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Structural Option
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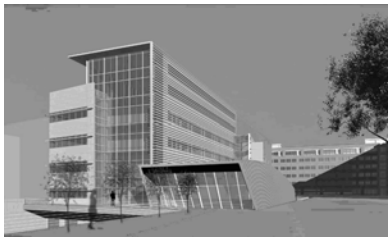

**FDA CDRH Laboratory**
Silver Spring, Maryland

## Executive Summary

The FDA CDRH Laboratory, located in Silver Spring, Maryland, is on the Food and Drug Administration's White Oak Consolidation Campus. The current building is a cast-in-place concrete structure which is very resilient to vibrations, as well as lateral loads due to its very large concrete members and monolithic joint design. I have proposed to design the building using a steel structural system. Due to the current use of steel in the roof systems and penthouse area of the laboratory, the decision to construct the entire building of steel and remove a great deal of a trade from the site allowed for greater ease in coordination and removes problems caused with site congestion. This idea proved to be an even bigger benefit after researching the possibilities of steel construction.

Two steel layouts were looked at, one running the beams in the north-south direction, known as design a, and one with the beams running in the east-west direction, known as design b. After looking at vibration controls and project costs, it became clear that design b allowed for the most cost-effective system. The steel design also proved to be a cost savings over the steel design, and also provided possible time savings. All other concerns the were addressed in the current design, and would need additional consideration in the steel design, such as an additional lateral resistive system, fire protection, and blast control were all found to not cause a great enough price increase to be of concern in the overall consideration of the best building system.

Finally, the architecture of the building was also considered. It was concluded that a more traditional façade not only provided more continuity to the consolidation side of the FDA, but also provided for additional blast protection, without a great deal of increase in the overall cost. The increase in cost that did occur was small enough that the savings from changing the structural system could easily compensate.