

## **1.0 Executive Summary**

The purpose of this report is to analyze the Hilton Baltimore Convention Center Hotel (HBCCH) for its building and plant energy performance. This analysis includes a LEED-NC Version 2.2 evaluation, ASHRAE Standard 90.1-2004 compliance study, and building load, energy, and cost calculations. Lost rentable space due to the building mechanical system and building mechanical system first cost were also calculated.

The HBCCH is not designed to be a LEED rated building, but the LEED-NC Version 2.2 evaluation could still be carried out. Overall, the HBCCH would score approximately 25 LEED points, meaning it would not achieve certification. Changes to the original design would be necessary in order to obtain more points.

ASHRAE Standard 90.1-2004 requirements are met for building envelope criteria, but the HBCCH's lighting system and some aspects of the HVAC system do not comply with the standard. Overall, 3.08% of the rentable space in the HBCCH is lost due to the building's mechanical system. At approximately \$16.8 million, the mechanical system first cost is almost \$26 per square foot. This cost is fairly low because the HBCCH has no onsite chiller or boiler plant. Both chilled water and steam are purchased from two separate district systems.

Building load calculations, energy usage, and cost breakdown were found using Trane TRACE700. The results from the TRACE analysis were then compared to the actual design conditions listed in the construction documents. The vast majority of the air flow rates and cooling capacities were similar to those in the design documents. At a cost of \$7 per square foot, the cooling cost for the HBCCH is rather high. This is most likely due to the fact that all chilled water is purchased from a district system. The high utility cost is offset by lower electricity costs and lower building mechanical system first costs.

