

Thesis Report-Executive Summary

The first technical analysis deals with the emergency electrical system of Health and Counseling Services. The existing system is fed from the campus standby power system. This system operates from the East Power Plant at 4160/480-277V. This power supplies life safety and emergency lighting to the East side of the University Park campus. A standby generator system was designed in lieu of the campus standby power system. The designed change costs \$219,000.00 and would have a minimal impact on the existing construction schedule if the change was incorporated in the design phase. It is the recommendation of this paper that this addition does not add enough value to warrant a change to the existing design.

The second technical analysis is part of a Penn State commissioning depth study. The depth study looks at Penn State commissioning problems associated with recent base building and major renovation projects. The purpose of this study was to determine where problem areas were located through contact with 3rd party Cx agents and the Office of Physical Plant's in-house commissioning team. After compiling the results from this analysis they were made into a document of problems and proposed solutions to be given to the Office of Physical Plant for their review and possible implementation into a new standard commissioning policy. In order to improve the commissioning process the addition of UVGI (Ultra Violet Germ Irradiation) devices to improve the indoor air quality of Health and Counseling Services were analyzed. 112 locations were identified within the building. After review, UVGI's are a recommended addition to Health Services at a cost of \$295,363.00. Each device takes approximately 3 hours to install totaling 336 hours man hours.

The last analysis is a construction management research depth study looking at items that cause cost and schedule increases on LEED projects. Members of a typical project team were contacted to express their opinions on what causes the cost and schedule to increase as well as how to minimize their impacts. After analyzing the results, the decision to build a LEED project before the design begins eliminates most increases. Other items that improve LEED construction include LEED education, proper commissioning, experience through lessons learned documents, and mandating LEED or a similar green building methodology at the federal level.