

Structural Technical Proposal

By Robert Whitaker

- Robert Whitaker
- Structural ~ Parfitt
- Parkview at Bloomfield Station
- Bloomfield, NJ
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Breadth Topics

The proposed thesis will include an investigation into two breadth topics and how they relate to the implementation of the steel frame system. First, an analysis of the current Exterior Insulation and Finish System (EIFS) will be studied. Second, an investigation of the change in building sequence between the current Hambro[®] system and the proposed frame steel system will be performed.

Cladding Analysis

An analysis of the current Exterior Insulation and Finish System (EIFS) façade is proposed to check for weather resistance, thermal and structural performance. The moisture check will be based on utilizing previous case studies to determine possible problem areas in the current assembly. These problems areas will then be used to analyze any negative effects of moisture on the steel frame, and the problems will be addressed with recommendations for prevention. A thermal wall gradient diagram will be drawn to verify energy retention of the building and negate any shrinkage and temperature effects on the steel frame system. Finally, a wind analysis will be performed on a localized edge panel and the system as a whole to verify its adequacy as a cladding system.

System Sequencing

The effect of the erection sequencing of the steel frame structural system will be compared to the sequencing of the current Hambro[®] system. A timeline of the erection process will be calculated for both systems for comparison purposes. The ability of the steel frame system to allow other activities, such as the pouring of concrete on the metal decking, to begin at a rapid pace will be investigated further and analyzed for time and cost benefits. Other issues such as constructability, complexity, connections, and cost will be analyzed and compared between the erections of the two systems.