

EXECUTIVE SUMMARY

The Mount St. Mary's University began the design of this new student housing project with a fixed budget and certain goals. One of those goals was for the building to utilize sustainable systems in order to promote environmental consciousness while at the same time assuring a comfortable and functional building for the students who would reside there.

The following pages outline my analyses of this building with respect to marrying possible "green" design approaches to the realistic aspects of the university's budget. I will be attempting to determine what building systems have the potential to minimize life-cycle costs based on installation, maintenance, equipment, and yearly energy usage costs, and hopefully based on these analyses, I will be able to recommend the best possible sustainable building approach in terms of cost efficiency.

My depth work will entail a detailed analysis of the current geothermal system as well as a comparison to other conventional means of design for thermal comfort. Breadth work will encompass the implementation of photovoltaic panels for electrical energy generation, and an analysis will be performed as to how each system will affect constructional decisions and costs. Hopefully after completing all analyses, I will be able to specify with certainty the limits of the proposed systems and their actual impacts on environmentally conscious design.

Based on my previous studies of the new dormitory concluded last semester, I feel that the designed system for this new student housing project is probably one of the best possible based on the realistic budget of the project and the desires of the university. This investigation is to be preformed as an exercise in optimization, the goal of which being an attempt to determine a best possible sustainable systems based on initial, operational, and life-cycle costs.