

COOLING SYSTEMS

Central Chilled Water System: The preferred cooling system for campus buildings utilizes the central campus chilled water system. See *Chilled Water Distribution System in these Design Guidelines* for available chilled water temperature and pressures. The type of cooling system for any building outside the “reach” of the central campus chilled water system shall be coordinated with FMP Engineering.

Plate-And-Frame Heat Exchangers: The use of plate-and-frame Heat Exchangers (HTX’s) to isolate the building chilled water system from the campus system is discouraged. Exception: In new buildings where the high point of the chilled water system will be 4 stories or greater, a HTX should be considered so that the overall static pressure requirements of the campus system is not increased. If a chilled water HTX is used, the following design guidelines shall apply:

- Design with a minimum of 12 Deg F delta-T on both the campus and building side of the HTX.
- Each HTX shall be provided with a 1/3-2/3 control valve arrangement on the campus side.
- Provide SS drip pan underneath each HTX and pipe to floor drain.
- HTX’s to be fully insulated.
- Provide fully redundant duplex strainer with isolation valves on campus side with 1/16” screen baskets.
- Provide side-stream filtration on building side capable of filtering 8 x system volume in 24 hour period with 30 micron bag filter.

Central Air Systems: Where possible, space cooling for HVAC applications shall be provided by centralized air distribution systems that utilize chilled water as its source of cooling. With the exception of mechanical equipment room cooling, the use of unitary or terminal cooling equipment that incorporate fans, filters and condensate drain pans shall be avoided.

Chilled Water End Use Equipment: In order to minimize campus pumping energy, all chilled water end use equipment (i.e., cooling coils, fan coil units, etc.) shall be selected on the basis of achieving a water-side temperature rise of 14 Deg F at design conditions, and no lower than 10 Deg F at low load (< 10%) conditions.

Building Chilled Water Pressure Drop: When the central campus chilled water system is utilized, the building chilled water system shall be designed to operate on no more than a 15 psig drop from the campus supply main to the return main (including any coils).

Automatic Balancing Valves: An automatic balancing valve shall be installed on all chilled water coils unless a pressure independent control valve is provided.

Chilled Water Service Entrance: For specific requirements, see the section entitled *Chilled Water Distribution Systems* within these General Guidelines.

“Once-Through” Cooling: Water-cooled equipment of any size that incorporates a “once-through” cooling/condenser water configuration, other than for emergency backup usage, is not allowed. Operation of this type of equipment results in unnecessary, excessive usage of water.

Telecomm Room Cooling: The preferred means of cooling telecomm rooms is DX split-systems.

Mechanical Equipment Room Cooling: The preferred means of cooling for mechanical equipment rooms is fan coil units.