EXECUTIVE SUMMARY

This existing downtown 10-story office/retail building was fully-renovated with a new façade and state-of-the-art building systems. Located at a street corner of the D.C. business district, this newly developed design prominently sets itself apart from its surrounding buildings. The new "skin" of the building features a glass curtain wall system with white metal panels on the two sides of the building facing the street, which replaces the existing strip windows and brick façade. The floor-to-ceiling glass provides office tenants plenty of natural light along with landmark views of our nation's capital. This vertically configured design also consists of a new monumental roof cornice to add to its architectural stature. Other new features include an entrance canopy, rooftop terrace, and an enhanced retail storefront at street level. The building footprint is shaped like an "L", which allows space for a private courtyard in the northwest corner of the site. The new glass vestibule on the east side of the building leads into an elegant lobby area highlighted by Carrara Italian Marble panels with luminous wall panels running along the perimeter.

New Entrance Lobby

A renovation of this magnitude presents some unique challenges to the general contractor. Any desired structural modification or MEP core drills in the existing concrete slab must be scanned for existing reinforcing bar and approved by the structural engineer, which can be a headache at times depending on how critical it may be and the time it takes to get approval. The demolition process was also hindered due to the limitations on the equipment used to not disturb the existing structure. The design team created drawings based off of 40-year-old plans while the building was occupied, thus preventing it from being analyzed and exposed. This makes the new design very subject to changes resulting from unforeseen conditions. The general contractor was responsible for constructing the base building, or the "core and shell", while a separate tenant contractor was hired to install the finishes in the general office spaces. This joint occupancy of the general contractor and the tenant contractor presented some coordination difficulties to the job as well.

The proposal topics below identify the areas used to research and analyze the office/retail building renovation project in Washington, D.C. For each area of analysis, the problem will be defined, along with the proposal, goal, and methodology intended for addressing the issue. Then, the analysis itself will be conducted, taking into consideration the impacts of cost, schedule, and constructability to the project, followed by a conclusion for the analysis. The following is a preview of each analysis conducted in this report:

Urban Development

This will involve studying a major decision that an owner faces during the beginning stages of development, especially in an urban location: Is it better to renovate the existing building, or demolish and re-build it? There are many issues involved with making this decision from the owner's standpoint, and the various factors relating to the project under study will be analyzed in detail.

Green Roof Implementation

There was no initial consideration for pursuing LEED points for a more sustainable design and construction project for the office/retail building. One potential design feature that promotes several of the LEED objectives is implementing a green roof system into the existing building. The cost analysis will include a structural breadth for retrofitting steel beams and girders to support the added load from the green roof.

Building Envelope Performance

Thermal comfort was a major concern in the existing building design, as the exterior walls did not contain insulation. The renovated building envelope system included a large scale glass and metal panel curtain wall system, which served as an upgrade to the envelope aesthetically and allowed for more natural day lighting. However, the thermal performance of the envelope system was not addressed as much as it should have been. This analysis includes a mechanical breadth study on proposing improvements to the thermal performance and energy efficiency of the building envelope system in a cost-effective manner.