

## **Executive Summary**

### Structural Depth Study

After proposing to investigate a change in flooring systems from a normally reinforced cast in place concrete slab to a post tensioned flat slab, it was the intention of this report to fully carry out an investigation looking into the structural feasibility, design, refinement, and, ultimately, recommendation for the alternate system.

Upon the completion of the examination, it was found that the alternative flooring system was indeed a viable alternative to the existing system. A finite analysis computer model was generated in RAM Concept 2.0 to predict the behavior of a thinner slab under loading conditions. The new system passed all code issues and was easily adapted to the Hampton Inn & Suites' geometry; hence this section of the report concludes that the post tensioned system has significant advantages over the cast in place slab.

### Mechanical Breadth Study

A comparative building façade evaluation was conducted, and it was found that the use of EIFS when compared to architectural precast panels offers only slight advantages. Because both systems are barrier wall envelopes, the same constructability precautions exist for both methods. The biggest advantage EIFS possesses is a weight savings over the precast panels, but because the difference is small when compared to other dead loads, either system will perform adequately.

### Construction Management Breadth Study

The impact that the proposed floor system change had on the schedule of the project was minimal at a mere 11 days over the original timeline. The budget, however, was greatly affected, as a savings of \$172,100 could be observed if the post tensioned system was implemented. The amount of savings found by this analysis is more than enough to seriously consider which system would have been best.

### Conclusions

It is the ultimate recommendation of this report, in fact, that, had the building not yet begun construction, the post tensioned system be used in place of the existing system.