

Executive Summary

Tower 'B' is a 180,000 square foot building consisting of 89 different apartment units. It is located in Wilmington Delaware and is one of three identical towers in the Greenville Place apartment complex. This upscale, seven-story apartment tower was completed in 2007.

The current structural system is 8 inch precast hollow plank resting on 8 inch reinforced CMU walls. Due to its weight, seismic load effects are the most crucial in lateral load considerations. The current design is very conservative and handles the loads flawlessly, but is very heavy.

This thesis will study and design an alternative system based around the technology used by *Infinity Structures*. The redesign will substitute lightweight metal stud framing for the current masonry. The ultimate goal will be to reduce the weight of the structure while maintaining or improving the timeline and cost of the project.

In the process, it will be necessary to redesign all elements of the building. Floor and Lateral systems will be accounted for when designing for the Infinity Structures system. The façade of the building will require further investigation, as it will not be part of the structural system in the thesis design. After the thesis design is complete a time and cost comparison of the existing and proposed system will be conducted to determine viability of the redesign.