

4645.3500 PLUMBING AND DRAINAGE.

Subpart 1. **Problems.** Problems of a special nature applicable to the hospital plumbing system include the following.

Subp. 2. **Vapor vent systems.** Permanently installed pressure sterilizers, other sterilizers which are provided with vent openings, steam kettles, and other fixtures requiring vapor vents shall be connected with a vapor venting system extending up through the roof independent of the plumbing fixture vent system. The vertical riser pipe shall be provided with a drip line which discharges into the drainage system through an air-gap or open fixture. The connection between the fixture and the vertical vent riser pipe shall be made by means of a horizontal offset.

Subp. 3. **Plumbing fixtures.** Water closets in and adjoining patients' areas shall be of a quiet-operating type. Flush valves in rooms adjoining patients' rooms shall be designed for quiet operation with quiet-acting stops. Gooseneck spouts and wrist-action controls shall be used for patients' lavatories, nursery lavatories, and sinks which may be used for filling pitchers. Foot, knee, or elbow-action faucets shall be used for doctors' scrub-up, including nursery work room; utility and clinic sinks; and in treatment rooms. Elbow or wrist-action spade handle controls shall be provided on other lavatories and sinks used by doctors or nurses.

Subp. 4. **Special precautions for mental patients.** Plumbing fixtures which require hot water and which are accessible to mental patients shall be supplied with water which is thermostatically controlled to provide a maximum water temperature of 110 degrees Fahrenheit at the fixture. Special consideration shall be given to piping, controls, and fittings of plumbing fixtures as required by the types of mental patients. No pipes or traps shall be exposed and fixtures shall be substantially bolted through walls. Generally, for disturbed patients, special-type water closets without seats shall be used and shower and bath controls shall not be accessible to patients.

Subp. 5. **Hot water heaters and tanks.** The hot water heating equipment shall have sufficient capacity to supply at least five gallons of water at 150 degrees Fahrenheit per hour per bed for hospital fixtures, and at least eight gallons at 180 degrees Fahrenheit per hour per bed for the laundry and kitchen. The hot water storage tank or tanks shall have a capacity equal to 80 percent of the heater capacity. Where direct-fired hot water heaters are used, they shall be of the high-pressure cast iron type. Submerged steam heating coils shall be of copper. Storage tanks shall be of corrosion-resistant metal or be lined with corrosion-resistant material. Tanks and heaters shall be fitted with vacuum and relief valves, and where the water is heated by coal or gas, they shall have thermostatic relief valves. Heaters shall be thermostatically controlled.

Subp. 6. **Water supply systems.** Cold water and hot water mains and branches from the cold water service and hot water tanks shall be run to supply all plumbing fixtures and

equipment which require cold or hot water or both for their operation. Pressure and pipe size shall be adequate to supply water to all fixtures with a minimum pressure of 15 pounds at the top floor fixtures during maximum demand periods. Where booster systems are necessary, water shall be supplied to the booster pump through a receiving tank in which the water level is automatically controlled. The receiving tank shall have a properly constructed and screened opening to the atmosphere and a watertight, overlapping cover. The receiving tank and booster pump shall be situated entirely above the ground level. If a pressure tank is employed in the booster system, it shall also be situated above ground level. Hot water circulating mains and risers shall be run from the hot water storage tank to a point directly below the highest fixture at the end of each branch main. Where the building is higher than three stories, each riser shall be circulated.

Subp. 7. **Roof and area drainage.** Leaders shall be provided to drain the water from roof areas to a point from which it cannot flow into the basement or areas around the building. Courts, yards, and drives which do not have natural drainage from the building shall have catch basins and drains to low ground, storm water system, or dry wells. Where dry wells are used, they shall be located at least 20 feet from the building.

Subp. 8. **Valves.** Each main, branch main, riser, and branch to a group of fixtures of the water systems shall be valved.

Subp. 9. **Insulation.** Hot water tanks and heaters shall be insulated with covering equal to one inch, four-ply air cell. Hot water and circulating pipes shall be insulated with covering equal to canvas jacketed three-ply asbestos air cell. Cold water mains and exposed rain water leaders in occupied spaces and in store rooms shall be insulated with canvas-jacketed felt covering to prevent condensation. All pipes in outside walls shall be insulated to prevent freezing.

Subp. 10. **Tests.** Water pipe shall be hydraulically tested to a pressure equal to twice the working pressure.

Statutory Authority: *MS s 144.55; 144.56*

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