EXECUTIVE SUMMARY

The Apartment Building is a $32.7M, ten story building, totaling approximately 151,000 SF. This space provides room for 165 high quality apartment units that average 767 SF per unit. Amenities include a public pedestrian park, outdoor pool, lounge space, business center, fitness center, club room, and accessible terraces. Opportunities to improve the construction process were identified through project team interviews, site visits, and background research. The four analysis that address these opportunities are as follows:

Analysis 1: Effect of Eco Certifications on Marketability

As part of the critical industry research for this course, a literature review was completed to determine if a rent premium existed for buildings with eco-certifications, such as LEED. Rent premiums exist and range anywhere from 0.1% to 20%. It is recommended that The Apartment Building upgrades to LEED Silver by the addition of three LEED Points that are feasible to achieve at this point in construction, green power and a mechanical system flush.

Analysis 2: Exterior Enclosure Acceleration

Due to a harsh winter, the overall construction schedule was delayed 26 days. By implementing a panelized brick veneer system (PBVSS), a 44 day reduction of the onsite schedule, which is the ultimate driver of the project. This system will cost $70,132 more than the original brick veneer assembly but can be justified by the reduction in schedule as well as the increased quality and safety benefits of offsite prefabrication. In addition, the thermal and hygrothermal properties, with slight modification, of the PBVSS system can surpass the original. A structural analysis showed that the additional loads from the PBVSS system can easily be accommodated by the existing post-tensioned concrete structure.

Analysis 3: SIPS Implementation for Interior Fit-Out

Due to the stringent schedule dictated by the phased turnover of the building, high level of quality and the repetitive nature of the apartment units, short interval production scheduling (SIPS) was implemented for interior fit out of apartment units on the 2nd through 10th floor. A guide was produced that outlines the schedule development process as well as keys to proper implementation.

Analysis 4: Tools to Support SIPS Implementation

Building off Analysis 3, a combination of tools was selected to complement the SIPS process for interior fit out. Tools were selected using the House of Quality, a decision making tool that ensures the customer's requirements are met. The recommended combination of tools are: design authoring, 3D coordination, crew balance charts, flow diagram and process chars, foreman delay surveys, and video time lapse. The tools were then added to the guide that was created in Analysis 3.