

THESIS PROPOSAL



New Jersey Center for Science, Technology,
and Mathematics Education

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LIGHTING/ELECTRICAL
DANNERTH/HOUSER
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I. EXECUTIVE SUMMARY

This paper is a proposal for work to be conducted in the Spring Semester of 2009 for AE 482. This work includes redesigns for the New Jersey Center for Science, Technology, and Mathematics Education. The lighting depth is a redesign of four spaces: Lower Lobby, Outside the south façade, auditorium, and a typical classroom. The electrical depth includes a branch circuit redesign of all the lighting systems which were altered and a protective device coordination study. It also includes a cost analysis of changing the feeders to aluminum and using conduit and wire instead of bus duct.

There are also two breadths outside the lighting/electrical option that will be performed next semester. A restaurant core and shell will have a layout designed and finishes as well as its HVAC system designed. Common kitchen equipment will be selected and all feeders and panels for the space will be designed.

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II. BUILDING BACKGROUND

The New Jersey Center for Science, Technology, and Mathematics Education is a 117, 000 SF college laboratory and classroom building.. The building construction broke ground in September 2008 on the Kean University campus in Union, NJ. The building's modern and irregular form make it stand out amongst the older buildings on this campus. In addition to labs and classrooms, there is a 280 seat lecture hall, 3D Cave, offices for faculty, computer labs, double height lobby, and a restaurant core and shell for a future tenant.

III. BREADTHS

1.) ARCHITECTURAL & HVAC

The NJCSTME Building has an auditorium/lecture hall on the ground level. The ceiling is going to be changed for the lighting design to be proposed. The ceiling height and shape will be changed substantially in order to necessitate a significant HVAC and architectural redesign.

AutoCAD 3D will be used for modeling the space and creating section details. Microsoft Excel will be used for tables and other various calculations. The HVAC breadth will require numerous hand calculations as well as help from energy modeling software.