John Jay College Expansion Project

New York, NY

Michael Hopper
Structural Option

Project Team:

Owner:
Dormitory Authority of the State of New York

Architect:
Skidmore, Owings, & Merrill LLP

Structural Engineer:
Leslie E. Robertson Associates, RLLP

MEP Engineer:
Jaros Baum & Bolles

Construction Management:
Turner Construction Company

Geotechnical Engineer:
Langan Engineering & Environmental Services, P.C.

Lighting:
SBLD Studio

Building Statistics:

Size: 620,000 s.f.
Stories: 14
Cost: $457 Million
Construction Dates:
February 2008 to Fall 2010
Site Restriction: Amtrak tracks cross the S-W corner of site

Architecture:

- 14 story tower containing office, classroom, and laboratory spaces.
- Grand Cascade connects existing building to the expansion project.
- Landscaped roof above cascade accommodates outdoor commons.
- Prefabricated curtain wall system with varying depth aluminum “fins”.
- Flat roof with parapets and single ply waterproofing membrane.

Mechanical:

- Cooling towers, water tanks, air-handling units, and mechanical exhaust fans are located at the penthouse level.
- Vertical mechanical shafts run through the 14 story service core to distribute air from the penthouse level.

Structural:

Foundation: Columns bear on a combination of concrete piers and caissons. The first floor system is a 6” thick two-way slab which is supported by grade beams.

Superstructure: Composite floor construction with 3” metal decking and 3 ½” lightweight concrete. Typical steel framing bay sizes are 30’-0” x 35’-9”. Perimeter plate hangers support the 6th-14th floors, which are hanging.

Lateral System: Steel braced frame core resists lateral loads. Trusses at the penthouse level support hanging floors 6-14 and transfer gravity loads to the braced frame.

Lighting & Electrical:

- 480 Y / 277 V electrical system with an emergency generator room at the penthouse level.
- Multistory cascade makes use of day lighting through skylights as well as recessed down lights to illuminate passageways.
- Walls of importance are accented with linear fluorescent wall washers.

CPEP Website:
http://www.engr.psu.edu/ae/thesis/portfolios/2009/mwh174/