



Executive Summary

Bloomingdales is an 180,000 sq. ft. structure with three main floor levels, a penthouse, and four story below grade parking garage. This project is located in Chevy Chase, Maryland. The original bid was \$17,310,000. With ever increasing change orders and other unforeseen conditions the projected overall cost has come to a projected \$18,860,000 million.

This project has its unique and complex problems. Issues with buyouts and mergers have greatly affected this project and its schedule. Added to construction layout are plans including a new office tower and the existing retail stores and community center in the adjacent properties. The control of traffic during deliveries is one of the greatest hindrances to project flow. Due to this projects location in a moderate traffic environment of Chevy Chase with already existing construction conditions in the immediate area during the day there was an issue of managing how and when deliveries were made. Having already been delayed numerous times in the design phase of the project due to a redesign of interior plans, the project needs to be delivered as soon as possible. Fortunately for Federated and Buch, they have a previously existing relationship from past Macy's, Hecht's and Bloomingdales projects that will lend itself to collaboration and avoid any unnecessary conflict on an already difficult project. Due to the relationships of the past on similar projects Federated choose to use Lump Sum contracting for all entities involved.



Building Systems Summary

Structural System

The structural system of the building consists of mainly 3/4" lightweight concrete slab on metal deck supported by structural steel. The formwork for the concrete structure will be traditional hand sawn and built plywood. For placement, concrete deliveries are made to the streets west and south of the building (Friendship Boulevard, Western Avenue. respectively) and placed using a pumping method. The foundation consists of a cast-in-place reinforced parking garage.

Mechanical System

The buildings mechanical system is handled through the penthouse mechanical room on roof. It houses (2) 230 ton chillers with power induction boxes. The HVAC system design criteria used that of Washington, DC. The requirements for outdoor air were 88 degrees Fahrenheit dry bulb (DB), and 74 degrees wet bulb (WB). Indoor was 75 degrees DB, with a special needs area required in the cosmetics area of 72 degrees DB.

Electrical Systems

Underground duct banks are the source for the primary feeders which are routed to the building. Distribution voltage is provided at 11,256V/480/277V/208/120V. The switch boards are tin plated 4000A rated, 480/277V, circuits.

Fire Protection

A wet pipe system is utilized in this structure. Wet pipe sprinkler systems have the least number of components and therefore, the lowest number of items to malfunction. The system is constantly filled with water allowing for the quick response time allowing for maximum protection of merchandise and the structure itself.

Curtain Glass Wall

The curtain wall consists of metal panels, vision glass, and aluminum mullions and headers. The mullions are mostly prefabricated to ensure quality control as well as aid installation. For installation, embeds are placed into the slab where needed. These embeds will be used to fasten the curtain wall headers and footers. The windows will then be installed from the interior of the building.



Project Cost Evaluation

The below costs were obtained through Buch and then the appropriate construction costs were used to calculate the cost per square foot. The following table is a breakdown of the contracts awarded to each subcontractor and their respective work. A building size of 180,000 ft² has been assumed for this Bloomingdales.

Construction Cost	CC:	\$14,240,000
Construction Cost per square foot	CC/SF:	\$79.11/ SF
Total Project Cost	TC:	\$18,860,000
	TC/SF:	\$104.78/SF
Structural System:	TC:	\$3,100,000
	TC/SF:	\$17.22/ SF
Concrete: \$1,410,000		
Structural Steel: \$1,690,000		
Mechanical System:	TC:	\$3,080,000
	TC/SF:	\$17.11/ SF
Fire system: \$780,000		
Electrical System:	TC:	\$2,100,000
	TC/SF:	\$11.66/ SF

Parametric Estimate using D4 Cost 2002

Assumptions:

- Due to the limited amount of sources available for the parametric estimate, these three projects were used to calculate the similar Lecture Hall project:
 - o Net Plex Center, 171,809 ft², 4 Floors, Cost \$13,630,891
 - o Scottsdale Memorial hospital, 188,641 ft², 3 Floors, Cost \$10,743,299
 - o Shops of Rockville, 138,406 ft², 1 Floors, Cost \$18,263,563
- Although the Shops of Rockville were a close overall project cost the square footage was approx. 1.3 times smaller than that of Bloomingdales. In an attempt to obtain a higher parametric estimate, the other two more costly projects were included in the overall “Smart Averages” offered by D4 Cost.



- Appropriate subdivisions with their respective percentages, in relation to the IGMP Bids and ‘Total Direct Cost’ shown above, have been added to the parametric estimate for a more in depth cost comparison.

While none of these projects are the exact type of building as the Bloomingdales project they do offer some range of acceptance when looking at a project of its relative size. It is expected that the accompanied project estimates will range in estimates due to the higher level of technical aspects to projects such as the hospital. The estimate of probable cost for the Net Plex Center offers the most comparison, considering the fact that it is a smaller project by approximately 10,000 sq. ft. can be marginalized by multiple tenants and the added floor.

Square Foot Estimate using RS Means 2005

Assumptions:

- Since the main function of the building is a department store, the estimate of a Precast Exterior and Steel Frame 200,000 ft² Retail Store is used.
- To factor in the large Skylight space in the center of the building, an addition of \$200, 000 is included in Building Type costs.
- A Rockville location factor of 0.91 is used for the Bloomingdales. Inflation cost have not been calculated in this estimate.

Building Type	\$/SF	SF	Factor	Cost
Retail	97.26	180,000	0.91	15,931,188

RS Means Estimate (w/ Location Factor and added cost of skylight): **\$16,131,188**


The estimate derived from RS Means was slightly short of the estimated overall cost of Bloomindales but is still within a respectable 4%. In order to receive more accurate estimates one would have to do detailed material take-offs and similar approximations.



R.S. Means Estimate

Commercial 2005 Costs for Jersey City, NJ (073)

Store, Department, 3 Story Union



Costs in \$ per Square Foot of gross floor area calculated for a 3 story building with 16' story height.

Face Brick with Concrete Block Back-up

Steel Frame

Exterior Wall Type	S.F. Area	50000	65000	80000	95000	110000	125000	140000	155000	170000
& Structural System	L.F. Perimeter	533	593	670	715	778	840	871	923	976
Face Brick with Concrete Block Back-up	Steel Frame	119.18	114.49	112.06	109.64	108.26	107.16	105.83	105.06	104.45
Face Brick on Steel Studs	R/Conc. Frame	121.50	116.81	114.44	111.95	110.52	109.47	108.15	107.38	106.72
Precast Concrete Panels	Steel Frame	115.76	111.62	109.42	107.27	105.94	105.06	103.90	103.13	102.63
Exposed Aggregate	R/Conc. Frame	119.73	115.54	113.33	111.13	109.86	108.92	107.76	107.10	106.49
	Steel Frame	117.19	112.84	110.58	108.26	106.99	105.94	104.73	104.01	103.41
	R/Conc. Frame	120.61	116.26	114.00	111.68	110.41	109.42	108.20	107.43	106.83

Common Additives

Common Additives			\$ Total	\$825409	Note: Totals include Overhead and Profit			
Description	Qty	Unit	\$ Cost	Totals	Fees of 25% and Architectural Fees of 6%.			
Face Brick with Concrete Block Back-up / Steel Frame								
S.F. Qty	170866	To List	Matl/S.F.	53.15	Inst/S.F.	56.13	Total/S.F.	109.28
Material	9,082,376	Installation	9,589,986.70	Total	18,672,362.70			