



Breadth Work Proposal

Building Introduction:

The Center for Health Research and Rural Advocacy (CHRRA) is a 63,000 sq ft building located on the Geisinger Health System Campus in Danville, Pa. The curvilinear structure has three levels above grade (1 below grade) and is slated to become LEED silver upon completion. Construction on CHRRA began in May 2005 and is scheduled to be completed in February 2007. CHRRA serves as the Geisinger research center for common health issues that occur with age. This building is the gateway between the hospital and the community of Danville.

Daylight Control System:

The existing open offices located on the first and second floor have manual, top mounted interior window shades for daylight control along with photosensor dimming of the fluorescent downlights. I want to look at the feasibility of adding top mounted automated shades to the open offices that would adjust in position automatically in 15 minute cycles in accordance with the profile angle of the sun for this particular building location, façade orientation, time of day, and date of year. The shades will have a solar radiation control component, such that a certain percentage of the solar heat gain will be reflected and absorbed by the shades and will not penetrate into the space. This reduction in solar head gain will be studied to determine the possible savings in cooling load energy.

A case study of seven different daylight control systems will be analyzed based on solar heat gain reduction, cost, maintenance, flexibility, aesthetics, and occupant comfort. These systems will be compared with one another and the best possible system will be implemented into the design of CHRRA to better integrate the electrical, lighting, and mechanical systems within the open office spaces.

Construction Management Analysis

I will be looking at the associated cost, in terms of material and labor, for the changes made to the lighting, electrical, and daylight control systems in the building along with the feasibility of the construction and a possible payback period that may be associated with the design. Based on these monetary outcomes and change in construction schedule, it will be decided if the changes to the building are worth making in terms of dollars and cents.