2.0 Executive Summary

The following Senior Thesis Final report presents the findings and final recommendations of three in depth analyses performed on the Office Renovation Building project. The report will focus on the second renovation phase of the 1.8 million square foot facility. Phase 2 includes approximately 260,000 SF of renovated office space in addition to a newly constructed 20,000 SF electrical equipment enclosure. These research topics are intended to improve the quality of the project while increasing the efficiency of the construction team's efforts. The analyses will cover a variety of industry issues including: Building Information Modeling and technologies, prefabricated design, and renewable energy.

Analysis 1: Schedule Acceleration through Prefabrication

The current phase of the Office Renovation Building involves the construction of an electrical equipment enclosure to be erected within one of the building's interior courtyards. The activities associated with the 20,000 SF facility contribute to increased cost and schedule delays. This analysis proposed a prefabricated hollow core plank floor system to accelerate the project's structural schedule. Results of this application include a total savings of $98,000 while reducing the schedule by 25 working days.

Analysis 2: Feasibility and Design Study for Photovoltaic Energy System

The General Services Administration is making major commitments to transition into sustainable building. The Office Renovation Building is currently listed to receive LEED® Gold Status but does not present any initiatives to create on-site renewable energy. This analysis incorporates a photovoltaic energy system than will help power the facility's electrical equipment enclosure. Results show that the investment will present a payback period of approximately 8 years.

Analysis 3: BIM Execution and Utilization/Phase Planning

The Gilbane Grunley Joint Venture team currently utilized a 3D Revit Model for the renovation project. However, the model is used only for visual presentation to the owner. Aside from 3D coordination, there are no substantial BIM efforts for the project. This analysis develops a project specific BIM execution guide to further utilize the existing 3D Model. The results of this segment demonstrate how integrating facility management software with the 3D Revit Model can drastically facilitate move management and phase planning will be presented.