

Executive Summary

This report covers various aspects of energy analysis for Terminal 3 at McCarran International Airport in Las Vegas, NV. These areas include compliance with ASHRAE Standard 90.1-2004, certification under LEED-NC V2.2, initial system cost, system space requirements, load estimates, and annual cost estimates.

Terminal 3 is evaluated based on all relevant sections of ASHRAE Standard 90.1-2004 as listed in this report. While most of the analysis indicates that Terminal 3 does indeed comply with the standard, there are some aspects that may not comply. This is largely due to the fact that the project is actually governed by International Energy Conservation Code (IECC) 2003, and not ASHRAE Standard 90.1-2004.

While Terminal 3 did not seek LEED certification, a basic analysis was performed in this report. The findings of this analysis indicate that under the current design, Terminal 3 would not earn enough credits to be LEED certified. However, further analysis shows that Terminal 3 could likely reach the lowest certification level with some minor design changes.

The total estimated first cost of the HVAC system for Terminal 3 and related projects is approximately \$87.6 Million. This mechanical system is also estimated to use 7.44% of the overall building area, or 3.8% of the area on the normally occupied levels.

Finally, Trane TRACE is used to perform load estimations, as well as annual energy consumption estimates. This data is provided by the mechanical design engineer, and represents the estimates used to size and design the HVAC systems for Terminal 3. A new analysis could not be performed due to lack of feasibility and other limitations. This load model indicates that the actual system design closely matches the estimates output by the software. Annual energy consumption rates and annual cost are also determined from this analysis. However, since this model was never intended for such analysis, the results are certainly overestimated, and therefore considered inconclusive. Future work on the overall project will lead to more accurate results than those explained in this report.