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The Hilton Baltimore Convention Center Hotel



1.0 Executive Summary

The Hilton Baltimore Convention Center Hotel (HBCCH) is a multi-purpose hotel located in the heart of downtown Baltimore. The purpose of this report is creating a chiller plant optimization study on the plant used by the HBCCH. As originally designed, the HBCCH utilizes a district chilled water system and a district steam system. This report compares those original systems to four design alternatives: district chilled water with a backpressure steam turbine, on site centrifugal cooling, on site absorption cooling, and on site absorption cooling with a backpressure steam turbine. Both eQuest 3-6 and Microsoft Excel are used to model the energy usage of the HBCCH. The system comparison, based on an overall system life-cycle cost analysis which considers both first and yearly operating costs, shows that on site centrifugal cooling is the best design alternative. With a life-cycle cost of \$13,291,220, this design alternative is \$721,161 less expensive than the next best option.

Once the chiller plant optimization is completed, the electrical system of the HBCCH is upgraded. The equipment required for the best design alternative, two chillers, two primary pumps, two condenser water pumps, and a cooling tower with two cells, is powered and wires, conduits, and breakers are sized. A new panelboard is created and the original main distribution panel, Switchgear F, is resized.

The construction management breadth of this report involves the creation of a Short Interval Production Schedule (SIPS). SIPS are well-suited for construction projects which utilize repetitive tasks. The guest room towers of the HBCCH are perfectly suited for a SIPS since floors 4-19 have repetitive floor plans. Overall, the SIPS reduced the construction time of the guest room towers by four weeks.

