



Towers Crescent Building B
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Final Presentation

Summary/Conclusions

Through comparing the design of the alternate systems and the existing building, I learned much about steel and concrete design, and the economics behind why each is chosen.

The existing structure was very well designed, utilizing a simply planned building. The composite steel design is very efficient, especially when considering the time of construction. At an estimated 52 days for the construction of the structural elements, the time taken to construct the existing structure is much less than the time taken to construct either of the two alternate structures. The cost of the structure was also the cheapest, though not by much.

Both alternate structures were equal economically. The 40' x 30' design was about \$200,000 cheaper than the 30' x 27.5' design, but also took a week longer to construct. The feasibility of each structure is about the same. The first layout would be difficult due to the amount of post tensioning needed in the slab, while the second layout would be difficult due to the amount of reinforcement needed. Both structures show about the same amount of deflection. The only real difference was the thickness of the slab between the 2 designs. The first layout had a 9" slab, but the second layout was able to shrink that to 7".

The height of the building was kept constant throughout the design of the alternate structures due to the architectural aspect of the building. If this was considered, the second alternate structure would have been the best design, as it would have lowered the story height by nearly 1.5'. Thus lowering the cost dramatically, since the columns would be shorter and the façade would use less materials.

In conclusion, the best design for Building B is the existing composite steel design. Though, if height was considered in the economy of the building, adding a row of columns to the design would be the most economic design.