



## **North Shore at Canton**

Baltimore, MD

### **Final Report**

Recommendations

Beau Menard  
Structural  
Parfitt  
4/05/06

#### *Final Conclusion:*

Designing the structure of a building is an enduring process. It is not always easy to come up with the best answer. Trying to keep the solution as easy as possible is the first step, however easy is not always best. At the beginning of this project a simple solution was tried and rejected as it was unable to constrict to certain guidelines. As a result a more efficient system needed to be developed. There are a lot of factors that come into play when designing a buildings structure, including size, location, and use. Two types of frames were considered for the redesign of this project, a steel frame and a pre-cast concrete frame; both were more than sufficient in resisting the loads applied to them. However structural efficiency was not the only consideration in choosing the best option. When both types of frames were further analyzed it was clear that the steel frame was the most advantageous. Allowing for lightweight members, while still being able to resist the load, was a major factor in the final decision. The pre-cast frame, though it could easily resisted the loads applied, the inherent self-weight of the structure was its biggest shortcoming. The pre-cast frame also affected the way the lateral loads transfer through the pier, which would require an in-depth analysis of the pier structure to determine if it was still structurally stable. The steel frame, though it did slightly increase the loads on the pier, did not affect the pier so as to cause the need for an additional analysis. Project cost and construction durations were also factors in determining that the steel frame would be the best solution for this problem. While the values calculated are based on assumptions and subject to change, steel had the clear advantage. The resulting steel frame was approximately \$ 100,000.00 cheaper than the pre-cast frame, it was also determined that the steel frame had shorter construction durations than the pre-cast frame. Both frames are clearly valid solutions to the problem, however due to some minor differences it was clear that for this particular situation a steel frame was the best option.