



Thesis Proposal
20 December 2006

Depth Work: Lighting Design

Boston University's Arena and Recreation Center was designed with the original intent to be the "central hub of activity" in the heart of campus. The Arena building includes an ice hockey rink, a black box theater, offices, locker rooms, as well as an executive club room. The Recreation and Fitness Center building includes several work-out centers, gymnasiums, multi-purpose classrooms, a black box theater, rock climbing wall and two different use pools. In keeping with building uses, my main lighting design concepts will focus around "life, energy, motion, pride, determination, youth, and fresh." Each space will try to bring out the major design concepts as well as the individual concepts.

The executive club room, located on the second floor of the Arena, is meant for VIPs and special Boston University donors. The room is a multipurpose space ranging from activities such as viewing sporting events on the large flat screen televisions, formal evening events, as well as a comfortable lounge space. The new lighting design will incorporate a flexible system to accommodate the different uses. It will also include a daylighting control system due to the large south facing windows. The lobby and exterior lighting will incorporate a lighting system that appears to be in motion by using lines of light. The intent is to guide people through the spaces as well as bring out the school colors of Boston University. The four court gymnasium is a large space with an elevated track and large, floor-ceiling south facing windows. The new lighting system will include daylighting controls and dimmable fixtures to minimize energy and maximize the daylight entering the space.

After presenting the lighting proposal to designers at Lutron, I have heard many valuable comments and suggestions. Their remarks will be taken into great consideration while redesigning the lighting within the four spaces.



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Depth Work: Electrical

The electrical redesign will look into the four spaces that are being re-lighted and analyze the branch circuit distribution. All areas will need to have new panelboard schedules with the new lighting loads. The new panelboards will have to be resized and possibly have a new layout. On top of a panelboard analysis, all feeders and branch circuits affected by the lighting re-work will be resized and laid out. I will also incorporate control systems that integrate the daylighting and new lighting design within each space.

An examination of the existing transformers will also take place with the hope the new design will become more energy efficient. Based on the mechanical redesign, additional loads may require new distribution equipment and protective devices, which will include a section of the building and the main distribution equipment. I will also conduct a protective device coordination study that addresses a single-path through the distribution system and includes short circuit current calculations.