



EXECUTIVE SUMMARY

This senior thesis report is an in depth study of Coppin State University's Health and Human Services Building in Baltimore, Maryland. Research about a critical industry issue affecting this building is included as well as two technical analyses. The technical analyses address how a proposed change affects the systems of the building. A cost analysis of the proposed change is provided with a recommendation of whether or not to implement the proposed change.

The critical industry issue affecting the Health and Human Services Building at Coppin State University is the volatility of escalating construction costs. The risk associated with the escalation of construction costs has been analyzed by interviewing contractors, construction managers, designers and owners regarding the current strategies of managing this risk. Through the interview process it was found that some risk is passed to each party starting with the owner and ending with the vendor. As the risk is passed costs are increased to compensate for the escalation of material and labor costs. In the end, the owner pays a premium for cost escalation that may never occur. The proposed solution is for the owner to control more of the risk and implement changes in the contractor's procurement and bid process.

The first technical analysis examines the affects of lowering and extending the 5th floor's existing sunshade. Lowering the sunshade to the head of the window and extending the sunshade beyond its current length of four feet increases the percentage of shaded glazing which in turn decreases the amount of solar heat gain. The structural connection of the sunshade to the building needs to be altered to accommodate the lower sunshade. It was found that a total of 30,008 pounds of steel needs to be added to the building in the form of 156 steel plates to support the lowered sunshade. The first year's mechanical savings from lowering the sunshade totals \$20,498 and decreases to a yearly savings of \$3,220 for every year succeeding the first. The one time initial cost of the addition of steel is \$6,017. The extension of the sunshade beyond five feet requires a payback period of eight years due to the additional costs of material and labor. It is recommended that the sunshade be lowered to the head of the window and left at its current overhang length of four feet.

The second technical analysis alters the lighting scheme of the overhead pedestrian bridge that spans W. North Avenue and connects the college's current campus to its new campus. The bridge is a unique architectural feature that signifies the presence of Coppin State University in the community. The Health and Human Services Building contains outreach programs that will service the community which include a daycare center and a clinic. The redesigned lighting scheme highlights the prominent architectural and structural features of the bridge while shining a beacon of light into the community.