



Conclusions & Recommendations

After exploring the various dimensions and roles the building exterior plays in health care and sustainable designs, it is easy to see the implications this system has on the success of LEED certified projects. Sustainable aspects of the building façade are contained in more than half of the total LEED credits. To properly manage the envelope design and functionality it takes diligence from all project participants from conceptual design to closeout. The building envelope affects mechanical loads and system efficiency, structural integrity, day lighting requirements, as well as construction sequencing and building enclosure. As was seen during the investigation, health care facilities can greatly be affected by the design of the envelope system. Hospitals often operate 24 hours a day the entire year and a rather small decrease in energy efficiency correlates to large savings in operation costs. Patient and worker physical and psychological health is affected by the amounts of natural light and thermal comfort. The Green Guide for Health Care is an excellent tool and should be used for all new health care construction since it has such numerous advantages for owners and building occupants.

Many preconceived notions of prefabricating systems were discussed in this analysis, ranging from cost and schedule data, to mechanical and structural implications. Often it is difficult to draw a concrete conclusion from so many different areas of analysis, but the unitizing of the curtain wall for the Center for Health Research and Rural Advocacy appears to be a winning combination. The schedule of on-site construction alone is a strong argument for implementation, with related savings in general conditions costs the topping on the cake. Since Geisinger Facilities operates on a budget from the parent Health Services, these savings can be held to counteract unforeseen conditions, change orders, or extreme quality issues. Prefabrication for building components is a legitimate approach with the advantages becoming more numerous as more firms become qualified to perform this type of service. Many companies have embraced the unitized delivery method and more will once the benefits and case studies become more affluent.

4D CAD models have such profound advantages for complex and traditional projects alike; implementation of these tools will be seen more often. The tool can be used for trade sequencing, project documentation, safety and hazard analysis, or just for owner visualization. With owners requiring 3D models for construction projects and the related ease of linking the



already developed CPM schedule, the additional costs incurred to create a 4D model will be minimal. As seen on the Center for Health Research and Rural Advocacy, even a simple analysis of the 4D model by project participants brings about positive innovation. The impacts on project scheduling for phased projects may be even more significant, since they require the most diligent of schedule and sequencing attention. With the slow evolution of technology through the construction industry, it will be exciting to see the impacts that 4-dimensional models will have on construction projects worldwide.