

Executive Summary

This proposal outlines the issues that will be researched this spring. One of the issues is and industry issue that will be researched. The remaining two issues are technical issues that deal with the structural system and the mechanical system of the building. The industry issue that will be researched is the issue of workforce development in the construction industry.

Analysis #1 – Structural System

An alternative structural system will be researched and compared to the existing system. First a steel system will be analyzed and compared to the existing cast in place concrete. The costs of each will be analyzed and the effects of both on the schedule will be analyzed. Another analysis will be researched; this analysis will deal with resizing the cast in place concrete system. The three systems will be compared and a decision on which system is the best will be made.

Analysis #2 – Site Congestion

By changing the structural system from cast in place concrete to structural steel will cause an already congested site to be more congested. Ways to decrease this congestion will be looked into. Options other than on site lay down areas for the steel will be addressed and a site plan will be developed to determine the best possible site layout for this project.

Analysis #3 – Mechanical System

The current four pipe mechanical system will be compared to a two pipe system. Both systems will be researched; the advantages and disadvantages of each will be weighed and a decision will be made as to which works best for this building.

Industry Research – Workforce Development

The issue of workforce development in the construction industry will be researched. Reasons as to why people are not entering the workforce will be looked into. A solution to get more people into the workforce will be made.

Appendix A – Breadth Studies

Breadth Analysis 1:

Analysis of the proposed structural steel system will be performed. The building load will be calculated and the alternate system will be performed. This system will then be compared to the existing cast in place concrete system. If the mechanical analysis causes for additional loading the system will be redesigned for that as well.

Breadth Analysis 1-a:

Redesign of the existing cast in place concrete system. The concrete columns will be resized to decrease the amount of different size formwork needed. If the mechanical analysis causes for additional loading the system will be redesigned for that as well.

Breadth Analysis 2:

Analysis of an alternative two pipe mechanical system compared to the existing four pipe system. Value engineering ideas will be looked into for this analysis.