Bar Chart/Progress Schedule

Monday, February 9, 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

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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

Mechanical & Electrical

- 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 Team

- 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

Renderings Provided by SmithGroup, Inc. and Studio Christen

http://www.engr.psu.edu/ae/thesis/portfolios/2009/nlb5002/

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 availibilty of the daily curtainwall count~~

Milestone Two (February 9, 2009):

Constitution Center Site Visit for installation requirements and storage limitations **– Rescheduled**
~~Evaluate publications on the chilled beams~~
Interview DAVIS project team for schedule, cost, and site logistics **– 50% Complete, awaiting response**
Interview SmithGroup to find out why they chose the chilled beams **– 50% Complete, awaiting response**
Interview Pierce Associates to determine how they familiarized themselves with the system **– 50% Complete, awaiting response**
Compare chilled beam to typical system
Interview DAVIS for commissioning requrements **– 50% Complete, awaiting response**
Send out Interview/Survey questions to industry members **– 75% Complete, trying to determine who to send it to and how to get their contact information**
~~Interview DAVIS with curtainwall questions~~
Create and compile Data Collection Tool **– 50% Complete, waiting for CD delivery**
~~Interview DAVIS to detemrine the schedule requirements~~
Interview the subcontractor to determine the renovation steps **– 50% Complete, awaiting response**
Create and send out survey to be sent to industry memebers **– 75% Complete, awaiting response from DAVIS Safety Department**

Reason why Milestone was not met – My trip to the Constitution Center site did not occur, therefore I am relying on email to get some of my questions answered
Recovery Plan – If I do not receive the information I need, I will begin calling people to schedule times to "interview" them over the phone.

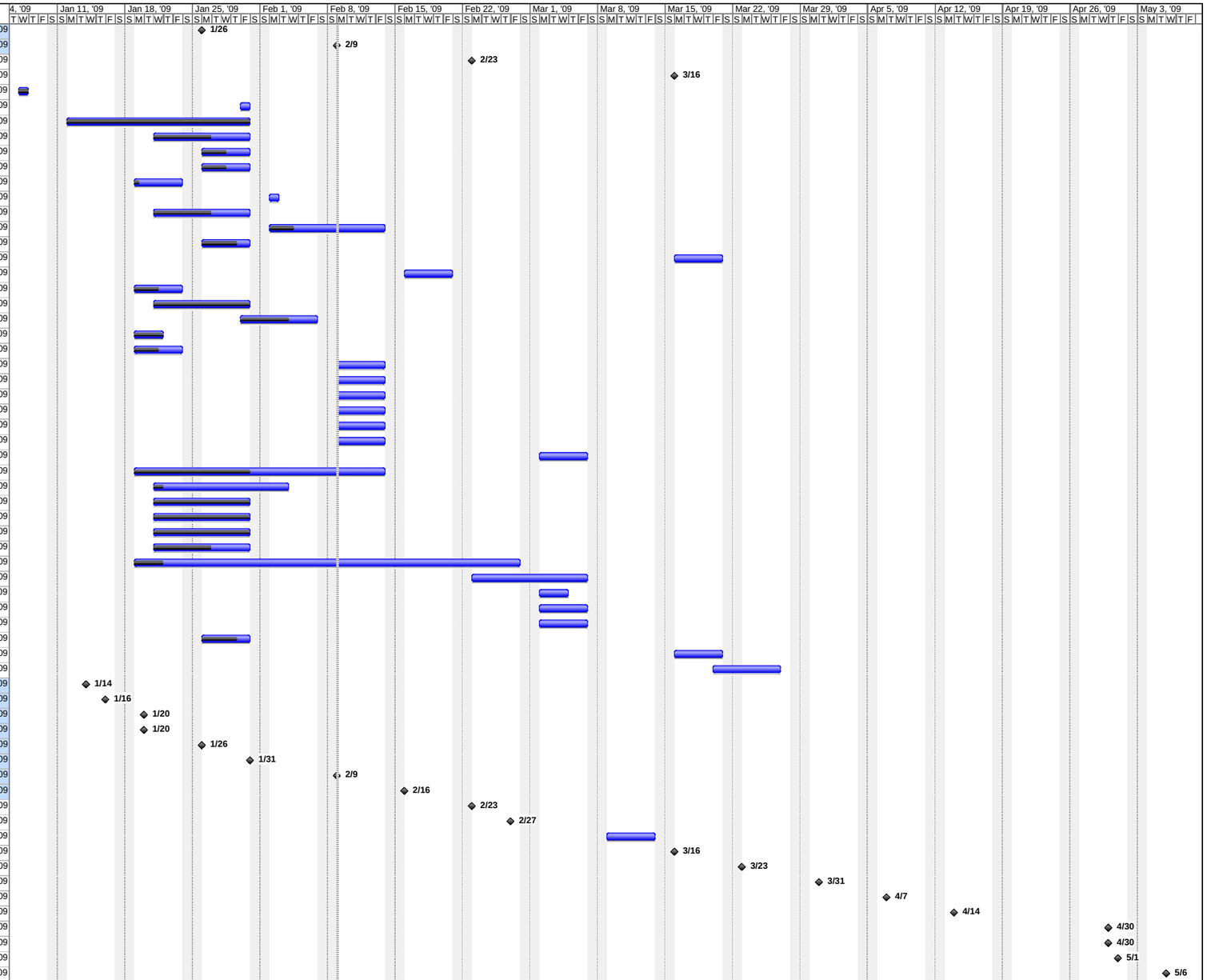
Milestone Three (February 23, 2009):

Research current comissioning systems
Finalize Chilled Beam Research
Calculate expected and actual productivity
Calculate expected performacne 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

ID	Breadth	Task Name	Duration	Start	Finish
1	Milestone	Milestone One	0 days	Mon 1/26/09	Mon 1/26/09
2	Milestone	Milestone Two	0 days	Mon 2/9/09	Mon 2/9/09
3	Milestone	Milestone Three	0 days	Mon 2/23/09	Mon 2/23/09
4	Milestone	Milestone Four	0 days	Mon 3/16/09	Mon 3/16/09
5	Mechanical	TROX USA, Inc. Site Visit	1 day	Wed 1/7/09	Wed 1/7/09
6	Mechanical	Constitution Center Site Visit for installation requirements and storage limitations	1 day	Fri 1/30/09	Fri 1/30/09
7	Mechanical	Evaluate publications on the chilled beams	15 days	Mon 1/12/09	Fri 1/30/09
8	Mechanical	Interview DAVIS project team for schedule, cost, and site logistics	8 days	Wed 1/21/09	Fri 1/30/09
9	Mechanical	Interview SmithGroup to find out why they chose the chilled beams	5 days	Mon 1/26/09	Fri 1/30/09
10	Mechanical	Interview Pierce Associates to determine how they familiarized themselves with the system	5 days	Mon 1/26/09	Fri 1/30/09
11	Mechanical	Research the typical costs of an HVAC system	5 days	Mon 1/19/09	Fri 1/23/09
12	Mechanical	Compare chilled beam to typical system	1 day	Mon 2/2/09	Mon 2/2/09
13	Mechanical	Interview DAVIS for commissioning requirements	8 days	Wed 1/21/09	Fri 1/30/09
14	Mechanical	Research current commissioning systems	10 days	Mon 2/2/09	Fri 2/13/09
15	Mechanical	Send out Interview/Survey questions to industry members	5 days	Mon 1/26/09	Fri 1/30/09
16	Mechanical	Compile Interview/Survey questions and analyze	5 days	Mon 3/16/09	Fri 3/20/09
17	Mechanical	Finalize Chilled Beam Research	5 days	Mon 2/16/09	Fri 2/20/09
18	MAE Component	Become familiar with the curtain wall panels and installation requirements	5 days	Mon 1/19/09	Fri 1/23/09
19	MAE Component	Interview DAVIS with curtainwall questions	8 days	Wed 1/21/09	Fri 1/30/09
20	MAE Component	Create and compile Data Collection Tool	6 days	Fri 1/30/09	Fri 2/6/09
21	MAE Component	Research weather during the installation duration	3 days	Mon 1/19/09	Wed 1/21/09
22	MAE Component	Determine the Rules of Credit using R.S. Means	5 days	Mon 1/19/09	Fri 1/23/09
23	MAE Component	Calculate expected and actual productivity	5 days	Mon 2/9/09	Fri 2/13/09
24	MAE Component	Calculate expected performacne factor	5 days	Mon 2/9/09	Fri 2/13/09
25	MAE Component	Calculate planned and actual manning	5 days	Mon 2/9/09	Fri 2/13/09
26	MAE Component	Calculate actual percent complete	5 days	Mon 2/9/09	Fri 2/13/09
27	MAE Component	Calculate control budget	5 days	Mon 2/9/09	Fri 2/13/09
28	MAE Component	Determine the factors for delays	5 days	Mon 2/9/09	Fri 2/13/09
29	MAE Component	Compare Constitution Center data to CE 533 semester project	5 days	Mon 3/2/09	Fri 3/6/09
30	Structural	Research structural requirements for parking garage	20 days	Mon 1/19/09	Fri 2/13/09
31	Structural	Calculate loads the slabs are experiencing	10 days	Wed 1/21/09	Tue 2/3/09
32	Structural	Research how the waffle slab were renovated	8 days	Wed 1/21/09	Fri 1/30/09
33	Structural	Research what qualified a section to be renovated	8 days	Wed 1/21/09	Fri 1/30/09
34	Structural	Interview DAVIS to detemrine the schedule requirements	8 days	Wed 1/21/09	Fri 1/30/09
35	Structural	Interview the subcontractor to determine the renovation steps	8 days	Wed 1/21/09	Fri 1/30/09
36	Structural	Preform a two-way reinforced concrete system analysis	30 days	Mon 1/19/09	Fri 2/27/09
37	Structural	Compare current renovation system to two-way reinforced concrete system	10 days	Mon 2/23/09	Fri 3/6/09
38	Critical Industry Issue	Determine the safety requirments for the metro entrance on Constitution Center	3 days	Mon 3/2/09	Wed 3/4/09
39	Critical Industry Issue	Research the OSHA requirments	5 days	Mon 3/2/09	Fri 3/6/09
40	Critical Industry Issue	Interview DAVIS for special safety techniques	5 days	Mon 3/2/09	Fri 3/6/09
41	Critical Industry Issue	Create and send out survey to be sent to industry memebers	5 days	Mon 1/26/09	Fri 1/30/09
42	Critical Industry Issue	Compile survey results	5 days	Mon 3/16/09	Fri 3/20/09
43	Critical Industry Issue	Finalize safety requirments research	5 days	Fri 3/20/09	Thu 3/26/09
44	Class	Add Name To Option Board	0 days	Wed 1/14/09	Wed 1/14/09
45	Class	Bar Chart/Progress Schedule Update	0 days	Fri 1/16/09	Fri 1/16/09
46	Class	Revise Proposal	0 days	Tue 1/20/09	Tue 1/20/09
47	Class	Bar Chart/Progress Schedule Update	0 days	Tue 1/20/09	Tue 1/20/09
48	Class	Bar Chart/Progress Schedule Update	0 days	Mon 1/26/09	Mon 1/26/09
49	Class	Post a question on discussion board	0 days	Sat 1/31/09	Sat 1/31/09
50	Class	Bar Chart/Progress Schedule Update	0 days	Mon 2/9/09	Mon 2/9/09
51	Class	Complete consultation with faculty consultant	0 days	Mon 2/16/09	Mon 2/16/09
52	Class	Bar Chart/Progress Schedule Update	0 days	Mon 2/23/09	Mon 2/23/09
53	Class	Go-No Go Confirmation	0 days	Fri 2/27/09	Fri 2/27/09
54	Class	Spring Break	5 days	Mon 3/9/09	Fri 3/13/09
55	Class	Bar Chart/Progress Schedule Update	0 days	Mon 3/16/09	Mon 3/16/09
56	Class	One Page Presentation Outline	0 days	Mon 3/23/09	Mon 3/23/09
57	Class	Updated Presentation Outline	0 days	Tue 3/31/09	Tue 3/31/09
58	Class	Final Report Due	0 days	Tue 4/7/09	Tue 4/7/09
59	Class	Thesis Presentation	0 days	Tue 4/14/09	Tue 4/14/09
60	Class	Finalize CPEP	0 days	Thu 4/30/09	Thu 4/30/09
61	Class	Constitution Center Presentation	0 days	Thu 4/30/09	Thu 4/30/09
62	Class	Awards Presentation	0 days	Fri 5/1/09	Fri 5/1/09
63	Class	Update Resume	0 days	Wed 5/6/09	Wed 5/6/09



Project: Bar Chart - Progress Schedule
Date: Mon 2/9/09

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

Natalie Bryner
2/9/09 Update