



.1 General

- .1 Water heaters with storage capacity of 180 L or less and heating capacities of 4.5 kW or less may be electric and shall have a drain pan piped to drain.
- .2 For larger tanks and heating capacity, the heat source shall be the campus heating mains. The maximum required domestic hot water temperature shall be 60°C [140°F]. Where hotter domestic water is required it shall be boosted from 60°C [140°F] using a heating source other than the campus heating mains. Natural gas or other service over electric is preferred. Temporary hot water source [140°F] for low occupancy periods (ie summer break) should be installed to accommodate central heating plan shutdowns for maintenance service.
- .3 For tanks heated by campus heating mains and where interruption of domestic hot water service is particularly problematic (e.g. food services, laboratories), provide two brazed-plate, double-wall heat exchangers in parallel with isolating valves so one can be removed for cleaning while the other remains in service. Otherwise provide a single brazed-plate, double-wall heat exchanger. Consider multiple 450L glass-lined, insulated storage tanks or single stainless steel tank.

.2 DHW Recirc Automatic Flow Valves

- .1 Domestic hot water recirculation valves shall be pressure independent constant flow, factory set, stainless steel. Standard of acceptance: Griswold standard flow cartridge.
- .2 Select valves flow settings for minimum flow required to maintain warm water throughout the system and size the recirculation piping and pump accordingly.

.3 DHW Recirc

- .1 Provide sufficient balancing valves to ensure adequate flow through each domestic hot water recirculation branch to maintain hot water.
- .2 DHW recirculation pump controls on the DDC with return water temperature sensor point.