



## **Summary and Conclusions**

The information and research contained in this report has been developed and conducted over the fall and spring semesters of the 2006/2007 thesis course. The goal of this report is to convey the knowledge gained about the Lancaster General Hospital 5<sup>th</sup> and 6<sup>th</sup> Floor Fit-Out and Cardiac Elevator Addition project as well as industry research on the commissioning and retro-commissioning processes.

The first analysis focused on the differences in the steps of the commissioning of new construction and retro-commissioning of existing equipment processes, and to determine the types of projects that would benefit the most from their use. A survey was developed to obtain industry personnel's opinions on the use of commissioning including the benefits and issues with implementing it in projects. Additionally, research of industry papers was conducted to gain a greater understanding of the costs, benefits, and steps used to complete the two forms of commissioning. This information was then summarized in order to develop recommendations for the use of commissioning and retro-commissioning.

The second analysis looked to reduce the cost and schedule of the Cardiac Elevator project by proposing the replacement of the cast-in-place concrete floor system with a pre-cast concrete system. Calculations were performed to identify the size of pre-cast concrete floor plank required to replace the cast-in-place concrete on composite metal deck floor slab. Cost and schedule analyses were performed to determine what impact the switch in floor system would have on the cost and schedule of the project. It was found that the cost increased by \$1,612.00 and the schedule was reduced by 2 days leading to the recommendation that the originally designed floor system be used.

The third analysis was intended to determine the type of mechanical connection that should be used at ICRA partitions in order to reduce rework. Connection requirements were identified by the ICRA guidelines and a list of standard connection types was developed. A cost and schedule analysis was performed to determine the affect of rework on the project cost and schedule.