Executive Summary

The City of Green Administration Building, which is located in the City of Green, Ohio, houses the employees that are responsible for various aspects of the city government and organization. There are many different departments such as the school board, planning and engineering, as well as the mayor's office. These departments are divided among the three wings of the building and connected by a central lobby and mezzanine space.

The main focus of this thesis report is to re-design the lighting and electrical systems for four spaces of certain types. These new designs consider appropriate design criteria, and strive for improving upon the existing designs that were examined during the first half of the year. The four types of spaces that were required are as follows: An outdoor space, circulation space, special purpose space, and large work space. In addition to creating a new and unique lighting design, one space is required to represent a psychological impression. The space chosen is the Main Lobby (circulation space), which will create a sense of spaciousness. Lighting design criteria was largely derived from the IESNA Lighting Handbook, and energy usage limits were determined from ASHRAE Standard 90.1.

This report will concentrate on the new lighting and electrical designs, and does not discuss the existing design in detail. For an explanation of the existing design, refer to Tech Reports 1 and 2. These can be found on the CPEP website. While not a complete system redesign, branch circuits were altered to accommodate the new lighting fixtures. In addition to this branch circuit redesign, two electrical depths were completed. These electrical depths are an addition of a UPS system to the building electrical system and a panel consolidation study.

Besides the in-option depth topics, two breadth topics were chosen. For the mechanical breadth of this report I investigated incorporating a Variable Refrigerant flow system rather than the existing water loop heat pump system. In addition to this mechanical breadth, an architectural redesign of the entrance structure was considered.