

Existing Construction Conditions Report

Executive Summary

This report encompasses the detailed findings for the project delivery system, schedule, and costs. Information for the report was obtained from two key sources, Dave Lamontagne of Granary Associates and Tim Hicks of P. Agnes Builder, Inc.

The project delivery system for the building construction was design/build. This is due to the fact that the project needed to be quickly completed before the end of Wills' Eye Hospital's lease of its previous facility. Overall, lump sum contracts were held throughout, except for Granary's contract with the construction manager, P. Agnes which was Guaranteed Maximum Price. Generally, the responsibilities of P. Agnes were limited to the sub-contractors for the building construction. However, the contracts for the design of the mechanical, electrical, and plumbing systems were held by P. Agnes. This is due to the tight relationships between the engineers and contractors for these trades. By allowing P. Agnes to hold these contracts, a short line of communication existed between engineers and contractors, which often were part of the same company. Coulter Engineers, the electrical engineer, is a subsidiary of Robert Ford Electric, the electrical contractor for the job. Also, Dimitri J. Ververelli consulting engineers who designed the mechanical and plumbing systems, work very closely with Elliott-Lewis company.

Information regarding the project schedule for the Wills Eye job was received from Tim Hicks of P. Agnes Builders. Due to the fact Tim was not able to obtain a copy of the schedule as yet, an extensive phone interview was conducted based upon the Tim's knowledge of from working on the job as an Assistant Project Manager. During the construction of the new hospital, the hospital found out that they could not extend the lease 6 months longer to December 2002 as they had originally planned. Therefore, the project was then also fast-tracked to make the new lease deadline. This led to numerous schedule changes and careful planning between trades in order to reach the non-negotiable lease deadline.

The cost estimates performed via D4Cost and R.S. Means showed some sharp differences from the actual cost data for the building. The R.S. Means estimate based upon a 4-8 story hospital model was nowhere near the total project costs for the job, with a calculated total of \$18.693 Million compared to the actual building cost of \$35.267 Million. A number of reasons can be attributed to the cost differences, which mainly stem from the fact that the building was constructed atop an existing 6-story parking garage. The D4Cost Estimate was much closer, \$38.090 Million, and actually ended little more than the total building cost of \$35.267 Million. The model building found on the program was somewhat similar to Wills Eye Hospital, and allowed for a very good estimate. The total project cost found from the D4 program was well off, and could be accounted for by the enormous amounts of design, management, consultant, and development fees for Wills Eye Hospital.



Project Schedule Summary

Foundation Sequencing-

Although not much foundation work was needed for the job, there was one area where caissons were added to support the new 14-story glass elevator. These caissons were set during site preparation occurred on the 7th Floor slab to get ready for column placement.

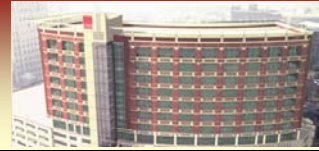
Structural-

Relating back to the foundation sequencing, the structural support system for the elevator was built as first columns were being erected into the existing slab. The elevator system was erected quickly enough to catch up with the column erection on the 7th floor and proceeded at the same level until the top of the building.

Finishes-

The finishes for the project were fast-tracked and divided into six separate jobs to speed up construction: Ground Floor Drop-off Area, 7th Floor Drop-off Area, Ground Floor Lobby, Floors 7/8/14, Floors 10/11/12, and Floors 9/13. Each was bid out separately, although many of the contractors worked more than one job.

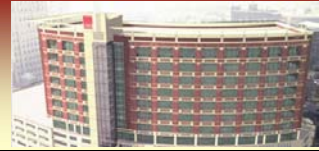
See attached Excel spreadsheet for project schedule.



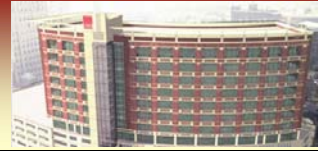
Project Cost Evaluation

Actual Cost Breakdown				
		<i>Overall</i>		<i>Per sq. ft.</i>
Building Construction Cost		\$35,267,000		\$273.39
Total Project Cost		\$53,435,000		\$414.22
Major Building Systems Costs				
	Structural	\$6,500,000		
	Mechanical/Plumbing	\$8,400,000		\$65.12
	Electrical/Lighting	\$3,600,000		\$27.91
Design Costs				
	Architectural	\$1,117,100		
	Structural	\$165,500		
	Lighting/Electrical	\$100,000		
	Mechanical/Plumbing	\$210,000		
	Audio/Visual	\$37,500		
	Telecommunications	\$77,364		

D4Cost Estimate	
Total Project Cost:	\$40,388,482
Total Building Cost:	\$38,090,325
Estimate Breakdown Attached	



R.S. Means Estimate	
Linear Foot Perimeter:	672'
Surface Area:	$672' * 110' = 73,920 \text{ sq. ft.}$
Estimate Choice:	Due to the fact the square foot area calculated is not on the chart for 4-8 story hospital, a linear perimeter estimate was used
Exterior Wall Construction:	Face Brick with Structural Facing Tile (front wall) Steel Frame Superstructure
Cost per square foot of area:	$((((672 - 594)/(705 - 594))(130.25 - 132.85)) + (132.85)) = \$131.02 \text{ per sq. ft.}$
(pg. 144 R.S. Means)	
Average Floor Height:	$(16+13+13+13+13+13+13+16)/8 = 13.75$
Story Ht. Adj. Factor:	$((((672 - 594)/(705 - 594))(1.3-1.4)) + 1.4) = \$1.33 \text{ per 1' story ht. change}$
Story Ht. Adjustment:	$(13.75' - 12')(1.33) = \$2.33 \text{ additional per sq. ft.}$
Total Cost per square foot:	$131.02 + 2.33 = \$133.35 \text{ per sq. ft.}$
Total Building Cost:	$(\$133.35/\text{sq. ft.}) * 129,000 \text{ sq. ft.} = \$17,201,828$
Location Factor:	Philadelphia Commercial = 1.11
Historical Factor:	Philadelphia 2002 / Philadelphia 2001 = $136.9/139.9 = 0.979$
Total Building Cost:	$\$17,201,828 * 1.11 * 0.979 = \mathbf{\$18,693,054}$



The differences between the actual costs and the estimated costs for the Wills Eye can be attributed to a number of factors. Most of them can be accounted by the fact that its location is on top of an existing building. This is a factor which simple estimating procedures can not modify for.

-Construction Cost Differences-

The hospital itself was also designed with the mindset that it was going to be the most technologically advanced and expensive of its key ever, with money not being an issue especially in terms of medical equipment and interior design. The building includes many features not present in a typical hospital, including 7,000 sq. ft. of research facilities and a 200-seat state-of-the-art auditorium. Demolition costs were another issue explaining the estimate differences. A number of items within the existing parking garage and office space had to be renovated to allow for the expansion above, and are not part of the basic estimates in R.S. Means or D4Cost. Acceleration of the project to meet the shorter lease deadline for the hospital also led to a \$1.5 Million increase as well.

-Design & Site Development Cost Differences-

To assure the site was a safe and viable location to build a structure, many consultants were called upon to test everything from the existing fire protection system, vibrations, and civil issues. Fees for purchasing and developing the site reached almost \$6 Million during the project, \$2 Million of that for purchasing the air rights alone. Also, the fact that the project was design/build and had many revisions also increased design fees. The presence of a hired project manager for Wills Eye added another \$1 Million to the final total as well.

-Specific differences for the D4Cost Estimate-

Although much closer than the total In the case of the D4Cost estimate, there some specific reasons for the small gap between the actual costs and those calculated by the D4Cost program. The key one being that there were no similar medical buildings constructed above an existing building to compare with. The closest building in the database, the Marin Hospital Addition in San Francisco, was also an addition to the existing hospital, but at ground level. The nine-inch concrete slab on the upper floors of the model hospital accounts for the large differences in structural costs and is most likely the key reason for the slightly higher total building cost. The enormous differences between the project cost and actual building cost can be accounted for by the large amount of design, consultant, and development fees on the Wills Eye Project.