

Executive Summary

Building Description

Wisconsin Place Residential consists of 15 above stories and 2 below grade stories. The building is approximately 479,000 SF, stretching from 25 feet below grade to 142 feet above grade. The building consists of 432 units spread out over the 15 floors. The 13th floor contains a 1,000 SF pool for all tenants of the building. The two levels below grade are set aside for residential parking and are integrated with the parking for the mixed use development.

Proposal

Wisconsin Place Residential is currently a post-tensioned flat plate building within a height restricted area. Although the slab thickness is only 7 ½ ", another structural system with a new column layout may be easier to construct and the cost of losing one floor of condominiums may be offset by an architectural redesign of the building and potential for more revenue may be generated.

Solution

Based on all analyses performed on Wisconsin Place Residential in Technical Report 2, the most economical floor system was found to be a precast girder-slab system. Along with a cheaper cost, the girder-slab system doesn't require as much formwork, the hollow core planks are lighter than the post-tensioned floors, and the construction process is faster. This system is very efficient for a uniform grid-layout, which will have to be incorporated in my research next semester. The extra ½ " of floor thickness will put the building over the allowable height limits, so by using another structural system, Wisconsin place Residential will unfortunately lose one floor of condominiums. An investigation will be made in order to see if changing the architectural layout of the building into a uniform grid with additional square footages of condominiums will offset the cost of losing a floor and potentially generate more revenue for the owner.

Breadth Topics

Along with the main study of using a precast girder-slab system and a re-design of the lateral system, two individual breadth studies will also be conducted. These include an architectural and construction management study. The architectural study will consist of generating a uniform grid layout that will accommodate the shape and size of the existing building with the exception of losing one floor. This study will also incorporate changes to individual condominium apartments as well as a redesign of the façade of Wisconsin Place Residential.

The construction management study will focus on a comparative analysis of the existing building to the re-designed Wisconsin Place Residential. This analysis will focus on the scheduling impact and cost savings involved with faster construction, condominium changes, and an overall lighter building.