



FINAL RECOMMENDATIONS AND CONCLUSIONS

Through comparing and contrasting the original concrete design of the Hyatt Regency tower with the new steel design, a number of conclusions can be made with what the best choice of a system is and what has been learned through this research. Based on the design constraints of the architectural requirements of the building, in particular the building height based on proximity to the Pittsburgh International Airport, the new structural steel framing does not seem to be the best solution for the building. If the architectural constraints were not present, the selection of beams and overall design would be much freer to be optimized for member efficiency and cost efficiency. However, with the previous limitations set, the member sizes are much more limited and efficiency is removed from the project. In addition, the stiffness of the floor system has also given rise to additional vibrational problems.

The research did support the initial proposal that the change in framing from concrete to steel would reduce the seismic loads so that wind loadings controlled in both orthogonal directions. The combination of the reduction in building weight along with the change in framing type contributed to a large decrease in the seismic base shears. Also, it should be noted that the additional height did have an impact, even if relatively insignificant, on the wind loadings on the building.

The breadth analyses also supported the original design for the design conditions set forth for the new design. The requirement for additional fireproofing measures in addition to increased cost would typically not be in the best interest of the owners. Although the steel framing solution is still viable, in many business situations, it would not be selected due to increased cost. In addition, the time savings compared to the filigree construction does not substantially justify the use of the steel framing.

Overall, the new steel framing design does support the proposed reduction in weight and seismic loading. Based on other conditions such as the possible vibration problems, the increased cost, and the increased building height, the alternative framing does not seem to be the best choice. In other situations, where the height limit is not a major controlling factor, or where seismic loads need to be decreased, the steel framing seems to be the best selection.