DESIGN GUIDELINE 220000
PLUMBING DESIGN

Scope

General plumbing design, booster pumps.

Related Sections

U-M Master Specification Sections:
221123 Domestic Water Booster Pumps

Design Requirements

New Construction

Potable hot water should be obtained from the Central Campus Power House, as delivered through existing utility tunnels. The A/E should coordinate the tie-point to the existing tunnel distribution system with the University's Utilities Engineer through the University Project Coordinator. Prior to this coordination meeting, the A/E should calculate the maximum demand and average consumption requirements of the new facility.

Physically handicapped hot water should be tempered with cold water to maintain 110^{O}F water at the fixture. Provide check valves in both hot and cold connections to tempering valves. Pressure compensating designs shall always be used.

In all new facilities the hot water distribution system shall be of the continuous recirculation design.

Renovation

Potable hot water to meet the needs of new fixtures in renovation projects should be obtained from the existing building system.

The A/E must demonstrate to the satisfaction of the University Project Coordinator that the existing building distribution, primary heating and secondary heating systems are sufficiently large to support the new demands imposed due to the addition of fixtures in a renovation project without adversely affecting other users within the buildings. If the existing systems need to be enlarged, this determination should be made early enough for funds to be allocated within the renovation project.

Domestic Water Booster Pumps

U-M Master Specification Section 22 1123 shall be used as the basis for domestic water booster pump specifications on projects. The A/E shall edit the U-M specification to make it project specific. Turn on hidden text and read all spec. editor's notes when editing the specification.

Typically specify variable speed systems. Consider constant volume staged pump control when friction losses are low relative to fixed head (static head and residual pressure) requirements.

When using variable speed pumps, the pressure sensor(s) used to provide the controller input of distribution pressure should be located at the most hydraulically distant location, in a location accessible for maintenance. The sensor may be located in a small reservoir tank (approximately 5 gallon capacity) which will act as a capacitor to dampen out the impulsive pressure changes.