Executive Summary

This report investigates the mechanical performance of The Waverly on Lake Eola in Orlando, FL. Comparisons of the building to ASHRAE Standard 90.1 compliance and the US Green Building Council's LEED certification program were made. The areas of lost rentable space, annual energy utilization, design load, operating costs, and first-cost of the mechanical system were measured as well.

The Waverly on Lake Eola earned 15 out of a possible 69 LEED points available. 26 points are needed at a bare minimum in order to be certified. Also, since The Waverly uses a 100% outdoor air system, as opposed to a more efficient traditional system, the building fails to meet the pre-requisites to become certified.

Standard 90.1 requires no more than 50% of the building envelope to be glass. The Waverly meets this requirement by having an envelope of 46%. ASHRAE also requires a lighting density of less than 1.1 Watts per square foot in order to save energy. With a design load of 1.5 W/sq-ft, The Waverly fails this requirement.

Since the mechanical systems are mainly on the roof and in between floors, only the vertical ductwork interferes with rentable space. A total of 1,896 sq-ft were lost due to mechanical systems. Upon comparison with the 371,000 building, this lost space is insubstantial.

A lack of the price list for Florida Heat Pumps created a problem with finding the first-cost of the building. This information is on its way and will be filled in upon arrival. The Hourly Analysis Program (HAP) had trouble processing the more than 250 heat pumps in the building, so data on the annual cost and correctness of design have not yet been acquired.

The cost of electricity from Progress Energy in Florida is 4.813 cents/kWh plus a fuel charge of 3.918 cents/kWh. A customer charge of $8.03 per month is a base part of the bill. This will be used in calculations once appropriate HAP analysis can be performed.