Adam Kroll – Lighting / Electrical
New York Law School: New Community Facility
185 W. Broadway, New York, NY
Primary Consultants: R. Mistrick / T. Dannerth
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Thesis Proposal – Breadth Topics Only (Original Submission)

Executive Summary

This proposal outlines the scope of research for the re-design of New York Law School's New Community Facility. Two depth and two breadth topics of study are proposed for Spring 2008. There are no obvious shortcomings of the existing building systems, but some systems will be re-designed and approached from a different direction. All of the topics are linked to some degree; the results of one design will impact other areas of study.

The first depth study focuses on the lighting systems in four spaces. These spaces were described in Technical Report 1, and schematic designs were created for Technical Report 3. The depth study will further develop the schematic design using comments from professional designers and further study of the spaces. Equipment will be selected to meet the design goals.

The electrical depth study addresses four issues. The branch circuits for the four spaces in which lighting will be re-designed must be changed to reflect the new loads. Secondly, a protective device coordination study will be conducted through a new pathway. A third study will re-design the lighting system to utilize 277V and determine whether this change is advantageous. Finally, the feasibility of installing photovoltaics for energy generation will be determined.

The first breadth study will determine the feasibility of achieving LEED certification. The changes required will be discussed. The second breadth study will examine the building façade system. Solar gains and heat losses will be calculated, and an improved system will be designed if warranted.

This document is available online at the following location:
http://www.engr.psu.edu/ae/thesis/portfolios/2008/adk165/

Breadth Topic 1: Sustainability

NYLS's New Community Facility is not designed with the goal of obtaining LEED certification. The building will be analyzed to determine ways of increasing sustainability and the feasibility of obtaining LEED certification. The changes additional to the lighting and electrical depth studies will be determined. If LEED certification is reasonable, a target level of certification will be recommended.

Breadth Topic 2: Façade System and Solar Loads

NYLS's New Community Facility features large areas of glass façade. In addition to allowing light into the building, this glass also creates solar heat gains and possibly heat losses due to poor insulation. The façade system will be studied to determine if a better system is available. The solar gains and heat losses of both the existing system and a re-designed façade will be calculated.