outside in valve boxes where the service enters each building. In addition, isolation valves shall be located in accessible locations in each branch serving a Toilet Room and wing in a building and at all fixtures.

NOTE: Outdoor isolations valves from 1/2 " to 2" shall be ball valve, curb, stop-type or JEA standard. Greater than 2" shall be full body, cast iron, resilient, wedge valve or JEA standard.

- D Sewage disposal will be local utility company.
- E Cleanouts will be dispersed throughout the facility to accommodate proper maintenance of

the system. The cleanouts shall be located between all fixtures and re-vented at all locations.

Plumbing materials shall be as follows:

Water piping inside the building above grade shall be type “K” hard copper. Water piping below grade shall be type K hard copper with schedule 80 fittings. Interior water piping shall be type “K” hard copper with fittings. Only copper shall be used in return air plenums.

Copper Fittings All fittings shall be soldered type or pressed type. Pressed type fittings shall have: 1. Built in leak detection technology to provide the installer quick and easy identification of connections which have not been pressed prior to putting the system into operation. 2. All fittings shall not have soldered-by-press adapters. 3. Fittings larger than 2 ½ inches shall incorporate a stainless steel grip ring to maximize mechanical strength. **Note: Viega Brand or DCPS approved equivalent only. The compression tool must be approved by the manufacturer of pressed fittings.**

Sanitary piping to be schedule 40 PVC with approved sanitary fittings. Sanitary piping installed in a return air plenum shall be cast iron (unless otherwise specified by DCPS). Attention shall be paid to location and number of clean outs. Every Group Toilet Room shall be provided with a cleanout on the main vent stack with an access door.

Isolation valves to be bronze full port ball valves with stainless steel balls and nylon seats and located on all branches and at each wing. Visual identification shall be provided at ceiling grid access. Access shall be provided at all hard finishes.

Water and DWV piping Hangers Copper pipe shall be supported in loop hangers P.V.C. coated sized to fit / Loop hanger copper coated with copper pipe wrapped with **ISOLATION TAPE** – tape shall extend 1 ½” on each side of the loop hanger. Clevis hangers shall be used only on pipe over 2 ½” in size or larger / if copper pipe is being supported pipe must be wrapped with Isolation Tape and shall extend 1 ½” on each side of the hanger.

Beam Clamps & Hanger Rods Hanger rods shall be threaded both ends, or continuous threaded rods of circular cross sections. Use adjusting locknuts at upper attachments and hangers. C-Clamps shall have locknuts and cup point set screws. Do not support piping from other pipes, conduit, ductwork or other equipment that is not building structure.

Note: In outdoor and corrosive areas all hanger / strap hardware shall be hot dip galvanized or stainless steel. Zinc plated hardware is not acceptable for outdoor or corrosive use. If copper pipe is used with hot dip galvanized or stainless steel it shall be wrapped with isolation tape at point of hanger and extend 1 ½” on each side of the hanger / strap.

Plumbing fixtures to be selected from the following approved lists in each category manufacture and/or model number may be listed:

Water Closets (Manufacturer Only Listed)

- ✓ American Standard;
- ✓ Crane;
- ✓ Eljer;
- ✓ Kohler;
- ✓ Briggs;

- ✓ Toto;

Lavatories -Sinks (Manufacturer Only Listed)

- ✓ Acorn;
- ✓ Bradley;
- ✓ Intersan;

Sensor Faucets

- ✓ Zurn Model #6917 (Battery Operated);
- ✓ Intersan Model #SNIW Series (Battery Operated);
- ✓ Bradley Model #EXPRESS SS1 (Battery Operated);

NOTE: All Sensors must be battery operated. All sensor faucets shall be low profile and vandal resistant. Access to batteries must be located at the faucet. Must be able to change batteries without shutting off faucet. Faucets with separate boxes for controls and/or batteries are not acceptable.

Non-Sensor Faucets (Non-Kitchen Applications)

- ✓ T & S Brass; B-0305 and B-0892
- ✓ Bradley; Aerada 90-75 (S53-053) & (S53-058)
- ✓ Chicago; ECAST 3400-ABCP and 350-CP
- ✓ Kohler; K-7512-H and K-7404-2A

Chicago, Kohler, Bradley and T&S Brass Faucets are acceptable lavatory faucet Manufacturers. **NOTE: Use single faucet for single cold-water faucet applications. Simmons faucets are not acceptable.**

Plumbing trim shall be American Standard, Crane, Eljer, Chicago, Kohler or Bradley. Flush valves shall be Sloan, Regal or Zurn. **This is a Duval County standard and substitutions are not acceptable.**

Acid waste and vent piping to be equal to Fuseal polypropylene piping system manufactured by Sloan. No glass

Gas piping to be black steel schedule 40 above grade and black steel schedule 80 coated with coal tar shellac below grade. Contractor shall purge and fill all LP gas tanks after installation and leak testing has been completed.

LP Tanks will be supplied and piped by the contractor and owned by the District.

Water Closets to be floor mounted so as to reduce vandalism associated with wall-hung water closets.

Sensor Flush Valves to be selected from the following approved lists in each category manufacture and/or model number may be listed:

- ✓ Zurn Model #ZERK-CPM (Use on Urinals Only);
- ✓ Hydrotek Model #HB8000C-A (Use for WC Only);
- ✓ Hydrotek Model #HB8000C-B2 (Use for Urinal Only);
- ✓ Sloan, SOLIS-8110 (WC Only), SOLIS-8180 and SOLIS-8186 (Urinals Only)

DESIGN GUIDELINES – DUVAL COUNTY PUBLIC SCHOOLS

Lavatories should be solid surface, wall mounted, with extended-arm chairs/carriers (if applicable), all others must be DCPS approved. Installation layout should follow “Sandalwood/Fort Caroline” layout to reduce vandalism. See Above for acceptable manufactures. **NOTE: All extended-arm chairs/carriers shall be secured to the floor and wall via backer board.**

Electric water coolers to be provided inside the building only and where required as determined by Code. Outside water coolers are not acceptable due to vandalism (non-secure areas). Electric water coolers shall be wall-mounted and **shall not be recessed.** Water coolers shall be located in the Cafeteria and adjacent to Group Toilet Rooms. Water fountain and cooler finish shall be stainless steel.

Hot water shall be provided in teachers lounge, clinic, kitchen, and other locations as required by code. Hot water shall be provided in lavatories serving Food Preparation Areas or applications having special requirements such as facilities to accommodate the severely handicapped. Small water heaters may be electric, **however instamatic point of use heaters will not be used.** Larger capacity water heaters serving the Kitchen or Locker Rooms shall be natural or L.P. gas fired. Preferred Manufacturers for water heaters are State, Rheem, Ruud, A.O. Smith. **Note: Recommend use of “tankless” gas water heaters where applicable. Recommended manufacturers are Rinnai or Noritz**

Hose bibs on the outside of the building and within Group Toilet Rooms shall be installed. No locking wall boxes or wall-hydrants are permitted. An isolation valve shall be provided internally within the ceiling. In addition to SREF hose bibb requirements, provide a hose bibb at garbage dumpsters, adjacent to a group of air conditioning condensing units or a cooling tower and in large Mechanical Rooms that have sloped floors to drains.

Trap primers to be from lavatory water supply and device shall be installed **concealed** beneath lavatory. **Trap primers from flush valves shall not be allowed.** Do not install in Kitchens unless otherwise required by Code. Provide in all Mechanical Room floor drains.

In retro-fit applications, special consideration shall be given to the resulting aesthetics where piping is installed exposed to view outside of equipment or Storage Rooms. The routing and placement of piping, such as in the wall/ceiling corner, shall be considered so as to minimize its negative aesthetic impact. Piping shall be painted to match the adjacent surface where exposed in finished spaces.

All can washes shall have hot water.

Grease traps to be located on the exterior of the building and shall be accessible. Minimum size shall be sized in accordance with Code with clean outs on inlet and outlet. No “bacteria-type” grease traps will be allowed.

Irrigation Systems to use schedule 40 PVC piping. **NO exceptions are permitted.**

Only black toilet seats are acceptable.

Water supply from local utility will be used in the Facility. The water supply system will be “zoned” to allow ease of maintenance without the need to cut off water to the entire facility.

- a. Provide master valves outside building at each hose bib.
- b. All fixtures will be provided with shut-off valves
- c. Major fixture “groupings” will be valved. Provide shut-off controls for each Toilet Room, Kitchen and each floor or building wings.

ADDITIONAL NOTES: The use of offset floor flanges shall not be permitted. All PVC WC flanges shall have stainless steel ring appropriately secured to the floor. All WC must be “roughed-in” on 12” centers.

END OF SECTION 15500