

Faculty Advisor – Professor Kevin Parfitt
Renaissance Schaumburg Hotel and Convention Center
Schaumburg, Illinois

Proposal Report
Due: December 12th, 2005

Executive Summary- Breadth Proposals

The Renaissance Schaumburg Hotel and Convention Center located in Schaumburg, IL is a 17-story cast-in-place concrete structure which supplies the greater Chicago area with 500 guest suites and many other community services. The structure relies on post-tensioned concrete slabs, 11"-18" shear walls, and 42" circular columns for primary framing support. Although the current design is very efficient in carrying the prescribed loading, there is a chance that the building could increase efficiency in terms of cost and constructability with the implementation of a different structural framing system.



This proposal will focus on a replacement of the current cast-in-place concrete structural system with a composite steel and concrete system. Future analysis of both the current shear wall system and a braced frame lateral system will be used to determine which system will perform with the most efficiency and also compare both methods in terms of cost and construction timeline.

Major impacts on other elements concerning the establishment of the hotel and convention center can easily be observed, the analysis that will be completed will also take a look into construction management issues (specifically construction schedule) and the impact on mechanical systems.

•Construction Management

The change of the framing system from concrete to steel creates quite a change for procurement of material and construction methods, both of which greatly affect the project schedule. A detailed project schedule will be complete in order to compare both systems in terms of constructability.

•Mechanical Systems

With a drastic change in floor composition a great impact will occur on the HVAC systems with the transition from 10" flat post-tensioned slab to a steel/concrete composite floor. Location of plenum spaces will have to be accounted for in a system that would occupy the new design. Analysis of the relationship between the structural frame and building systems will be conducted to ensure the new structural system can properly fit with other design criteria.

The redesign proposal of The Renaissance Schaumburg Hotel and Convention Center will detail proposed system changes and analysis of redesign impact on the structural system and consequently, the rest of the buildings systems.

