



## Thesis Executive Summary

The first area of analysis is an alternate system to provide the proper soil bearing capacity need for the building. The technique chosen was Deep Dynamic Compaction (DDC). This method uses weight and compaction energy to give the soil the proper bearing capacity that is required. An alternative of a complete soil exchange is proposed adds one day to the schedule and saves \$2,54.53. Although this presented a cost savings to the owner, it is recommended that the owner stick with the proposed plan of DDC.

The second area of technical analysis was proposing an entire precast superstructure wrapped with an architectural precast panel building envelop. Minimum reinforcement calculations were run for typical load bearing wall components and a study of the connection details of the old superstructure and the new superstructure was done. Construction management depth is also covered in this area of analysis with the sequencing of plank and new crane placements on the site for the erection phase of the proposed system. Over all this analysis added a cost of \$151,720. However as a result of the increase in cost, the schedule is accelerated ten weeks and the building will be enclosed at an earlier date to allow interior trades to work with a controlled environment.

The third area of technical analysis is the design analysis of a basic temporary heating system. This system will serve the masonry subcontractor during the erection of the current building façade and also serve the main building during the three coldest winter months of the project, December, January, and February. This system will maintain the quality standards of the project over the winter months as well as keep the work rate of the employees at a level equal to that in more favorable weather conditions. This temporary heat system comes at a cost of \$17,015.18.

The construction depth research was aimed at the precast concrete erection safety on projects. This work was tied back into the other technical analysis by developing a site specific safety plan that would be implemented in the beginning of this particular project. The research methods included contact with industry members, the Warfel Construction Company and Davis Construction Company Safety Directors, the OSHA handbook, and a survey that was sent to industry members. Key problems were identified and the site specific safety plan developed addressed the problems that were identified and presented feasible solutions for an accident and incident free work environment.