

Christopher McCune
Structural Option
Eight Tower Bridge
Faculty Advisor: Dr. Hanagan
December 12th, 2005



Breadth Studies Proposal

Executive Summary

The proposal for my thesis depth work is an analysis and redesign of the current lateral force resisting system of Eight Tower Bridge. Two out-of-option breadth studies will also be associated with this main body of research. Realizing that a change in structural design will have a direct effect on cost and constructability, a construction schedule will be created and compared for both the existing system and the alternative system found to be the most structurally sound and most economical through my depth work. The second breadth topic will include a review of the rooftop mechanical penthouse of Eight Tower Bridge, more specifically the noise and vibration effects associated with rooftop HVAC equipment.

Construction Management

The first breadth study will be under the Construction Management option, which will include the development and comparison of the construction schedule for the original lateral system and the alternative system designed. As mentioned in Technical Report 1, moment resisting connections are found in the existing lateral system. With a primary goal of the structural depth work being the removal of these rather costly and detail-intensive connections in the alternate system, a construction schedule focusing on the construction time of lateral system elements will be created to see if the alternate system can reduce the overall construction timetable.

Mechanical

In addition to the structural concerns faced with locating a building's HVAC equipment atop the structure, there is also noise and vibration concerns. The current HVAC equipment on the roof will be analyzed for noise and vibration effects felt on the 16th level of offices, as well down through the entire structure. An alternate solution for mechanical equipment location may be suggested, as well as a redesign of the current noise and vibration isolation system.