



**PROGRAM
COST MODEL**

for

**PEER Tall Buildings Study
Concrete Dual System Structural Option
Los Angeles, California**

March 8, 2010

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OVERALL SUMMARY

	Gross Floor Area	\$ / SF	\$x1,000
Construction Cost (Including Design)			
Code Based	683,748 SF	347.36	237,508
Performance Based	683,748 SF	411.33	281,245
Performance Based Plus	683,748 SF	411.33	281,245
FF&E Cost			
Furniture & Fittings, (residential)	476,716 SF	20.00	9,534
Equipment, including computer systems	476,716 SF	7.00	3,337
Personal Property			
Personal Contents	476,716 SF	10.00	4,767
Cars in parking (Maximum count)	520 EA	25,000.00	13,000

Please refer to the Inclusions and Exclusions sections of this report

AREAS & CONTROL QUANTITIES

Areas

	SF	SF	SF
Enclosed Areas			
Basement Levels B1 - B4	207,024		
Ground Level	11,314		
Levels 2 - 42	463,874		
Penthouse	1,536		
SUBTOTAL, Enclosed Area		683,748	
Covered area			
SUBTOTAL, Covered Area @ ½ Value			
TOTAL GROSS FLOOR AREA		683,748	

Control Quantities

			Ratio to Gross Area
Functional Units	310 Units		0.453
Number of stories (x1,000)	46 EA		0.067
Gross Area	683,748 SF		1.000
Enclosed Area	683,748 SF		1.000
Covered Area	0 SF		0.000
Footprint Area	51,756 SF		0.076
Volume	7,212,004 CF		10.548
Basement Volume	0 CF		0.000
Gross Wall Area	212,093 SF		0.310
Retaining Wall Area	38,220 SF		0.056
Finished Wall Area	135,600 SF		0.198
Windows or Glazing Area	20.93% 44,400 SF		0.065
Roof Area - Flat	51,756 SF		0.076
Roof Area - Sloping	0 SF		0.000
Roof Area - Total	51,756 SF		0.076
Roof Glazing Area	0 SF		0.000
Interior Partition Length	132,334 LF		0.194
Finished Area	683,748 SF		1.000
Elevators (x10,000)	6 EA		0.088
Plumbing Fixtures (x1,000)	2,914 EA		4.262
Electrical Load	6,000 KW		8.775

CODE BASED COMPONENT SUMMARY

Gross Area: 683,748 SF

		\$/SF	\$x1,000
1. Foundations		16.35	11,178
2. Vertical Structure		21.86	14,949
3. Floor & Roof Structures		39.07	26,717
4. Exterior Cladding		36.15	24,720
5. Roofing, Waterproofing & Skylights		3.98	2,721
<i>Shell (1-5)</i>		117.42	80,286
6. Interior Partitions, Doors & Glazing		24.75	16,922
7. Floor, Wall & Ceiling Finishes		21.23	14,515
<i>Interiors (6-7)</i>		45.98	31,437
8. Function Equipment & Specialties		5.73	3,919
9. Stairs & Vertical Transportation		10.41	7,120
<i>Equipment & Vertical Transportation (8-9)</i>		16.15	11,039
10 Plumbing Systems		19.04	13,015
11 Heating, Ventilating & Air Conditioning		13.86	9,475
12 Electric Lighting, Power & Communications		21.33	14,586
13 Fire Protection Systems		5.37	3,669
<i>Mechanical & Electrical (10-13)</i>		59.59	40,745
Total Building Construction (1-13)		239.13	163,508
14 Site Preparation & Demolition		2.19	1,500
15 Site Paving, Structures & Landscaping		1.76	1,206
16 Utilities on Site		0.73	500
Total Site Construction (14-16)		4.69	3,206
TOTAL BUILDING & SITE (1-16)		243.82	166,714
General Conditions	12.00%	29.26	20,006
Contractor's Overhead & Profit or Fee	6.00%	16.38	11,203
PLANNED CONSTRUCTION COST		March 2010	289.47
Design, Management and Inspection	20.00%	57.89	39,585
Escalation is excluded	0.00%	0.00	0
RECOMMENDED BUDGET		March 2010	347.36
			237,508

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
1. Foundations				
Basement Excavation				
Excavation	99,173	CY	15.00	1,487,595
Shoring at perimeter	36,400	SF	50.00	1,820,000
Backfill with imported material	14,829	CY	35.00	519,015
Dispose off site	99,173	CY	20.00	1,983,460
Hazardous material remediation				Excluded
Foundations				
Reinforced concrete Mat foundation				
Excavation and disposal	10,278	CY	15.00	154,170
Forwork	5,240	SF	18.00	94,320
Reinforcing steel	1,469,135	LBS	1.15	1,689,505
Concrete, f'c= 6ksi	10,278	CY	325.00	3,340,350
Elevator pits	6	EA	15,000.00	90,000
				11,178,415
2. Vertical Structure				
Columns and pilasters				
Concrete columns - moment frames				
Formwork	100,415	SF	25.00	2,510,375
Reinforcing steel	1,311,700	LBS	1.25	1,639,625
Concrete				
f'c= 10ksi	288	CY	450.00	129,600
f'c= 8ksi	670	CY	350.00	234,500
f'c= 6ksi	350	CY	325.00	113,750
f'c= 5ksi	1,918	CY	225.00	431,550
Concrete columns - standard				
Forwork	36,277	SF	25.00	906,925
Reinforcing steel	343,701	LBS	1.25	429,626
Concrete, f'c= 8ksi	658	CY	350.00	230,300
Concrete retaining walls				
Concrete retaining wall				
Formwork to one side	38,220	SF	25.00	955,500
Reinforcing steel	252,252	LBS	1.25	315,315
Concrete, f'c= 5ksi	2,076	CY	225.00	467,100

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Concrete core walls				
Formwork to both sides	170,841	SF	25.00	4,271,025
Reinforcing steel	474,699	LBS	1.25	593,374
Concrete				
f'c= 6ksi	3,496	CY	325.00	1,136,200
f'c= 5ksi	2,598	CY	225.00	584,550
				14,949,315

3. Floor and Roof Structure

Floor at lowest level
Slab on grade - See foundations (mat slab)

Suspended floors

10" thick reinforced concrete flat slab -
basement slabs

Formwork	155,268	SF	10.00	1,552,680
Reinforcing steel	768,577	LBS	1.25	960,721
Concrete, f'c= 5.5ksi	5,271	CY	225.00	1,185,975

8" thick post tensioned slabs

Formwork	463,874	SF	10.00	4,638,740
Reinforcing steel	1,122,575	LBS	1.25	1,403,219
Post tension tendons	459,236	LBS	2.00	918,472
Studrails at columns (9 studrais with 9 studs per rail)	1,476	LOC	4,000.00	5,904,000
Concrete, f'c= 5.5ksi	12,599	CY	225.00	2,834,775

Special moment resisting frame reinforced
concrete beam

Formwork	137,632	SF	15.00	2,064,480
Reinforcing steel	1,639,660	LBS	1.25	2,049,575
Concrete, f'c= 5ksi	4,948	CY	225.00	1,113,300

Ground level slab/roof

12" thick reinforced concrete flat slab -
ground level

Formwork	51,756	SF	10.00	517,560
Reinforcing steel	455,453	LBS	1.25	569,316
Concrete, f'c= 5.5ksi	2,109	CY	225.00	474,525

Special moment resisting frame reinforced
concrete beam

Formwork	3,128	SF	10.00	31,280
Reinforcing steel	35,754	LBS	1.25	44,693
Concrete, f'c= 5ksi	112	CY	225.00	25,200

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
High roof				
10" thick reinforced concrete flat slab				
Formwork	12,850	SF	10.00	128,500
Reinforcing steel	70,675	LBS	1.25	88,344
Concrete, f'c= 5.5ksi	437	CY	225.00	98,325
Special moment resisting frame reinforced concrete beam				
Formwork	3,128	SF	15.00	46,920
Reinforcing steel	33,109	LBS	1.25	41,386
Concrete, f'c= 5ksi	112	CY	225.00	25,200
				26,717,186

4. Exterior Cladding

Wall framing, furring and insulation				
Exterior wall framing	182,947	SF	8.00	1,463,576
Furring to interior face of retaining wall	38,220	SF	4.00	152,880
Insulation and vapor barrier	173,820	SF	1.50	260,730
Applied exterior finishes				
Exterior wall finish - curtain wall with spandrel panels	135,600	SF	120.00	16,272,000
Parapets & edge detailing	560	LF	250.00	140,000
Interior finish to exterior walls				
Gypsum board, taped and sanded	173,820	SF	3.50	608,370
Windows, glazing and louvers				
Exterior wall finish - curtain wall with glazing	44,400	SF	120.00	5,328,000
Exterior doors, frames and hardware				
Glazed Doors & Entrances (allow revolving)	12	EA	35,000.00	420,000
Solid Exterior Doors	8	EA	3,000.00	24,000
Overhead Doors	2	EA	25,000.00	50,000
				24,719,556

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
5. Roofing, Waterproofing & Skylights				
Waterproofing				
Waterproofing at slab on grade	51,756	SF	10.00	517,560
Waterproofing at retaining wall	38,220	SF	10.00	382,200
Waterproofing membrane under plaza	40,442	SF	15.00	606,630
Insulation				
Rigid insulation at roof	11,314	SF	6.00	67,884
Roofing				
Balconies & accessible roofs	40,442	SF	25.00	1,011,050
High roof	11,314	SF	12.00	135,768
				2,721,092

6. Interior Partitions, Doors & Glazing

Partition framing and cores				
CMU partitions at basement levels	1,656	LF	325.00	538,200
Core partitions	11,880	LF	90.00	1,069,200
Standard partitions	118,798	LF	72.00	8,553,456
Doors, frames & hardware				
Unit entrance doors	310	EA	2,250.00	697,500
Standard interior doors	2,680	EA	1,800.00	4,824,000
Closet doors at units - allow bi-fold	1,240	EA	1,000.00	1,240,000
				16,922,356

7. Floor, Wall & Ceiling Finishes

Floors including base				
Lobby flooring	5,000	SF	35.00	175,000
Core circulation - allow carpet	70,530	SF	6.00	423,180
Residential				
Livingrooms - allow wood	141,050	SF	22.00	3,103,100
Bedrooms - allow carpet	164,565	SF	6.00	987,390
Kitchen - allow stone tile	42,315	SF	25.00	1,057,875
Bathrooms - allow ceramic tile	47,020	SF	20.00	940,400
Special use areas	6,236	SF	10.00	62,360
Concrete sealer at basement	207,024	SF	2.00	414,048

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Walls				
Lobby	1	EA	75,000.00	75,000
Core circulation	141,060	SF	3.00	423,180
Residential				
Livingrooms	282,100	SF	2.00	564,200
Bedrooms	329,130	SF	1.00	329,130
Kitchen	84,630	SF	10.00	846,300
Bathrooms	94,040	SF	12.00	1,128,480
Special use areas	9,354	SF	12.00	112,248
Paint to concrete and CMU at basement	55,608	SF	1.00	55,608
Ceilings				
Lobby	5,000	SF	25.00	125,000
Core circulation	70,530	SF	12.00	846,360
Residential				
Livingrooms	141,050	SF	6.00	846,300
Bedrooms	164,565	SF	6.00	987,390
Kitchen	42,315	SF	6.00	253,890
Bathrooms	47,020	SF	6.00	282,120
Special use areas	6,236	SF	10.00	62,360
Paint to exposed structure at basement	207,024	SF	2.00	414,048
				14,514,967

8. Function Equipment & Specialties

Specialties				
Fire extinguisher cabinets	150	EA	450.00	67,500
Trash chute	1	EA	110,000.00	110,000
Parking Garage equipment	1	LS	25,000.00	25,000
Built in Equipment				
Lobby/entry	1	LS	25,000.00	25,000
Core area	70,530	SF	0.75	52,898
Residential				
Livingrooms	141,050	SF	0.05	7,053
Bedrooms	164,565	SF	0.10	16,457
Kitchens	42,315	EA	6.00	253,890
Bathrooms	47,020	SF	1.00	47,020
Special use areas	6,236	SF	2.00	12,472

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Residential appliances				
Kitchen appliances				
Refrigerator	310	EA	1,700.00	527,000
Range	310	EA	2,000.00	620,000
Range hood	310	EA	1,000.00	310,000
Double oven	310	EA	800.00	248,000
Dishwasher	310	EA	850.00	263,500
Microwave	310	EA	450.00	139,500
Washing machine	310	EA	1,200.00	372,000
Dryer - electric	310	EA	1,200.00	372,000
Window washing equipment	1	LS	450,000.00	450,000
				3,919,289

9. Stairs & Vertical Transportation

Stairs				
Regular stair flights	88	EA	22,000.00	1,936,000
Elevators				
Passenger Elevators, gearless traction	176	STOP	28,000.00	4,928,000
Freight Elevators, geared traction, 4 stop	8	STOP	32,000.00	256,000
				7,120,000

10. Plumbing Systems

Sanitary fixtures and connection piping				
Toilets	736	EA	1,600.00	1,177,600
Lavatories	736	EA	1,200.00	883,200
Tub/shower combo	580	EA	1,800.00	1,044,000
Showers	232	EA	350.00	81,200
Kitchen sinks	310	EA	1,700.00	527,000
Washing machine connection	310	EA	350.00	108,500
Hose bibbs	10	EA	500.00	5,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Domestic water and distribution				
Cold Water Service				
Copper piping incl. fittings >2"	900	LF	50.00	45,000
Copper piping incl. fittings to 2"	58,280	LF	32.00	1,864,960
Hot Water Service				
Copper piping incl. fittings >2"	1,400	LF	50.00	70,000
Copper piping incl. fittings to 2"	65,040	LF	32.00	2,081,280
Insulation	66,440	LF	9.00	597,960
Valves				
Isolation valves to 3/4"	4,772	EA	65.00	310,180
Domestic Water Supply Equipment				
Hot water heating and circulation	310	EA	900.00	279,000
Sanitary waste				
Waste & vent pipework-above ground				
Cast Iron No Hub, >6"	900	LF	75.00	67,500
Cast Iron No Hub, to 3"	58,280	LF	32.00	1,864,960
Sanitary waste, vent and service piping				
Floor Drains	88	EA	1,000.00	88,000
Rain Water Drainage				
Pipe and Fittings	51,583	LF	35.00	1,805,422
Roof/Overflow Drains	86	EA	750.00	64,695
Gas distribution				
Copper piping incl. fittings to 2"	2,000	LF	25.00	50,000
				13,015,457

11. Heating, Ventilation & Air Conditioning

Heat generating systems				
Heating hot water boilers, high efficiency condensing: Core Area only				
	3,700	MBTH	25.00	92,500
Heating hot water pumps				
	2	EA	15,000.00	30,000
Cooling Generating Systems: Core Area only				
Cooling towers				
	500	TN	250.00	125,000
Chillers, 2 each				
	500	TN	450.00	225,000
Chilled water pumps				
	2	EA	10,000.00	20,000
Condenser water pumps				
	2	EA	5,000.00	10,000
Variable speed drives, vibration isolation, etc.				
	6	EA	12,000.00	72,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Distribution systems: Core Area only				
Piping, fittings, valves and insulation				
Chilled water				
Chilled water pipework, fittings	1,400	LF	95.00	133,000
Valves and specialties	1	LS	75,000.00	75,000
Heating hot water				
Heating hot water pipework, fittings, including insulation				
6" - 4"	1,200	LF	85.00	102,000
< = 3"	4,000	LF	30.00	120,000
Valves and specialties	1	LS	25,000.00	25,000
Condenser water				
Condenser water pipework, fittings	1,200	LF	90.00	108,000
Valves and specialties	1	LS	25,000.00	25,000
Connections to Fan Coil Boxes	164	EA	350.00	57,236
Air handling equipment				
Dedicated outside air supply air handler	220,000	CFM	5.00	1,100,000
Individual unit packaged units	310	EA	6,000.00	1,860,000
Fan Coil Units				
Core/Shell	164	EA	1,250.00	204,415
Parking area	207	EA	1,250.00	258,750
Sound attenuation - duct mounted	220,000	CFM	0.25	55,000
Air distribution, return and exhaust				
Galvanized sheet metal ductwork	288,790	LB	8.00	2,310,320
Dryer exhaust duct	9,300	LF	6.00	55,800
Flexible ductwork	3,000	LF	6.00	18,000
Dampers, volume	100	EA	40.00	4,000
Dampers, smoke/fire	80	EA	1,200.00	96,000
Insulation/duct liner	100,000	SF	2.50	250,000
Diffusers, registers and grilles				
Ceiling				
Core/Shell	818	EA	200.00	163,532
Tenant areas, 1 per 150 USF	2,633	EA	150.00	394,950
Parking area				
Terminal & Package Units				
Exhaust fans at toilet rooms	736	EA	350.00	257,600
Controls and instrumentation				
DDC Control system	288,790	SF	3.00	866,370

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Test and balance				
Test and balance	288,790	SF	1.25	360,988
				9,475,461

12. Electrical Lighting, Power & Communication

Primary Service, Medium voltage				
Switchgear 13.8KV including (2) tie breakers, (2) feeder breakers, and customer metering	6,000	KVA	60.00	360,000
Transformer substation 13.8KV/110-208V, double-ended including secondary distribution	6,000	KVA	150.00	900,000
Distribution switchboards - 110-208V	18,600	AMP	25.00	465,000
Distribution panelboards - 208V	310	EA	1,500.00	465,000
Feeder conduit and wire - 600V	45,000	LF	80.00	3,600,000
Emergency and Uninterrupted Power				
Emergency Generator	1,500	KVA	350.00	525,000
Automatic transfer switch	1,500	AMP	45.00	67,500
Distribution panelboards	1,500	AMP	25.00	37,500
General Purpose Lighting				
Panelboards	46	EA	2,500.00	115,000
Lighting				
Core Area	81,766	SF	12.00	981,192
Tenant Area	394,950	SF	2.00	789,900
Parking area	207,024	SF	4.00	828,096
Machine and Equipment Power				
Connections and switches including conduit and wire				
Elevators	16	EA	1,000.00	16,000
Cooling towers	2	EA	5,000.00	10,000
Chillers	2	EA	12,000.00	24,000
Pumps	6	EA	2,000.00	12,000
Miscellaneous connections	683,748	SF	0.75	512,811
User Convenience Power				
Panelboards	46	EA	2,500.00	115,000
Receptacles				
Core/Shell	81,766	SF	3.00	245,298
Tenant Area	394,950	SF	3.00	1,184,850
Parking area	207,024	SF	2.00	414,048

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Communications				
Telephone and communications				
Core Area, panels and backbone only	1	LS	75,000.00	75,000
Tenant Units	310	EA	800.00	248,000
Security Systems				
Main Security System	683,748	SF	0.10	68,375
Tenant Units	310	EA	900.00	279,000
Fire Alarm Systems				
Main Fire Alarm Systems	683,748	SF	3.00	2,051,244
Other Electrical Systems				
Grounding Systems	683,748	SF	0.25	170,937
Lightning protection	1	LS	25,000.00	25,000
				14,585,751

13. Fire Protection Systems

Sprinkler and Standpipe Systems				
Fire Protection Sprinkler Systems	683,748	SF	4.00	2,734,992
Standpipe and Hose Systems	683,748	SF	1.00	683,748
Specialties and Other Systems				
Smoke Evacuation	1	LS	250,000.00	250,000
				3,668,740

14. Site Preparation & Building Demolition

Site Preparation	100,000	SF	15.00	1,500,000
				1,500,000

15. Site Paving, Structures & Landscaping

Site Development	48,244	SF	25.00	1,206,100
				1,206,100

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
16. Utilities on Site				
Site Utilities	1	LS	500,000.00	500,000
				<hr/> 500,000

PERFORMANCE BASED COMPONENT SUMMARY

		Gross Area: 683,748 SF	
		\$/SF	\$x1,000
1.	Foundations	16.35	11,178
2.	Vertical Structure	22.08	15,097
3.	Floor & Roof Structures	83.76	57,271
4.	Exterior Cladding	36.15	24,720
5.	Roofing, Waterproofing & Skylights	3.98	2,721
Shell (1-5)		162.32	110,987
6.	Interior Partitions, Doors & Glazing	24.75	16,922
7.	Floor, Wall & Ceiling Finishes	21.23	14,515
Interiors (6-7)		45.98	31,437
8.	Function Equipment & Specialties	5.73	3,919
9.	Stairs & Vertical Transportation	10.41	7,120
Equipment & Vertical Transportation (8-9)		16.15	11,039
10.	Plumbing Systems	19.04	13,015
11.	Heating, Ventilating & Air Conditioning	13.86	9,475
12.	Electric Lighting, Power & Communications	21.33	14,586
13.	Fire Protection Systems	5.37	3,669
Mechanical & Electrical (10-13)		59.59	40,745
Total Building Construction (1-13)		284.04	194,209
14.	Site Preparation & Demolition	2.19	1,500
15.	Site Paving, Structures & Landscaping	1.76	1,206
16.	Utilities on Site	0.73	500
Total Site Construction (14-16)		4.69	3,206
TOTAL BUILDING & SITE (1-16)		288.73	197,415
	General Conditions	12.00%	34.65 23,690
	Contractor's Overhead & Profit or Fee	6.00%	19.40 13,266
PLANNED CONSTRUCTION COST		March 2010	342.77 234,371
	Design, Management and Inspection	20.00%	68.55 46,874
	Escalation is excluded	0.00%	0.00 0
RECOMMENDED BUDGET		March 2010	411.33 281,245

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
1. Foundations				
Basement Excavation				
Excavation	99,173	CY	15.00	1,487,595
Shoring at perimeter	36,400	SF	50.00	1,820,000
Backfill with imported material	14,829	CY	35.00	519,015
Dispose off site	99,173	CY	20.00	1,983,460
Hazardous material remediation				Excluded
Foundations				
Reinforced concrete Mat foundation				
Excavation and disposal	10,278	CY	15.00	154,170
Forwork	5,240	SF	18.00	94,320
Reinforcing steel	1,469,135	LBS	1.15	1,689,505
Concrete, f'c= 6ksi	10,278	CY	325.00	3,340,350
Elevator pits	6	EA	15,000.00	90,000
				11,178,415

2. Vertical Structure

Columns and pilasters

Concrete columns - moment frames

Formwork	100,247	SF	25.00	2,506,175
Reinforcing steel	1,315,178	LBS	1.25	1,643,973
Concrete				
f'c= 10ksi	371	CY	450.00	166,950
f'c= 8ksi	890	CY	350.00	311,500
f'c= 6ksi	318	CY	325.00	103,350
f'c= 5ksi	1,535	CY	225.00	345,375

Concrete columns - standard

Forwork	36,277	SF	25.00	906,925
Reinforcing steel	343,701	LBS	1.25	429,626
Concrete, f'c= 8ksi	658	CY	350.00	230,300

Concrete retaining walls

Concrete retaining wall

Formwork to one side	38,220	SF	25.00	955,500
Reinforcing steel	252,252	LBS	1.25	315,315
Concrete, f'c= 5ksi	2,076	CY	225.00	467,100

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Concrete core walls				
Formwork to both sides	170,841	SF	25.00	4,271,025
Reinforcing steel	447,823	LBS	1.25	559,779
Concrete				
f'c= 8ksi	3,496	CY	350.00	1,223,600
f'c= 6ksi	1,125	CY	325.00	365,625
f'c= 5ksi	1,310	CY	225.00	294,750
				15,096,868

3. Floor and Roof Structure

Floor at lowest level
 Slab on grade - See foundations (mat slab)

Suspended floors

10" thick reinforced concrete flat slab -
 basement slabs

Formwork	155,268	SF	10.00	1,552,680
Reinforcing steel	768,577	LBS	1.25	960,721
Concrete, f'c= 5.5ksi	142,329	CY	225.00	32,024,025

8" thick post tensioned slabs

Formwork	463,874	SF	10.00	4,638,740
Reinforcing steel	1,122,575	LBS	1.25	1,403,219
Post tension tendons	459,236	LBS	2.00	918,472
Studrails at columns (9 studrais with 9 studs per rail)	1,476	LOC	4,000.00	5,904,000
Concrete, f'c= 5.5ksi	12,599	CY	225.00	2,834,775

Special moment resisting frame reinforced
 concrete beam

Formwork	137,632	SF	15.00	2,064,480
Reinforcing steel	1,420,802	LBS	1.25	1,776,003
Concrete, f'c= 5ksi	4,948	CY	225.00	1,113,300

Ground level slab/roof

12" thick reinforced concrete flat slab -
 ground level

Formwork	51,756	SF	10.00	517,560
Reinforcing steel	455,453	LBS	1.25	569,316
Concrete, f'c= 5.5ksi	2,109	CY	225.00	474,525

Special moment resisting frame reinforced
 concrete beam

Formwork	3,128	SF	10.00	31,280
Reinforcing steel	30,635	LBS	1.25	38,294
Concrete, f'c= 5ksi	112	CY	225.00	25,200

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
High roof				
10" thick reinforced concrete flat slab				
Formwork	12,850	SF	10.00	128,500
Reinforcing steel	70,675	LBS	1.25	88,344
Concrete, f'c= 5.5ksi	437	CY	225.00	98,325
Special moment resisting frame reinforced concrete beam				
Formwork	3,128	SF	15.00	46,920
Reinforcing steel	29,994	LBS	1.25	37,493
Concrete, f'c= 5ksi	112	CY	225.00	25,200
				57,271,371

4. Exterior Cladding

Wall framing, furring and insulation				
Exterior wall framing	182,947	SF	8.00	1,463,576
Furring to interior face of retaining wall	38,220	SF	4.00	152,880
Insulation and vapor barrier	173,820	SF	1.50	260,730
Applied exterior finishes				
Exterior wall finish - curtain wall with spandrel panels	135,600	SF	120.00	16,272,000
Parapets & edge detailing	560	LF	250.00	140,000
Interior finish to exterior walls				
Gypsum board, taped and sanded	173,820	SF	3.50	608,370
Windows, glazing and louvers				
Exterior wall finish - curtain wall with glazing	44,400	SF	120.00	5,328,000
Exterior doors, frames and hardware				
Glazed Doors & Entrances (allow revolving)	12	EA	35,000.00	420,000
Solid Exterior Doors	8	EA	3,000.00	24,000
Overhead Doors	2	EA	25,000.00	50,000
				24,719,556

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
5. Roofing, Waterproofing & Skylights				
Waterproofing				
Waterproofing at slab on grade	51,756	SF	10.00	517,560
Waterproofing at retaining wall	38,220	SF	10.00	382,200
Waterproofing membrane under plaza	40,442	SF	15.00	606,630
Insulation				
Rigid insulation at roof	11,314	SF	6.00	67,884
Roofing				
Balconies & accessible roofs	40,442	SF	25.00	1,011,050
High roof	11,314	SF	12.00	135,768
				2,721,092

6. Interior Partitions, Doors & Glazing

Partition framing and cores				
CMU partitions at basement levels	1,656	LF	325.00	538,200
Core partitions	11,880	LF	90.00	1,069,200
Standard partitions	118,798	LF	72.00	8,553,456
Doors, frames & hardware				
Unit entrance doors	310	EA	2,250.00	697,500
Standard interior doors	2,680	EA	1,800.00	4,824,000
Closet doors at units - allow bi-fold	1,240	EA	1,000.00	1,240,000
				16,922,356

7. Floor, Wall & Ceiling Finishes

Floors including base				
Lobby flooring	5,000	SF	35.00	175,000
Core circulation - allow carpet	70,530	SF	6.00	423,180
Residential				
Livingrooms - allow wood	141,050	SF	22.00	3,103,100
Bedrooms - allow carpet	164,565	SF	6.00	987,390
Kitchen - allow stone tile	42,315	SF	25.00	1,057,875
Bathrooms - allow ceramic tile	47,020	SF	20.00	940,400
Special use areas	6,236	SF	10.00	62,360
Concrete sealer at basement	207,024	SF	2.00	414,048

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Walls				
Lobby	1	EA	75,000.00	75,000
Core circulation	141,060	SF	3.00	423,180
Residential				
Livingrooms	282,100	SF	2.00	564,200
Bedrooms	329,130	SF	1.00	329,130
Kitchen	84,630	SF	10.00	846,300
Bathrooms	94,040	SF	12.00	1,128,480
Special use areas	9,354	SF	12.00	112,248
Paint to concrete and CMU at basement	55,608	SF	1.00	55,608
Ceilings				
Lobby	5,000	SF	25.00	125,000
Core circulation	70,530	SF	12.00	846,360
Residential				
Livingrooms	141,050	SF	6.00	846,300
Bedrooms	164,565	SF	6.00	987,390
Kitchen	42,315	SF	6.00	253,890
Bathrooms	47,020	SF	6.00	282,120
Special use areas	6,236	SF	10.00	62,360
Paint to exposed structure at basement	207,024	SF	2.00	414,048
				14,514,967

8. Function Equipment & Specialties

Specialties				
Fire extinguisher cabinets	150	EA	450.00	67,500
Trash chute	1	EA	110,000.00	110,000
Parking Garage equipment	1	LS	25,000.00	25,000
Built in Equipment				
Lobby/entry	1	LS	25,000.00	25,000
Core area	70,530	SF	0.75	52,898
Residential				
Livingrooms	141,050	SF	0.05	7,053
Bedrooms	164,565	SF	0.10	16,457
Kitchens	42,315	EA	6.00	253,890
Bathrooms	47,020	SF	1.00	47,020
Special use areas	6,236	SF	2.00	12,472

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Residential appliances				
Kitchen appliances				
Refrigerator	310	EA	1,700.00	527,000
Range	310	EA	2,000.00	620,000
Range hood	310	EA	1,000.00	310,000
Double oven	310	EA	800.00	248,000
Dishwasher	310	EA	850.00	263,500
Microwave	310	EA	450.00	139,500
Washing machine	310	EA	1,200.00	372,000
Dryer - electric	310	EA	1,200.00	372,000
Window washing equipment	1	LS	450,000.00	450,000
				3,919,289

9. Stairs & Vertical Transportation

Stairs				
Regular stair flights	88	EA	22,000.00	1,936,000
Elevators				
Passenger Elevators, gearless traction	176	STOP	28,000.00	4,928,000
Freight Elevators, geared traction, 4 stop	8	STOP	32,000.00	256,000
				7,120,000

10. Plumbing Systems

Sanitary fixtures and connection piping				
Toilets	736	EA	1,600.00	1,177,600
Lavatories	736	EA	1,200.00	883,200
Tub/shower combo	580	EA	1,800.00	1,044,000
Showers	232	EA	350.00	81,200
Kitchen sinks	310	EA	1,700.00	527,000
Washing machine connection	310	EA	350.00	108,500
Hose bibbs	10	EA	500.00	5,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Domestic water and distribution				
Cold Water Service				
Copper piping incl. fittings >2"	900	LF	50.00	45,000
Copper piping incl. fittings to 2"	58,280	LF	32.00	1,864,960
Hot Water Service				
Copper piping incl. fittings >2"	1,400	LF	50.00	70,000
Copper piping incl. fittings to 2"	65,040	LF	32.00	2,081,280
Insulation	66,440	LF	9.00	597,960
Valves				
Isolation valves to 3/4"	4,772	EA	65.00	310,180
Domestic Water Supply Equipment				
Hot water heating and circulation	310	EA	900.00	279,000
Sanitary waste				
Waste & vent pipework-above ground				
Cast Iron No Hub, >6"	900	LF	75.00	67,500
Cast Iron No Hub, to 3"	58,280	LF	32.00	1,864,960
Sanitary waste, vent and service piping				
Floor Drains	88	EA	1,000.00	88,000
Rain Water Drainage				
Pipe and Fittings	51,583	LF	35.00	1,805,422
Roof/Overflow Drains	86	EA	750.00	64,695
Gas distribution				
Copper piping incl. fittings to 2"	2,000	LF	25.00	50,000
				13,015,457

11. Heating, Ventilation & Air Conditioning

Heat generating systems				
Heating hot water boilers, high efficiency condensing: Core Area only				
	3,700	MBTH	25.00	92,500
Heating hot water pumps				
	2	EA	15,000.00	30,000
Cooling Generating Systems: Core Area only				
Cooling towers				
	500	TN	250.00	125,000
Chillers, 2 each				
	500	TN	450.00	225,000
Chilled water pumps				
	2	EA	10,000.00	20,000
Condenser water pumps				
	2	EA	5,000.00	10,000
Variable speed drives, vibration isolation, etc.				
	6	EA	12,000.00	72,000

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Distribution systems: Core Area only				
Piping, fittings, valves and insulation				
Chilled water				
Chilled water pipework, fittings	1,400	LF	95.00	133,000
Valves and specialties	1	LS	75,000.00	75,000
Heating hot water				
Heating hot water pipework, fittings, including insulation				
6" - 4"	1,200	LF	85.00	102,000
< = 3"	4,000	LF	30.00	120,000
Valves and specialties	1	LS	25,000.00	25,000
Condenser water				
Condenser water pipework, fittings	1,200	LF	90.00	108,000
Valves and specialties	1	LS	25,000.00	25,000
Connections to Fan Coil Boxes	164	EA	350.00	57,236
Air handling equipment				
Dedicated outside air supply air handler	220,000	CFM	5.00	1,100,000
Individual unit packaged units	310	EA	6,000.00	1,860,000
Fan Coil Units				
Core/Shell	164	EA	1,250.00	204,415
Parking area	207	EA	1,250.00	258,750
Sound attenuation - duct mounted	220,000	CFM	0.25	55,000
Air distribution, return and exhaust				
Galvanized sheet metal ductwork	288,790	LB	8.00	2,310,320
Dryer exhaust duct	9,300	LF	6.00	55,800
Flexible ductwork	3,000	LF	6.00	18,000
Dampers, volume	100	EA	40.00	4,000
Dampers, smoke/fire	80	EA	1,200.00	96,000
Insulation/duct liner	100,000	SF	2.50	250,000
Diffusers, registers and grilles				
Ceiling				
Core/Shell	818	EA	200.00	163,532
Tenant areas, 1 per 150 USF	2,633	EA	150.00	394,950
Parking area				
Terminal & Package Units				
Exhaust fans at toilet rooms	736	EA	350.00	257,600
Controls and instrumentation				
DDC Control system	288,790	SF	3.00	866,370

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Test and balance				
Test and balance	288,790	SF	1.25	360,988
				9,475,461

12. Electrical Lighting, Power & Communication

Primary Service, Medium voltage				
Switchgear 13.8KV including (2) tie breakers, (2) feeder breakers, and customer metering	6,000	KVA	60.00	360,000
Transformer substation 13.8KV/110-208V, double-ended including secondary distribution	6,000	KVA	150.00	900,000
Distribution switchboards - 110-208V	18,600	AMP	25.00	465,000
Distribution panelboards - 208V	310	EA	1,500.00	465,000
Feeder conduit and wire - 600V	45,000	LF	80.00	3,600,000
Emergency and Uninterrupted Power				
Emergency Generator	1,500	KVA	350.00	525,000
Automatic transfer switch	1,500	AMP	45.00	67,500
Distribution panelboards	1,500	AMP	25.00	37,500
General Purpose Lighting				
Panelboards	46	EA	2,500.00	115,000
Lighting				
Core Area	81,766	SF	12.00	981,192
Tenant Area	394,950	SF	2.00	789,900
Parking area	207,024	SF	4.00	828,096
Machine and Equipment Power				
Connections and switches including conduit and wire				
Elevators	16	EA	1,000.00	16,000
Cooling towers	2	EA	5,000.00	10,000
Chillers	2	EA	12,000.00	24,000
Pumps	6	EA	2,000.00	12,000
Miscellaneous connections	683,748	SF	0.75	512,811
User Convenience Power				
Panelboards	46	EA	2,500.00	115,000
Receptacles				
Core/Shell	81,766	SF	3.00	245,298
Tenant Area	394,950	SF	3.00	1,184,850
Parking area	207,024	SF	2.00	414,048

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
Communications				
Telephone and communications				
Core Area, panels and backbone only	1	LS	75,000.00	75,000
Tenant Units	310	EA	800.00	248,000
Security Systems				
Main Security System	683,748	SF	0.10	68,375
Tenant Units	310	EA	900.00	279,000
Fire Alarm Systems				
Main Fire Alarm Systems	683,748	SF	3.00	2,051,244
Other Electrical Systems				
Grounding Systems	683,748	SF	0.25	170,937
Lightning protection	1	LS	25,000.00	25,000
				14,585,751

13. Fire Protection Systems

Sprinkler and Standpipe Systems				
Fire Protection Sprinkler Systems	683,748	SF	4.00	2,734,992
Standpipe and Hose Systems	683,748	SF	1.00	683,748
Specialties and Other Systems				
Smoke Evacuation	1	LS	250,000.00	250,000
				3,668,740

14. Site Preparation & Building Demolition

Site Preparation	100,000	SF	15.00	1,500,000
				1,500,000

15. Site Paving, Structures & Landscaping

Site Development	48,244	SF	25.00	1,206,100
				1,206,100

<i>Item Description</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Total</i>
16. Utilities on Site				
Site Utilities	1	LS	500,000.00	500,000
				<hr/> 500,000