Aimee Bashore

Construction Management Dr. Messner Franklin & Marshall College Row Lancaster, PA October 30, 2006 Technical Assignment 2



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Executive Summary

Through completion of this technical assignment, cost and methods, as part of the execution of a project, were analyzed. In this assignment, areas such as a detailed project schedule, a site layout plan for the excavation stage of the project, and assemblies, structural systems, and general conditions estimates were completed to look deeper into the execution of the Franklin & Marshall College Row project in Lancaster, PA.

Franklin & Marshall College required that their project be completed in time for the 2007/2008 school year. With the high demand and short duration, only 16 months to complete three new buildings, Alexander Building Construction was charged with creating a fast-paced schedule to meet their needs. Reflected in this schedule is an owner turnover date of Thursday July 26, 2007. Also important to the owner are activities such as first floor tenant fitout to begin on Friday June 1, 2007 and the residential fitout duration of Wednesday January 10 to Monday July 2, 2007.

The site plan evaluated in this report is for the superstructure phase of the project. Included on the site plan are crane locations, dumpsters, and office trailers. An important part of the construction site is the site fence because of the site's location along Harrisburg Pike and close to campus during the school year.

Included in this report are estimates evaluating the cost of the exterior wall assembly, the structural system for a typical bay, and the general conditions for the project. The total cost for the exterior wall estimate came to \$410,436. For the structural systems estimate, the total cost is \$433,652. And the general conditions estimate totaled \$1,008,564.

Detailed Project Schedule

Franklin & Marshall College requires that their College Row project be completed in time for use for the 2007/2008 school year. The resulting schedule is 16 month construction project, starting from preconstruction in April 2006 and ending with the turnover of the building to the owner on Thursday July 26, 2007.

The project schedule is broken down into two main categories, General Construction and Construction for Building A. Within the General Construction are important milestones, demolition activities, and site work. The Construction for Building A is separated based on the type of work.

Key dates, milestones, and activity durations:

- 1/10/07 to 7/2/07 Interior finishes
- 2/1/07 Mock-up apartment complete
- 6/1/07 1st floor tenant fitout
- 6/8/07 to 6/22/07 Life safety systems testing
- 7/9/07 to 7/25/07 Final clean-up
- 7/26/07 Owner occupancy
- 8/8/07 Interior punchlist complete
- 8/22/07 Exterior punchlist complete

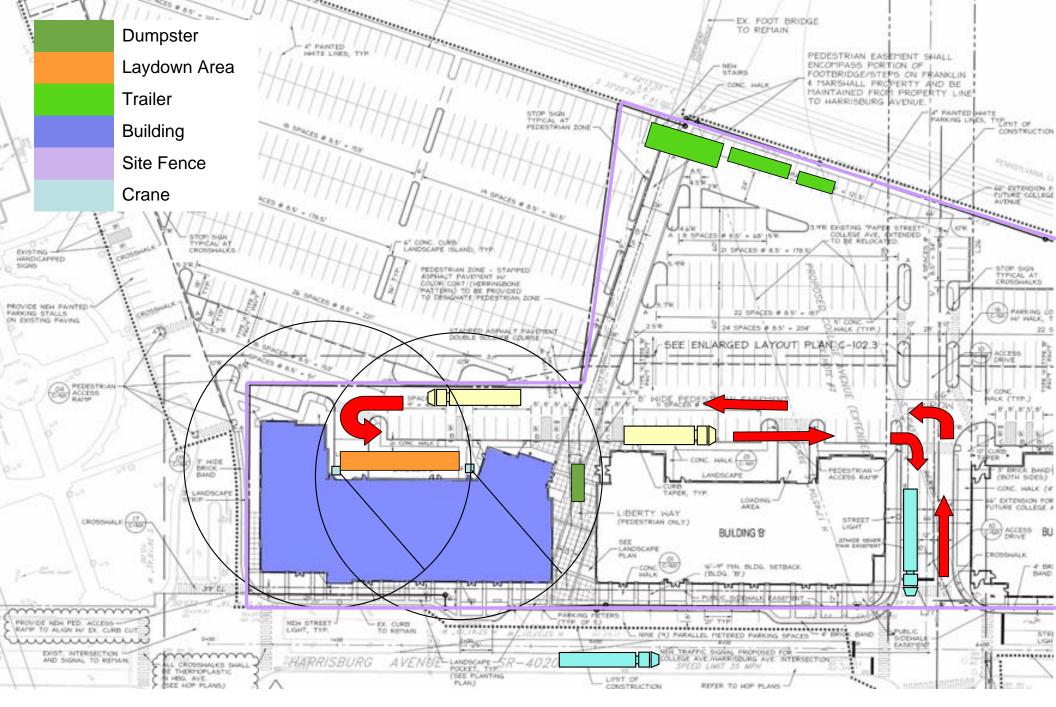
The detailed project schedule is located in Appendix A.

Site Layout Plan - Superstructure

The following site plan is an overall site plan for the superstructure construction phase at Franklin & Marshall College Row. At this point, the main entrance and exit of the site is off Harrisburg Pike, between the proposed Buildings B and C. Since the entrance/exit location is the same, there is ample space for trucks to turn around for delivery. The steel laydown area is centrally located behind the building, with easy access for both delivery trucks and the crane. The crane will first be on the west side of the inside of the building, and later move to the east side of the inside of the building.

At the beginning of the superstructure phase, the trailers are located along the north fence-line, along the railroad tracks. They will later be moved to a different location, and the temporary power set-up will be changed. The temporary power currently has been rerouted from a demoed building. Temporary power for the buildings under construction will be available late in November 2006 and in February 2007, permanent power will be hooked-up. The phone/internet connection is wireless out of the City of Lancaster, and the facsimile line is LAN.

The full detailed site plan is located on the following page.



Franklin & Marshall College Row

Aimee Bashore

Lancaster, PA

Site Layout Plan - Superstructure

<u>Assemblies Estimate - Exterior Wall</u>

The following is a summary of the assemblies performed for the Franklin & Marshall College Row project. The system looked at in this estimate is the exterior wall. Included in the summary are total prices for the masonry, windows, and doors. All unit prices were taken from R.S. Means Building Construction Costs 2006. A location factor of 0.93 was taken into consideration for the project's Lancaster, PA locality.

A detailed exterior wall assembly estimate is located in Appendix B.

Assemblies Estimate	e Summary
Item	Total Cost
Masonry	\$347,660
Doors	\$7,510
Windows	\$86,159
Location Factor = 0.93	\$441,329
TOTAL COST: \$41	0,436

Detailed Structural Systems Estimate

The following is a summary of the general conditions estimate performed for the Franklin & Marshall College Row project. Included in the summary are total prices for the structural steel and the slab-on-deck. All unit prices were taken from R.S. Means Building Construction Costs 2006. A location factor of 0.93 was taken into consideration for the project's Lancaster, PA locality.

For the cast-in-place concrete, the slab-on-deck, the mixture is required to be either light or normal weight coarse aggregate, sand fine aggregate, and use either Type I or II Portland Cement. The concrete is to reach 4000psi compressive strength within 28 days. All structural steel columns and beams are to be made from A992 grade steel.

A detailed structural systems estimate is located in Appendix C.

Structural Systems Estimate Summary										
Item	Total Cost									
Structural Steel	\$271,749									
Slab-on-Deck	\$194,543									
Location Factor = 0.93	\$466,292									
TOTAL COST: \$43	3,652									

General Conditions Estimate

The following is a summary of the general conditions estimate performed for the Franklin & Marshall College Row project. Included in the summary are total prices for the bonding and insurance, project staff, and site office supplies. Percentages were taken from the total project cost of \$15,048,000. Hourly, weekly, and monthly costs were based on a 40 hour work week, with the project duration at 68 weeks and 16 months. Unit prices were based on either ICE 2000 estimating software or R.S. Means Building Construction Costs 2006. A location factor of 0.93 was taken into consideration for the project's Lancaster, PA locality.

Unit prices taken from R.S. Means Building Construction Costs 2006 include:

- Final Clean-up
- Office Trailers
- Miscellaneous Office Supplies
- Office Equipment
- Project Staff
- Bonds
- Insurance

Unit prices taken from ICE 2000 estimating software include

• Remaining office supplies

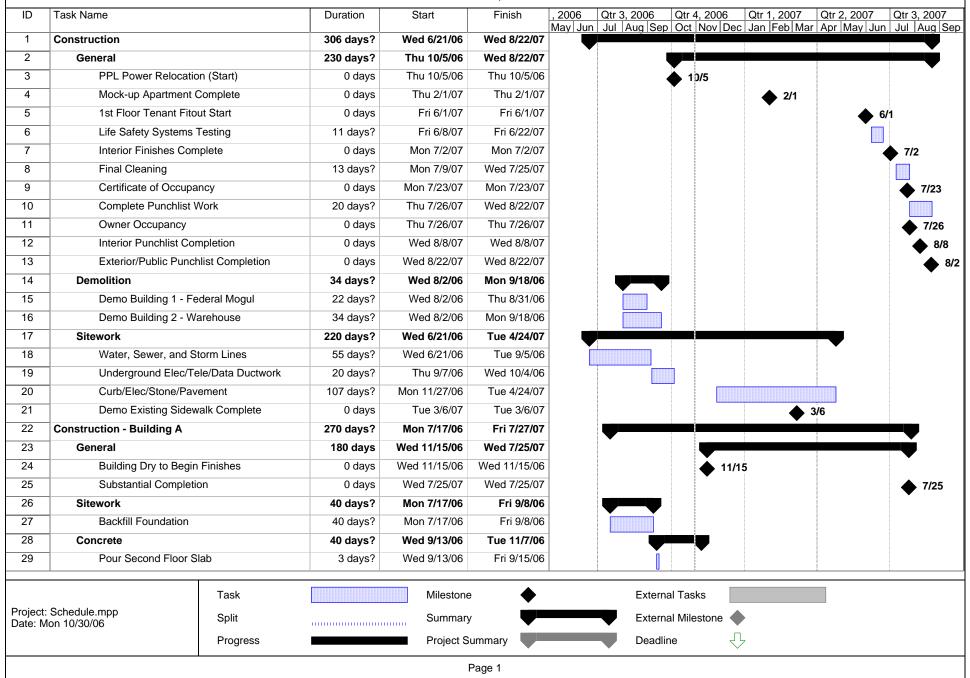
A detailed general conditions estimate is located in Appendix D.

General Conditions Estimate Summary									
Item	Total Cost								
Bond	\$150,480								
Insurance	\$96,307								
Project Staff	\$752,216								
Site Office Supplies	\$97,262								
Location Factor = 0.93	\$1,096,265								
TOTAL COST: \$1,0	08,564								

Appendix A

Detailed Project Schedule

Detailed Project Schedule Franklin & Marshall College Row Lancaster, PA



Detailed Project Schedule
Franklin & Marshall College Row
Lancaster, PA

				Lan	caster, PA							
ID	Task Name		Duration	Start	Finish	, 2006	Qtr 3, 2006 Jul Aug Sep	Qtr 4	, 2006	Qtr 1, 2007	Qtr 2, 2007	Qtr 3, 2007
30	Slab on Grade		5 days?	Wed 11/1/06	Tue 11/7/06	May Jun	Jul Aug Sep	Oct	Novidec	Jan Feb Mar	Apr Iviay Jun	Jul Aug Sep
31	Structural Steel		42 days?	Wed 8/23/06	Thu 10/19/06			ال				
32	Erect Structural Stee		7 days?	Wed 8/23/06	Thu 8/31/06							
33	Detail Steel		11 days?	Wed 8/30/06	Wed 9/13/06							
34	Steel Deck and Stude	3	6 days?	Tue 9/5/06	Tue 9/12/06							
35	Brick Angles / Frame	s 2nd Floor	8 days?	Tue 10/10/06	Thu 10/19/06							
36	Masonry		137 days?	Mon 8/28/06	Tue 3/6/07							
37	Masonry Foundation	Walls	5 days?	Mon 8/28/06	Fri 9/1/06		Ĭ			•		
38	Block Bearing Walls	Grout - 2nd Floor	8 days?	Thu 9/21/06	Mon 10/2/06			i				
39	Block Bearing Walls	Grout - 3rd Floor	8 days?	Tue 10/10/06	Thu 10/19/06		_					
40	Block Bearing Walls	Grout - 4th Floor	8 days?	Fri 10/27/06	Tue 11/7/06			Ī				
41	Exterior Masonry		92 days?	Mon 10/30/06	Tue 3/6/07							
42	Block Bearing Walls	Grout - 5th Floor	8 days?	Wed 11/15/06	Fri 11/24/06							
43	Block Bearing Walls	Grout - 6th Floor	8 days?	Mon 12/4/06	Wed 12/13/06				_			
44	Roof Masonry		10 days?	Thu 12/21/06	Wed 1/3/07							
45	Precast Plank		57 days?	Tue 10/3/06	Wed 12/20/06		·					
46	Floor Plank - 3rd Floor	or	5 days?	Tue 10/3/06	Mon 10/9/06							
47	Floor Plank - 4th Floo	or	5 days?	Fri 10/20/06	Thu 10/26/06							
48	Floor Plank - 5th Floo	or	5 days?	Wed 11/8/06	Tue 11/14/06							
49	Floor Plank - 6th Floor	or	5 days?	Mon 11/27/06	Fri 12/1/06							
50	Floor Plank - Roof		5 days?	Thu 12/14/06	Wed 12/20/06							
51	Exterior Studs / Framing		72 days?	Tue 10/10/06	Wed 1/17/07							
52	Exterior Metal Studs	- 2nd Floor	14 days?	Tue 10/10/06	Fri 10/27/06				Ļ			
53	Exterior Metal Studs		14 days?	Mon 10/30/06	Thu 11/16/06							
54	Exterior Metal Studs	- 1st Floor	14 days?	Wed 11/8/06	Mon 11/27/06							
55	Exterior Metal Studs	- 4th Floor	14 days?	Fri 11/17/06	Wed 12/6/06							
56	Exterior Metal Studs		15 days?	Thu 12/7/06	Wed 12/27/06							
57	Exterior Metal Studs	- 6th Floor	15 days?	Thu 12/28/06	Wed 1/17/07							
58	Roofing		16 days?	Wed 12/27/06	Wed 1/17/07				U			
		Task		Milestone	• •		Externa	al Tasl	ks			
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					Page 2							

Detailed Project Schedule Franklin & Marshall College Row Lancaster, PA

				Lan	caster, PA					
ID	Task Name		Duration	Start	Finish	, 2006	Qtr 3, 2006	Qtr 4, 2006	Qtr 1, 2007 Qtr 2, 20	007 Qtr 3, 2007
59	Roofing Curb/Insulati	on/Membrane	16 days?	Wed 12/27/06	Wed 1/17/07	May Jur	n Jul Aug Se	p Oct Nov De	c Jan Feb Mar Apr Ma	y Jun Jul Aug Sep
60	Windows / Curtainwall		81 days?	Tue 11/28/06	Tue 3/20/07					
61	Storefront at Retail S	naces	21 days?	Tue 11/28/06	Tue 12/26/06					
62	Windows		61 days?	Tue 12/26/06	Tue 3/20/07					
63	Metal Panels		40 days?	Wed 3/7/07	Tue 5/1/07					
64	Metal Panels		40 days?	Wed 3/7/07	Tue 5/1/07					
65	Miscellaneous Metal		62 days?	Tue 10/10/06	Wed 1/3/07					
66	Stairway 1 & 2 - 1st to	2nd Floor	5 days?	Tue 10/10/06	Mon 10/16/06					
67	Stairway 1 & 2 - 2nd		5 days?	Tue 10/17/06	Mon 10/23/06					
68	Brick Angles / Frames		8 days?	Fri 10/27/06	Tue 11/7/06					
69	Stairway 1 & 2 - 3rd to		5 days?	Fri 10/27/06	Thu 11/2/06					
70	Misc. Metal - 1st - TO		20 days?	Wed 11/8/06	Tue 12/5/06					
71	Brick Angles / Frames	s - 4th Floor	8 days?	Wed 11/15/06	Fri 11/24/06					
72	Stairway 1 & 2 - 4th to	o 5th Floor	5 days?	Wed 11/15/06	Tue 11/21/06					
73	Brick Angles/ Frames	- 5th Floor	8 days?	Mon 12/4/06	Wed 12/13/06					
74	Stairway 1 & 2 - 5th to		5 days?	Mon 12/4/06	Fri 12/8/06					
75	Brick Angles / Frames	s - 6th Floor	10 days?	Thu 12/21/06	Wed 1/3/07					
76	Stairway 1 & 2 - 6th F	Floor to Roof	6 days?	Thu 12/21/06	Thu 12/28/06					
77	Interior Studs and Drywa	all	168 days?	Tue 10/10/06	Thu 5/31/07					
78	Interior Metal Studs -	2nd Floor	15 days?	Tue 10/10/06	Mon 10/30/06					Y
79	Interior Metal Studs -	3rd Floor	15 days?	Tue 10/31/06	Mon 11/20/06					
80	Interior Metal Studs -	4th Floor	15 days?	Tue 11/21/06	Mon 12/11/06					
81	Interior Metal Studs -	1st Floor	15 days?	Tue 11/28/06	Mon 12/18/06					
82	Interior Metal Studs -	5th Floor	17 days?	Tue 12/12/06	Wed 1/3/07					
83	Interior Drywall / Ceili	ngs	111 days?	Thu 12/28/06	Thu 5/31/07					
84	Interior Metal Studs -	6th Floor	15 days?	Thu 1/4/07	Wed 1/24/07					
85	MEP Trades		82 days?	Tue 10/31/06	Wed 2/21/07			—		
86	Mech/Elec/Plumb/Fire	e - 2nd Floor	20 days?	Tue 10/31/06	Mon 11/27/06					
87	Mech/Elec/Plumb/Fire	e - 3rd Floor	20 days?	Tue 11/21/06	Mon 12/18/06					
		Task		Milestone	e •		Exter	nal Tasks		
	: Schedule.mpp //on 10/30/06	Split	111111111111111111111111111111111111111	Summar	y —		Exter	nal Milestone	>	
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Detailed Project Schedule Franklin & Marshall College Row Lancaster, PA ID Task Name Duration Start Finish 2006 Qtr 3, 2006 Qtr 4, 2006 Qtr 1, 2007 Qtr 2, 2007 Qtr 3, 2007 May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep 88 Mech/Elec/Plumb/Fire - 4th Floor 22 days? Tue 12/12/06 Wed 1/10/07 89 Mech/Elec/Plumb/Fire - 1st Floor 22 days? Tue 12/19/06 Wed 1/17/07 90 Mech/Elec/Plumb/Fire - 5th Floor 20 days? Thu 1/4/07 Wed 1/31/07 91 Mech/Elec/Plumb/Fire - 6th Floor 20 days? Thu 1/25/07 Wed 2/21/07 92 HVAC 8 days? Wed 7/18/07 Fri 7/27/07 93 HVAC Start-up/Test/Balance Wed 7/18/07 Fri 7/27/07 8 days? 9 days 94 **Electrical** Fri 1/12/07 Thu 1/25/07 95 Start Switchgear Installation Fri 1/12/07 Fri 1/12/07 0 days 96 Permanent Power Available 0 days Thu 1/25/07 Thu 1/25/07 97 **Plumbing** 10 days? Mon 9/11/06 Fri 9/22/06 Underground Plumbing Fri 9/22/06 98 10 days? Mon 9/11/06 99 Fri 1/26/07 Thu 3/8/07 **Elevators** 30 days? 100 Elevator - for Construction 30 days? Fri 1/26/07 Thu 3/8/07 101 **Finishes** 124 days Wed 1/10/07 Mon 7/2/07 Interior Doors & Frames - 1st Floor Tue 1/23/07 102 10 days Wed 1/10/07 103 Casing and Baseboards - 1st Floor Fri 1/12/07 Thu 2/8/07 20 days 104 Paint - 1st Floor 30 days Tue 1/16/07 Mon 2/26/07 Casework - 1st Floor 105 10 days Thu 1/18/07 Wed 1/31/07 106 Light Fixtures - 1st Floor Mon 1/22/07 Fri 2/2/07 10 days 107 Door Hardware - 1st Floor 10 days Wed 1/24/07 Tue 2/6/07 108 Thu 2/8/07 Plumbing Fixture - 1st Floor 10 days Fri 1/26/07 109 Carpet & Resilients - 1st Floor 20 days Tue 1/30/07 Mon 2/26/07 110 Interior Doors & Frames - 2nd Floor Thu 2/1/07 Wed 2/14/07 10 davs 111 Casing and Baseboards - 2nd Floor 20 days Mon 2/5/07 Fri 3/2/07 112 Paint - 2nd Floor 30 days Wed 2/7/07 Tue 3/20/07 113 Casework - 2nd Floor Thu 2/22/07 10 days Fri 2/9/07 114 Light Fixtures - 2nd Floor 10 days Tue 2/13/07 Mon 2/26/07 115 Door Hardware - 2nd Floor Thu 2/15/07 Wed 2/28/07 10 days 116 10 days Plumbing Fixture - 2nd Floor Mon 2/19/07 Fri 3/2/07 Task Milestone **External Tasks** Project: Schedule.mpp Split Summary External Milestone Date: Mon 10/30/06

Progress

Milestone External Tasks

Summary External Milestone

Project Summary Deadline

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Detailed Project Schedule Franklin & Marshall College Row Lancaster, PA

ID	Task Name	Duration	Start	Finish	, 2006 May Jun	Qtr 3,	2006 ug Sen	Qtr 4	, 2006 Nov Dec	Qtr 1, 2	007 h Mar	Qtr 2,	2007 May lun	Qtr 3,	2007
117	Appliances - 2nd Floor	10 days	Wed 2/21/07	Tue 3/6/07	iviay Juli	Jui 7	rug oep	OCI	NOVIDEC	Jan n e) iviai	Api i	viay Juli	Jul 17	rug c
118	Carpet & Resilients - 2nd Floor	20 days	Fri 2/23/07	Thu 3/22/07											
119	Interior Doors & Frames - 3rd Floor	10 days	Tue 2/27/07	Mon 3/12/07											
120	Casing and Baseboards - 3rd Floor	20 days	Thu 3/1/07	Wed 3/28/07											
121	Paint - 3rd Floor	30 days	Mon 3/5/07	Fri 4/13/07								H			
122	Casework - 3rd Floor	10 days	Wed 3/7/07	Tue 3/20/07											
123	Light Fixtures - 3rd Floor	10 days	Fri 3/9/07	Thu 3/22/07											
124	Door Hardware - 3rd Floor	10 days	Tue 3/13/07	Mon 3/26/07											
125	Plumbing Fixture - 3rd Floor	10 days	Thu 3/15/07	Wed 3/28/07											
126	Appliances - 3rd Floor	10 days	Mon 3/19/07	Fri 3/30/07											
127	Carpet & Resilients - 3rd Floor	20 days	Wed 3/21/07	Tue 4/17/07								4			
128	Interior Doors & Frames - 4th Floor	10 days	Fri 3/23/07	Thu 4/5/07											
129	Casing and Baseboards - 4th Floor	20 days	Tue 3/27/07	Mon 4/23/07								*			
130	Paint - 4th Floor	30 days	Thu 3/29/07	Wed 5/9/07											
131	Casework - 4th Floor	10 days	Mon 4/2/07	Fri 4/13/07							'				
132	Light Fixtures - 4th Floor	10 days	Wed 4/4/07	Tue 4/17/07											
133	Door Hardware - 4th Floor	10 days	Fri 4/6/07	Thu 4/19/07											
134	Plumbing Fixture - 4th Floor	10 days	Tue 4/10/07	Mon 4/23/07											
135	Appliances - 4th Floor	10 days	Thu 4/12/07	Wed 4/25/07											
136	Carpet & Resilients - 4th Floor	20 days	Mon 4/16/07	Fri 5/11/07											
137	Interior Doors & Frames - 5th Floor	10 days	Wed 4/18/07	Tue 5/1/07									-		
138	Casing and Baseboards - 5th Floor	20 days	Fri 4/20/07	Thu 5/17/07											
139	Paint - 5th Floor	30 days	Tue 4/24/07	Mon 6/4/07											
140	Casework - 5th Floor	10 days	Thu 4/26/07	Wed 5/9/07											
141	Light Fixtures - 5th Floor	10 days	Mon 4/30/07	Fri 5/11/07											
142	Door Hardware - 5th Floor	10 days	Wed 5/2/07	Tue 5/15/07											
143	Plumbing Fixture - 5th Floor	10 days	Fri 5/4/07	Thu 5/17/07											
144	Appliances - 5th Floor	10 days	Tue 5/8/07	Mon 5/21/07											
145	Carpet & Resilients - 5th Floor	20 days	Thu 5/10/07	Wed 6/6/07											

Project: Schedule.mpp Date: Mon 10/30/06

Split Summary Progress **Project Summary**



External Milestone Deadline



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Detailed Project Schedule
Franklin & Marshall College Row
Lancaster, PA

			,						
Task Name	Duration	Start	Finish	, 2006	Qtr 3, 2006	Qtr 4, 2006	Qtr 1, 2007	Qtr 2, 2007	Qtr 3, 2007
				May Jun	Jul Aug Sep	Oct Nov Dec	Jan Feb Mar	Apr May Jun	Jul Aug Sep
Interior Doors & Frames - 6th Floor	10 days	Mon 5/14/07	Fri 5/25/07						
Casing and Baseboards - 6th Floor	20 days	Wed 5/16/07	Tue 6/12/07						
Paint - 6th Floor	30 days	Fri 5/18/07	Thu 6/28/07						
Casework - 6th Floor	10 days	Tue 5/22/07	Mon 6/4/07						
Light Fixtures - 6th Floor	10 days	Thu 5/24/07	Wed 6/6/07						
Door Hardware - 6th Floor	10 days	Tue 5/29/07	Mon 6/11/07						
Plumbing Fixture - 6th Floor	10 days	Thu 5/31/07	Wed 6/13/07						
Appliances - 6th Floor	10 days	Mon 6/4/07	Fri 6/15/07						
Carpet & Resilients - 6th Floor	19 days	Wed 6/6/07	Mon 7/2/07						
	Interior Doors & Frames - 6th Floor Casing and Baseboards - 6th Floor Paint - 6th Floor Casework - 6th Floor Light Fixtures - 6th Floor Door Hardware - 6th Floor Plumbing Fixture - 6th Floor Appliances - 6th Floor	Interior Doors & Frames - 6th Floor 10 days Casing and Baseboards - 6th Floor 20 days Paint - 6th Floor 30 days Casework - 6th Floor 10 days Light Fixtures - 6th Floor 10 days Door Hardware - 6th Floor 10 days Plumbing Fixture - 6th Floor 10 days Appliances - 6th Floor 10 days	Interior Doors & Frames - 6th Floor	Interior Doors & Frames - 6th Floor	May Jun	May Jun Jul Aug Sep	May Jun Jul Aug Sep Oct Nov Dec	May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar	May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Interior Doors & Frames - 6th Floor 10 days Mon 5/14/07 Fri 5/25/07 Casing and Baseboards - 6th Floor 20 days Wed 5/16/07 Tue 6/12/07 Tue 6/12/07 Paint - 6th Floor 30 days Fri 5/18/07 Thu 6/28/07 Thu 6/28/07 Casework - 6th Floor 10 days Tue 5/22/07 Mon 6/4/07 Mon 6/4/07 Light Fixtures - 6th Floor 10 days Tue 5/24/07 Wed 6/6/07 Door Hardware - 6th Floor 10 days Tue 5/29/07 Mon 6/11/07 Plumbing Fixture - 6th Floor 10 days Mon 6/4/07 Wed 6/13/07 Appliances - 6th Floor 10 days Mon 6/4/07 Fri 6/15/07 Interior Door May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Dec Jan J

Project: Schedule.mpp Date: Mon 10/30/06

Progress

Task

Summary

Project Summary

Project Summary

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External Tasks

External Milestone

Deadline

Page 6

Appendix B

Detailed Assemblies Estimate - Exterior Wall

Assemblies Estimate

Franklin & Marshall College Row

Lancaster, PA

Category	Description	Quantity	Size	Unit	Type	Unit Price	Total Cost
Masonry	Brick		20200	SF	4" x 4" x 12"	\$8.90	\$179,780
	Calcium Silicate Masonry Unit		5450	SF	4" x 16" x 32"	\$28.50	\$155,325
	Metal Shingle Cladding		2360	SF		\$5.32	\$12,555
Doors	D4	5	3' x 7'	EA	НМ	\$395	\$1,975
	D15	1	12' x 11'	EA	Overhead	\$2,305	\$2,305
	L1	3	1' x 1'	EA	Louver	\$50	\$150
	L2	4	15'-8" x 3'-4"	EA	Louver	\$770	\$3,080

Assemblies Estimate

Franklin & Marshall College Row

Lancaster, PA

Category	Description	Quantity	Size	Unit	Type	Unit Price	Total Cost
Windows	W2	2	66	SF	Traco TR-7850	\$35.50	\$2,343
	W2A	2	68	SF	Traco TR-7850	\$35.50	\$2,414
	W3	2	276	SF	Traco TR-7850	\$35.50	\$9,798
	W5A	1	195	SF	Traco TR-7850	\$35.50	\$6,923
	W5B	1	320	SF	Traco TR-7850	\$35.50	\$11,360
	W6A	4	67	SF	Wausau 2250	\$35.50	\$2,379
	W6B	1	60	SF	Wausau 2250	\$35.50	\$2,130
	W7	7	189	SF	Traco TR-7850	\$35.50	\$6,710
	W7A	3	181	SF	Traco TR-7850	\$35.50	\$6,426
	W8	2	286	SF	Traco TR-7850	\$35.50	\$10,153
	W9	4	189	SF	Traco TR-7850	\$35.50	\$6,710
	W9A	3	181	SF	Traco TR-7850	\$35.50	\$6,426
	W10	170	47	SF	Wausau 2250	\$35.50	\$1,669
	W10A	15	47	SF	Wausau 2250	\$35.50	\$1,669
	W11	124	40	SF	Wausau 2250	\$35.50	\$1,420
	W11A	17	40	SF	Wausau 2250	\$35.50	\$1,420
	W13	8	175	SF	Traco TR-7850	\$35.50	\$6,213
					Location Fac	ctor = 0.93	\$441,329

TOTAL COST: \$410,436

TOTAL ASSEMBLIES COST: \$410,436

Appendix C

Detailed Structural Systems Estimate

Structural Systems Estimate

Franklin & Marshall College Row

Lancaster, PA

					Unit Cost -	Unit Cost -	Unit Cost -	Total Unit	
Category	Description	Length	Quantity	Unit	Material	Labor	Equipment	Cost	Total Cost
Structural Steel	W 12x120	18.052	1	LF	\$199.00	\$2.39	\$1.56	\$202.95	\$3,663.65
Columns	W 12x106	18.125	6	LF	\$125.00	\$2.27	\$1.49	\$128.76	\$14,002.65
	W 12x79	18.1875	5	LF	\$91.00	\$2.21	\$1.45	\$94.66	\$8,608.14
	W 12x72	19.1875	21	LF	\$52.50	\$2.11	\$1.38	\$55.99	\$22,560.47
	W 10x88	18.79	5	LF	\$117.00	\$2.27	\$1.49	\$120.76	\$11,345.40
	W 10x60	17.958	23	LF	\$71.00	\$2.21	\$1.45	\$74.66	\$30,837.12
	W 10x49	19.125	5	LF	\$47.00	\$2.11	\$1.38	\$50.49	\$4,828.11
Structural Steel	W 30x211	21.021	3	LF	\$123.00	\$2.68	\$1.29	\$126.97	\$8,007.11
Beams	W 30x148	28.875	4	LF	\$121.00	\$2.72	\$1.31	\$125.03	\$14,440.97
	W 27x129	27.854	2	LF	\$103.00	\$2.63	\$1.26	\$106.89	\$5,954.63
	W 27x84	24.875	2	LF	\$98.00	\$2.65	\$1.27	\$101.92	\$5,070.52
	W 24x192	21.021	1	LF	\$113.00	\$2.63	\$1.26	\$116.89	\$2,457.14
	W 24x176	18.969	1	LF	\$113.00	\$2.63	\$1.26	\$116.89	\$2,217.29
	W 24x146	28.875	1	LF	\$103.00	\$2.63	\$1.26	\$106.89	\$3,086.45
	W 24x131	21.375	1	LF	\$103.00	\$2.63	\$1.26	\$106.89	\$2,284.77
	W 24x103	19.667	2	LF	\$98.00	\$2.65	\$1.27	\$101.92	\$4,008.92
	W 24x94	19.4	8	LF	\$88.00	\$2.92	\$1.40	\$92.32	\$14,328.06
	W 24x84	28.875	2	LF	\$88.00	\$2.92	\$1.40	\$92.32	\$5,331.48
	W 24x76	20.708	9	LF	\$79.50	\$2.84	\$1.37	\$83.71	\$15,601.20
	W 24x68	28.875	4	LF	\$71.00	\$2.84	\$1.37	\$75.21	\$8,686.76
	W 24x62	19.875	3	LF	\$65.00	\$2.84	\$1.37	\$69.21	\$4,126.65
	W 24x55	18.885	7	LF	\$57.50	\$2.84	\$1.37	\$61.71	\$8,157.75

Structural Systems Estimate

Franklin & Marshall College Row Lancaster, PA

					Unit Cost -	Unit Cost -	Unit Cost -	Total Unit	
Category	Description	Length	Quantity	Unit	Material	Labor	Equipment	Cost	Total Cost
Structural Steel	W 21x111	21.854	1	LF	\$57.50	\$2.84	\$1.37	\$61.71	\$1,348.61
Beams	W 21x68	21.375	6	LF	\$71.00	\$3.04	\$1.46	\$75.50	\$9,682.88
	W 21x62	21.375	1	LF	\$65.00	\$3.04	\$1.46	\$69.50	\$1,485.56
	W 21x44	20.578	1	LF	\$46.00	\$2.96	\$1.42	\$50.38	\$1,036.72
	W 18x86	20.51	2	LF	\$52.50	\$2.96	\$1.42	\$56.88	\$2,333.22
	W 18x71	19.646	1	LF	\$57.50	\$3.46	\$1.66	\$62.62	\$1,230.23
	W 18x50	12.375	2	LF	\$52.50	\$3.46	\$1.66	\$57.62	\$1,426.10
	W 18x40	22.29	3	LF	\$42.00	\$3.28	\$1.58	\$46.86	\$3,133.53
	W 18x35	9.9375	11	LF	\$36.50	\$3.28	\$1.58	\$41.36	\$4,521.17
	W 16x36	18.79	2	LF	\$42.00	\$2.72	\$1.78	\$46.50	\$1,747.47
	W 16x31	19	1	LF	\$32.50	\$2.42	\$1.59	\$36.51	\$693.69
	W 16x26	19.333	27	LF	\$27.00	\$2.18	\$1.43	\$30.61	\$15,978.14
	W 14x22	10.4	34	LF	\$27.00	\$2.20	\$1.44	\$30.64	\$10,834.30
	W 12x50	9.29	4	LF	\$75.00	\$3.40	\$2.23	\$80.63	\$2,996.21
	W 12x19	21.854	10	LF	\$23.00	\$2.48	\$1.62	\$27.10	\$5,922.43
	W 12x14	21.125	13	LF	\$14.65	\$2.48	\$1.62	\$18.75	\$5,149.22
	W 10x12	6.03	15	LF	\$23.00	\$3.63	\$2.38	\$29.01	\$2,623.95
							Location Co.		CO74 740

Location Factor = 0.93

\$271,749

TOTAL COST: \$252,727

Structural Systems Estimate Franklin & Marshall College Row									
	Lancaster, PA								
				Unit Cost -	Unit Cost -	Unit Cost - Total Unit			
Category	Description	Quantity	Unit	Material	Labor	Equipment	Cost	Total Cost	
Metal Deck	3" x 18 gauge	18,607	SF	\$7.75	\$1.00	\$0.07	\$8.82	\$164,113.74	
Concrete	6"	345	CY	\$60.70	\$11.50	\$16.00	\$88.20	\$30,429.00	
<u> </u>	Location Factor = 0.93 \$194.543								

TOTAL COST: \$180,925

TOTAL STRUCTURAL SYSTEMS COST: \$433,652

Appendix D

Detailed General Conditions Estimate

General Conditions Estimate

Franklin & Marshall College Row Lancaster, PA

Category	Description	Quantity	Unit	Unit Price	Total Cost
Premiums	Bond		LS	1%	\$150,480
	Insurance		LS	0.64%	\$96,307
Project Staff	Project Executive	1 @ 2	HR/WK	\$75	\$10,200
	Project Accountant	1 @ 4	HR/WK	\$35	\$9,520
	Project Manager	2 @ 60	HR/WK	\$65	\$265,200
	Project Engineer	1 @ 40	HR/WK	\$31	\$84,320
	Superintendent	1 @ 40	HR/WK	\$61	\$165,920
	Superintendent Assistant	1 @ 40	HR/WK	\$56	\$152,320
	Project Assistant	1 @ 24	HR/WK	\$35	\$57,120
	Safety Director	1 @ 2	HR/WK	\$56	\$7,616
Office Trailers	23' x 44'	1	MO	\$586	\$9,376
	8' x 20'	1	MO	\$167	\$2,672
	8' x 10'	1	MO	\$90	\$1,440

General Conditions Estimate

Franklin & Marshall College Row Lancaster, PA

Category	Description	Quantity	Unit	Unit Price	Total Cost
Supplies	Temporary Utilities		MO	\$1,390	\$22,240
	Telephones	10	LS	\$150	\$1,500
	Telephone/Internet Service		MO	\$150	\$2,400
	Dumpsters	1	MO	\$300	\$4,800
	Misc. Office Supplies		MO	\$90	\$1,440
	Copier / Fax	2	MO	\$145	\$2,320
	Coffee / Drinking Water		MO	\$150	\$2,400
	First Aid Kit		LS	\$50	\$50
	Extinguishers	3	LS	\$100	\$300
	Final Clean-up		LS	0.30%	\$45,144
	Drawing Reproduction		LS	\$1,000	\$1,000
	Sanitation/Chemical Toilet	2	MO	\$90	\$180
		_	Location Factor = 0.93		\$1,096,265

TOTAL COST: \$1,008,564

TOTAL GENERAL CONDITIONS COST: \$1,008,564