Building Statistics Part 1

General Building Data:

Building Name: 50 Connell Drive Office Building

Location: Berkeley Heights, NJ 07922

Occupant Name: L'Oreal USA Inc.

Occupancy: A-2 Assembly, Group B Business

Gross Square Footage: 184,564 sf

Total stories: 4 floors above grade

Architect: HLW International LLP

Civil/Structural Engineer: CMX Engineering (formerly known as Schoor Depalma Engineers)

MEP Engineers: RDK Engineers

Vertical Transportation Engineers: Van Deusen Associates

LEED Consultant: Viridian Energy and Environmental

Owner: Connell Real Estate and Development Company

Construction Manager: Turner Construction is providing CM at risk services for the core and shell.

Dates of Construction (start-finish): Construction began on 7/2/07 and turnover for the tenant fit out is expected on 1/27/09. The owner is planning on having occupancy in July of 2009.

Overall Construction Cost: Turner's contract for the core and shell, including general conditions and fee is $38.9 Million. This number does not include the site work that the owner had done prior to Turner's arrival. After the tenant completes the fit out of the building it is expected that the overall construction cost will be $46,200,000.

Project Delivery Method: CM @ Risk

Architecture

Design and functional components: The building is a simple design dedicated to optimizing office space. The building footprint is rectangular. The interior layout of the building places the restrooms, elevators, stairwells and storage areas of the building in the central core. The outer perimeter of the building is dedicated to office space. The skin of the building is composed of granite panels and glass curtain wall. The glass curtain wall is nearly the full floor height. This allows for natural daylight to penetrate into the office space which will reduce energy loads. In addition to taking advantage of reduced energy consumption the large windows allow the occupants to have views towards the outdoors. This results in a more enjoyable more productive working environment. The first floor has a cafeteria for the workers. This is a functional component of architecture which makes a convenient alternative to leaving the building for lunch. A loading dock services the building adjacent to the cafeteria.

Major national model codes: NEMA, NEC, ADA, IBC 2006, NFPA, ASHRAE, ACI-318-02, OSHA

Zoning: The land is zoned as Commercial.

Building Envelope: The building envelope is composed of glass, concrete and stone. The exterior wall is a panel system of granite, limestone and shop fabricated architectural pre-cast concrete attached to a metal truss/panel system. Aluminum ribbon windows make up glass curtain wall sections. The roof is composed of 6" concrete topping on a 1 ½" steel deck supported by 3' 4" open web K series steel joists. There is a fully adhered membrane roofing system with mechanically fastened roof insulation and cover boards. The membrane has a minimum solar reflective index of 78 to meet the strict LEED building requirements of the project.

Building Statistics Part 2

Primary Engineering Systems

Construction

The Connell Company, through its division Connell Real Estate and Development Company hired Turner Construction as the construction manager on their new office building. The company develops and manages Class A commercial office buildings. Construction began in July of 2007 and is scheduled for completion in January of 2009. The building, 50 Connell Drive, will be comprised of four floors and a mechanical penthouse on the roof. The finished product will be approximately 185,000 total square feet. The building will be the newest addition to the 170 acre Connell Corporate Park and will later be known as Connell Corporate Center VI.

The building was constructed in bays. A 150 ton crawler crane was used to place all the structural steel. Construction of the bays began on the northeast side of the building. From here they moved west. Once construction of the northwest side of the building was complete the crawler crane was positioned on the southwest corner of the building and worked it way east. A concrete pump was used to place all concrete. The project team decided to use an atypical arrangement to finish the floors. Instead of using the traditional top-down or bottom-up approach they decided to finish the floors in the following order: $2^{nd} \rightarrow 3^{rd} \rightarrow 1^{st} \rightarrow 4^{th}$. The team decided that this would be the most efficient order to follow. The team did not want to do a traditional top-down sequence because the roof above the 4^{th} floor is composed entirely of bar joists. This means that in order for the 4^{th} floor to be ready for interior work they would need to wait for the spray on fire proofing to be completely installed on both the bar joists and underside of the roof. The team did not want to follow a bottom-up sequence because the 1^{st} floor has a lot of mechanical equipment, a kitchen and cafeteria. By jumping floors they were able to sequence efficiently and actually managed to get ahead of schedule.

Construction progress is being documented in the form of submittals, RFI's, quality control, coordination meetings, CPM scheduling and construction photographs.

Electrical

Primary electrical service is 13.2KV. Power enters the building through 15KV cables within an underground duct bank. The building has two main switchgears. Each of the 15KV Medium Voltage switchgears has a #600 cable that carries power to an 800 amp bus duct riser and a #400 cable that carries power to a 1000A duct riser. Once power is carried up the building through the riser it enters the branch circuits. Heavy equipment within the building uses 480 volt 3 phase power. There is a 15 KV dry type transformer on each floor that steps the power down from 480V to 208Y/120V for normal office applications. The transformers in this building are highly efficient and comply with

NEMA TP-1 standards. There are 24 panelboards throughout the building. Spectra Power panelboards are provided for all applications over 400 amps and to accommodate multiple branch breakers greater than 125 amps. In the event of a service failure the building also has an emergency generator capable of producing electricity with a natural gas driven engine. The generator has a 2900 MBH capacity. The building also has battery powered emergency lighting.

Lighting:

There is a variety of lighting fixtures in and around the building. Included are HID, florescent, Tungsten-halogen and incandescent lamps. A 277 volt system provides power to the fixtures. All fluorescent fixtures have electronic ballasts with high power factor. Ballasts are instant start. General office lighting is provided by a combination of recessed 26 watt compact fluorescent 6" downlights, F32T8 lamps are used in both chain hung 1x4 fluorescent uplights and Lithonia pendant mounted 2x4 fluorescent fixtures. Passageways are lit by recessed 32 watt compact fluorescent wall washers. The entry lobby utilizes a combination of recessed compact fluorescent downlights and metal halide fixtures. Cafeteria lighting is provided by a combination of recessed fluorescents, F32T8 pendant fixtures and Q35MR16 recessed halogens.

Mechanical:

The building utilizes a combination air/water system with a two pipe direct return. The majority of the mechanical equipment that services the building is located inside a penthouse on the roof. There are a total of four McQuay Destiny air handling units that supply air to the building. AHU-1 and AHU-2 do the bulk of the work. They are both located in the mechanical penthouse and have are capable of supplying 15,500 CFM and 18,400 CFM with a capacity of 710 MBU and 841 MBU respectively. The building also makes use of a smaller 2000 CFM, 180 MBU unit located in the penthouse and a 6000 CFM unit located at the loading dock. Ductwork carries air from these units to the space. Each floor has self contained heating/cooling units that are used to control the indoor environment. Fan powered VAV terminal unit boxes, electric unit heaters and self contained AC units are used to control the air temperature in each room. A 1739 MBU capacity boiler located within the penthouse is used to heat the buildings water supply. Also located on the penthouse are two Baltimore Air Coil closed circuit cooling towers, each with a 432 ton capacity. They are of an induced draft design with vertical air discharge. The towers use an aqueous glycol solution as the heat transfer fluid.

Structural:

The substructure of 50 Connell Drive consists of square concrete spread footings which support the interior steel columns. Continuous strip footings support a foundation wall along the north side of the building. The spread footings range in size from 3'x3' and 1' deep to 13'x13' and 2'9" deep. The footings sit on engineered fill/undisturbed stratum with minimum bearing capacity of 4000 psi. The SOG varies in thickness from 4" to 12" however the majority of the ground floor slab is 6". The mechanical room is built on a 12" SOG to support the heavy equipment. Drainage under slabs is compacted gravel. All

footings, piers, grade beams, walls and non composite slabs consist of 4000 psi normal weight concrete. Composite slabs use 3000 psi normal weight concrete.

The superstructure for the building is a steel skeleton composed of wide flange sections. The columns are spaced on 30' grids throughout the building. The structural steel framing is composed mainly of Grade 50 W21x50 girders and W16x26 beams. Lateral forces are resisted through the use of moment resisting connections and vertical structural bracing. Structural steel columns range in size from W14x48 to W14x132. The elevated slabs are 2 ¼" composite steel decks with 4" of normal weight concrete.

Additional Engineering and Engineering Support Systems

Fire Protection:

The water supply and fire pump room is located on the ground floor adjacent to the loading docks. The fire protection system is designed to meet all NFPA-13 standards. A combination of both a dry pipe and wet pipe sprinkler system is used to protect the building in the event of a fire. The loading dock area and the renting space on the first floor utilize a dry system while the other spaces utilize a wet system. The sprinklers in the building are spaced on a 15' x 15' grid. There is also a combination of sprinkler heads within the spaces. They include concealed, pendant, upright and sidewall type heads. In the event that obstructions within the space require additional sprinkler heads they will be installed by the contractor to ensure that they provide adequate coverage. In common office and dining areas the system is designed to provide .1 gpm/sf of water in the event of an emergency. In more critical areas such as mechanical rooms, kitchen and laundry rooms the sprinklers deliver .2 gpm/sf. Fire extinguishers are housed in recessed and semi recessed cabinets throughout the building.

Transportation:

The building is serviced by a total of four geared traction elevators and two metal pan concrete filled stairwells. All elevators move at a rate of 200 feet per minute and are controlled by variable voltage variable frequency drives. These drives provide a 3 phase AC induction motor with high stating torque and low starting current rated for continuous operation, 210 starts per hour. Three of the elevators are 3,500 pound capacity dedicated passenger cars. These elevators have a platform size that is 7'0" wide x 6'2" deep. The door is a single speed center opening type. The fourth is a combination passenger/service car with a capacity of 5,000 pounds. The platform size is 9'0" wide x 6'11" deep. This elevator has both a front and rear door. The front door is a 3'6" wide x 8'0" high single speed center opening type. The rear door is a larger 5'0" wide x 8'0" high two speed side opening door. A two way multi path communication system is provided within the car to allow for communication between the elevator car stations and the master stations In the event of a power failure there is a separate UPS battery backup system to provide for monitoring and control of the cars.

Telecommunications:

Each floor has two telecommunications/data rooms fed by 100 pair CAT 3 copper cable. A few telecommunication systems within the building include closed circuit video surveillance monitoring and recording, card access doors with magnetic locks, voice cabling and general cabling infrastructure including servers, workstations, printers, telephones, hubs, switches, router, etc.

Green Building Features:

The Connell Company has decided to pursue a LEED Gold certification under LEED for New Construction Version 2.2 from the US Green Building Council in recognition of their use of green building features. A few notable features of this building include:

- Bicycle storage units with adjacent shower facilities
- Preferred parking for alternative fuel and fuel efficient vehicles
- Waterless urinals to reduce water consumption
- Native and adaptive plant species to eliminate the need for outdoor irrigation
- Highly efficient glazing
- Reflective roof