

Design Information for 1063 Block

Optional use of West Campus Chilled Water Loop

Temperature and Flow

The plant set point is 45 degrees F for leaving chilled water temperature. Return temps are in the range of 50 to 56 degrees with 52 being a typical minimum. The loop flow rate will vary according to how many chillers are on line, and also depending on the position of the differential pressure regulating bypass valve at the plant. For one chiller the maximum flow in the loop would be approximately 1360 GPM, and for two chiller operation, the maximum flow would be approximately 2720 GPM.

Capacity

With both chillers running, excess capacity is currently around 350 to 400 tons. When the 1063 building is completed, the adjacent GA building will be decommissioned and mothballed awaiting demolition. The major portion of the capacity serving the 280,000 SF GA building will then be available in addition to already existing excess capacity.

Hours and Seasons of Operation

The chill plant operates only on demand from the individual buildings. We also do a night setback of the ambient air temp lockout set point at the plant. Daytime settings are typically in effect from 5:30 AM until 6 PM. There is some flexibility for unique needs such as a late running legislative session. Our long time policy is to have the chill plant available from April 1 until October 31.

Efficiency Factor

Carrier quotes the IPLV rating for the 19XRV chiller as low as .35. However, the typical full load operating power usage is about .65 KW/ton. Overall, taking into account pumps, etc., the assumed current efficiency of the plant is .80. With the near future installation of a second high efficiency chiller this will improve. Chilled water leaves the plant at 45 degrees F, and could possibly be as high as 47 degrees F at the point of connection.

Assumed Cost per Unit

Cost of chilled water at point of connection is \$2.96/ton with an added 15% campus overhead factor. Total cost is assumed to be \$3.40/ton.

Connection

Point of connection should be assumed as in the turf near the intersection of 11th and Water. This is the closest connection to the 1063 site. Lines can be assumed to be +/- 10' deep, direct bury and are comprised of 18" AC pipe. See attached jpg.

Piping should allow for either decoupled (parallel) or series chilled water flow at the building to accommodate possible future changes at the plant. Any decoupling bridge needs to have a shut-off valve for series operation.

Maintenance and Life Cycle Cost

Capitol projects such as central plant chiller unit replacements are not billed to individual buildings on Campus. For purposes of 1063 project Life Cycle Cost Analysis, first costs for chiller equipment and future replacement costs may be assumed as zero. Connection costs and maintenance from connection point are to borne by the building.