Bar Chart/Progress Schedule

Tuesday, January 20, 2009



Natalie Bryner Construction Management Option Faculty Consultant: Dr. Anumba

Constitution Center 400 7th Street SE, Washington, DC 20024

NATALIE L. BRYNER CONSTRUCTION MANAGEMENT OPTION CONSTITUTION CENTER 400 7th Street SE, Washington, DC 20024



BUILDING STATISTICS

- Size: 1,500,000-SF base building and 600,000-SF parking garage
- Number of Stories: Three-level underground parking garage,
- 10 stories + Pent House
- Occupancy Type: Class A Office Space
- Cost: \$246 Million GMP
- Construction Dates: July 2007 November 2009
- Delivery Method: Design-Bid-Build
- LEED Gold Project







- Centralized Plant in the Penthouse Housing:
 - Two 800 h.p. Boilers
 - One 350 h.p. Boiler
 - Three 1200 ton Trane Chillers
 - Eight 30,000 CFM Trane Air Handlers
 - Eight 30,000 CFM Semco Energy Recovery Units
 - Four 1200 ton Cooling Towers utilizing 6,700 Active Chilled Beams
- Power distribution system of 13.8 kVA feed from four primary switchgear connected to Pepco feeders
- 10 secondary 4000A transformers within the garage and Pent House levels
- Two 1000 kilowatt generators are roof mounted to provide power back-up to the critical building systems during a power outage
- Two dedicated chiller/purifier drinking water systems that continuously circulate water throughout the building
- Custom made Chilled-Beam System from Germany

PROJECT TEAN

- Owner/Developer: David Nassif Associates
- General Contractor: James G. Davis Construction Corporation
- Owners Representative: Kramer Consulting
- Architect: SmithGroup, Inc.
- MEP Engineer: SmithGroup, Inc.
- Civil Engineer: Wiles Mensch Corporation
- Structural Engineer: SK&A

STRUCTURAL

- Precast panels found at all four corners of the building, which frame the spandrel glass
- Blast resistant curtainwall throughout at Streetscape and Courtyard, with floor two being the most resistant including an air barrier system
- Metal panel on the Pent House level to conceal the MEP equipment
- Blast protection in garage tenant space, entrance ramp, internal ramps, electrical rooms, telecom rooms, elevator shafts, egress stairs, and exposed columns
- Two-way waffle slab on all floors except the Pent House

ARCHITECTURE

- Renovation of an existing building, originally constructed in 1976 and occupied by the Department of Transportation (DOT)
- 4 separate, but integrated quadrants that have their own elevator, stairs ways, bathrooms, electrical closets, communication closets
- One acre of courtyard that is a private, secure green space with fountain, seating areas, sculpture, and 32 Honey Locus Shade Trees that are 11'-15' tall
- White Marble and Jerusalem Limestone are located around the first level of the building, creating a boarder for the spandrel glass located at the storefront entrances
- Built-up roofing system and metal panels used to conceal the MEP equipment on the Pent House level



Milestone One (January 26, 2009):

TROX USA, Inc. Site Visit Research the typical costs of an HVAC system Become familiar with the curtain wall panels and installation requirements Research weather during the installation duration Determine the Rules of Credit using R.S. Means Interview DAVIS to the availability of the daily curtainwall count

Milestone Two (February 9, 2009):

Constitution Center Site Visit for installation requirements and storage limitations Evaluate publications on the chilled beams Interview DAVIS project team for schedule, cost, and site logistics Interview SmithGroup to find out why they chose the chilled beams Interview Pierce Associates to determine how they familiarized themselves with the system Compare chilled beam to typical system Interview DAVIS for commissioning requrements Send out Interview/Survey questions to industry members Interview DAVIS with curtainwall questions Create and compile Data Collection Tool Interview DAVIS to detemrine the schedule requirements Interview the subcontractor to determine the renovation steps Create and send out survey to be sent to industry members

Milestone Three (February 23, 2009):

Research current comissioning systems Finalize Chilled Beam Research Calculate expected and actual productivity Calculate expected performance factor Calculate planned and actual manning Calculate actual percent complete Calculate control budget Determine the factors for delays Research structural requirements for parking garage Calculate loads the slabs are experiencing

Mileston Four (March 16, 2009):

Compare Constitution Center data to CE 533 semester project Research how the waffle slab were renovated Research what qualified a section to be renovated Preform a two-way reinforced concrete system analysis Compare current renovation system to two-way reinforced concrete system Determine the safety requirments for the metro entrance on Constitution Center Research the OSHA requirments Interview DAVIS for special safety techniques Compile survey results

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| 44 Class Add Name To Option Board 0 day Wed 1/14/09 Wed 1/14/09 Fit 1/16/09 45 Class Bar Chart/Progress Schedule Update 0 days Fit 1/16/09 Fit 1/16/09 Fit 1/16/09 46 Class Revise Proposal 0 days Tue 1/20/09 Tue 1/20/09 Tue 1/20/09 47 Class Bar Chart/Progress Schedule Update 0 days Mon 1/26/09 Mon 1/26/09 Mon 1/26/09 48 Class Bar Chart/Progress Schedule Update 0 days Mon 1/26/09 Mon 1/26/09 Mon 1/26/09 49 Class Complete consultation with faculty consultant 0 days Mon 2/20/09 Mon 2/20/09 Mon 2/20/09 51 Class Bor Chart/Progress Schedule Update 0 days Fit 1/27/09 Fit 2/27/09 Fit 2/27/09 Fit 2/27/09 52 Class Bor Chart/Progress Schedule Update 0 days Mon 3/20/09 Fit 3/13/09 Fit 3/13/09 Fit 3/13/09 55 Class Spring Break 5 days Mon 3/20/09 Fit 3/13/09 Fit 3/13/09 Fit 3/13/09 Fit 3/13/09 Set 1/20/09 Set 2/23 Set 2/23 55 Class Dro Page Presentation Outine 0 days Mon 3/23/09 | | | | | | | | | | Fri 3/20/09 | Mon 3/16/09 | 5 days | Critical Industry Issue Compile survey results | 42 |
| 43 Class Bar Char/Progress Schedule Update 0 days Fri 1/1609 Fri 1/1609 46 Class Revise Proposal 0 days Tue 1/2009 Tue 1/2009 Tue 1/2009 47 Class Bar Char/Progress Schedule Update 0 days Mon 1/26(09) Mon 1/26(09) Mon 1/26(09) Mon 1/26(09) 48 Class Bar Char/Progress Schedule Update 0 days Mon 1/26(09) Mon 2/16(09) Mon 2/16(0 | | | | | | | | | | Fri 1/16/09 | Mon 1/12/09 | 5 days | Critical Industry Issue Finalize safety requirments research | 43 |
| 46 Class Revise Proposal 0 days Tue 1/20/9 Tue 1/20/9 Tue 1/20/9 47 Class Bar Chart/Progress Schedule Update 0 days Tue 1/20/9 Tue 1/20/9 Tue 1/20/9 48 Class Bar Chart/Progress Schedule Update 0 days Tue 1/20/9 Tue 1/20/9 Tue 1/20/9 49 Class Bar Chart/Progress Schedule Update 0 days Mn 1/26/0 Mn 1/26/0 Mn 1/26/0 50 Class Bar Chart/Progress Schedule Update 0 days Mn 2/3/0 Mn 2/3/0 Mn 2/3/0 51 Class Complete consultation with faculty consultant 0 days Mn 2/23/0 Mn 2/23/0 Mn 2/23/0 53 Class Schodule Update 0 days Fir 2/27/00 Fir 2/27/00 Fir 2/27/00 Fir 2/27/00 54 Class Sone Anar/Progress Schedule Update 0 days Mn 3/23/0 Mn 3/23/0 Mn 3/23/0 Mn 3/23/0 55 Class Supdate Presentation Outline 0 days Tue 3/3/100 Mn 3/23/0 | | | | | | | | | ♦ 1/14 | Wed 1/14/09 | Wed 1/14/09 | 0 days | Class Add Name To Option Board | 44 |
| 47 Class Bar Charl/Progress Schedule Update 0 day Tue 1/20/9 | | | | | | | | | 1/16 | Fri 1/16/09 | Fri 1/16/09 | 0 days | Class Bar Chart/Progress Schedule Update | |
| 48 Class Bar Chart/Progress Schedule Update 0 day Mon 1/26/09 Mon 1/26/09 49 Class Post a question on discussion board 0 day Sat 1/31/09 Sat 1/31/09 50 Class Bar Chart/Progress Schedule Update 0 day Mon 2/9/09 Mon 2/9/09 51 Class Bar Chart/Progress Schedule Update 0 day Mon 2/9/09 Mon 2/9/09 52 Class Bar Chart/Progress Schedule Update 0 day Mon 2/2/09 Mon 2/2/09 53 Class Go-No Go Confirmation 0 day Mon 3/16/09 Mon 3/16/09 54 Class Spring Break 5 days Mon 3/16/09 Mon 3/16/09 55 Class One Page Presentation Outline 0 days Mon 3/16/09 Mon 3/23/09 55 Class Update Presentation Outline 0 days Tue 3/31/09 Tue 3/31/09 56 Class Update Presentation Outline 0 days Tue 3/31/09 Tue 3/31/09 57 Class Update Presentation Outline 0 days Tue 4/1/09 Tue 4/1/109 58 Class Threis Presentation 0 days Tue 4/1/109 Tue 4/1/109 59 Class Thesis Presentation 0 days | | | | | | | | l/20 | | Tue 1/20/09 | Tue 1/20/09 | 0 days | Class Revise Proposal | |
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| 1 Class Complete consultation with faculty consultant 0 day Mon 2/16/09 22 Class Bar Chart/Progress Schedule Update 0 day Mon 2/23/09 53 Class Go-No Go Confirmation 0 day Fri 2/27/09 54 Class Spring Break 0 day Mon 3/16/09 55 Class Bar Chart/Progress Schedule Update 0 day Mon 3/16/09 56 Class Bar Chart/Progress Schedule Update 0 day Mon 3/16/09 56 Class Bar Chart/Progress Schedule Update 0 day Mon 3/23/09 57 Class Updated Presentation Outline 0 day Tue 3/31/09 58 Class Final Report Due 0 day Tue 4/1/09 Tue 4/1/09 59 Class Final Report Due 0 day Tue 4/1/09 Tue 4/1/09 | | | | | | 1/31 | • | | | | Sat 1/31/09 | 0 days | | |
| 22 Class Bar Char/Progress Schedule Update 0 days Mon 2/23/0 53 Class Go-No Go Confirmation 0 days Fri 2/27/0 54 Class Spring Braak 5 days Mon 3/9/0 Fri 3/13/0 55 Class Bar Char/Progress Schedule Update 0 days Mon 3/200 Mon 3/200 56 Class Bar Char/Progress Schedule Update 0 days Mon 3/200 Mon 3/200 57 Class Dre Page Presentation Outline 0 days Mon 3/200 Mon 3/200 57 Class Updated Presentation Outline 0 days Tue 3/31/0 Tue 3/31/0 58 Class Fina Report Due 0 days Tue 4/1/00 Tue 4/1/00 59 Class These These Presentation Tue 4/1/00 Tue 4/1/00 | | | | | 2/9 | | | | | | | 0 days | | |
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| 59 Class Thesis Presentation 0 days Tue 4/14/09 | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | Thu 4/30/09 | Thu 4/30/09 | 0 days | Class Finalize CPEP | |
| 61 Class Constitution Center Presentation 0 days Thu 4/30/09 62 Class Awards Presentation 0 days Fri 5/1/09 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | - | | |
| 63 Class Update Resume 0 days Wed 5/6/09 Wed 5/6/09 | | | | | | | | | | vveu 5/6/09 | vveu 5/6/09 | U days | | 03 |

| Project: Bar Chart - Progress Schedule |
|--|
| Date: Tue 1/20/09 |

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