

Thesis Proposal

EXECUTIVE SUMMARY

Building Description

Southtown Building No. 5 is a luxury apartment building located in the center of Roosevelt Island in Manhattan's East River. It houses 123 apartments in 16 floors with an underground cellar which houses storage units as well as mechanical and electrical space. The primary structural system consists of reinforced concrete two-way flat plate floor slabs with concrete shear walls. The typical floor thicknesses are 8" thick, while the lateral system is mainly 12" thick from the cellar to the main roof.

Proposal

Most of New York City's buildings, especially apartment buildings, are constructed based on occupancy. The following proposal consists of an alternate structural system that will open the building earlier by shortening the erection time of the structure. This alternate system will not increase the overall height of the building. Since height is critical in this case, the floor system will maintain a similar floor thickness.

Solution

A girder-slab floor system with steel columns will act as the primary gravity system. A braced frame core will provide continuity as the lateral system. This system will not only allow for a comparable floor thickness, but it will also allow for a faster erection time.

Breadth Topics

The impact of the proposed floor system will create many new changes in the construction of the building. As an additional consideration, the construction, cost, schedule, and sequencing of erection will be investigated for the new framing system. Additionally, LEED rated buildings will be researched to conclude if the impact on the environment will have an advantage over the added costs. If deemed as an advantage, LEED rated points and techniques will be chosen to help this building achieve a LEED rating.