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Lighting/ Electrical

The School of Forest Resources Building
University Park, Pennsylvania

Thesis Proposal
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Dr. Mistrick, Faculty Advisor

Executive Summary

The following thesis proposal is the result of the analyses performed during the current semester. This includes studies on the existing lighting and electrical systems in The School of Forest Resources Building. During the next semester, in-depth examinations of potential new systems will occur, with the intent to improve on the existing conditions in the building. These examinations will be two-fold. The main concentration will be a Depth study on improving the lighting and electrical systems. Additionally, a Breadth study will be performed on structural and mechanical systems that are directly related to changes made in the Depth section.

For the Depth study, the lighting and electrical systems of four spaces in The School of Forest Resources Building will be examined. These spaces include the Atrium, Video Conference room, Aquaculture Lab, and the Main Building Entrance. Designs will be developed based on the schematic work performed this semester.

For each space, an analysis of various lighting systems will be performed using AGI32. This lighting software will allow examinations of the look and feel of spaces through detailed renderings. Additionally, it will provide the technical information necessary to ensure the system delivers adequate light levels as put forth by the IESNA Lighting Handbook. Power usage will be guided by the ASHRAE 90.1 Standard.

After creating new lighting systems, an examination of the electrical systems will be necessary. New loads will need to be calculated for each system. Branch circuits, overcurrent protection devices, and panelboard layouts may all need to be redesigned. The National Electrical Code will be utilized to ensure all new designs meet code requirements.

Finally, this report includes a tentative week by week schedule of the activities to be performed next semester. Adhering to the schedule will improve the overall quality of the thesis work to be performed. The final goal for next semester is to create a system which improves in both quality and functionality over the original design.