

8. Introduction to Thesis Analysis

Analysis 1 – Attachment of the Window Wall to Reinforced Concrete

Structural Breadth

This analysis will focus on the problems that occurred on the jobsite with attachment of the structural supports for the building's exterior window wall system to the post tension concrete decks. With lack of coordination between the design team and the contractors, drilling needed to occur in the post tension decks. Many tendons failed when they were struck during the drilling process. With this occurring halfway up the building, steps were immediately taken to remedy this process. The goal for this analysis is to go back to the preconstruction phase of the project and propose the use of reinforced concrete. This would help with all of the designs that were not yet in place and would reduce the risk of having to drill into post tension decks. I will compare the cost and schedule problems from failed post tension tendons to the same project if reinforced concrete had been used.

Analysis 2 – Supply Water System

Mechanical Breadth & Critical Industry Issue

During some of the value engineering that occurred in the beginning phases of construction, one idea that was utilized on this project was the use of the Sovent System which helped in sustainable construction for the waste piping. I will now look more closely at the supply water system and propose ways to make this system more sustainable while at the same time decreasing the cost and schedule for installation. Utilizing propress fittings and prefabrication, I plan to investigate to see if these construction methods would have been more beneficial for this project. I will then see if any of these construction methods could have helped to obtaining more LEED points for the project.

Analysis 3 – Site Logistics Plan

Turnberry Tower Arlington is surrounded on three sides by main roads. The country has put time restrictions on some of the roads so construction does not create more traffic during certain times of the day. With those restrictions, the site plan that was utilized throughout the project used one road for deliveries to the site. This one main passageway was also the road used when concrete was delivered and where the material hoist was accessed. The goal of this analysis is to redesign the site logistics plan and to utilize another part of the site for more deliveries, which will reduce the amount of overtime the drywall subcontractor needed for this project. Cost savings would occur if the drywall subcontractor did not have to accept as many deliveries on the weekends.