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Construction Management
Capital One Headquarters
McLean, VA
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Executive Summary
Overall Existing Conditions Summary

The results of my researching the topics requested for the Overall Existing Conditions Summary, ended up helping me to learn more about the items I already knew about, as well as new information about details I was not aware of. This summary will be helpful for the upcoming Abstract. I was able to obtain information on all topics except for telecommunications. This summary is a brief overview of the systems within the Capital One headquarters. In making this overview, it was helpful to let me know where to look for details later on.

Overall Existing Conditions Summary

This summary is a description of the physical existing conditions and consists of information relative to the overall systems and design concepts of the Capital One headquarters building.

Primary Project Team

Owner – Capital One Financial Corporation
Owner Representative – Jones Lang LaSalle
Architect – Ai
Interior Architect - Ai
General Contractor – James G. Davis Construction Corporation
Structural Engineering – Rathgeber/Goss Associates
Civil Engineering – William H. Gordon Associates
Mechanical/Electrical/Plumbing Engineering – Ai Engineering
Landscape Architect – EDAW
Acoustic Consultant – Miller Henning Associates, Inc.
Elevator Consultant – Lerch Bates & Associates
Curtain Wall Consultant – CDC, Inc.
Parking Garage Consultant – Graelic Inc.
Specification Consultant – James C. Bethel
Lighting Consultant – Illume Creatif

Dates of Construction

Start Date – Wednesday January 1, 2001
Project Completion Date – Monday October 21, 2002
Building Final Inspection Date – Friday November 1, 2002

Cost Information

Overall Projected Project Cost - \$107,571,881

Building Function & Primary Uses

Mixed Non-Separated Use Groups:

A-1	Assembly
A-3	Assembly
B	Business
S-2	Low Hazard Storage
S-1	Moderate Hazard Storage
M	Mercantile

The primary use for the building will be business related activities. A majority of the building is planned to be office space with hard-wall offices, cubicle workstations, and various sized conference rooms. There are many other areas of use as well, such as a fitness center, cafeteria/servery, coffee shop, and retail stores.

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Location & Site

The building is located at 1600 Scotts Crossing Road in McLean, Virginia. The western side of the lot is up against the I-495 Capital Beltway. The site is 26 acres in size total, including the areas where Cap One owns two smaller six story office buildings that will be demolished for future phases. The site has many existing utilities running through it that feed other buildings on-site and off. Some of these buildings include apartments adjacent to the site and other buildings across I-495. The biggest issue was a huge duct bank running directly through and under the area of the site where the building tower and parking garage were to be. Prior to any excavation at all being started, this duct bank needed to be completely relocated. It contained high security telephone and data lines that ran from buildings on one side of the beltway to buildings on the other side. This operation was under 24 hour-a-day surveillance and security. There were many issues with the lines having to stay up and running during the work day and only a specific few lines being able to be taken down at night. Cap One has provided Verizon with an easement agreement so they could still use the land where the duct bank has been relocated to.

Architecture

The design of the building was very important, because of it being Cap One's headquarters as well as its location along the beltway for passers by to see. The west wall of the office tower is a convex curve made of metal panels and large windows, with an architectural "slice" going straight through the building behind it. The slice forms a "fin" that sticks out from either side of the building. This fin is then imitated in the precast panels that cover the other three sides of the tower. There is an open office floor plan for floors three through thirteen, with the fourteenth floor not decided on yet. The curve of the exterior west wall is imitated in the lobby by another radius wall. The lobby is two stories with a monumental stair, and metal panels cladding just about everything. The layout of the stone in the floors follows the curve of the lobby. One element added post 9-11 was large planters along the main entrance to the building, which act as architectural elements as well as added security.

Major National Model Codes

Virginia Uniform Statewide Building Code
The National Building Code – BOCA (1996)
American Disabilities Act
Dominion Virginia Power Company
International Mechanical Code
The National Electric Code
Minimum Design Loads for Building and Other Structures – American Society of Civil Engineers

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Zoning & Historical

The property has always contained office buildings, just of a smaller size. So the zoning laws were not a problem. However, Cap One and the design team had to present the new campus idea to the community so that it would be acceptable to all. They also had to have the overall design and size of the building approved by the community and the county prior to beginning the final design of the project.

Project Delivery System

The project is considered a CM at risk with a negotiated price. DAVIS Construction is acting as the General Contractor, and holds all subcontracts.

Building Envelope

The building envelope consists of a metal panel and window system along the curved west wall of the tower. The other three sides of the tower or built with precast concrete panels. The base building is a concrete structure with mainly cast-in-place concrete walls. The main lobby walls are built with a similar metal panel system as the tower wall.

Electrical/ Lighting

The electrical panels vary from 480Y/277V to 208Y/120V, and 600A to 250A. It is all 3phase power. The power is sent up the building by busducts through the core. The lighting in the base building is average lighting for the area's use. The lighting in the office tower are unique lights that can be controlled by the computers at each work station.

Mechanical

The mechanical system throughout the building consists of 25 air handling units that average about 22000 total cfm each. There are four chillers and a cooling tower to handle cooling the controlled air. The air for each floor is sent under the raised floor systems, as opposed to through duct work above the ceiling. There are fans below the floor to help keep the air moving and direct it towards the diffusers. Diffusers are located around the perimeter of the floors, as well as near each work station. The diffusers for the work stations are adjustable for the workers comfort.

Structural

The first two floors of the building are constructed of a concrete structure with post tension beams and standard framed slabs. From the third floor up, the structure turns into a standard steel structure with concrete slab on metal deck. From the fifth floor up, the West Elevation is entirely cantilevered out about 2'-6" over the third and fourth floors. The steel structure on the fourth floor is then supporting this cantilever from the fifth to the fourteenth floors.

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Fire Protection

The fire protection system consists of an active sprinkler system on each level. The sprinkler pipes are filled with water at all times. The interesting part of the fire protection system is in the building's Comm. Room. The room holds all of the guts of the building, so they did not want to have sprinklers spraying water everywhere. So they introduced an Inigen system. An Inigen system consists of tanks of a gas, that when released, pulls a percentage of oxygen out of the air to extinguish any flames. An alarm sounds when the sensor is set off, and there is a short amount of time before the gas is released for the abort button to be pushed or any persons to leave the room. The contractor was concerned about the pressure of the gas if it is ever released into the room being so great that it would blow out the walls. So they designed louvers to be put into the walls, to release some of that pressure.

Transportation

There are eleven elevators total. Seven elevators are in the building's core, three or four of them being high-speed; one travels between the first two levels of the base building between the cafeteria and server areas; one is dedicated to the executives and travels between their parking area and the fourteenth floor; and two elevators are in the parking garage.

Telecommunications

I know there is a great deal of telecommunications throughout the building. I am not aware of the details just yet.

Special Systems

A special system that was briefly mentioned above is the raised flooring system. Each floor of the tower, floors three through thirteen, uses this system. There is an open space underneath the floor that acts as a plenum. The air is moved under the floor by fans and directed up through diffusers spaced across the floors and around the perimeters of each floor. All telephone and data cables are also run in this space. This flooring system was chosen for its alternative method of air movement and for the ease of rearranging the workstations as necessary.