North Shore at Canton

Baltimore, MD

Final Report

Executive Summary

Beau Menard
Structural
Parfitt
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Executive Summary:

North Shore at Canton is a 4 story town home and parking garage structure built on top of a pier in Baltimore harbor. The building is unique in the fact that it is built over the water. The first floor of the building is an enclosed parking level, from which the residence gain access to the town houses. The second, third, and fourth levels are comprised of the town house structure. The building is approximately 15,000 sq ft. per floor, with a total square footage of 60,000 sq ft.

Given that this building is built over water, the effects of moisture damage should be of great concern. Especially since the main lateral force resisting system is comprised of gypsum sheathed shear walls, and it is recommended to replace gypsum if it has sustained any water damage. Therefore a redesign of the structural system was done as a possible rectification to the problem.

Two systems were analyzed, a steel frame and a concrete frame. The structural systems were design to support both gravity and lateral loading. An analysis was also done to compare both the cost and construction durations of each proposed system.

It was found that the steel system was the best solution for this project. The system allows for the lightest members, while still staying within serviceability limitations. It was also found that the steel frame offered the most advantages in terms of cost and construction durations.

An analysis was also done to provide the parking level with a safe lighting environment. The design was based on both IES and ASHRAE standards.