

## PLUMBING SYSTEMS

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**Codes:** The Illinois Plumbing Code shall govern as a minimum and the International Plumbing Code shall only govern in regards to storm drainage.

**Domestic Water System:** Avoid locating domestic water lines in exterior walls and unheated spaces in the building. Routing water lines near un-ducted outside air louvers where exposure to freezing temperatures may occur shall not be permitted.

Water line sizes shall be hydraulically calculated to conform to the decreased demand of low water use fixtures or they shall be based on sizing tables for the low water use fixtures being used. Note that written approval is required by the Illinois Department of Public Health.

All piping shall be secured against movement. Provide water hammer arrestors in accordance with PDI when necessary.

Once-through cooling using potable water is not permitted on any equipment.

**Thermostatic Mixing Valves:** Water heaters shall produce at least 140F water. However, 95-100F may be delivered through a building domestic tempered water system after a master thermostatic mixing valve (TMV). This approach eliminates the need for individual TMVs for emergency showers and eye wash stations and lavatories, and also eliminates the need to insulate these lines. Hot and tempered water systems shall be recirculated to provide hot or tempered water upon demand at each fixture unless the water heater is located directly adjacent to the fixture(s) served.

**Drinking Fountains:** Preference is to install water coolers and drinking fountains in alcoves.

**Sill Cocks:** Buildings shall be provided with an appropriate number of exterior sill cocks to facilitate not only Grounds maintenance operations, but exterior window washing as well. Minimally, one sill cock shall be provided on each side of the facility. On larger buildings, two or three per side may be necessary to prevent the unnecessary placement of hose.

**Building Sanitary System:** Booster pumps, storm water pumps, and sanitary sewer lift stations shall be avoided when possible. When storm water pumps or sanitary sewer lift stations are necessary, only those fixtures requiring pumping shall incorporate these pumps.

Sewer line sizes shall be hydraulically calculated to conform to the decreased demand of low water use fixtures or they shall be based on sizing tables for the low water use fixtures being used. Note that written approval is required by the Illinois Department of Public Health.

**Acid Waste:** Preference is to use natural dilution of acid waste instead of neutralization basins in the sanitary sewer system if concentrations are low enough to permit this. The sanitary sewer design shall minimize the number of individual acid waste systems within a building. The acid waste piping and the sanitary sewer piping shall combine within the building and at a point where good dilution can immediately be accomplished.

**Floor Drains at Area Ways, Entrances:** Provide a floor drain inside all below grade building entrances to intercept water that may accumulate within the area way.

**Building Storm Systems:** Primary roof drains shall discharge to the underground storm sewer system. A secondary roof drainage system, when scuppers or other non-piped overflow methods are not used, shall discharge in a visible location without causing a safety hazard.

Vertical storm piping should avoid offsets below the uppermost floor line.