
DIRECTIVE 15P-2

Issue date: June 2017

GENERAL PLUMBING REQUIREMENTS

1. General Design and Performance Criteria
 - a. Refer to Directive 15H-10 “Piping Types and Materials” for piping and fitting materials for plumbing systems.
 - b. Design of domestic water systems shall prevent all cross connections. See Directive 15P-5 “Backflow Prevention Devices.”
 - c. See Directive 15H-8 “Laboratory Design” for emergency eyewash/shower and floor drain requirements.
 - d. All components in potable water systems intended to dispense water for human consumption, including but not limited to piping, pipe fittings, valves, solder, flux, drinking fountains, plumbing fixtures, plumbing fixture trim, shall comply with the “Reduction of Lead in Drinking Water Act”, Federal Public Law 111-380 to comply with allowable lead content. The respective component specifications shall include the wording “Lead free or low lead” and reference the need to comply with NSF/ANSI 372, NSF 61 Annex G or California AB 1953.
 - e. Water temperatures shall comply with the following, except for health care facilities consult with SUCF for these requirements :
 - 1) Cold water supply temperatures to be below 77°F.
 - 2) Generate and distribute hot water at 140°F.
 - 3) Provide an ASSE certified mixing valve listed specifically for the type of fixture or group of fixtures with the sufficient turndown (equal to the lowest connected fixture flow rate) to limit the hot water to maximum temperature as per the prescribed levels of the NYS codes.
 - 4) All lavatories or group of lavatories either public or private shall be provided with an ASSE 1070 certified mixing valve to limit temperatures to less than 110°F.
 - f. Comply with requirements of municipal water utility or Campus standards for metering. Include provision for connection of remote monitoring and recording usage, and include unions/flanges and valves to allow for meter replacement.
 - g. Use butterfly and full port ball valves in lieu of gate valves.

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- h. Provide line size shut-off valves at locations required for proper operation, servicing, and troubleshooting of domestic water distribution systems and connected components. Locations shall include but not be limited to the following:
 - 1) At each fixture and piece of equipment.
 - 2) At each branch take-off from mains.
 - 3) At the base of each riser.
 - 4) At each battery of fixtures.
 - 5) At strategic locations to provide sectional isolation of distribution without disrupting services to larger portions of the system.
 - i. All valves shall be accessible for operation and servicing. Provide access panels for all concealed valves.
 - j. For renovation projects where permanently disconnecting piping from fixtures or equipment, remove all piping back to active mains and cap at that point to avoid stagnation.
 - k. For renovation projects where existing piping is being considered for reuse, assess the condition and capability of the piping prior to Bidding the project.
 - l. Confirm with the Campus the need for domestic water conditioning (filtration, softening or other quality adjustments).
2. Piping
- a. The building sanitary system is expected to flow by gravity to the exterior sanitary sewer. Sanitary drains that cannot be discharged by gravity shall be routed to a sump and be pumped out to a point in the sanitary sewer capable of flowing by gravity. Provide duplex, lead-lag pumps with local audible and building management system high water alarms. Confirm with the Campus if pumps are to be connected to standby power.

When locating sumps, proximity to an opening in the building exterior should be considered to allow for pumping out or cleaning of sumps by equipment outside the building.

Provide mechanical or natural ventilation of rooms containing sumps.
 - b. As much as possible route indirect drainage to sinks in janitor's closets or other suitable fixtures instead of providing indirect drains with trap seals or primers on storm or sanitary lines.

- c. Trap primers are not desirable and use of them should be avoided. Trap guards or seals are recommended in lieu of trap primers for indirect drain connections to storm or sanitary lines.
 - d. Where indirect drain connections cannot be avoided, they must be accessible. Do not conceal indirect drains in walls or other construction.
 - e. Do not locate drains, drainage piping, or domestic water piping above sensitive equipment or areas such as electrical rooms, electrical closets, telecommunication rooms, IT rooms, etc. where water leakage would cause significant property loss, contamination, or disruption to building utility systems.
 - f. Confirm with the Campus the need for a hose bibb (24" – 30" above finished floor) and a floor drain in each mechanical room.
 - g. Confirm with the Campus the need for and location of hose bibbs in restrooms.
 - h. Confirm with the Campus the need for and location of a floor drain in restrooms.
 - i. Coordinate invert elevations with civil engineer for all drainage piping leaving the building.
 - j. Locate isolation valve and solenoid valve if provided, for cooling tower make-up water line inside the building. Slope make-up water line outside the building to drain to cooling tower basin.
 - k. Determine where the campus will install chemical dispenser systems for janitors closets, kitchens or any other locations. To prevent direct connection of a chemical dispensing system to the service/mop sink faucet provide a separate capped cold and hot water supply with valves to the space in a location as directed by the campus. Lines are to be used for future connection by the campus to the chemical dispenser, emergency eye-wash and/or shower.
3. Fixtures and Equipment
- a. Provide 1/8 gallon per flush urinals with the concurrence of the Campus.
 - b. Waterless urinals shall not to be used unless requested by the Campus.

- c. Confirm with the Campus whether dual flush water closets, and manual, AC electric powered, or battery powered electronic sensor flush valves and sink faucets should be provided.
- d. Confirm with the Campus whether floor mounted or wall mounted water closets should be provided. Wall mounted water closets shall be supported by carriers bolted to the floor. Fixture weight shall not be transmitted to walls or partitions.
- e. Fixture color shall be white unless the Campus specifically approves other colors.
- f. Where emergency eyewash stations are provided do not select the type integral to the faucet for service/mop sinks.
- g. Locate grease interceptors and separators inside or outside the building in accordance with Campus preference.
- h. Provide dishwashing equipment with booster heater to produce the necessary water temperature.
- i. Confirm with the Campus the locations and spacing of freeze proof wall hydrants on building exterior.
- j. Connect domestic water booster pumps and sump pumps to standby power in accordance with Campus preferences.
- k. Domestic water heaters:
 - 1) When utilizing steam, high temperature hot water, or medium temperature hot water provide a packaged manufactured water heater including controls and control valve provided by the water heater manufacturer.
 - 2) When utilizing natural gas, provide condensing water heater.
 - 3) Instantaneous/tankless electric water heaters are limited to small point of use or remote applications.

- I. Domestic hot water recirculation:
 - 1) For clinical installations provide a hot water recirculation system that provides hot water at each point of use which meets an agreed to “time to temperature” performance. Confirm with local Department of Health and Campus the time to temperature requirement.
 - 2) For domestic hot water systems exceeding the maximum code allowable length between the source and furthest fixture utilize a temperature controlled recirculation system. Heat trace or a demand recirculation water system are not acceptable.

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