

Campus Square Building

Harrisburg, PA

Thesis Proposal

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Executive Summary

This thesis proposal is intended to outline the topics I plan to research in the spring 2010 semester. Four separate analyses will be conducted, all focused on possible improvements made to the Campus Square project in areas of alternative construction methods and design, and energy efficiency. Through these analyses, I hope to improve value of the project to the owner through value engineering, constructability review, schedule reduction, and research of topics identified at the PACE Roundtable.

Analysis I – Critical Issues Research – Building Envelope Study

This analysis will be a study on the importance of building envelope efficiency. Energy efficiency has become a very important facet in construction and sustainability as a whole. Researching the importance and the impacts of a well constructed building envelope as means to reduce operating costs and energy consumption will be the main goal of this analysis.

Analysis II – Prefabricated Exterior Panels

This analysis will focus on the impacts to the constructability, schedule, and cost of implementing prefabricated exterior panels on Campus Square. A prefabricated system was not used on Campus Square due to the initial lack of demand for a quickly delivered building. If tenants were secured early in preconstruction, a prefabricated envelope could have assisted in delivering an accelerated project, albeit at a higher overall cost.

Analysis III – Façade Analysis for Thermal Performance

This analysis will determine how the different façade types of Campus Square perform against thermal infiltration through heat loss calculations. By comparing the curtain wall system and the high performance masonry veneer, as well as the proposed prefabricated system discussed in Analysis II, a study may be conducted in determining the benefits and disadvantages of each individual system.

Analysis IV – Structural Redesign of Facade Connections

This analysis will consist of a structural redesign of the connections between the superstructure and the proposed prefabricated system discussed in Analysis II. The masonry veneer system currently implemented on Campus Square attaches to the steel members and composite deck by steel angles. The prefabricated system will require the connections to the building to be engineered to compensate for differing construction loading, as well as other load types.