



22 3000 –
Plumbing Equipment
Page 1 of 4

Last Update: [October 22, 2019](#)

A. General:

1. The domestic water heating source should be discussed early in the project design. In most projects, steam will be used for domestic water heating either in a heat exchanger or in an instantaneous heating arrangement. Other smaller projects may utilize gas fired or electric water heaters where steam may not be available. This should be discussed early in design.
2. A water softener is required for all domestic or non-potable water heaters. Other project specific equipment such as humidifiers, autoclaves or dishwashers may also benefit from using soft water and should be discussed early in design.
3. Water softeners locations shall be located in a room easily accessible for salt storage and delivery. Space shall be provided for at least one pallet of salt next to the brine tank. Large systems may require additional space.
4. On Residence Hall, Dining Facility and Athletic Facility project where there is a large domestic hot water demand and campus geothermal hot water is available, provide a geothermal to domestic plate and frame or shell and tube heat exchanger to pre-heat domestic makeup water. Coordinate with BSU Engineering for additional information and requirements.
5. Steam to domestic hot water heat exchangers and geothermal pre-heat heat exchangers shall be double wall to reduce the risk of accidental contamination of the domestic hot water supply to the building.

B. Domestic Water Softeners

1. Acceptable Manufacturers
 - a. Aqua Systems, Inc.
 - b. Bruner
 - c. Culligan
 - d. Marlo
 - e. Chem-Aqua

C. Control Heads:

1. Design all systems using “Fleck” heads.



22 3000 –
Plumbing Equipment
Page 2 of 4

D. Brine tanks:

1. Tanks should be located so the unit is readily accessible for the addition of salt. In some housing building the brine tank may serve more than one building and will need to be designed so that the salt can be pumped in with a truck from the loading dock area. This should be discussed early in design.

E. Gas Fired Domestic Water Heaters

1. Commercial grade, high efficiency storage type, 5 year warranty on storage tank and 2 year warranty on controls and other components.
2. Acceptable Manufacturers
 - a. AO Smith
 - b. Lochinvar
 - c. Bradford White

F. Domestic Water Heat Exchangers

1. Acceptable Manufacturers
 - a. Aerco International
 - b. Patterson-Kelly Co.
 - c. PVI Industries
 - d. Cemline
2. BSU approves several manufacturers for domestic water heater accessories including Amtrol and Wessels.

G. Sump Pumps

1. Transformer Vaults:
 - a. Sump pumps in transformer vaults require an oil separator, the discharge of which will connect to the sanitary waste system.



22 3000 –
Plumbing Equipment
Page 3 of 4

2. Building Pumps:

- a. Building sump pumps will be submersible type – not tower type. Stainless steel rails should be specified to pull the pumps for maintenance.
- b. If the sump handles a water closet waste make sure it is a grinder pump.

3. Mechanical and Electrical Equipment Vaults:

- a. Sump pumps shall be installed in mechanical and electrical equipment vaults that cannot be gravity drained.

F. Sewage and Sump Pumps

1. Submersible Sump Pump Acceptable Manufacturers

- a. ITT
- b. Pentair Pump Group/Hydromatic Pumps
- c. Zoeller Company
- d. ABS Pumps

2. Quick-Disconnect-System Submersible Sewage Pump Acceptable Manufacturers

- a. ABS Pumps
- b. Aurora/Hydromatic Pumps
- c. ITT
- d. Zoeller

G. Domestic Water Pumps and Booster Pump Package Acceptable Manufacturers

1. Recirculating Inline Pumps

- a. B&G / IT
- b. Grundfos
- c. Taco
- d. Pentair

2. Packaged Domestic Booster Pumps

- a. B&G / IT
- b. Grundfos



22 3000 –
Plumbing Equipment
Page 4 of 4

- c. Taco
- d. Pentair