

Executive Summary

During the upcoming semester, a complete redesign of the main lateral force resisting system will be performed using eccentric braces. The redesign will evaluate the economical amplifications of using this system as opposed to the concentric braces designed in the original design. The breadth study will then evaluate the cost and scheduling effects of the redesign and comparisons will be made to the original design. The final breadth study will be a lighting redesign of the central courtyard located on the second floor, which will evaluate the use of the space during the day and night before and after the redesign.

These tasks will have major outcomes after being performed and will prepare my skills for the start of my career in structural engineering.

Breadth Studies

Construction Management Breadth

Problem Solution

The decision to use eccentric braced frames would have impact on scheduling and construction cost. Therefore a detailed cost analysis would have to be done to see how much money would have been saved if this system was first implemented. The addition of moment connections required at the columns and the beams would have impact of construction time, therefore this design would require a detailed scheduling analysis to be done so that a recommendation can be made regarding if this system provides the optimal solution.

Lighting Electrical Breadth

Proposed Solution

The second floor court yard will be looked at with light approaching in during the day and night time conditions. Appropriate light fixtures will be selected and placed at areas to accentuate architectural features and landscaping at the courtyard space. The lighting fixtures will help provide the use of outdoor space that is safe for the patients while not distracting patient rooms that are facing the court yard space. The courtyard is also visible from the north face of the building. Therefore the overall effects on the building's front façade will be analyzed and incorporated into the final lighting design. The space will be modeled using AGI-32, a lighting design software for calculations and visualizations. This will provide renderings of the final design that can be presented to the client for approval.