

Technical Assignment 2



Executive Summary

Technical Assignment 2 is the pro-con structural study of alternate floor systems. The purpose of this report is to pick various other floor systems other than the one provided and compare the advantages and disadvantages of them. Many different factors are going to be taken into consideration. Some of these factors include; cost, weight, ease of construction, floor-to-floor height, fire ratings, material benefits, and structural benefits. The alternative floor systems are chosen based on typically used systems in low-rise multi dwelling units.

The 6 alternate floor systems analyzed are:

Existing – Hollow core precast planks.

1. Non-composite beam with composite metal deck and slab
2. Open web steel joists with composite metal deck and slab
3. Precast pre-stressed double tees (with interior bearing wall removed)
4. Precast pre-stressed double tees (with existing bay size)
5. One way concrete joist system (with interior bearing wall removed)
6. One way concrete joist system (with existing bay size)

It was concluded that the existing floor system is the most efficient for the building design because of the follow:

1. Fire rating was not achieved by systems 1 and 2
2. All the alternate systems increase the building height.
3. System 5 had a much higher dead load for the slab.
4. System 2 may have large vibrations which will affect serviceability.