North Shore at Canton

Baltimore, MD

Thesis Proposal

Beau Menard
Structural
Schneider
12/05/05

Executive Summary:

North Shore at Canton is a four story residential structure built over top of a pier in Baltimore harbor. The pier provides the base for the parking level, and the remaining three floors are the living units. The building can be thought of as threes separate structural systems. First the foundation is the pier, which is made up of concrete bents. There is a rigid steel frame that sits on top of the pier, which supports the three stories above. Finally a bearing/shear wall system supports the living units, the sheathing used for the shear walls is made up 1/2" gypsum board.

Since the structure is built over water, moisture issues are definitely a concern, especially when a major component of the structural system is greatly affected by moisture damage. The Gypsum Association of American recommends replacing gypsum board if there is any kind of moisture damage at all. Since the gypsum is an integral part of the structural system this creates problems for the owner and residences. It also creates opportunities to explore alternative structural systems.

To resolve this problem, two alternative structural systems have been proposed. The first is comprised of a rigid steel frame for the entire height of the structure; the second is made up from pre-cast concrete panels. Altering the structural system has the capabilities of affecting other aspects of the building process.

An examination of two breadth topics, for the proposal, will be looked into. First the construction management aspects of this building will be reviewed. The cost and schedule of the existing structural system will be compared to the two alternative systems. Second the affects of the building insulation and mechanical systems will be looked into. Since altering the structural system can affect the insulation values of the building it also has the ability to affect the loads required by the mechanical systems.