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Tech 2 – Executive Summary



Technical Report 2

Pro-Con Structural Study of Alternate Floor Systems

This report contains an analysis of a variety of alternative floor systems that are possibilities to be implemented into my thesis building. My building is the Metropolis at Dadeland, which is a 313' tall tower that is primarily residential space with some commercial and parking space included. The existing floor system is a post-tensioned concrete slab that usually ranges from 8" to 9.5".

The first step in redesigning floor systems was to come up with the apparent bay sizes within the existing structure. With minimal adjustment column lines were assumed to be running parallel to the longest face of the building. The spans ranged from 10' to 27'. Because of the wide variety of spans I chose to design for the critical sections since everything else would be safely over designed at worst. The types of systems that I analyzed were concrete planks, concrete joists, concrete skip-joists, steel framing, and composite steel framing.

The floor systems range from 10" to 23.5" deep and have a variety of constructability and technical challenges that are inherent to the application of each system. After reviewing the characteristics of the floor systems I analyzed I feel that the ones most viable for further investigation are pre-cast concrete planking, concrete skip-joists, and non-composite steel framing.