

NORTHEAST HOSPITAL EXPANSION

EXECUTIVE SUMMARY

The Northeast Hospital Expansion project is located at 123 Medical Lane, USA. The project will consist of the construction of a new 10 story patient tower, new parking garage, renovation of select patient rooms in the existing hospital wings, and the relocation and upgrading of the central utility plant servicing the entire medical campus. This senior thesis report contains four different analyses on the Northeast Hospital Expansion project. To conduct these analyses, information was gathered from the project team, industry members, jobsite visits, knowledge gained while in attendance at the Penn State University, and research.

Analysis 1: IPD Methods Implementation

This first analysis consisted of research into how the Northeast Hospital Expansion could have benefitted from utilizing more integrated project delivery methods. From the case studies of Cardinal Glennon Children's Hospital, St. Clare Health Center, Encircle Health's Ambulatory Care Center, Cathedral Hill Hospital and the Health Sciences Facility III, it was determined that a multi-party contract, risk and reward pooling, and part-time co-location could have created a more efficient project environment.

Analysis 2: Patient Room Re-Design for Shared Wet Wall

The second analysis involved the re-design of typical patient room to allow the use of a shared wet wall between back-to-back rooms while maintaining ADA 2010 and prioritizing quality of care. Since plumbing systems would be combined to eliminate piping, all piping needed to be re-sized to meet changed system conditions creating a mechanical breadth. The shared wet wall would reduce the entire schedule by 93 days and create \$405,507.75 in cost savings.

Analysis 3: SIPS Utilization for Patient Floors

The third analysis was attempting to create a more efficient workflow for the MEP and finishes work on the patient floors four, five, and six. Through implementing the ideologies of SIPS, the creation of a labor matrix, and examining labor loading throughout SIPS, the schedule could be accelerated 18 weeks and the project could potentially save \$12,097.20 in labor costs.

Analysis 4: Preassembled Steel Connection Bridge

The fourth analysis broke the steel connection bridge linking the existing hospital to the new patient tower into different sections that could be preassembled prior to installation. This analysis contains a structural breadth that checked to verify that the crane could first lift the bridge sections and that the pick points would not damage any members in each section. Utilizing preassembled steel sections would reduce the schedule by six days while creating a safer work environment.