

# Thesis Research Proposal

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# General Building Information

- 1<sup>st</sup> floor contains retail units, remaining 5 floors are apartments
- 111,641 sf
- \$13.5 million
- Precast plank and structural steel framing
- Construction began May 2006 and scheduled to end July 2007



# Critical Industry Issue: Using Building Information Modeling



- What are the benefits and drawbacks to utilizing BIM software at the beginning of a project and for as-built drawings?
- Research Steps:
  - Review literature on the subject matter
  - Interview owners and contractors as to their take on utilizing BIM's on a project
  - Review software costs and training
- Expected Outcomes: BIM's, when utilized at the beginning of a project can help to coordinate trades, help an owner to understand their finished product and therefore recognize changes they may desire early-on, and can also help to create a thorough set of as-builts. Also, BIM's can take on a negative reaction in a project by occupying inexperienced contractors' time.

# Technical Analysis: Composite Metal Deck v. Precast Planks



- Currently the flooring system consists of a slab on grade, a slab on deck for the second floor, and the four remaining floors are precast planks. What are the cost and schedule impacts and how do they affect the project?
- Research Steps:
  - Analyze the schedule
  - Analyze the cost
  - Analyze resource allocation
  - Minor redesign
  - Interview both cast-in-place and precast concrete contractors
- Expected Outcomes: Precast may help to accelerate the schedule. Cost savings might come into play in both the material and in the resources for doing the upper floors as slab on deck.

# Technical Analysis: Hydraulic v. Traction Elevators



- Currently, the design for the conveying system is Gen2 elevators from Otis Elevators. What are the cost impacts, as well as the space allocation and maintenance requirements, related to both conveying systems?
- Research Steps:
  - Analyze the cost
  - Analyze maintenance requirements
  - Minor re-design
  - Interview elevator suppliers
- Expected Outcomes: Traction elevators may have a higher first-cost, but there are benefits in they do not require as much maintenance and do not take up as much space as a traditional hydraulic elevator.

# Technical Analysis: Prefabrication



- How does management ensure the timely fabrication and arrival of steel members onto construction site?
- Research Steps:
  - Analyze the schedule – both in the fabrication shop and the construction schedule
  - Analyze resource allocation
  - Interview steel manufacturers and contractors
- Expected Outcomes: Devise a plan to communicate between construction site and fabrication shop the needs of the two and how to resolve any scheduling issues that will result in the timely construction of structural steel on site.