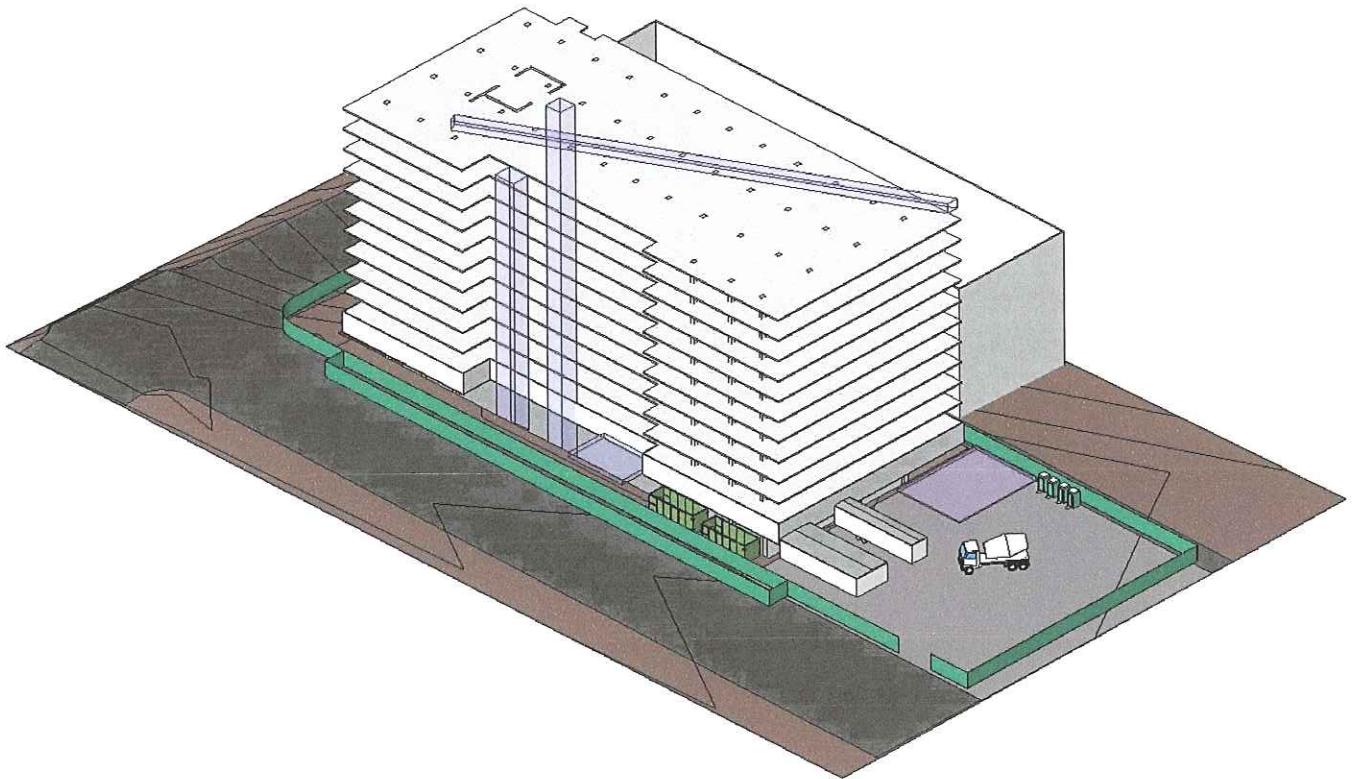


banner

BANNER GROUP 

LEADING THE CONSTRUCTION
INDUSTRY INTO THE FUTURE



PRIHD Development Partnership
DOWNTOWN CONDOMINIUM PROJECT PACIFIC NORTHWEST

February 14, 2008



PRIHD Development Partnership
C/O PCL Construction Services, Inc.
John Ascuaga's Nugget
1100 Nugget Ave. Sparks, Nevada 89431

Re: 2008 ASC Student Competition RFP Submittal; Recognizing Adendum's 1-3

Dear Mr. Kurt R. Boyd:

We feel privileged to represent Brigham Young University at the ASC Student Competition in the Preconstruction Services Problem. The Banner Group is an organization built on integrity and unquestionable ethics. You will soon find our standards are second to none, and no effort has been spared in providing a top quality product, on schedule, within budget, and in a safe working environment. We are always pleased to be able to expand our network of satisfied customers and hope to be able to impress upon you the type of firm we represent: a firm dedicated to providing excellence.

If selected, this project will mark the ninth of its type for the Banner Group and the fourth in the Seattle area in the last ten years. On each of these past projects we have proven ourselves equal to the task.

Our firm, Banner Group, is one of the most reputable contractors in the nation. With over 80 years of experience within the construction industry, we have amassed an impressive portfolio of diverse projects and a large list of return customers in 12 states. Banner Group, a company dedicated to the owner, the project, and the public.

We would like to thank you for your time and consideration. We look forward to building a lasting relationship with you and to making your vision of this new facility become a reality. Please contact me personally at any time with any questions about our company and how we may be of service.

Sincerely,

A handwritten signature in blue ink, which appears to be "Adam McKinnon", is written over a large, light blue oval scribble.

Adam McKinnon, Vice President

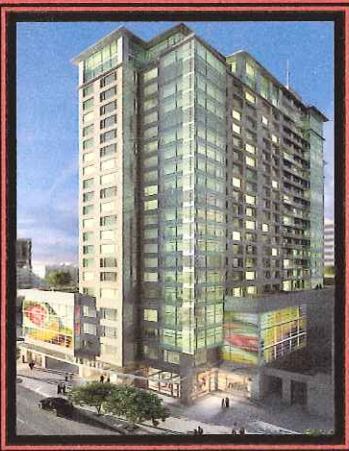
Enclosures: Phase I Proposal



Outlook at Bainbridge Point



Timmacuan Towers



Buena Vista Towers



Orinda Risings

PRIHD Development Partnership
SECOND & BROAD PROJECT

PHASE II
Project
Proposal

Open
Owner/Builder
Communication

Early Subcontractor
Involvement

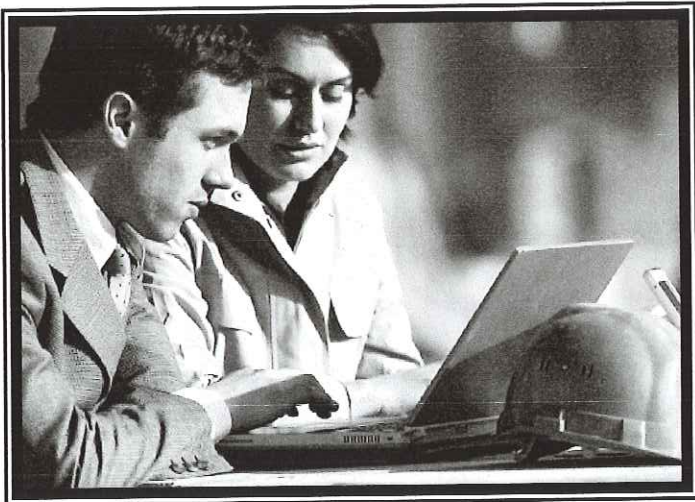
Experienced
Project Teams

Leading the Construction
Industry into the Future



Fly with Banner

At Banner we have set ourselves apart as an innovative, trailblazing firm based on our dedication to communication. We believe that an open, horizontal communication structure is the key to delivering the construction successes of the future. As a premier preconstruction firm we connect the owner, management staff, and key subcontractors from design conception to operations and thru to project delivery. By keeping these horizontal communication lines open, through weekly progress and coordination meetings, we create a culture of synergy that brings building from a necessary evil to an exciting dynamic team experience.



Your Team

Years ago, Banner Group executives assembled a team of their most passionate, hard working builders to take their company to the elite ranks of urban construction. That team succeeded and

has been responsible for several urban high-rise successes and is still assembled today. This same team is eager to be the ones to lead you in the building experience



Safety

The Banner Group recognizes that our people are our best asset. As such, safety is more than an occasional priority. Safety is a value. At The Banner Group we also know that a safe work place doesn't happen by chance, it is a product of hard work, dedicated effort and continuous training. Our current EMR rate for 2007 was 0.67, a statistic that represents not only good safety practices, but an accolade to the commitment of the men and women who come to work day in and day out. At Banner Group, we understand the necessity of a safe working environment for every individual involved. We realize the economic and financial impact of poorly executed safety procedures. We promise to fulfill our responsibility to you, our people, and their families by sending them home safe each and every night.

PCL Construction Services, Inc
Seattle Office

Conceptual Estimate Summary

Owner: DCP, LLC
Project: Downtown Condominium Project
Location: Seattle, WA
Designer: Mithun
Area: 303,690 SF

Description	Quantity	UoM	Unit Price	Total Cost	Remarks
DIRECT COSTS					
PRECONSTRUCTION SERVICES	1.0	LS		0	
SITework	1.0	LS		166,898	Provide per Preconstruction Estimate Section
BLDG EXCAVATION	1.0	LS		128,103	
STRUCTURE	1.0	LS		2,062,099	
STRUCTURE OVERHEAD COST	1.0	LS		7,506,762	Provide per Concrete Estimate Section
METALS	1.0	LS		w/above	
THERMAL/MOIST PROTECT	1.0	LS		1,314,517	
FINISHES	1.0	LS		4,961,526	
Unit Finishes	1.0	LS		6,452,572	
SPECIALTIES	1.0	LS		6,592,991	
BUILDING EQUIPMENT	1.0	LS		45,094	
CONVEYING SYSTEMS	1.0	LS		30,750	
BLDG MECHANICAL	1.0	LS		636,381	
BLDG ELECTRICAL	1.0	LS		7,934,342	
WARRANTY CONTINGENCY	1.0	LS		3,175,003	Provide from Electrical Recap
DESIGN CONTINGENCY	1.0	LS		510,831	
DIRECT COSTS				41,772,280	
GENERAL EXPENSE COSTS					
PROJECT STAFF	1.0	LS		1,472,662	Provide from Project Staff Estimate
PROJECT OVERHEAD & EQUIP	1.0	LS		987,566	Provide from Project Overhead Estimate
INSURANCE/TAXES	1.0	LS		1,208,681	
0				0	
TOTAL COST				45,441,179	
Fee	3%	%		0	Provide Fee required by your Firm.
WSST					
WASHINGTON STATE SALES TAX	1	LS		0	NIC
TOTAL BID				46,804,415	Calculate Totals

Project Staffing Matrix

Downtown Condo Project Seattle, WA

ITEM	% of Time on Project	QTY	UNIT	HOURLY RATE	LABOR	TOTAL
Estimator	1%	26	MH	\$ 55.00	\$ 1,430.14	\$ 1,430.14
Project Manager	80%	2774	MH	\$ 75.00	\$ 208,020.00	\$ 208,020.00
Project Engineer 1	100%	3467	MH	\$ 52.00	\$ 180,284.00	\$ 180,284.00
Project Engineer 2	100%	3467	MH	\$ 52.00	\$ 180,284.00	\$ 180,284.00
Superintendent	100%	3467	MH	\$ 82.00	\$ 284,294.00	\$ 284,294.00
Superintendent (Concrete)	100%	3467	MH	\$ 82.00	\$ 284,294.00	\$ 284,294.00
Assist. Supt	100%	3467	MH	\$ 55.00	\$ 190,685.00	\$ 190,685.00
Accounting Clerk	33%	1144	MH	\$ 45.00	\$ 51,484.95	\$ 51,484.95
Safety Coordinator	20%	693	MH	\$ 50.00	\$ 34,670.00	\$ 34,670.00
Quality Control Coordinator	33%	1144	MH	\$ 50.00	\$ 57,205.50	\$ 57,205.50
				Sub Total	\$ 1,472,651.59	\$ 1,472,651.59
				Tax	\$ -	\$ -
				Total	\$ 1,472,651.59	\$ 1,472,651.59

**Downtown Condominium Project
Sidewalk and Street Use Permits**

2nd Avenue Street **\$203,730**
 Alley **\$0**
 Broad St. **\$79,506**
 Unknown **\$0**
 Total Estimate **\$283,236**

**2nd Avenue Street (Arterial)
Lane Closure**

Month	Date	Length	Width	Cost/sf	Cost/30 dys
Month 1	na				\$0
Month 2	1/5/2008	240	10	\$0.10	\$720
Month 3	2/11/2008	24	20	\$0.10	\$144
Month 4	3/19/2008	50	20	\$0.10	\$300
Month 5	4/25/2008	80	20	\$0.10	\$480
Month 6	6/1/2008	24	20	\$0.10	\$144
Month 7	7/8/2008	240	10	\$1.00	\$7,200
Month 8	8/14/2008	240	10	\$1.00	\$7,200
Month 9	9/20/2008	240	10	\$1.00	\$7,200
Month 10	10/27/2008	240	10	\$1.00	\$7,200
Month 11	12/3/2008	240	10	\$1.00	\$7,200
Month 12	1/9/2009	240	10	\$1.00	\$7,200
Month 13	2/15/2009	240	10	\$1.00	\$7,200
Month 14	3/24/2009	240	10	\$1.00	\$7,200
Month 15	4/30/2009	30	10	\$1.00	\$900
Month 16	6/6/2009	80	10	\$1.00	\$2,400
Month 17	7/13/2009	20	5	\$0.10	\$30
Month 18	na				
Month 19	na				
Month 20	na				

2nd Avenue **\$62,718**

2nd Avenue Sidewalk (Arterial)

Length Width Cost/sf Cost/30 dys

Month	Date	Length	Width	Cost/sf	Cost/30 dys
Month 1	12/26/2008	136	15	\$0.10	\$612
Month 2	1/23/2008				
Month 3	na				
Month 4	na				
Month 5	4/25/2008	240	15	\$1.00	\$10,800
Month 6	6/1/2008	240	15	\$1.00	\$10,800
Month 7	7/8/2008	240	15	\$1.00	\$10,800
Month 8	8/14/2008	240	15	\$1.00	\$10,800
Month 9	9/20/2008	240	15	\$1.00	\$10,800
Month 10	10/27/2008	240	15	\$1.00	\$10,800
Month 11	12/3/2008	240	15	\$1.00	\$10,800
Month 12	1/9/2009	240	15	\$1.00	\$10,800
Month 13	2/15/2009	240	15	\$1.00	\$10,800
Month 14	3/24/2009	240	15	\$1.00	\$10,800
Month 15	4/30/2009	240	15	\$1.00	\$10,800
Month 16	6/6/2009	240	15	\$1.00	\$10,800
Month 17	7/13/2009	240	15	\$1.00	\$10,800
Month 18	na				
Month 19	na				
Month 20	na				

\$141,012

ZOOK

Alley (non Arterial)

Month	Date	Length	Width	Cost/sf	Cost/30 dys
Month 1	na				\$0
Month 2	na				\$0
Month 3	na				\$0
Month 4	na				\$0
Month 5	na				\$0
Month 6	na				\$0
Alley is never closed					\$0

**Broad St. (Arterial)
Lane Closure**

Month	Date	Length	Width	Cost/sf	Cost/30 dys
Month 1	na				\$0
Month 2	na				\$0
Month 3	na				\$0
Month 4	na				\$0
Month 5	na				\$0
Month 6	na				\$0
Month 7	na				\$0
Month 8	na				\$0
Month 9	9/20/2008	50	10	\$0.10	\$150
Month 10	10/27/2008	20	10	\$0.10	\$60
Month 11	na				\$0
Month 12	na				\$0
Month 13	na				\$0
Month 14	na				\$0
Month 15	na				\$0
Month 16	6/6/2009	30	10	\$0.10	\$90
Month 17	na				\$0
Month 18	na				\$0
Month 19	11/1/2009	24	10	\$0.10	\$72
Month 20	na				\$0

Broad St. **\$372**

Sidewalk Closure- Broad (Arterial)

Month	Date	Length	Width	Cost/sf	Cost/30 dys
Month 1	12/26/2008	109	20	\$0.10	\$654
Month 2	1/23/2008	109	20		\$0
Month 3	na				\$0
Month 4	na				\$0
Month 5	4/25/2008	109	20	\$1.00	\$6,540
Month 6	6/1/2008	109	20	\$1.00	\$6,540
Month 7	7/8/2008	109	20	\$1.00	\$6,540
Month 8	8/14/2008	109	20	\$1.00	\$6,540
Month 9	9/20/2008	109	20	\$1.00	\$6,540
Month 10	10/27/2008	109	20	\$1.00	\$6,540
Month 11	12/3/2008	109	20	\$1.00	\$6,540
Month 12	1/9/2009	109	20	\$1.00	\$6,540
Month 13	2/15/2009	109	20	\$1.00	\$6,540
Month 14	3/24/2009	109	20	\$1.00	\$6,540
Month 15	4/30/2009	109	20	\$1.00	\$6,540
Month 16	6/6/2009	109	20	\$1.00	\$6,540
Month 17	na				
Month 18	na				
Month 19	na				
Month 20	na				

\$79,134

CONCRETE ESTIMATE

**Downtown Condominium Project
Seattle, WA**



Item	Mh	Qty	Unit	Material	Unit	Equip/Sub	Crew Rate	Prod M/Hr	Labor	Total	
FOUNDATIONS											
Form Strip Footings	272	1,360	SF	\$ 1.50	\$	2,040.00	\$ -	\$ 51.66	0.200	\$ 14,051.52	\$ 16,091.52
Place Concrete	56	159	CY	\$ 91.25	\$	14,508.75	\$ -	\$ 46.11	0.350	\$ 2,566.02	\$ 17,074.77
Pump	0	159	CY	\$ -	\$	15.00	\$ 2,385.00	\$ -	\$ -	\$ -	\$ 2,385.00
Form Pad Footings	1,190	5,952	SF	\$ 1.50	\$	8,928.00	\$ -	\$ 51.66	0.200	\$ 61,496.06	\$ 70,424.06
Place Pad Footings	162	463	CY	\$ 91.25	\$	42,248.75	\$ -	\$ 46.11	0.350	\$ 7,472.13	\$ 49,720.88
Pump	0	463	CY	\$ -	\$	15.00	\$ 6,945.00	\$ -	\$ -	\$ -	\$ 6,945.00
Form Spread Footings	45	224	SF	\$ 1.50	\$	336.00	\$ -	\$ 51.66	0.200	\$ 2,314.37	\$ 2,650.37
Place Spread Footings	6	17	CY	\$ 91.25	\$	1,551.25	\$ -	\$ 46.11	0.350	\$ 274.35	\$ 1,825.60
Pump	0	17	CY	\$ -	\$	15.00	\$ 255.00	\$ -	\$ -	\$ -	\$ 255.00
Form Raft Slab	381	1,904	SF	\$ 1.50	\$	2,856.00	\$ -	\$ 51.66	0.200	\$ 19,672.13	\$ 22,528.13
Place Raft Slab Conc.	247	705	CY	\$ 91.25	\$	64,331.25	\$ -	\$ 46.11	0.350	\$ 11,377.64	\$ 75,708.89
Pump	0	705	CY	\$ -	\$	15.00	\$ 10,575.00	\$ -	\$ -	\$ -	\$ 10,575.00
SLAB-ON-GRADE											
<i>Interior Slab-on-Grade</i> Finish Crp Schedules											
Form Slab-on-Grade Edge	26	105	SF	\$ 1.50	\$	157.50	\$ -	\$ 53.63	0.250	\$ 1,407.79	\$ 1,565.29
Place Slab-on-Grade Conc.	142	285	CY	\$ 101.25	\$	28,837.27	\$ -	\$ 49.62	0.500	\$ 7,066.20	\$ 35,903.46
Saw Cut Control Joints	0	2,526	LF	\$ -	\$	-	\$ 2,526.30	\$ -	\$ -	\$ -	\$ 2,526.30
Pump	0	285	CY	\$ -	\$	15.00	\$ 4,272.19	\$ -	\$ -	\$ -	\$ 4,272.19
FOUNDATION WALLS											
10" Foundation Wall Below Grade--1 Sided											
Form Foundation Wall	362	2,067	SF	\$ 1.50	\$	3,100.80	\$ -	\$ 51.66	0.175	\$ 18,688.52	\$ 21,789.32
Place Foundation Conc.	33	67	CY	\$ 88.75	\$	5,901.88	\$ -	\$ 46.11	0.500	\$ 1,533.16	\$ 7,435.03
Pump	0	67	CY	\$ -	\$	15.00	\$ 997.50	\$ -	\$ -	\$ -	\$ 997.50
12" Foundation Wall Below Grade--1 Sided											
Form Foundation Wall	3,396	19,404	SF	\$ 1.50	\$	29,106.00	\$ -	\$ 51.66	0.175	\$ 175,421.86	\$ 204,527.86
Place Foundation Conc.	359	719	CY	\$ 88.75	\$	63,781.67	\$ -	\$ 46.11	0.500	\$ 16,568.86	\$ 80,350.53
Pump	0	719	CY	\$ -	\$	15.00	\$ 10,780.00	\$ -	\$ -	\$ -	\$ 10,780.00
COLUMNS											
18x24 Columns											
Form Column	1,857	18,570	SF	\$ 1.50	\$	27,855.53	\$ -	\$ 54.48	0.100	\$ 101,171.28	\$ 129,026.81
Place Column Conc.	413	688	CY	\$ 103.25	\$	71,014.52	\$ -	\$ 46.11	0.600	\$ 19,028.45	\$ 90,042.98
Pump	0	688	CY	\$ -	\$	25.00	\$ 17,194.80	\$ -	\$ -	\$ -	\$ 17,194.80
24x36 Columns											
Form Column	11	114	SF	\$ 1.50	\$	171.00	\$ -	\$ 54.48	0.100	\$ 621.07	\$ 792.07
Place Column Conc.	3	4	CY	\$ 103.25	\$	435.72	\$ -	\$ 46.11	0.600	\$ 116.75	\$ 552.47
Pump	0	4	CY	\$ -	\$	15.00	\$ 63.30	\$ -	\$ -	\$ -	\$ 63.30
24x24 Columns											
Form Column	8	76	SF	\$ 1.50	\$	114.00	\$ -	\$ 54.48	0.100	\$ 414.05	\$ 528.05
Place Column Conc.	2	3	CY	\$ 103.28	\$	290.13	\$ -	\$ 46.11	0.600	\$ 77.74	\$ 367.87
Pump	0	3	CY	\$ -	\$	25.00	\$ 70.25	\$ -	\$ -	\$ -	\$ 70.25
12" Round Columns											
Form Column	3	31	SF	\$ 1.50	\$	45.93	\$ -	\$ 54.48	0.100	\$ 166.82	\$ 212.75
Place Column Conc.	2	3	CY	\$ 103.25	\$	284.97	\$ -	\$ 46.11	0.600	\$ 76.36	\$ 361.33
Pump	0	3	CY	\$ -	\$	35.00	\$ 96.60	\$ -	\$ -	\$ -	\$ 96.60
24" Round Columns											
Form Column	6	61	SF	\$ 1.50	\$	91.85	\$ -	\$ 54.48	0.100	\$ 333.58	\$ 425.43
Place Column Conc.	7	11	CY	\$ 103.25	\$	1,135.75	\$ -	\$ 46.11	0.600	\$ 304.33	\$ 1,440.08
Pump	0	11	CY	\$ -	\$	35.00	\$ 385.00	\$ -	\$ -	\$ -	\$ 385.00
CORE WALLS											
8" Core Walls											
Form Core Wall	1,022	11,359	SF	\$ 1.50	\$	17,038.79	\$ -	\$ 52.87	0.090	\$ 54,050.45	\$ 71,089.24
Place Core Wall Conc.	80	134	CY	\$ 88.75	\$	11,853.36	\$ -	\$ 46.11	0.600	\$ 3,695.04	\$ 15,548.41
Pump	0	134	CY	\$ -	\$	25.00	\$ 3,338.98	\$ -	\$ -	\$ -	\$ 3,338.98

SHEAR WALLS

12" Shear Walls

Form Shear Wall	47	471	SF	\$ 1.50	\$ 706.39		\$ -	\$ 54.48	0.100	\$ 2,565.60	\$ 3,271.99
Place Shear Wall Conc.	4	8	CY	\$ 103.25	\$ 856.59		\$ -	\$ 46.11	0.500	\$ 191.27	\$ 1,047.86
Pump	0	8	CY	\$ -	\$ -	\$ 35.00	\$ 290.37			\$ -	\$ 290.37

18" Shear Walls

Form Shear Wall	3,930	39,305	SF	\$ 1.50	\$ 58,957.04		\$ -	\$ 54.48	0.100	\$ 214,131.96	\$ 273,089.00
Place Shear Wall Conc.	546	1,092	CY	\$ 103.25	\$ 112,730.93		\$ -	\$ 46.11	0.500	\$ 25,172.03	\$ 137,902.96
Pump	0	1,092	CY	\$ -	\$ -	\$ 25.00	\$ 27,295.63			\$ -	\$ 27,295.63

1'-6"x1'-3" Link Beams

Form Shear Wall Link Beam	3	28	SF	\$ 1.50	\$ 41.25		\$ -	\$ 54.48	0.100	\$ 149.82	\$ 191.07
Place Shear Wall Link Beam Conc.	1	1	CY	\$ 103.25	\$ 103.25		\$ -	\$ 46.11	0.500	\$ 23.06	\$ 126.31
Pump	0	1	CY	\$ -	\$ -	\$ 25.00	\$ 25.00			\$ -	\$ 25.00

1'-6"x5'-0" Link Beams

Form Shear Wall Link Beam	191	1,910	SF	\$ 1.50	\$ 2,865.00		\$ -	\$ 54.48	0.100	\$ 10,405.68	\$ 13,270.68
Place Shear Wall Link Beam Conc.	27	53	CY	\$ 103.25	\$ 5,472.25		\$ -	\$ 46.11	0.500	\$ 1,221.92	\$ 6,694.17
Pump	0	53	CY	\$ -	\$ -	\$ 25.00	\$ 1,325.00			\$ -	\$ 1,325.00

ELEVATED SLABS

*Screed
Finish
C&P
w/white*

7 1/2" Elevated Slab

Form Elevated Slab	4,881	57,427	SF	\$ 1.50	\$ 86,139.90		\$ -	\$ 52.28	0.085	\$ 255,192.33	\$ 341,332.23
Form Elevated Slab Edge	205	820	SF	\$ 1.50	\$ 1,230.08		\$ -	\$ 52.28	0.250	\$ 10,718.05	\$ 11,948.13
Place Elevated Slab Conc.	465	1,329	CY	\$ 100.75	\$ 133,926.98		\$ -	\$ 46.11	0.350	\$ 21,452.91	\$ 155,379.88
Pump	0	1,329	CY	\$ -	\$ -	\$ 15.00	\$ 19,939.50			\$ -	\$ 19,939.50

7 1/2" Elevated Slab w/ Patch & Grind

Form Elevated Slab	20,832	245,082	SF	\$ 1.50	\$ 367,622.40		\$ -	\$ 52.28	0.085	\$ 1,089,093.61	\$ 1,456,716.01
Form Elevated Slab Edge	1,768	7,071	SF	\$ 1.50	\$ 10,606.50		\$ -	\$ 52.28	0.250	\$ 92,417.97	\$ 103,024.47
Place Elevated Slab Conc.	1,846	5,275	CY	\$ 100.75	\$ 531,461.29		\$ -	\$ 46.11	0.350	\$ 85,131.39	\$ 616,592.68
Grind Soffits	4,902	245,082	SF	\$ -	\$ -		\$ -	\$ 46.11	0.020	\$ 226,014.25	\$ 226,014.25
Finish Slab	46	5,593	SF	\$ -	\$ -		\$ -	\$ 46.11	0.008	\$ 2,114.54	\$ 2,114.54
Pump	0	0	CY	\$ -	\$ -	\$ 25.00	\$ -			\$ -	\$ -

9" Elevated Slab

Form Elevated Slab	480	5,650	SF	\$ 1.50	\$ 8,475.08		\$ -	\$ 52.28	0.085	\$ 25,107.69	\$ 33,582.77
Form Elevated Slab Edge	74	297	SF	\$ 1.50	\$ 445.73		\$ -	\$ 52.28	0.250	\$ 3,883.75	\$ 4,329.48
Place Elevated Slab Conc.	55	156	CY	\$ 100.75	\$ 15,762.34		\$ -	\$ 46.11	0.350	\$ 2,524.87	\$ 18,287.21
Grind Soffits	119	5,933	SF	\$ -	\$ -		\$ -	\$ 46.11	0.020	\$ 5,471.00	\$ 5,471.00
Pump	0	156	CY	\$ -	\$ -	\$ 30.00	\$ 4,693.50			\$ -	\$ 4,693.50

10" Elevated Slab

Form Elevated Slab	280	3,294	SF	\$ 1.50	\$ 4,940.78		\$ -	\$ 52.28	0.085	\$ 14,637.21	\$ 19,577.99
Form Elevated Slab Edge	37	147	SF	\$ 1.50	\$ 220.50		\$ -	\$ 52.28	0.250	\$ 1,921.29	\$ 2,141.79
Place Elevated Slab Conc.	35	101	CY	\$ 100.75	\$ 10,155.60		\$ -	\$ 46.11	0.350	\$ 1,626.76	\$ 11,782.36
Grind Soffits	44	2,190	SF	\$ -	\$ -		\$ -	\$ 46.11	0.020	\$ 2,019.89	\$ 2,019.89
Pump	0	101	CY	\$ -	\$ -	\$ 30.00	\$ 3,024.00			\$ -	\$ 3,024.00

12" Elevated Slab

Form Elevated Slab	885	10,416	SF	\$ 1.50	\$ 15,624.00		\$ -	\$ 52.28	0.085	\$ 46,286.62	\$ 61,910.62
Form Elevated Slab Edge	302	1,210	SF	\$ 1.50	\$ 1,814.40		\$ -	\$ 52.28	0.250	\$ 15,809.47	\$ 17,623.87
Place Elevated Slab Conc.	135	385	CY	\$ 100.75	\$ 38,824.01		\$ -	\$ 46.11	0.350	\$ 6,218.97	\$ 45,042.98
Grind Soffits	219	10,937	SF	\$ -	\$ -		\$ -	\$ 46.11	0.020	\$ 10,085.92	\$ 10,085.92
Pump	0	385	CY	\$ -	\$ -	\$ 30.00	\$ 11,560.50			\$ -	\$ 11,560.50

4" Topping Slab Over Foam Fill

Form Elevated Slab	32	375	SF	\$ 1.50	\$ 562.28		\$ -	\$ 52.28	0.085	\$ 1,665.76	\$ 2,228.03
Form Elevated Slab Edge	11	46	SF	\$ 1.50	\$ 68.91		\$ -	\$ 52.28	0.250	\$ 600.40	\$ 669.31
Place Elevated Slab Conc.	7	5	CY	\$ 100.75	\$ 489.56		\$ -	\$ 46.11	1.500	\$ 336.08	\$ 825.65
Pump	0	5	CY	\$ -	\$ -	\$ 15.00	\$ 72.89			\$ -	\$ 72.89

3'-9" x 8" Drop Bands

Form Drop Band	123	1,444	SF	\$ 1.50	\$ 2,165.50		\$ -	\$ 52.28	0.085	\$ 6,415.37	\$ 8,580.87	
Place Drop Band Conc.	21	85	CY	\$ 100.75	\$ 8,558.71		\$ -	\$ 52.28	0.250	\$ 1,110.30	\$ 9,669.01	
Pump	30	85	CY	\$ -	\$ -	\$ 25.00	\$ 2,123.75		\$ 46.11	0.350	\$ 1,370.97	\$ 3,494.72

2'-10 1/2" x 8" Drop Bands

Form Drop Band	0	168	SF	\$ 1.50	\$ 251.74		\$ -			\$ -	\$ 251.74
Place Drop Band Conc.	0	12	CY	\$ 100.75	\$ 1,163.66		\$ -			\$ -	\$ 1,163.66
Pump	0	12	CY	\$ -	\$ -	\$ 25.00	\$ 288.75			\$ -	\$ 288.75

SLAB ON METAL DECK

2 1/2" Slab on Metal Deck

Place SOMD Conc.	457	305	CY	\$ -	\$ -	\$ 46.11	1.500	\$ 21,060.74	\$ 21,060.74
Finish SOMD	19	2,349	SF	\$ -	\$ -	\$ 47.11	0.008	\$ 907.37	\$ 907.37
Pump	0	305	CY	\$ -	\$ 20.00	\$ 6,090.00		\$ -	\$ 6,090.00
				\$ -		\$ -		\$ -	\$ -
				\$ -		\$ -		\$ -	\$ -
Winter Protection		1	LS	\$ -	\$ 150,000.00	\$ 150,000.00		\$ -	\$ 150,000.00
Misc. Rebar		1	LS	\$ -		\$ -		\$ -	\$ -
Stud Rails		1	LS	\$ -		\$ -		\$ -	\$ -
Temporary Rails @ Perimeter		1	LS	\$ -	\$ 115,505.00	\$ 115,505.00		\$ -	\$ 115,505.00
Tower Crane Estimate		1	LS	\$ -	\$ 958,668.00	\$ 958,668.00		\$ -	\$ 958,668.00
Mobile Cranes		1	LS	\$ -	\$ 50,000.00	\$ 50,000.00		\$ -	\$ 50,000.00
Structure Overhead		1	LS	\$ -	\$ 1,277,190.00	\$ 1,277,190.00		\$ -	\$ 1,277,190.00
Subtotal				\$ 1,820,259.27		\$ 2,687,976.80		\$ 2,725,023.35	\$ 7,233,259.41

Labor \$ 2,725,023.35
Materials \$ 1,820,259.27
Equip/Sub \$ 2,687,976.80

FEE on Self Performed Work **3.6%** \$ 272,502.33

Sub Total \$ 7,505,761.75

Total Concrete Cost \$ 7,505,761.75

Downtown Condominium Project

Bid Recap:

Description	AC/DC Electric Company	PB Electric	Bulls Eye Electrical
Total Cost	\$ 3,143,510.00	\$ 3,175,000.00	\$ 6,123,321.00
By Owner			
Design Fee	\$ 1,292,645.00	\$ 1,535,270.00	
Residential Units	\$ 299,940.00	\$ 301,330.00	\$ 631,867.00
Commons Areas	\$ 785,595.00	\$ 597,500.00	\$ 2,251,402.00
Service	\$ 84,110.00	\$ 239,000.00	\$ 195,295.00
Equipment Connections	\$ 235,510.00	\$ 155,350.00	\$ 711,926.00
Fire Alarm	\$ 133,420.00	\$ 119,500.00	
Generator	\$ 188,440.00	\$ 59,750.00	\$ 363,054.00
Telecom/CATV Systems	\$ 123,850.00	inc. w/ CCTV	
Security Systems	\$ 31,140.00	\$ 167,300.00	\$ 163,520.00
CCTV Camera System			
Video Surveillance System			
Temp Power			
Utility Company Charges			
Excluded			
By Owner			
Electrical Permit	\$ 45,000.00		\$ 62,605.00
Warranty Costs	\$ 50,000.00		
Parking- Onsite	Not Permitted		
Optional cameras in lobby			
Offsite Parking add		included	
GC's	\$ 30,000.00		\$ 1,098,638.00
BONDABLE	yes	yes	yes
PER PLANS AND SPECS	yes	yes	yes
Sales Tax			
ADDENDUM 1 & 2	yes	yes	no - just addenda 1
UNION /NON UNION		union	union
ELECTRICAL	\$ 3,204,650.00	\$ 3,175,000.00	\$ 5,478,307.00
Totals	\$ 3,143,510.00	\$ 3,175,000.00	\$ 6,123,321.00

PRIHD Development Partnership
SECOND & BROAD PROJECT

Narrative of Risks for Electrical Scope of Work

While the design-build relationship provides opportunity for flexibility, cooperation and fine-tuning, the selection of a favorable subcontractor still involves great risk. In general, all three electrical quotes offered a seemingly fully scoped, adequately staffed, and financially stable option for the downtown condominium project. In the end, we have placed our trust in the merits of PB Electric as our partner. PB offered the finished product at a competitively low price. Their estimate on parking garage lighting closely matched our in-house take-off. PB's scope covered the required specifications with few frills. The fact that they are bondable reveals some financial security. Furthermore, they demonstrated significant focus on value and reliability. Unfortunately, even PB Electric presents potential for risk. For example, PB has teamed with Diamond Engineering, whom we have little information and no relationship, for this project. Also, as a union contractor, they may introduce logistical and scheduling frustrations. The other electrical firms presented similar concerns, mainly high costs and lack of bid exactness. Still, we feel that PB is the best option and, having identified the risks, will work to mitigate them ahead of time.

Act ID	Description	Original Duration	Early Start	Early Finish	Total Post	Phase
Preconstruction						
1	Notice to Proceed	0	14/FEB/08		898d	PREC
5	Preliminary Budget	15d	14/FEB/08	05/MAR/08	0	PREC
77	Coordination Meeting with City & DOT	1d	14/FEB/08	14/FEB/08	897d	PREC
3	Mechanical Preliminary Design	15d	06/MAR/08	26/MAR/08	868d	PREC
8	RFP to Electrical Contractors	10d	06/MAR/08	19/MAR/08	20d	PREC
46	Preliminary Schedule Review	5d	06/MAR/08	12/MAR/08	876d	PREC
47	First Budget Meeting	1d	06/MAR/08	06/MAR/08	882d	PREC
49	Preliminary Structural Design	30d	06/MAR/08	16/APR/08	0	PREC
45	Interview Potential Electrical Contractors	5d	20/MAR/08	26/MAR/08	20d	PREC
44	Select Electrical Contractor	5d	27/MAR/08	02/APR/08	20d	PREC
51	Electrical Design Complete	20d	03/APR/08	30/APR/08	20d	PREC
48	Structural Design Review	15d	17/APR/08	07/MAY/08	798d	PREC
50	Construction Site Impact Study	25d	17/APR/08	21/MAY/08	0	PREC
73	Key Player Coordination Meeting	1d	17/APR/08	17/APR/08	852d	PREC
74	Procure Concrete Pricing	25d	17/APR/08	21/MAY/08	826d	PREC
52	Project Design Complete	0	01/MAY/08	30/APR/08	20d	PREC
75	RFP Value Engineering	15d	01/MAY/08	21/MAY/08	828d	PREC
53	Constructability Review	15d	08/MAY/08	29/MAY/08	798d	PREC
54	Final Budget Review	5d	22/MAY/08	29/MAY/08	0	PREC
56	Procure City Permits & Approvals	1d	22/MAY/08	22/MAY/08	827d	PREC
2	GMF Estimate	10d	30/MAY/08	12/JUN/08	0	PREC
76	LEED Analysis	25d	30/MAY/08	03/JUL/08	798d	PREC
4	Contract Awarded	0	13/JUN/08		0	PREC
Construction						
6	Demolition	25d	13/JUN/08	18/JUL/08	0	CONS
7	Excavation	30d	21/JUL/08	29/AUG/08	0	CONS
12	Shoring-Soil Nailing	30d	24/JUL/08	04/SEP/08	0	CONS
9	Underground Utilities	15d	05/SEP/08	25/SEP/08	0	CONS
72	Asphalt	3d	03/SEP/09	08/SEP/09	483d	CONS
Structure						
58	FRPS Tower Crane Block	1d	05/SEP/08	05/SEP/08	752d	CONS
28	Mobilize Tower Crane	2d	08/SEP/08	09/SEP/08	752d	CONS
59	Typical Parking (Level 4)	35d	26/SEP/08	13/NOV/08	0	CONS
58	Form	5d	26/SEP/08	02/OCT/08	705d	CONS
60	Reinforce	10d	03/OCT/08	16/OCT/08	705d	CONS
61	Pour	12d	17/OCT/08	03/NOV/08	705d	CONS
62	Post-Tension	5d	04/NOV/08	10/NOV/08	705d	CONS
63	Cure	3d	11/NOV/08	13/NOV/08	705d	CONS
10	Parking Level 3	30d	14/NOV/08	30/DEC/08	0	CONS
11	Parking Level 2	30d	31/DEC/08	11/FEB/09	0	CONS
13	Parking Level 1	30d	12/FEB/09	25/MAR/09	0	CONS
15	Typical Residential (Ground Level)	20d	26/MAR/09	22/APR/09	0	CONS
14	Level 2	15d	23/APR/09	13/MAY/09	0	CONS
16	Level 3	20d	14/MAY/09	11/JUN/09	0	CONS
17	Level 4	20d	12/JUN/09	10/JUL/09	30d	CONS
18	Level 5	15d	13/JUL/09	31/JUL/09	65d	CONS
19	Level 6	15d	09/AUG/09	21/AUG/09	362d	CONS
20	Level 7	15d	24/JUL/09	14/SEP/09	362d	CONS
21	Level 8	15d	15/SEP/09	05/OCT/09	362d	CONS
22	Level 9	15d	06/OCT/09	28/OCT/09	362d	CONS
23	Level 10	15d	27/OCT/09	16/NOV/09	362d	CONS
24	Level 11	15d	17/NOV/09	09/DEC/09	362d	CONS
25	Penthouse Floor	15d	10/DEC/09	31/DEC/09	362d	CONS
26	Penthouse Roof	15d	04/JAN/10	22/JAN/10	362d	CONS
27	Structure Complete	0		22/JAN/10	362d	CONS
Finish						
37	Metal Stud Framing	8d	12/JUN/09	24/JUN/09	483d	CONS
71	Typical Residential Finish (Ground Level)	50d	12/JUN/09	21/AUG/09	0	CONS
29	Masonry	12d	25/JUN/09	13/JUL/09	483d	CONS
35	Rough MEP	8d	25/JUN/09	07/JUL/09	510d	CONS
38	Drywall	18d	08/JUL/09	31/JUL/09	510d	CONS

- Notice to Proceed
- Preliminary Budget
- Coordination Meeting with City & DOT
- Mechanical Preliminary Design
- RFP to Electrical Contractors
- Preliminary Schedule Review
- First Budget Meeting
- Preliminary Structural Design
- Interview Potential Electrical Contractors
- Select Electrical Contractor
- Electrical Design Complete
- Structural Design Review
- Construction Site Impact Study
- Key Player Coordination Meeting
- Procure Concrete Pricing
- Project Design Complete
- RFP Value Engineering
- Constructability Review
- Final Budget Review
- Procure City Permits & Approvals
- GMF Estimate
- LEED Analysis
- Contract Awarded

- Demolition
- Excavation
- Shoring-Soil Nailing
- Underground Utilities
- Asphalt

- FRPS Tower Crane Block
- Mobilize Tower Crane
- Typical Parking (Level 4)
- Form
- Reinforce
- Pour
- Post-Tension
- Cure
- Parking Level 3
- Parking Level 2
- Parking Level 1
- Typical Residential (Ground Level)
- Level 3
- Level 4
- Level 5
- Level 6
- Level 7
- Level 8
- Level 9
- Level 10
- Level 11
- Penthouse Floor
- Penthouse Roof
- Structure Complete

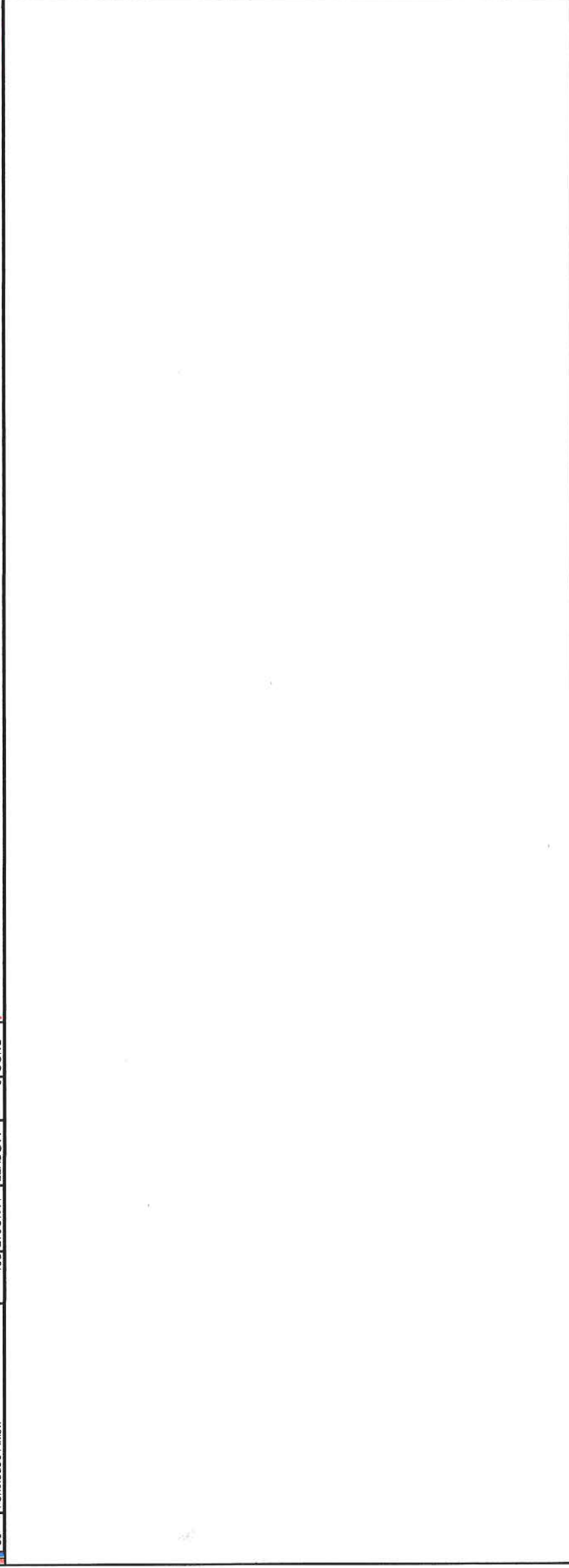
- Metal Stud Framing
- Typical Residential Finish (Ground Level)
- Masonry
- Rough MEP
- Drywall

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Sarmlisborne point
- Finish miss/bite point

**Banner Group
 Downtown Condominium Project**

Start date	14/FEB/08
Finish date	22/AUG/11
Run date	14/FEB/08
Run date	14/FEB/08
Page number	1A
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Act ID	Description	Original Duration	Early Start	Early Finish	Total Float	Phase
30	Strefront	10d	14JUL09	27JUL09	483d	CONS
31	Windows	10d	28JUL09	10AUG09	483d	CONS
39	Paint	3d	03AUG09	05AUG09	510d	CONS
36	Finish MEP	8d	06AUG09	17AUG09	514d	CONS
40	Flooring	12d	06AUG09	21AUG09	510d	CONS
32	Metal Panels	10d	11AUG09	24AUG09	483d	CONS
78	Level 2 Finish	50d	24AUG09	02NOV09	0	CONS
33	Steel Balcony Railings	5d	25AUG09	31AUG09	483d	CONS
57	Tear Down Tower Crane	2d	01SEP09	02SEP09	483d	CONS
70	Final Inspections	1d	01SEP09	01SEP09	492d	CONS
86	Certificate of Occupancy	1d	02SEP09	02SEP09	492d	CONS
64	Punch List	10d	03SEP09	17SEP09	483d	CONS
43	Final Grade	5d	03SEP09	15SEP09	483d	CONS
55	Landscaping	10d	16SEP09	26SEP09	483d	CONS
67	Final Completion	1d	30SEP09	30SEP09	483d	CONS
65	Contract Complete	0	01OCT09	30SEP09	483d	CONS
79	Level 3 Finish	50d	03NOV09	15JAN10	0	CONS
80	Level 4 Finish	50d	18JAN10	26MAR10	0	CONS
41	Roof Decking	20d	25JAN10	19FEB10	362d	CONS
42	Elevators	20d	25JAN10	19FEB10	385d	CONS
34	Roof System	20d	22FEB10	19MAR10	362d	CONS
59	Fly Air Handling Units	3d	22MAR10	24MAR10	362d	CONS
82	Level 5 Finish	50d	29MAR10	07JUN10	0	CONS
84	Level 6 Finish	50d	08JUN10	17AUG10	0	CONS
85	Level 7 Finish	45d	18AUG10	20OCT10	0	CONS
86	Level 8 Finish	45d	21OCT10	24DEC10	0	CONS
83	Level 9 Finish	45d	27DEC10	25FEB11	0	CONS
81	Level 10 Finish	45d	28FEB11	29APR11	0	CONS
87	Level 11 Finish	40d	02MAY11	24JUN11	0	CONS
88	Pen House Finish	40d	27JUN11	22AUG11	0	CONS



**Banner Group
Downtown Condominium Project**

Start date	14FEB08
Finish date	22AUG11
Date	14FEB08
Run date	14FEB08
Page number	2A
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The Downtown Condo Project

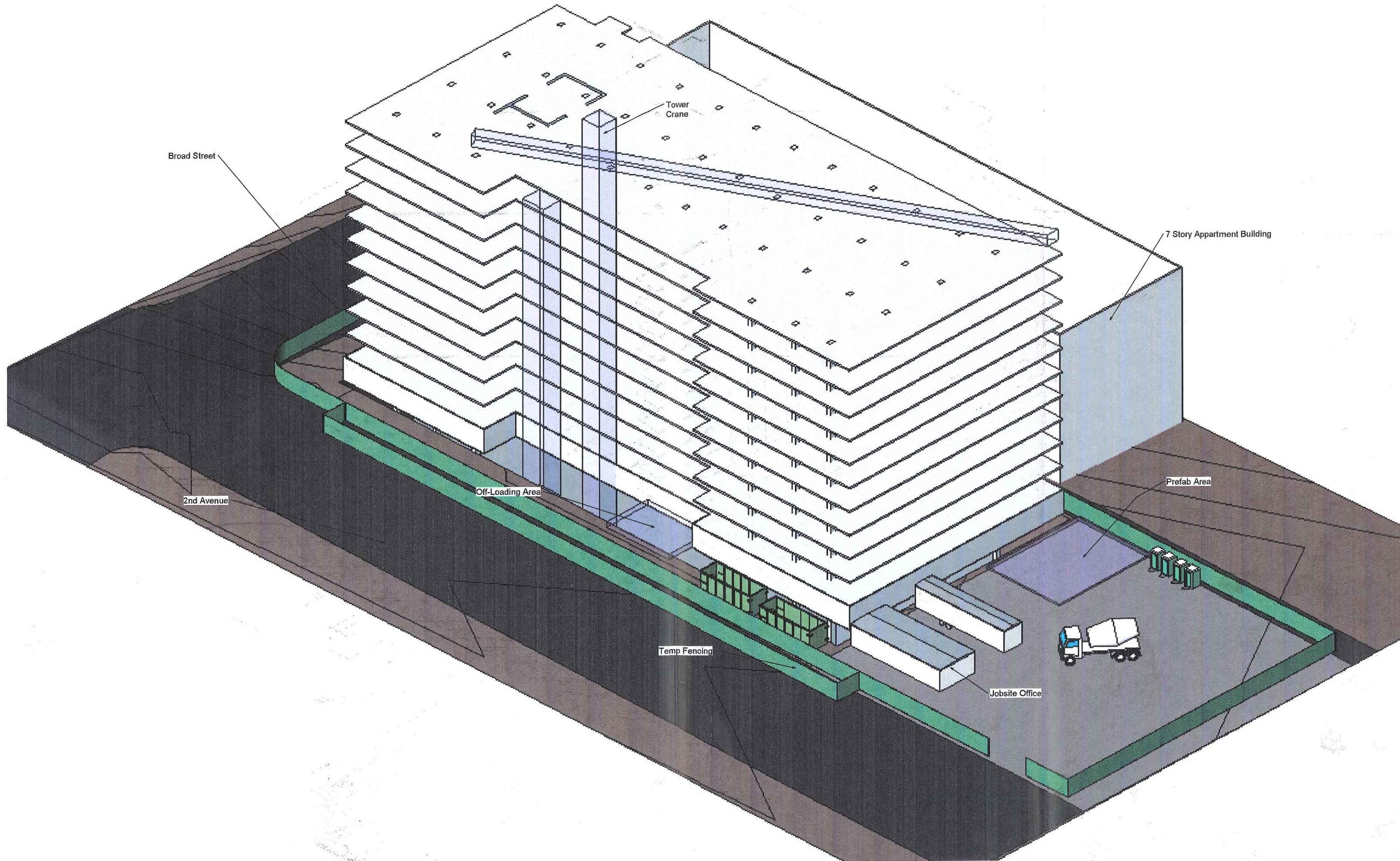
Scheduling Duration Areas



		Misc. Work				Notes/Comments
		Rate/Day	Qty		Duration (Days)	
	Demolition	25,000	625000.00	CF	25	
	Mass Excavation	750	22100.00	CY	29.5	
	Shoring- Soil Nailing	450	13940.00	SF	31.0	
	Footings	95	1345.00	CY	14.2	
Floors	Level	Concrete Work- Deck Cycle				Notes/Comments
		Rate/Wk	SF		Duration(WKS)	
1	P4 SOG	10,000	20000		2.0	
2	P3	8,000	23,472		2.9	
3	P2 Elevated Deck	8,000	20,115		2.5	
	P1 "	8,000	20,459		2.6	
5	Ground Lvl	6,000	22,980		3.8	
6	L2	6,000	16,895		2.8	
7	L3	6,000	24,190		4.0	
8	L4	6,000	22,510		3.8	
9	L5	6,000	21,989		3.7	
10	L6	6,000	18,450		3.1	
11	L7	6,000	16,808		2.8	
12	L8	6,000	18,452		3.1	
13	L9	6,000	18,452		3.1	
14	L10	6,000	18,452		3.1	
15	L11	6,000	18,452		3.1	
16	L12	6,000	10,570		1.8	
17	Penthouse Floor Slab	6,000	10,570		1.8	
	Penthouse Roof	6,000	10,570		1.8	
Totals			313,386		49.6	-
					11.4	-

Start by Determining Quantities
Use Gross Floor Areas (GFA)

Sample Site Plan



Broad Street

Tower Crane

7 Story Apartment Building

2nd Avenue

Off-Loading Area

Prefab Area

Temp Fencing

Jobsite Office

PRIHD Development Partnership
SECOND & BROAD PROJECT

Site Logistics Narrative:

An effective and efficient site plan is critical for projects as confined as the Downtown Condominium Project. It is imperative that the site be well thought-out in order to maximize the production of activities and minimize relocation costs and delays. Our team of experienced superintendents and project managers has compiled a viable solution to the logistics problems which accompany this project. Along with seasoned experience, we have integrated the progressive use of virtual construction modeling to eliminate problems long before they ever have a chance to materialize.

In looking at the site as it stands today, there are several items which need to be addressed, starting with the need to maintain public safety. Site fences will be installed to detour the threat of attractive nuisances as well as reduce vandalism and theft. After reviewing the fee structure of the city for closing sidewalks, we have determined that we will construction pedestrian walkways along 2nd Avenue and Broad Street to accommodate pedestrian traffic while pedestrians might be at risk.

As far as vehicular traffic, we anticipate a need cut into 2nd Avenue to tie into existing utilities. We will need to obtain the proper permits and phase the work as to mitigate the effects on traffic flow. Aside from these encroachments, we see minimal impact on vehicular traffic. Depending on necessity, we might require the temporary closure of a single lane of East bound 2nd Avenue.

Construction traffic routes, including deliveries of materials and haul off of debris, are designed to facilitate on loading and offloading. The majority of our deliveries will be “just in time” and will occur at the earliest possible hour. Trucks will head East on 2nd Avenue and then pull off to the right for deliveries. Once the truck is empty, it will merge back onto 2nd Avenue and then turn right onto Broad Street. A secondary route is an option, through the site yard and onto the alley to the West of the site, then turning right onto Broad Street for exit. Through-out the demo process an additional haul route will be used as indicated on the site map and model.

In an effort to maintain control of the site, the job trailers will be placed in the parking lot north of the building. All necessary accommodations will be made with the property owner to lease the space needed for effective operations. Another financial consideration is the occupancy of the city’s parking meters along both 2nd and Broad.

A material hoist is planned to run up the East face of the building to allow for easier transportation of materials and workers. In addition, trash chutes will run down the East face of the building as well. These chutes will empty into dumpsters placed on the ground and will be close to 2nd Avenue for removal and pick up.

It was initially proposed that the crane will set in the main mechanical shaft for the majority of the project, but with a virtual model of the site, it was determined that a much smaller crane can be used if it is set in the center of the building on 2nd Avenue. The turning radius needed for the second option is 40’ less than if placed in the elevator shaft. Swing over streets and adjacent buildings is also reduced significantly.

Project: Downtown Condominium Project
 Owner: PRIDH Development
 A/E: Mithun

Area Summary



Area	Total GSF	SF Breakout:			Retail	Condo's	Condo Units (EA)	Parking Stalls (EA)	Comments
		Parking	Circ./Service	Condo's					
Parking L4	8963	8177	786	0	0	0	24		
Parking L3	25292	22625	2667	0	0	0	72		
Parking L2	25292	22625	2667	0	0	0	72		
Parking L1	21125	18458	2667	0	0	0	58		
Grnd Lvl	23318	5760	11265	4108	2185	4	2		
Level 2	17020	13206	1881	0	1933	4	18		
Level 3	21914	0	5212	0	15465	21	0	2 guest suites w/Circ/Service	
Level 4	21695	0	3332	0	18023	25	0		
Level 5	21641	0	3355	0	17945	25	0		
Level 6	21772	0	3326	0	17982	25	0		
Level 7	20145	0	3074	0	15211	14	0	Amenity Space w/Circ/Service	
Level 8	18742	0	1938	0	16120	20	0		
Level 9	18742	0	1983	0	16120	20	0		
Level 10	18742	0	1983	0	16120	20	0		
Level 11	18742	0	1983	0	16120	20	0		
Level 12	17720	0	1881	0	14305	18	0		
Penthouse	15145	0	1718	0	12099	7	0		
Totals	336010	90851	51718	4108	179628	223	246	369 Stalls/Unit	

1.10

Calculation of Heating and Cooling Loads & Cost

Cooling Load Analysis

	<u>Area (1)</u>		<u>Rate (2)</u>		<u>Load (4)</u>
Condos	129,201	sf	400	sf/ton	323 tons
Offices & Public Spaces	16,691	sf	275	sf/ton	61 tons
Retail	4,108	sf	275	sf/ton	15 tons
Total Basic Tonnage	150,000	sf	376.2838549	sf/ton (average)	398.6 tons

Heating Load Analysis

	<u>Area (1)</u>		<u>Rate (3)</u>		<u>Load (4)</u>
Condos	129,201	sf	85.54	BTU/sf	11,051,854 BTU's
Offices & Public Spaces	16,691	sf	85.54	BTU/sf	1,427,748 BTU's
Retail	4,108	sf	85.54	BTU/sf	351,398 BTU's
Total Basic BTUs	150,000	sf	85.54	BTU/sf	12,831,000 BTU's

Cost Analysis

	<u>Amt (5)</u>		<u>Cost (6)</u>		<u>Amount (7)</u>
Cooling (Chiller only)					
Basic tonnage	398.6	tons			
Diversity	90%				
Redundancy	0%				
Estimated Cooling \$	443	tons	450	\$/ton	\$ 199,317.61

Heating (Boiler only)					
Basic BTU's	12,831,000	BTUs			
Diversity	0%				
Redundancy	50%				
Estimated Heating \$	25,662,000	BTUs			
	25,662	MBH	25	\$/MBH	\$ 641,550.00

Notes:

- (1) Calculate areas from plans
- (2) Chose cooling rate from table of alternatives given in handouts
- (3) Calculate heat loss rate from information given in handouts (one rate for entire building)
- (4) Multiply the area by the rate to calculate cooling tons or heating BTU's
- (5) Use calculated tons and BTU's and from written PRIHD requirements provided, determine the diversity and redundancy percentages
- (6) From bids, determine the right Subcontractor cost to use for your estimate. Same sub for both chiller and boiler
- (7) Multiply the quantity by the selected sub rate to determine the estimated costs for heating and cooling
- (8) For heating, 1,000 BTUs = 1 MBH
- (9) Identify which subcontractor you used for pricing and why on the following sheet

Team _____

Mechanical Estimating Exercise

SUBCONTRACTOR SELECTED:

Seahawk HVAC

REASON FOR SELECTED SUBCONTRACTOR:

We selected Seahawk HVAC as the mechanical system because of the exactness in their takeoff and the value in their estimated price per unit volume.

"SF Method"
Lighting Load Analysis

Team _____

Parking Lighting - Washington		<u>Fixture A</u>	<u>Fixture B</u>
<u>Action</u>			
Calculate Watts Allowed By State to Light Parking Garage			
1 Parking Ramp Area (sf)	(Take-off Sheets A2.01-A2.05)	93,450.00	93,450.00
2 Lighting Power Allowance (Watts/sf)	(Find from info given to you)	0.20	0.20
3 Total Wattage Allowed by State	#1 * #2	18,690.00	18,690.00
Calculate # of Fixtures Allowed to Meet State Allowance using Wattage			
4 Watts/fixture	(Find from info given to you)	180.00	118.00
5 Quantity of Fixtures allowed to be used to stay below lighting power allowance	#3 / #4	103.83	158.39
Calculate # of Fixtures Required Using Lighting Specs			
6 Area (sf)/Fixture (Area each fixture will light)	This is given "Rule of Thumb" to use for this calculation	800.00	500.00
7 Number of fixtures required using square foot per fixture "Rule of Thumb"	#1 / #6	116.81	186.90
8 Total watts used if (sf) quantity is used	#7 * #4	21,026.25	22,054.20
9 Req'd watts/sf based on Lighting Specs	#8 / #1	0.23	0.24
Calculate Fixture Package Cost			
10 Cost per Fixture	(Find from info given to you)	700.00	395.00
11 Cost of Parking Lighting System	#7 * #10	81,768.75	73,825.50
12 Fixture Package Cost per sf	#11 / #1		
If line #9 exceeds #2, use the more accurate way of determining quantity of fixtures needed (Problem 2)	Does req'd fixture wattage/sf exceed State allowable wattage? If no, stop here. If yes, move to Problem 2	y	y
Notes:			

"Zonal Cavity Method" of determining the quantity of light maintained on the floor of a parking ramp

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fixture Type	IES FC req'd	Area (SF)	Length + Width	Ceiling Height	Rm Cavity Ratio	Coefficient of Utilization	Maint. Factor	Lumens per Lamp	Total Lumens Required	# of Lamps Required	Lamps per Fixture	# Fixtures Required	Watts per Fixture	Installed Watts	Installed Watts per SF	State Allowed Watts per SF
A	5	93450	1190	10	0.14	0.42	0.855	3200	1301169.59	406.6155	4	101.6539	180.0	18360.0	0.196	0.2
B	5	93450	1190	10	0.14	0.41	0.765	8500	1489717.84	175.26092	1	175.2609	118.0	20768.0	0.222	0.2

INFORMATION NEEDED:

- IES requires 5 foot-candles (FC) of light in a parking ramp (IES = Illuminating Engineering Society of North America)
- Room Cavity Ratio (RCR) Formula = $(IES\ FC) * (Height) * (Length + Width) / Area$ (Note: Length + width is for two sides/fl of the garage footprint only, not all 4 sides. This is provided for you.)
- Coefficient of Utilization (COU): This is a multiplier that accounts for light reflectivity based on design and garage materials (From COU Chart)
- Maintenance Factor (MF): This is a multiplier that accounts for light loss due to lamps aging and getting dirty and ballast factors (From MF Worksheet)
- Total Lumens required = $(IES\ FC) * (SF) / (COU) * (MF)$

- Number of lamps required = Total Lumens required / lumens per lamp
- Number of fixtures required = number of lamps required / lamps per fixture
- Number of fixtures installed = number of fixtures required rounded up to nearest whole #
- Watts per fixture = from information given
- Installed watts = (number of fixtures installed) * (watts per fixture)
- Installed watts per SF = Installed watts / Area
- State Allowed watts/SF = from State Table 15-1 information in Problem 1
- Cost per fixture from information given
- Total fixture package cost = (# of fixtures installed) * (cost per fixture)
- Cost per sf = (cost per fixture) / Area

CONCLUSION: Using this Zone Cavity Method:

- Is either fixture under the State allowed watts per SF? If so, which fixture? The Type A fixture is under the State allowed watts per SF. We have decided to use Type A fixtures throughout all parking garage areas. Although they are slightly more expensive, the fluorescent lamps satisfy the
- Which fixture would you include in your proposal and why?

Fixture Package Costs			
Fixture Type	Cost per fixture	Package Total \$	
		18	19
A	700.0	\$ 71,400.00	\$ 0.76
B	395.0	\$ 69,520.00	\$ 0.74

PRIHD Development Partnership

SECOND & BROAD PROJECT

LEED Narrative

As it stands, the Downtown Condominium Project, as specified in the design documents, is eligible for 37 LEED points. The structure is in the unique position of having already instinctively integrated into its design many of the basic concepts of LEED. With 37 points, the Downtown Condominium Project would receive a LEED Silver rating. The next LEED certification level, LEED Gold, would require 39 points. It is common practice, however, to attempt 3 additional points beyond the required level of certification as insurance in case one or more points is disqualified. So, for a safe attempt at LEED Gold, the project would require only an additional 5 points for a total of 42.

Fortunately, achieving these extra five points would require only minor changes to the specifications of the building and possibly at little additional cost to you the owner. The additional points break down as follows:

WEc3.1 and WEc3.2 (2 Points)– Water use reduction is not only eco-friendly but cost effective. The Downtown Condominium Project currently specifies toilets with 1.6 gallons per flush. By changing these to 1 gallon per flush toilets, installing waterless urinals in common areas, and requiring low-flow faucets and showerheads, we could reduce water use by more than 30% and gain 2 additional LEED points.

EQc4.3 (1 point) – Since the building already specifies low-emitting adhesives and paints, it would be extremely easy to achieve EQc4.3 by requiring that carpeted areas install low VOC carpet.

EQc4.4 (1 point) – Also not currently specified are low VOC composite wood products which would be simple to obtain and install.

EQc5.0 (1 point) – This credit is already 1/3 of the way complete with our current ventilation systems. Installing permanent entryway systems to capture dirt and particles and MERV 13 filters, upon completion of the building, would satisfy the requirement.