

Final Remarks

Over the course of this past year, the analysis of the University of California Santa Barbara, Student Resource Building has provided me with great insight into how intricate the integration of both Architecture and the Engineering systems can be. From conceptual development to final implementation, the engineering of the different systems is not only crucial for making architectural designs a reality but to also provide a comfortable environment for building occupants.

Needless to say, the process has been very challenging. For example, a big proportion of the schematic lighting design had to be redone in order to satisfy the stringent requirements imposed upon by California's Title 24 (2005). The rethinking of the initial lighting solutions proposed for these spaces had led to designs that not only met code requirements and are more energy efficient but also provided a more realistic means of visually enhancing these spaces. For example, the blue LED ceiling wash system in the Forum space at the center of the building adds visual interest to this space by turning it into an artificial night time exterior environment. The integration of proper daylight and occupancy controls in spaces the Student Resource Center and the Multipurpose Room respectively has enhanced the energy efficiency of these systems.

In terms of electrical work, it was realized that the building can reap further energy savings by utilizing a building-integrated photovoltaic array which will exploit the inherently sunny weather of Santa Barbara, California. In addition, cost analysis shows that by switching most of the building's transformers with ones that are more energy efficient will result in further energy savings.

Through the LEED analysis, it was determined that further LEED points could be gained in several different areas. The PV system proposed met the baseline requirement as outlined in LEED-NC Version 2.2. In addition, the replacement of most floor areas in the building with rapidly renewable bamboo could increase the quantity of sustainable materials used. Also, the implementation of CO₂ sensors strategically throughout the building to monitor air quality could have also garnered an additional point. Though it is understood that there are substantial first costs associated with integrating such systems into the building, in the long run, energy savings would outweigh the costs.

Last but not least, Architecture. Design by nature is an iterative process and as such, a lot of time was spent researching the crucial elements of an outdoor gathering space. This resulted in a significant amount of time spent planning and redesigns the North East Plaza. The final product of this process resulted in a design that not conforms to the existing geometry of this space but also provide a better sense of enclosure, a character typical of most gathering spaces around the world.

Overall, the process has been long and often difficult, but through careful planning, the implementation of the new designs has been a success.