Thesis Proposal
December 5, 2003

Breadth Study

The proposed solution of using a steel structure over the existing concrete structure will directly impact the type of partitions required between condominium units. Currently large concrete shear walls provide the required fire rating and acoustical properties required for an assembly separating separate individual condominium units. By replacing the shear walls with steel braced frames, walls meeting the required fire protection and acoustical properties must be placed in the openings of the braced frames to separate the units. The proposed thesis will choose a wall system with the required fire rating. Next, the required acoustical properties will be determined by code and the acoustical performance of the wall will be determined and compared with the requirements.

The proposed thesis will also investigate modifications to the existing mechanical system. The use of electric reheat coils in place of baseboard heaters will be studied to determine if a better performance can be accomplished. The use of the spaces in the deep deck ribs as ducts will also be studied. If these spaces can be used as ducts, money and time could be saved over the existing system, which uses ducts. Finally, an investigation of a multi-zone system would be more efficient than the existing system. Currently, each individual condominium unit has a dedicated. AHU. The proposed thesis will study the use of a single AHU per story or multiple stories.

Finally, the impact of the proposed changes on the project schedule will be studied. Steel has a longer lead-time due to fabrication than concrete, but can usually be erected much faster. Also, a possible reduction in the required amount of mechanical equipment may reduce the required time to install the system. The schedule for proposed changes will be compared to the schedule for the existing system to determine if any advantages exist. This comparison may also reveal disadvantages to the proposed changes.