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Structural Option

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AE 481W



Structural Technical Report 2 Alternate Framing Analysis

Executive Summary:

The 400 is a condominium complex located in Bremerton, Washington, right across the bay from Seattle. The building consists of two levels of concrete parking below four stories of residential non-composite metal frame construction. Ground has recently been broken for construction of The 400, and updated plans are in the process of being developed.

This technical assignment consists of an analysis of the existing structural system. Then, four possible alternate systems are evaluated, with advantages and disadvantages for each.

- Engineered Lumber
- Hollow Core Planks
- Two-way Flat Slab
- Waffle Slab

The most important considerations are site limitations for construction and soil properties which do not accommodate very well to large loads. In addition, height requirements are also a concern because The 400 is already designed to the maximum possible height.

All four alternate systems are then compared and contrasted to determine which systems should be considered for re-design (NOTE: All calculations and tables used for design are located in the Appendix). Many aspects, including vibration, foundation and column load implications and depth of system, were compared and contrasted. The Engineered Lumber system was chosen to be the best candidate for re-design, for many reasons including lighter and cheaper overall system.