

Detailed Structural Estimate of Courtyard

Line Number	Description	Crew	Daily Output	Labor Hours	Quantity	Unit	Ext. Material	Ext. Labor	Ext. Equipment	Ext. Total	Ext. Total Incl O&P	Zip Code Prefix	Type	Release
033102405010*	Structural concrete, in place, slab on grade, 6" thick, includes textured finish only	C14G	2,600.00	0.022	7,050.00	S.F.	\$11,773.50	\$3,243.00	\$70.50	\$15,087.00	\$17,905.87	20004	Union	2003
031104201500*	C.I.P. concrete forms, elevated slab, flat plate, plywood, 15' to 20' high, includes shoring, erecting, stripping and cleaning	C2	495.00	0.097	3,800.00	S.F.	\$3,306.00	\$8,284.00		\$11,590.00	\$16,567.92	20004	Union	2003
031104203000*	C.I.P. concrete forms, elevated slab, floor, hung from steel beams, 1 use, includes shoring, erecting, stripping and cleaning	C2	485.00	0.099	3,250.00	S.F.	\$4,257.50	\$7,247.50		\$11,505.00	\$15,989.35	20004	Union	2003
031104453000*	C.I.P. concrete forms, slab on grade, edge, wood, to 6" high, 4 use, includes erecting, stripping and cleaning	C1	600.00	0.053	500.00	L.F.	\$170.00	\$585.00		\$755.00	\$1,094.92	20004	Union	2003
031104552700*	C.I.P. concrete forms, wall, job built, plywood, exterior, over 16' high, 1 use, includes erecting, stripping and cleaning	C2	235.00	0.204	7,880.00	SFCA	\$12,450.40	\$36,169.20		\$48,619.60	\$70,517.25	20004	Union	2003
032202000100*	Welded wire fabric, sheets, 6 x 6 - W1.4 x W1.4 (10 x 10) 21 lb. per C.S.F., A185	2 Rodm	35.00	0.457	14.10	C.S.F.	\$102.93	\$193.88		\$296.81	\$430.01	20004	Union	2003
033102400820*	Structural concrete, in place, column, square, avg reinforcing, 16" x 16", includes forms(4 uses), reinforcing steel, and finishing	C14A	12.55	15.911	23.00	C.Y.	\$8,050.00	\$8,740.00	\$1,403.00	\$18,193.00	\$24,146.32	20004	Union	2003
033102400920*	Structural concrete, in place, column, square, avg reinforcing, 24" x 24", includes forms(4 uses), reinforcing steel, and finishing	C14A	17.70	11.293	5.00	C.Y.	\$1,465.00	\$1,355.00	\$215.00	\$3,035.00	\$3,975.35	20004	Union	2003
033102401950*	Structural concrete, in place, elevated slab, flat slab, 125 psf superimposed load, 30' span, includes forms(4 uses), reinforcing steel, and finishing	C14B	51.00	4.079	340.00	C.Y.	\$56,100.00	\$33,150.00	\$5,083.00	\$94,333.00	\$119,015.30	20004	Union	2003
033102403200*	Structural concrete, in place, elevated slab, floor fill, 6" slab, includes finishing	C8	2,575.00	0.022	7,050.00	S.F.	\$12,126.00	\$3,172.50	\$2,044.50	\$17,343.00	\$20,444.65	20004	Union	2003
033102405010*	Structural concrete, in place, slab on grade, 6" thick, includes textured finish only	C14G	2,600.00	0.022	7,050.00	S.F.	\$11,773.50	\$3,243.00	\$70.50	\$15,087.00	\$17,905.87	20004	Union	2003
033102405020*	Structural concrete, in place, slab on grade, 8" thick, includes textured finish only	C14G	2,325.00	0.024	7,050.00	S.F.	\$15,369.00	\$3,595.50	\$70.50	\$19,035.00	\$22,419.85	20004	Union	2003
033107000650*	Structural concrete, placing, column, square or round, with crane and bucket, 18" thick, excludes material	C7	55.00	1.309	25.00	C.Y.		\$583.00	\$400.40	\$983.40	\$1,341.76	20004	Union	2003
033107000850*	Structural concrete, placing, column, square or round, with crane and bucket, 24" thick, excludes material	C7	70.00	1.029	40.00	C.Y.		\$798.00	\$543.40	\$1,341.40	\$1,824.27	20004	Union	2003
033107001550*	Structural concrete, placing, elevated slab, with crane and bucket, 6" to 10" thick, excludes material	C7	110.00	0.655	185.00	C.Y.		\$2,252.50	\$1,547.00	\$3,799.50	\$5,100.72	20004	Union	2003
033107004700*	Structural concrete, placing, slab on grade, with crane and bucket, over 6" thick, excludes material	C7	145.00	0.497	185.00	C.Y.		\$1,708.50	\$1,173.00	\$2,881.50	\$3,909.43	20004	Union	2003
033107005400*	Structural concrete, placing, walls, with crane and bucket, 15" thick, excludes material	C7	95.00	0.758	306.00	C.Y.		\$4,650.00	\$3,165.00	\$7,815.00	\$10,498.35	20004	Union	2003
033503250160*	Control joint, concrete floor slab, sawcut in green concrete, 2" depth	C27	1,600.00	0.010	400.00	L.F.		\$92.00	\$24.00	\$116.00	\$156.03	20004	Union	2003
033503500600*	Concrete finishing, walls, float finish, 1/16" thick	1 Cefi	300.00	0.027	5,000.00	S.F.	\$50.00	\$3,050.00		\$3,100.00	\$4,599.50	20004	Union	2003
051202607200*	Column, structural, 2-tier, W12x87, A36 steel, incl shop primer, splice plates, bolts	E2	985.00	0.057	180.00	L.F.	\$8,820.00	\$358.20	\$264.60	\$9,442.80	\$10,619.91	20004	Union	2003
051202607250*	Column, structural, 2-tier, W12x120, A36 steel, incl shop primer, splice plates, bolts	E2	960.00	0.058	324.00	L.F.	\$21,870.00	\$660.96	\$489.24	\$23,020.20	\$25,757.79	20004	Union	2003
051206401500*	Structural steel member, 100-ton project, 1 to 2 story building, W12x26, A36 steel, shop fabricated, incl shop primer, bolted connections	E2	880.00	0.064	24.00	L.F.	\$352.80	\$53.52	\$39.60	\$445.92	\$515.99	20004	Union	2003
051206401900*	Structural steel member, 100-ton project, 1 to 2 story building, W14x26, A36 steel, shop fabricated, incl shop primer, bolted connections	E2	990.00	0.057	40.00	L.F.	\$588.00	\$78.80	\$58.40	\$725.20	\$840.04	20004	Union	2003
051206402700*	Structural steel member, 100-ton project, 1 to 2 story building, W16x26, A36 steel, shop fabricated, incl shop primer, bolted connections	E2	1,000.00	0.056	40.00	L.F.	\$588.00	\$78.00	\$58.00	\$724.00	\$840.00	20004	Union	2003
051206403300*	Structural steel member, 100-ton project, 1 to 2 story building, W18x35, A36 steel, shop fabricated, incl shop primer, bolted connections	E5	960.00	0.083	54.00	L.F.	\$1,063.80	\$159.30	\$85.86	\$1,308.96	\$1,538.94	20004	Union	2003
051206404300*	Structural steel member, 100-ton project, 1 to 2 story building, W21x50, A36 steel, shop fabricated, incl shop primer, bolted connections	E5	1,075.00	0.075	65.00	L.F.	\$1,820.00	\$173.55	\$92.95	\$2,086.50	\$2,405.01	20004	Union	2003
051206405100*	Structural steel member, 100-ton project, 1 to 2 story building, W24x62, A36 steel, shop fabricated, incl shop primer, bolted connections	E5	1,100.00	0.072	252.00	L.F.	\$8,820.00	\$645.12	\$345.24	\$9,810.36	\$11,213.95	20004	Union	2003
051206406100*	Structural steel member, 100-ton project, 1 to 2 story building, W30x99, A36 steel, shop fabricated, incl shop primer, bolted connections	E5	1,200.00	0.067	48.00	L.F.	\$2,688.00	\$113.28	\$60.96	\$2,862.24	\$3,215.98	20004	Union	2003
051206406500*	Structural steel member, 100-ton project, 1 to 2 story building, W30x116, A36 steel, shop fabricated, incl shop primer, bolted connections	E5	1,150.00	0.069	60.00	L.F.	\$3,930.00	\$147.00	\$79.20	\$4,156.20	\$4,650.02	20004	Union	2003
051206407900*	Structural steel member, 100-ton project, 1 to 2 story building, W36x230, A36 steel, shop fabricated, incl shop primer, bolted connections	E5	1,125.00	0.071	576.00	L.F.	\$74,880.00	\$1,457.28	\$783.36	\$77,120.64	\$85,248.03	20004	Union	2003
							\$262,414.43	\$126,037.59	\$18,167.21	\$406,619.23	\$504,688.38			

Detailed Estimate Takeoff Notes for Concrete

Below is shown the Concrete Takeoff for the courtyard. Concrete is used in several capacities. Obviously the slab on grade is concrete, the elevated slab is also concrete, though only half is structural two way while the other half is supported on steel beams. The walls are structural concrete, 18” thick, and half of the columns in the Courtyard are also concrete.

Item	Dimension	Quantity
CIP Columns	14' Tall, 15" square	35
Steel Columns	18' Tall, 48 plf	24
Steel Columns	18' Tall, 58 plf	5
One Way Slab	30' x 6'	1
	200' x 7'	1
	20' x 40'	1
	53' x 16	1
Total		3250 SF
Two Way Slab	80' x 43'	1
	53' x 3'	1
	33' x 6'	1
Total		3800 SF
Slab on Grade		7050 SF
W shape Beams & Girders	3250 SF	1
CIP Walls	18' x 53'	2
	18' x 16'	1
	14' x 75'	2
	14' x 53'	1
Total		5000 SF

Concrete Columns (#)	Dimension 1 (in)	Dimension 2(in)	Height (ft)	CY
24	16	16	14	22.12
4	14	24	14	4.84
1	30	30	14	3.24
7	30	30	18	29.17
Total				65
Concrete Slabs	SF area	Depth (ft)	CY	
SOG East Half	3800	0.42	58.64	
SOG West Half	3250	0.67	80.25	
Elev Slab East Half	3800	0.83	117.28	
Elev Slab West Half	3250	0.67	80.25	
Total			370	
Concrete Walls	SF area	Depth (ft)	CY	
	5000	1.5	306	
Total Amount of Concrete			741 CY	

Detailed Estimate Takeoff Notes for Steel

Below is the takeoff of the Courtyard’s steel structural system. Steel is used for the columns and beams in the Auditorium area of the courtyard which makes up a little less than half of the courtyard area.

Steel Member	Quantity	Length (ft)	Total Length (ft)	Weight (lb)	Weight (Tons)
Columns					
W 12 x87	10	18	180	15660	8
12 W 12 x0	18	18	324	38880	20
Beams					
W 12 x26	3	8	24	624	1
W 14 x26	5	8	40	1040	1
W 16 x26	4	10	40	1040	1
W 18 x35	3	18	54	1890	1
W 21 x50	5	13	65	3250	2
W 24 x62	14	18	252	15624	8
11 W 30 x6	2	30	60	6960	4
W 30 x99	4	12	48	4752	3
12 W 38 x0	9	64	576	69120	35
Total Weight					84

There is a large change in the cost of the structural system from the previous estimates. In reviewing the differences I feel the reason for the increase in this estimate is the disparity of using the two separate structural systems has come out. There is an inherent efficiency in using a single system for an entire structure. By using two different systems for the east and west halves of the courtyard structure, there is an increased cost and increased time to construct. Also, the fact that the courtyard is in the interior of a building being renovated was more evident because the placement methods for the steel and the concrete now were taken into account. In the square foot and assemblies estimates there was an inherent assumption in the cost data that the building was new. These two major items account for the majority of the cost differences from the two preliminary estimates to the current detailed estimate.