STEL MODULAR CONSTRUCTION: COST & SCHEDULE ANALYSIS

Affordable Housing

September 2021



steinberg hart









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I. PROJECT APPROACH



With ever-increasing construction costs driven by labor shortages and material cost escalations, developers are evaluating alternative means of construction to enable developments to "pencil". Modular/offsite/industrialized construction is often considered; however, the question of "what time and cost savings could we achieve by going modular" is typically met with either a range of percentages or "it depends".

Optimum Modular Solutions, an independent, third-party modular consulting firm, has assembled, coordinated, and collaborated with Steinberg Hart, C.W. Driver and Englekirk to prepare a conceptual design, ROM budget and schedule for an affordable housing project based on a steel volumetric modular system. A separate conceptual ROM budget and schedule was prepared based on conventional Type III construction and the comparison of modular vs. conventional costs and schedule were developed.

Onsite construction costs, building codes and seismic requirements vary per city and state; however, the basis of this study assumes a typicallysized downtown Los Angeles, California site with no significant topography issues or environmental remedial work. The site is assumed to be a vacant lot with minimal demolition requirements.

As is typical for most developments of this type, prevailing wages relating to the onsite work have been applied (prevailing wages do not apply to the modular fabrication completed offsite).

To maximize building height and density, steel volumetric modules have been utilized to allow for seven (7) stories of residential over the concrete podium level (wood volumetric modules cannot exceed five (5) stories; therefore, two extra podium levels would be required, which would increase the amount of onsite work and require one story of conventionallyconstructed units onsite).

There are several ways to design and construct steel volumetric modular projects and manufacturers have their preferences on chassis design, structural systems and connection details. For the purpose of this study, a non-proprietary system has been utilized. Wherever possible, "double-loaded corridor modules" (modules that include half of a unit either side of a portion of the corridor) have been used and based on the size of the units, the modules are 8' wide. Alternative designs could reduce onsite work along the mate lines within the units; however, would have potential trade-offs on the lengths of the units, other onsite work and transportation costs and logistics.

Concrete cores are utilized to carry lateral loads, which can be pre-cast or poured-in-place. Steel braced-framed cores are an alternative option; however, require multiple structural, fire proofing and finish trades to complete. Sheer wall steel volumetric systems could be utilized in lieu of structural cores for limited height structures.

This study assumes that a portion of the exterior façade system is site-installed by the general contractor, after the modules have been set. As much of the façade system as possible is installed with the modules.

For optimum efficiency and to greatly reduce the time taken to "dry-in" the building after the last unit modules have been set, prefabricated roof modules with rigid insulation, cover board, membrane and parapet walls are used as a basis for this study. Only minimal mate line and seam work would be required to be completed onsite by the general contractor.

The information contained within this document should be considered a guide to modular design, pricing and scheduling and is not intended to be a definitive solution, as there are multiple factors that impact projects of this type.

	Conventional Type III over Podium	Steel Volumetric Modular over Podium	Savings	Savings %
Total Project Hard Costs	\$34,174,354	\$29,647,258	\$4,527,096	13%
Cost per Unit	\$221,911	\$192,515	\$29,396	13%
Cost per Gross Floor Area (GFA)	\$461	\$399	\$62	13%
Construction Schedule	16 Months	12 Months	4 Months	25%
Speed-To-Market Savings			\$1,032,880*	

TOTAL COST SAVINGS AND REVENUE CAPTURE BY GOING MODULAR \$4,527,096 + \$1,032,880

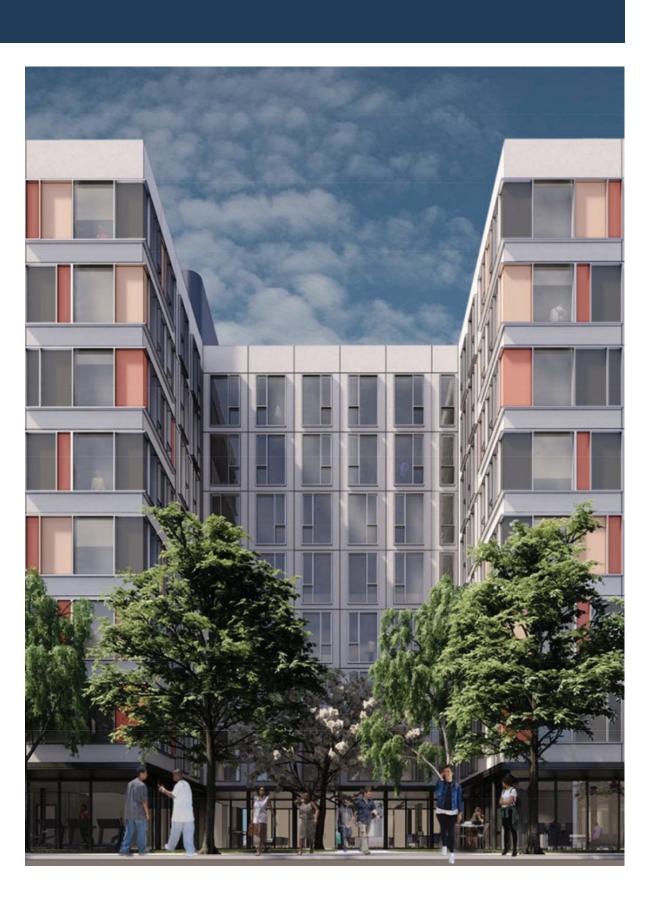
\$5,559,976

* represents 4 months of revenue gained from the compressed construction schedule, using the average rental revenue per month for the Los Angeles market.

CONVENTIONAL TYPE III OVER PODIUM

Total Hard Cost Budget	\$34,174,354
Total Construction Cost Per Unit	\$221,911

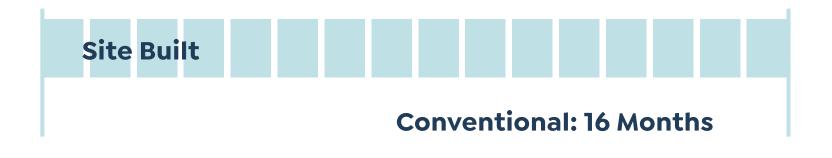
STEEL VOLUMETRIC MODULAR	
On-Site Budget	\$18,794,458
Off-Site Budget	\$10,852,800
Total Hard Cost Budget	\$29,647,258
Total Construction Cost Per Unit	\$192,515



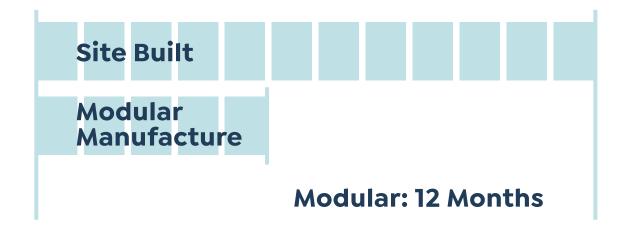
Note: See detailed cost analysis in Appendix

IV. SCHEDULE COMPARISON

CONVENTIONAL CONSTRUCTION DURATION

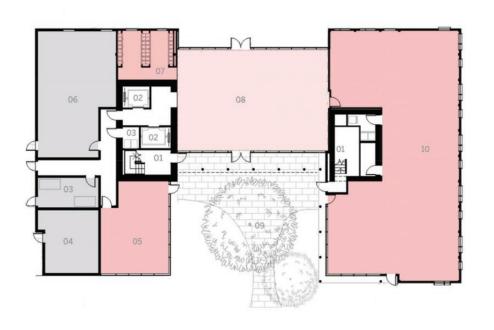


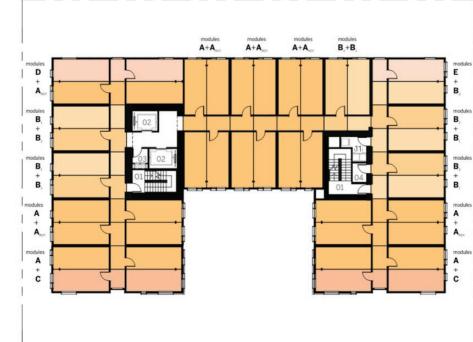
MODULAR CONSTRUCTION DURATION

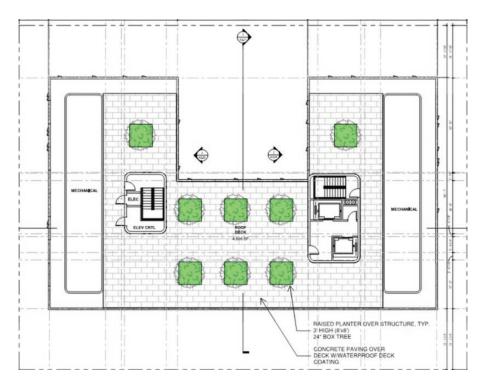


Note: See detailed Milestone Schedules in Appendix

V. BUILDING PLANS & SECTION







Ground Level Plan

Building Plan

- 01 Stair
- 02 Resident Elevators
- 03 Trash Room
- 04 Utility
- 06 Bike Parking 07 Mail Room
- 08 Lobby

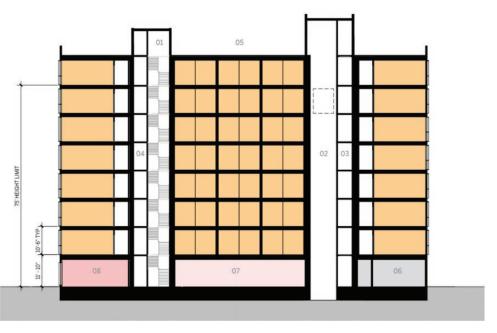
05 Amenity Space

- 09 Courtyard
- 10 Supportive Services
- 11 Laundry

	LEVEL	1-BD	TOTAL # OF UNITS	Net Rentable SF (NRSF)	Gross Building Area ¹ (GBA)	Amenity	Efficiency (NRSF/GBA)
	L8	22	22	7,203	9,381		77%
	L7	22	22	7,203	9,381		77%
RESIDENTIAL	L6	22	22	7,203	9,381		77%
LEVELS	L5	22	22	7,203	9,381		77%
LLVLLJ	L4	22	22	7,203	9,381		77%
	L3	22	22	7,203	9,381		77%
	L2	22	22	7,203	9,381		77%
GROUND FLOOR	L1	0	0	0	8,481	5,218	
	TOTALS	154	154	50,421	74,148	5,218	68%

Typical Residential Level

Roof Plan

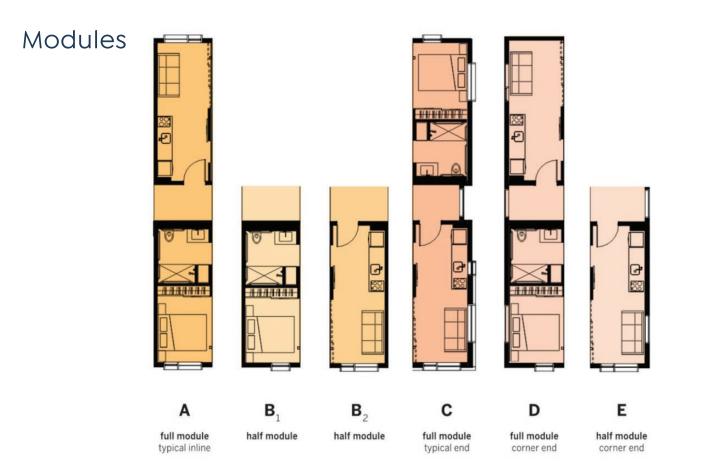


Section

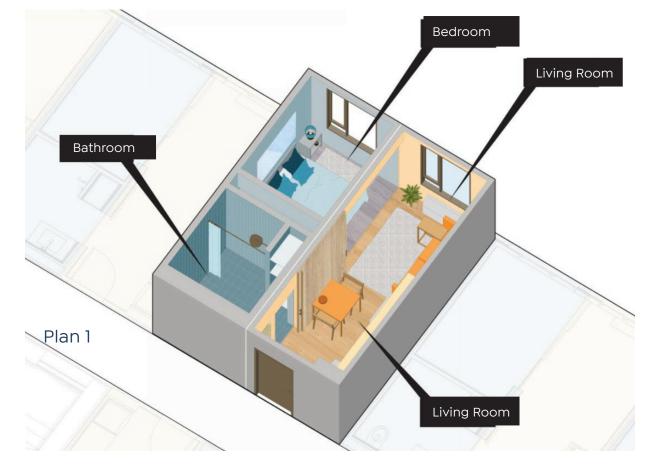
VI. RENDERING



VII. MODULES & UNIT PLANS



Unit Plans



STEEL MODULAR CONSTRUCTION: COST & SCHEDULE ANALYSIS

VIII. APPENDIX



CONCEPTUAL HARD COST BUDGET – STEEL VOLUMETRIC MODULAR

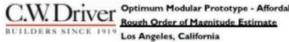
		Exec	utive Summary		July 19, 2021
CWDriver					
BUILDERS SINCE 1919	Optim	um Modul	lar Prototype - J	Affordable	
		Los	Angeles, California		
Building Better Communities	AND LIVES TOGETHER				
		Rough Ord	er of Magnitude Estimat	te	
Project Information					
			LOR CONTRACT		
Gross Site Area:	20,389 sf		1 1 3 3	M	
Gross Building Area:	74,148 sf		24 P. 19 P.		
Net Rentable/Saleable Area:	50,421 sf		ALL AND ALL		
Number of Cars:	- each		S. Bar Sh		In the second second
Number of Rooms:	154 each		A CONTRACTOR		
Number of Units:	154 each		SCHOOL IN		
Construction Schedule:	12 month	IS	Contraction of the		Carlos Carlos
Building Type:	Type I-B		R III		
Building Occupancy Type:	M/R-2			H. C.	
Building Efficiency:	76.78%		A STATE OF	G ARGA	All a start
Garage Area per Car:	N/A sf/car		- and	4 .	A GROND
Exterior Skin sf per Gross sf:	2.64%		A CONTRACTOR OF THE OWNER OF THE	A STATE OF THE OWNER	
Hard Building Constructio	n Systems Summary	Cost/gsf			
Foundations and Substructure		\$11.74	Hard Cost Syste	ms Summary	Foundations and Substructure Shell
Shell	\$5,581,763	\$75.28	0	N 0%	Interiors
Interiors	\$1,612,790	\$21.75	5%	and a state of the	Vertical Movement
Vertical Movement	\$878.000	\$11.84		5% 6%	Mechanical
Mechanical	\$1,892,482	\$25.52	15 85		Electrical
Electrical	\$1,622.075	\$21.88			Equipment & Furnishings
Equipment & Furnishings	\$191,875	\$2.59	10%	36%	Special Construction
Special Construction	\$1,168,672	\$15.76			Conste Work
General	\$826,186	\$11.14	128		Offsite Work
Onsite Work	\$898,405	\$12.12	110		Parking Structure Cost
Offsite Work	\$0	\$0.00	6%	10%	
Parking Structure Cost	\$0	\$0.00			
	A second s		-	and the second second	
	Total Hard Construction Costs		\$209.62 /gsf	\$15,542,634	
	Contingency	5.00%	\$10.48 /gsf	\$777,132	
	Escalation	0.00%	\$0.00 /gsf	\$0	
	SDI, GCs. Liability Insurance & Fee	15.92%	\$33.38 /gsf	\$2,474,692	
	Preconstruction	0.00%	\$0.00 /gsf	\$0	
	Prime Bond	0.00%	\$0.00 /gsf	\$0	
	Total Construction Cost			\$18,794,458	
	-				
	Total Construction Cost per Gi		\$253.47 /gsf \$372.75 /rsf		
	Total Construction Cost per Re		\$372.75 /rsf \$122.042 /room		
	Total Construction Cost per Ro Total Site Cost per Gross Site		\$122,042 /room \$56.25 /sf site		
	Total Parking Structure Cost p	er Stall	N/A /stall		

ONSITE BUDGET: \$18,794,458 OFFSITE BUDGET: \$10,852,800¹

TOTAL HARD COST BUDGET: \$29,647,258

Based on an average cost per modular SF of \$190 to include 1 manufacturing, taxes, offsite staging, transportation to the jobsite and the prefabricated roofing system.

Manufacturing and transportation costs will vary significantly depending upon where the modules are fabricated. The \$190 cost is a blended bottom-line rate based on data from both international and domestic U.S. manufacturers. For international manufacturers, production costs are often lower; however, shipping costs are higher and import fees and tariffs will apply.



	Optimum Modular Prototype - Affordable Rough Order of Magnitude Estimate Los Angeles, California CSI BUDGET SUMMARY July 19, 2021							Gross Residential Area = otal Number of Units = Total Rentable Area =	154	units	Printed: Date Prepared: Estimate No.: Gross Square Feet: Months On-Site: Includes Addenda: Estimator:	7/23/21 5:11 PM 19-jui-21 #217049 74,148 12.0 N/A SN, KP
* CSI#2012	Seq Description	Notes	Total	Levels 2-8	Level I	Indoor Amenity	Outdoor Amenity: Roof Deck	Onsite	Cost Rentable Sqft	Cost per Gross Residential Sqft	Cost per Unit	Cost per Overall Gross Sqft
000001	I Project Data											
010000	2 General Requirements		87,836	3,283	163	261	0	84,128	\$1.74	\$1.27		\$1.18
010530			99,165	6,567	326	522	0	91,751	\$1.97	\$1.44		\$1.34
015250			301,500	249,624	37,801	14,075	0	0	\$5.98	\$4.37		\$4.07
015610			100,223	33,239	7,114	11,376	16,166	32,329	\$1.99	\$1.45		\$1.35
015620			42.639	10,692	2,288	3,659	15,600	10,399	\$0.85	\$0.62		\$0.58
015723			29,678	0	0	0	0	29,678	\$0.59	\$0.43		\$0.40
017100			36,895	22,869	4,895	9,132	0	0	\$0.73	\$0.54		\$0.50
032000	47 Concrete Reinforcing		767.227	338,810	132,433	295,984	0	0	\$15.22	\$11.13		
033000	53 Cast-In-Place Concrete	Includes Precast Stair	1,679,123	801,978	308,474	568,671	0	0	\$33.30	\$24.36		\$22.65
033550			23,541	15,582	4,732	3,227	0	0	\$0.47	\$0.34		\$0.32 \$2.56
			259,653		0	0	216,432	43.221	\$5.15	\$3.77		\$3.50
042233	84 Brick & Interlocking Pavers		132,000	0	132,000	0	216,432	43,221	\$2.62	\$1.91		\$1.78
053000			8,770	8,770	132,000	0	0	0	\$0.17	\$0.13		\$0.12
055000			126,507	89,152	28,224	9,132	0	v	\$2.51	\$1.84		\$1.71
055100			78,060	29,810	48,250	9,132		0	\$1.55	\$1.13		\$1.05
055816			98,100	98,100	40,230	0	0	v	\$1.95	\$1.42		\$1.05
			20,235	20,235	0	0	0	0	\$0.40	\$0.29		\$0.27
061000			42,052	27,719	5,514	8,818	0	0	\$0.83	\$0.61		\$0.57
071000			46,162	0	9,792	8,618	34,678	1.692	\$0.92	\$0.67		\$0.62
072100			259,111	197,248	61,863	0	0	1,072	\$5.14	\$3.76		\$3.49
072200			2,447	0	2,447	0	-	0	\$0.05	\$0.04		\$0.03
072400		SF Allowance	1,107,424	1.026.150	81,274	0	0	0	\$21.96	\$16.07		\$14.94
074213		SF Allowance	661,439	556.028	105,411	0	0	0	\$13.12	\$9.60	The second s	\$8.92
075000		SF Allowance	134.730	134,730	0	0	0	0	\$2.67	\$1.95		\$1.82
076000			107.059	95,618	4,402	7,039	0	0	\$2.67	\$1.55		\$1.02
078400			54.041	47,124	6,917	0	0	0	\$1.07	\$0.76		\$0.73
079000			16,487	0	6,343	10,144	0	0	\$0.33	\$0.24		\$0.22
081100			89,100	63,000	26,100	0	0	0	\$1.77	\$1.29		\$1.20
083300			2,775	0	2,775	0	0	0	\$0.06	\$0.04		\$0.04
083400			129,600	113,400	16.200	0	0	0	\$2.57	\$1.88		\$1.75
084100			250,140	0	214,940	35.200	0	0	\$4.96	\$3.63		\$3.37
085100		Level I Only	51,870	0	51,870	0	0	0	\$1.03	\$0.75		\$0.70
087000		Core - Conf	42,188	29,438	12,750	0		0	\$0.84	\$0.61		\$0.57
092300			556,103	394,180	146,101	0	13,662	2,160	\$11.03	\$8.07		\$7.50
092900			733,505	506,130	126,009	101,366	0	0	\$14.55	\$10.64		\$9.89
093000			63,587	0	0	63,587	0	0	\$1.26	\$0.92		\$0.86
096500			116.289	91,673	747	23,869	0	0	\$2.31	\$1.69		\$1.57
099000			136,710	113,793	12,766	9,550	518	82		\$1.98		\$1.84
099623			16,506	0	16,506	0	0	0	\$0.33	\$0.24		
101500			50,421	44,654	2,219	3,548	0	0	\$1.00	\$0.73		\$0.68
104400			5,561	4.925	245	391	0	0	\$0.11	\$0.08		\$0.08
105500			19,744	19,744	0	0		0	\$0.39	\$0.29		\$0.27

VII. APPENDIX

CSI # 2012	Seq Description	Notes	Total	Levels 2-8	Level I	Indoor Amenity	Outdoor Amenity:	Onsite	Cost Rentable Sqft	and the strength and the	Cost per Unit	Cost per Overall
							Roof Deck			Residential Sqft		Gross Sqft
112423	365 Window Washing Systems		191,875	191,875	0	0	0	0	\$3.81	\$2.78	\$1,245.94	\$2.59
129300	436 Bike Parking		43,000	0	0	43,000	0	0	\$0.85	\$0.62	\$279.22	\$0.58
142100	470 Modular Elevators		848,000	742.000	106,000	0	0	0	\$16.82	\$12.30	\$5,506.49	\$11.44
142700	472 Custom Elevator Cab & Door	inishes	30,000	15,000	15,000	0	0	0	\$0.59	\$0.44	\$194,81	\$0.40
149182	488 Trash Chutes		24,000	21,000	3,000	0	0	0	\$0.48	\$0.35	\$155.84	\$0.32
210000	490 Fire-Suppression Systems		88,976	57,173	12,236	19,568	0	0	\$1.76	\$1.29	\$577.77	7 \$1.20
220000	501 Plumbing		1,004,285	913,259	49,282	41,744	0	0	\$19.92	\$14.57	\$6,521.33	\$13.54
230000	515 HVAC		793,660	656,670	32,630	104,360	0	0	\$15.74	\$11.51	\$5,153.64	\$10.70
260000	537 Electrical		854,915	627,401	77,496	150,018	0	0	\$16.96	\$12.40	\$5,551.40	\$11.53
265600	551 Misc. Site Lighting		48,422	0	0	0	0	48.422	\$0.96	\$0.70	\$314.43	\$0.65
273000	555 Voice Communications		401,141	355,258	17,653	28,229	0	0	\$7.96	\$5.82	\$2,604.81	\$5.41
281353	563 Security Access Detection		129,759	114,917	5,710	9,132	0	0	\$2.57	\$1.88	\$842.59	\$1.75
283000	565 Facility - Detection & Alarm		234,308	207,508	10,311	16,489	0	0	\$4.65	\$3.40	\$1,521.48	\$3.16
311000	568 Site Clearing/Earthwork		70,769	0	0	0	0	70,769	\$1.40	\$1.03	\$459.54	\$0.95
312500	578 Erosion Control		34,440	0	0	0	0	34,440	\$0.68	\$0.50	\$223.64	\$0.46
321313	610 Site Concrete Sidewalks & Pavi	6	40,061	0	0	0	0	40,061	\$0.79	\$0.58	\$260.14	\$0.54
329000	632 Landscape & Irrigation		220,183	0	0	0	51,260	168,923	\$4.37	\$3.19	\$1,429.76	\$2.97
331116	641 Site Domestic Water		27.235	0	0	0	0	27.235	\$0.54	\$0.40	\$176.85	\$0.37

CSI # 2012	Seq Description	Notes	Total	Levels 2-7	Level I	Garage	Indoor Amenity	Outdoor Amenity	Onsite	Cost Rentable Sqft	Cost per Gross Residential Sqft		Cost per Overall Gross
321700	618 Paving Specilaties, Striping, Bumpers & Signs		8,278	0	0	4,278	0	0	4,000	\$0.05	\$0.04	\$32.34	\$0.03
329000	632 Landscape & Irrigation		174,779	0	0	0	0	164,279	10,500	\$1.09	\$0.83	\$682.73	\$0.68
331116	641 Site Domestic Water		34,493	0	0	0	0	0	34,493	\$0.21	\$0.16	\$134.74	\$0.1
331119	642 Site Fire Protection Water Distribution		27,143	0	0	0	0	0	27,143	\$0.17	\$0.13	\$106.03	\$0.11
331233	644 Water Metering, Vaults & Pads		22,000	0	0	0	0	0	22.000	\$0.14	\$0.10	\$85.94	\$0.05
333000	651 Site Sanitary Sewerage Utilities		73,650	0	0	0	0	0	73,650	\$0.46	\$0.35	\$287.70	\$0.21
334000	654 Site Storm Drainage System		132,025	0	0	0	0	0	132.025	\$0.82	\$0.63	\$515.72	\$0.5
335100	661 Site Natural-Gas Distribution		2.673	0	0	0	0	0	2.673	\$0.02	\$0.01	\$10.44	\$0.0
337000	665 Site Electrical Utilities		128,204	0	0	0	0	0	128,204	\$0.80	\$0.61	\$500.80	\$0.50
412200	690 Cranes		722.500	510,000	85,000	85,000	0	42,500	0	\$4.49	\$3.44	\$2,822.27	\$2.8
481600	705 AB1701 Compliance Oversight		81,555	46,414	5,948	21,847	4,040	3,235	71	\$0.51	\$0.39	\$316.57	\$0.3
999999	706 Mate Lines/Rigging & Setting Allowance		1,150.000	1.150,000	0	0	0	0	0	\$7.14	\$5.48	\$4,492.19	\$4.4
	SUBTOTAL		51,490,090	28,428,255	3.611,153	13,269,411	2,496,126	2,324,134	1.361.012	\$319.77	\$245.46	\$201,133.16	\$200.8
010001	709 Contingency	5.00%	2,574,504	1,421,413	60,558	663,471	124,806	116,207	68,051	\$15.99	\$12.27	\$10,056.66	\$10.0
006150	711 SDE General Conditions, Liability Insurance & Fee	10.03%	5,165,083	2.851.700	362.243	1.331.084	250.392	233,139	136.526	\$32.08	\$24.62	\$20,176.11	\$20.
	Total Estimate		59,229,678	32,701,368	4,153,954	15,263,965	2,871,324	2,673,479	1,565,589	\$367.83	\$282.36	\$231,365.93	\$231.

CONCEPTUAL HARD COST BUDGET – CONVENTIONAL TYPE III OVER PODIUM

		Exec	utive Summary		July 19, 2021
C.W.Driver					
BUILDERS SINCE 1919	Conventiona	I Constr	uction Prototyp	e - Affordabl	e
BUILDING BETTER COMMUNITIES		Los A	Angeles, California		
BUILDING BETTER COMMUNITIES					
	Kou	igh Order of	Magnitude Estimate - T	уре Ш	
Project Information					
			TOTAL CALL CALL		No.
Gross Site Area:	20,389 sf				
Gross Building Area:	74,148 sf				
Net Rentable/Saleable Area:	50,421 sf		And And	la l	A Designed
Number of Cars:	- each		State State State		1 Destation
Number of Rooms:	I54 each		A AR AL		I CAR PAR
Number of Units:	I54 each		States II		The second second
Construction Schedule:	16 months				and the second
Building Type:	Type III				
Building Occupancy Type:	M/R-2				
Building Efficiency:	71.10%		AND STREET	CONTRACTOR OF	
Garage Area per Car:	N/A sf/car				A DENKE
Exterior Skin sf per Gross sf:	17.19%			A BELL	
Hard Building Constructio	n Systems Summary	Cost/gsf	Hard Contraction		
Foundations and Substructure	\$1,046,243	\$14.11	Hard Cost Syste		Foundations and Substructure Shell
Shell	\$10,766,092	\$145.20	15	0% 0% 0%	Interiors
Interiors	\$5,600,643	\$75.53	IN		Vertical Movement
Vertical Movement	\$750.000	\$10.11	6%		Mechanical
Mechanical	\$4,071,747	\$54.91			Electrical
Electrical	\$2,557,154	\$34.49	95	38%	Equipment & Furnishings
Equipment & Furnishings	\$931.075	\$12.56			Special Construction General
Special Construction	\$1,640,681	\$22.13	14%		Consite Work
General	\$251,986	\$3.40			Coffeite Work
Onsite Work	\$913,302	\$12.32			Parking Structure Cost
Offsite Work	\$0	\$0.00	25	20%	
Parking Structure Cost	\$0	\$0.00			
	Total Hard Construction Costs		\$384.76 /gsf	\$28,528,925	
	Contingency	5.00%	\$19.24 /gsf	\$1,426,446	
	Escalation	0.00%	\$0.00 /gsf	\$0	
	SDI, GCs. Liability Insurance & Fee	14.79%	\$56.90 /gsf	\$4,218,983	
	Preconstruction	0.00%	\$0.00 /gsf	\$0	
	Prime Bond	0.00%	\$0.00 /gsf	\$0	
	Total Construction Cost			\$34,174,354	
	Total Construction Cost per Gro	ss sf	\$460.89 /gsf		
	Total Construction Cost per Rent	table sf	\$677.78 /rsf		
	Total Construction Cost per Room		\$221,911 /room		
	Total Site Cost per Gross Site Ar	ea	\$62.71 /sf site		
	Total Parking Structure Cost per	Stall	N/A /stall		

TOTAL HARD COST BUDGET: \$34,174,354

VII. APPENDIX



C.W. Driver Conventional Construction Prototype - Affordable Rough Order of Magnitude Estimate - Type III BUILDERS SINCE 1919 Los Angeles, California

Gross Residential Area = Total Number of Units = Total Rentable Area =

CSI BUDGET SUMMARY

	303	
July 19	. 101	

010000 2 0 010530 4 5 015250 6 7 015610 11 6 015620 12 0 015723 13 5 017100 16 7 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 6 051000 93 5	Project Data General Requirements Survey & Layout Temporary Hoists Progressive Cleanup Dumpsters SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing	Notes	Total 191,686 104,263 401,500 242,970 103,707 34,478 120,090 986,061 1,952,326 40,575 108,045	Levels 4-8 2,345 4,691 262,276 110,562 35,360 0 75,760 119,795 373,789 23,7340	Levels 1-3 1,101 2,203 118,112 67,614 21,624 0 35,198 574,718	Indoor Amenity 261 522 21,112 16,019 5,123 0 9,132	Outdoor Amenity: <u>Roof Deck</u> 0 0 0 0 16,259 31,200 0	Onsite 187,978 96.848 0 32,516 10,399 34,478	Cost Rentable Sqft \$3.80 \$2.07 \$7.96 \$4.82 \$2.06 \$0.68	Cost per Gross Residential Sqft \$2.78 \$1.51 \$5.82 \$3.52 \$1.50 \$0.50	Cost per Unit \$1,244.71 \$677.03 \$2,607.14 \$1,577.73 \$673.42 \$223.88	\$1.41 \$5.41 \$3.28 \$1.40
010000 2 0 010530 4 5 015250 6 7 015610 11 6 015620 12 0 015723 13 5 017100 16 7 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 6 051000 93 5	General Requirements Survey & Layout Temporary Hoists Progressive Cleanup Dumpsters SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		104,263 401,500 242,970 103,707 34,478 120,090 986,061 1,952,326 40,575	4,691 262,276 110,562 35,360 0 75,760 119,795 373,789	2,203 118,112 67,614 21,624 0 35,198	522 21,112 16,019 5,123 0	0 16,259 31,200 0	96,848 0 32,516 10,399	\$2.07 \$7.96 \$4.82 \$2.06	\$1.51 \$5.82 \$3.52 \$1.50	\$677.03 \$2,607.14 \$1,577.73 \$673.42	\$1.41 \$5.41 \$3.28 \$1.40
010530 4 5 015250 6 7 015610 11 9 015620 12 0 015723 13 5 017100 16 9 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 9 051000 93 5	Survey & Layout Temporary Hoists Progressive Cleanup Dumpsters SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		104,263 401,500 242,970 103,707 34,478 120,090 986,061 1,952,326 40,575	4,691 262,276 110,562 35,360 0 75,760 119,795 373,789	2,203 118,112 67,614 21,624 0 35,198	522 21,112 16,019 5,123 0	0 16,259 31,200 0	96,848 0 32,516 10,399	\$2.07 \$7.96 \$4.82 \$2.06	\$1.51 \$5.82 \$3.52 \$1.50	\$677.03 \$2,607.14 \$1,577.73 \$673.42	\$1.41 \$5.41 \$3.28 \$1.40
015250 6 7 015610 11 F 015620 12 0 015723 13 5 017100 16 f 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 F 051000 93 5	Temporary Hoists Progressive Cleanup Dumpsters SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		401.500 242.970 103.707 34.478 120.090 986.061 1.952.326 40.575	262,276 110,562 35,360 0 75,760 119,795 373,789	118,112 67,614 21,624 0 35,198	21,112 16,019 5,123 0	0 16,259 31,200 0	0 32,516 10,399	\$7.96 \$4.82 \$2.06	\$5.82 \$3.52 \$1.50	\$2,607.14 \$1,577.73 \$673.42	\$5.41 \$3.28 \$1.40
015610 11 F 015620 12 C 015723 13 5 017100 16 F 032000 47 C 033000 53 C 033550 56 5 035413 68 C 042233 84 F 051000 93 5	Progressive Cleanup Dumpsters SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		242.970 103.707 34.478 120.090 986.061 1.952.326 40.575	110,562 35,360 0 75,760 119,795 373,789	67,614 21,624 0 35,198	16,019 5,123 0	16,259 31,200 0	10,399	\$4.82 \$2.06	\$3.52 \$1.50	\$1,577.73 \$673.42	\$3.28 \$1.40
015620 12 0 015723 13 5 017100 16 7 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 8 051000 93 5	Dumpsters SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		103.707 34.478 120.090 986.061 1.952.326 40.575	35,360 0 75,760 119,795 373,789	21,624 0 35,198	5,123	31,200 0	10,399	\$2.06	\$1.50	\$673.42	\$1.40
015723 13 5 017100 16 6 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 8 051000 93 5	SWPPP Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		34.478 120.090 986.061 1.952.326 40.575	0 75,760 119,795 373,789	0 35,198	0	0					
017100 16 0 032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 0 051000 93 5	Final Cleaning Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interlocking Pavers Structural Steel Framing		120.090 986.061 1,952.326 40.575	75.760 119.795 373.789	35,198			34,478	\$0.68	\$0.50	\$223.00	
032000 47 0 033000 53 0 033550 56 5 035413 68 0 042233 84 8 051000 93 5	Concrete Reinforcing Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		986.061 1,952,326 40,575	119,795 373,789		9,132	1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 - 1963 -				4443.00	\$0.46
033000 53 0 033550 56 5 035413 68 0 042233 84 8 051000 93 5	Cast-In-Place Concrete Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interfocking Pavers Structural Steel Framing		1,952,326 40,575	373,789	574,718		0	0	\$2.38	\$1.74	\$779.80	\$1.62
033550 56 5 035413 68 0 042233 84 8 051000 93 5	Sealed Concrete Flooring Gypsum Cement Underlayment Brick & Interlocking Pavers Structural Steel Framing		40,575			291,548	0	0	\$19.56	\$14.31	\$6,402.99	\$13.30
035413 68 0 042233 84 8 051000 93 9	Gypsum Cement Underlayment Brick & Interlocking Pavers Structural Steel Framing		1.	A3 314	1,009,867	568,671	0	0	\$38.72	\$28.32	\$12,677.44	\$26.33
042233 84 8 051000 93 5	Brick & Interlocking Pavers Structural Steel Framing		100.045	23,710	13,638	3,227	0	0	\$0.80	\$0.59	\$263.47	\$0.55
051000 93 5	Structural Steel Framing		108,045	108,045	0	0	0	0	\$2.14	\$1.57	\$701.59	\$1.46
			259,653	0	0	0	216,432	43,221	\$5.15	\$3.77	\$1,686.06	\$3.50
000000 101	Advent Palanteenteen		237,412	82,084	155,328	0	0	0	\$4.71	\$3.44	\$1,541.63	\$3.20
055000 104 1	Metal Fabrications		198,639	108,650	80,857	9,132	0	0	\$3.94	\$2.88	\$1,289.87	\$2.68
055100 105 1	Metal Stairs		434.250	289,500	144,750	0	0	0	\$8.61	\$6.30	\$2,819.81	\$5.86
055816 113 8	Equipment Screens		98,100	98,100	0	0	0	0	\$1.95	\$1.42	\$637.01	\$1.32
061000 118 1	Rough Carpentry		1,905,755	1,905,755	0	0	0	0	\$37.80	\$27.65	\$12,375.03	\$25.70
061733 121 \	Wood I-Joists		1,219,530	1,219,530	0	0	0	0	\$24.19	\$17.69	\$7,919.03	\$16.45
064100 130 /	Architectural Wood Casework		43,890	31,350	12,540	0	0	0	\$0.87	\$0.64	\$285.00	\$0.59
064600 134 8	Finish Carpentry		424,903	279,538	137,538	7,827	0	0	\$8.43	\$6.16	\$2,759.11	\$5.73
071000 144 \	Waterproofing		370,662	52,822	30,921	0	285,228	1,692	\$7.35	\$5.38	\$2,406.90	\$5.00
072100 149 1	Thermal Insulation		259,841	73,336	186,505	0	0	0	\$5.15	\$3.77	\$1,687.28	\$3.50
072200 150 8	Roof & Deck Insulation		23,555	7,036	16,519	0	0	0	\$0.47	\$0.34	\$152.95	\$0.32
072400 151 8	Exterior Insulation & Finish Systems (EIFS)	SF Allowance	1,107,424	824,338	283.085	0	0	0	\$21.96	\$16.07	\$7,191.06	
074213 161 1	Metal Wall Panels	SF Allowance	661,439	373,958	287,481	0	0	0	\$13.12	\$9.60	\$4,295.06	\$8.92
075000 165 1	Membrane Roofing		212,701	212,701	0	0	0	0	\$4.22	\$3.09	\$1,381.18	\$2.87
	Flashing & Sheet Metal		107,059	70,310	29,710	7,039	0	0	\$2.12	\$1.55	\$695.19	
	Firestopping & Safing		40,577	33,660	6,917	0	0	0	\$0.80	\$0.59	\$263.49	
	Joint Sealants & Caulking		25,952	16,417	7,709	1,826	0	0	\$0.51	\$0.38	\$168.52	\$0.35
	Metal Doors & Frames		139,150	83,750	55,400	0	0	0	\$2.76	\$2.02	\$903.57	
	Wood Doors		573,188	409,420	163,768	0		0	\$11.37	\$8.32	\$3.722.00	
	Coiling Doors & Grilles		2.775	0	2,775	0		0	\$0.06	\$0.04	\$18.02	
	Elevator Smoke Containment System		129,600	81,000	48,600	0	0	0	\$2.57	\$1.88	\$841.56	
	Entrances & Storefronts		250,140	0	214,940	35,200	0	0	\$4.96	\$3.63	\$1,624.29	
	Aluminum Windows	Level I Only	51,870	0	51,870	0		0	\$1.03	\$0.75	\$336.82	
	Vinyl Windows	And the second second	694.228	503.020	191.208	0		0	\$13.77	\$10.07	\$4,507.97	
	Finish Door Hardware		189.038	122,113	66.925	0		0	\$3.75	\$2.74	\$1,227.52	
	Gypsum Plastering		666,623	281,474	369,327	0		2,160	\$13.22	\$9.67	\$4,328.72	
	Gypsum Board & Metal Framing		1,667,831	516.375	1.050.090	101,366	0	2,100	\$33.08	\$24.20	\$10,830.07	
093000 247 1			63,587	310,373	1,030,070	63,587	0	0	\$1.26	\$0.92	\$412.90	
	Resilient Flooring & Base		494,107	336,031	134,208	23,869	0	0	\$9.80	\$7.17	\$3,208.49	
NOT THE REAL PROPERTY OF	Painting & Coating		743,233	514,881	208,292	19,460	518	82	\$14.74	\$10.78	\$4,826.19	
	Grafiti-Resistant Coatings		16,506	514,001	16,506	0	0	62	\$0.33	\$0.24	\$107.18	
	Interior Signage		50,421	31,895	14,977	3,548	0	0	\$0.33	\$0.24	\$107.18	

able Sqft	Cost per Gross Residential Soft	Cost per Unit	Cost per Overall Gross Soft
		Estimator:	SN, KP
		Includes Addenda:	N/A
		Months On-Site:	16.0
50,421	sf	Gross Square Feet:	74,148
154	units	Estimate No.:	#217049
68,930	sf	Date Prepared:	19-Jul-21
		Printed:	7/23/21 5:12 PM

CSI # 2012	Seq	Description	Notes	Total	Levels 4-8	Levels 1-3	Indoor Amenity	Outdoor Amenity: Roof Deck	Onsite	Cost Rentable Sqft	Cost per Gross Residential Sqft	Cost per Unit	Cost per Overall Gross Sqft
102813	322	Toilet Accessories		28,529	20,378	8,151	0	0	0	\$0.57	\$0.41	\$185.25	\$0.38
102818	323	Metal Framed Mirrors		15,554	11,110	4,444	0	0	c	\$0.31	\$0.23	\$101.00	\$0.21
104400	330	Fire Protection Specialties		5,561	3,518	1,652	391	0	c	\$0.11	\$0.08	\$36.11	\$0.08
105500	335	Postal Specialties		19,744	14,103	5,641	0	0	¢	\$0.39	\$0.29	\$128.21	\$0.27
105700	337	Wardrobe & Closet Specialties		17,787	12,705	5,082	0	0	0	\$0.35	\$0.26	\$115.50	\$0.24
112423	365	Window Washing Systems		191,875	191,875	0	0	0	c	\$3.81	\$2.78	\$1,245.94	\$2.59
113100	371	Residential Appliances & Equipment		739,200	528,000	211,200	0	0	C	\$14.66	\$10.72	\$4,800.00	\$9.97
122200	408	Roller Window Shades		45,335	32,382	12,953	0	0	0	\$0.90	\$0.66	\$294.38	\$0.61
123530	415	Residential Kitchen/Bath Casework		843,150	602,250	240,900	0	0	C	\$16.72	\$12.23	\$5,475.00	\$11.37
129300	436	Bike Parking		43,000	0	0	43,000	0	0	\$0.85	\$0.62	\$279.22	\$0.58
142100	470	Elevators		720,000	450,000	270,000	0	0	C	\$14.28	\$10.45	\$4,675.32	\$9.71
142700	472	Custom Elevator Cab & Door Finishes		30,000	15,000	15,000	0	0	0	\$0.59	\$0.44	\$194.81	\$0.40
149182	488	Trash Chutes		24,000	15,000	9,000	0	0	c	\$0.48	\$0.35	\$155.84	\$0.32
210000	490	Fire-Suppression Systems		278.055	175,894	82,594	19,568	0	0	\$5.51	\$4.03	\$1,805.55	\$3.75
220000	501	Plumbing		2,205,605	1,509,108	654,754	41,744	0	0	\$43.74	\$32.00	\$14,322.11	\$29.75
230000	515	HVAC		1,582,526	964,935	513,231	104,360	0	0	\$31.39	\$22.96	\$10,276.14	\$21.34
260000	537	Electrical		1,901,958	1,275,337	508,276	118,344	0	0	\$37.72	\$27.59	\$12,350.37	\$25.65

• CSI#2012	Seq Description	Notes	Total	Levels 4-8	Levels 1-3	Indoor Amenity	Outdoor Amenity: Roof Deck	Onsite	Cost Rentable Sqft	Cost per Gross Residential Sqft	Cost per Unit	Cost per Overall Gross Sqft
265600	0 551 Misc. Site Lighting		48,422	0	0	0	0	48.422	\$0.96	\$0.70	\$314.43	\$0.65
273000	0 555 Voice Communications		326,993	206,851	97,130	23,011	0	0	\$6.49	\$4.74	\$2,123.33	\$4.41
281353	3 563 Security Access Detection		129,759	82,084	38,544	9,132	0	0	\$2.57	\$1.88	\$842.59	\$1.75
283000	0 565 Facility - Detection & Alarm		196,492	124,298	58,366	13,828	0	0	\$3.90	\$2.85	\$1,275.92	\$2.65
311000	0 568 Site Clearing/Earthwork		75,769	0	0	0	0	75,769	\$1.50	\$1.10	\$492.01	\$1.02
312500	0 578 Erosion Control		34,440	0	0	0	0	34,440	\$0.68	\$0.50	\$223.64	\$0.46
321313	3 610 Site Concrete Sidewalks & Paving		40,061	0	0	0	0	40,061	\$0.79	\$0.58	\$260.14	\$0.54
329000	0 632 Landscape & Irrigation		220,183	0	0	0	51,260	168,923	\$4.37	\$3.19	\$1,429.76	\$2.97
331116	6 641 Site Domestic Water		27,235	0	0	0	0	27,235	\$0.54	\$0.40	\$176.85	\$0.37
331119	9 642 Site Fire Protection Water Distribution		19,885	0	0	0	0	19,885	\$0.39	\$0.29	\$129.13	\$0.27
331233	3 644 Water Metering, Vaults & Pads		22,000	0	0	0	0	22.000	\$0.44	\$0.32	\$142.86	\$0.30
333000	0 651 Site Sanitary Sewerage Utilities		48,275	0	0	0	0	48,275	\$0.96	\$0.70	\$313.47	\$0.65
334000	0 654 Site Storm Drainage System		147,980	0	0	0	0	147,980	\$2.93	\$2.15	\$960.91	\$2.00
335100	0 661 Site Natural-Gas Distribution		2.673	0	0	0	0	2.673	\$0.05	\$0.04	\$17.36	\$0.04
337000	0 665 Site Electrical Utilities		22,244	0	0	0	0	22.244	\$0.44	\$0.32	\$144.44	\$0.30
412200	0 690 Cranes		765,000	425,000	255,000	0	85,000	0	\$15.17	\$11.10	\$4,967.53	\$10.32
481600			60,300	36,314	19,143	3,302	1,447	93	\$1.20	\$0.87	\$391.56	\$0.81
	****End Of Survey - Do Net Eruse****											
	SUBTOTAL		28,528,925	16,371,517	8,823,882	1,565,146	701,006	1,067,374	\$565.81	\$413.88	\$185,252.76	\$384.76
010001	709 Contingency	5.00%	1,426,446	818,576	441,194	78,257	35,050	53,369	\$28.29	\$20.69	\$9,262.64	\$19.24
006150	711 SDI, General Conditions, Liability Insurance & Fee	14.79%	4,218,983	2,421,092	1,304,914	231,461	103,668	157,848	\$83.68	\$61.21	\$27,395.99	\$56.90
	Total Estima	ite	34,174,354	19,611,184	10,569,990	1,874,864	839,724	1,278,591	\$677.78	\$495.78	\$221,911.39	\$460.89

CONCEPTUAL CONSTRUCTION SCHEDULE - MODULAR

ctivity ID	Activity Name	Duration	Start	Finish	Apr Ma										Feb	Mar			Jun		Aug	IS
Ontimum Mode	lar Solutions - Affordable Housing Modular Prototype				-1 1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	1
Project Milesto						1	1			1												1
PCM-1010	Start Construction	0	May-02-22		Sta	art Con	structio	n														-
PCM-1020	Construction Complete	0	1.00	May-04-23		1	1		1									• Con	tructio	Comp	ete	
Construction D						1	-	1	1	1						1						-
CD-1000	Construction Duration (Cal Days)	368	May-02-22	May-04-23						·····}·	*****	******	*****	*****			******	Con	tructio	Durati	on (Cal	Day
Construction						1	-	1	1	1						1						1
Site Preparati	on			-		1	1	1	1							1						1
SP-1000	Erect Construction Fence / SWPPPs	5	May-02-22	May-06-22	a 6	regt Co	nstruct	ion Fen	ce / \$1	NPPP						1						-
SP-1080	Over-excavation / Re-compaction	10	May-09-22	May-20-22		Dver	-excava	tion / R	e-com	paction	3					1						1
Concrete Stru	icture					***													•••••			
Level 1 (8.5K sqft						-	1															-
STR-1240	Lay-out / Excavate Foundations - L I	5	May-23-22	May-27-22	1	E Lay	-out / E	×cavate	Found	dations	-LI											
STR-1250	F/R/P Foundations - L I	10	May-31-22	Jun-13-22		-	F/R/P	Foundat	ions-	LI												1
STR-1280	F/R/P Shafts and Columns to Podium deck	10	Jun-14-22	Jun-27-22			F/P	L/P \$haf	ts and	Colum	ns to P	odium d	eck									1
STR-1260	Sub-slab MEP Rough-in - LI	7	Jun-28-22	Jul-07-22	1	1		Sub-slat	MEP	Rough	in - Ll				1	1						1
STR-1270	F/R/P Slab on Grade - LI	7	Jul-08-22	Jul-18-22				F/R/P	Slab	on Grad	de - Li	(
Level 2 Podium/E	Elevator / Stair Shafts					1			1													1
POD-1200	Shoring - Podium Deck	5	Jul-19-22	Jul-25-22			1	Shc	oring-	Podium	n Deck											
POD-1130	F/R/P Podium Deck	10	Jul-26-22	Aug-08-22		-	1	-	F/R/P	Podium	n Deck	•										-
POD-1160	Shear Walls / Shafts - L2 to Roof	35	Aug-09-22	Sep-27-22		1					Shear	Walls / S	hafts - l	2 to Re	of							1
Elevators						1	1	ŧ.	1	1					1	1						
A1010	Relocate Small Manlift into Elevator #3 Location	5	Sep-28-22	Oct-04-22		1	1		1		Relo	cate Sm	all Manie	ft into E	levator	# 3 Loc	ation		2			
A1000	Install / Certify Service Elevator #1	12	Sep-28-22	Oct-13-22		1	1	1	1	¢	in:	tall / Ce	rtify Se	vice B	vator #	Į						:
A1030	Remove Manlift	3	Oct-14-22	Oct-18-22		1	1		1	1		emove										:
A1040	Install Elevators 2 & 3	5	Oct-19-22	Oct-25-22		1	1					Install E	levator	2&3		-						1
Modulars						-	1	1	1	1						1						
MP-1250	Module Transportation	22	Oct-05-22	Nov-03-22		1	1		1	1		Mod	le Tran	sportat	ion	1						-
MODS-1170	Set Modulars	22	Oct-06-22	Nov-04-22		1	1	1	1	1		Set N	lodular	5								1
MODS-1 190	Secure MODS to Podium Deck	5	Oct-10-22	Oct-14-22								cure M			Deck						1	1
MODS-1 180	Modular Tie-ins	22	Oct-20-22	Nov-18-22		1							lodular	Tie-ins								
Exteriors						1	1		1	:						1						-
EXT-1000	Roofing / Parapet Walls	20	Nov-07-22	Dec-06-22		-	1						Roo	fing / Pa								
EXT-1010	Exterior Finishes	65	Nov-10-22	Feb+14-23		1	1		1						E	xterior	inishes					1
Site Improven	nents																					1
SW-1010	B-Permit Work	15	Feb-08-23	Feb-28-23												B-Per	mit Wo	rk				1
SW-1000	Site Improvements	30	Feb-08-23	Mar-21-23		1											ite Imp	rovemer	ts			1
Interior Finish	es					1	1									1						1
INT-1170	Pull Podium Re-shores - LI	5	Sep-07-22	Sep-1 3-22		1			1	Pull		m Re-sh	0									1
INT-1020	MEP Rough-in / Framing - L I	30	Sep-14-22	Oct-25-22								MEP R	0.000			l						1
INT-1050	Corridor MEPF Rough-in - L2	25	Oct-20-22	Nov-23-22					-				Corrido									
INT-1060	Corridor MEPF Rough-in - L3	25	Nov-03-22	Dec-09-22			1								11/10/10/10	ough-in -						
INT-1070	Corridor MEPF Rough-in - L4	25	Nov-17-22	Dec-23-22										Corrid	Pr MEP	Rough	in - L4					1
	Remaining Level of Effort				Opti	mum	Mo	dular	s												_	
Run Date: Jul-22-21	Adual Level of Effort			Af	fordable					lars										(C	-)
Page 1 of 2	Actual Work				Project S															1		
	Critical Remaining Work																				J.)



CONCEPTUAL CONSTRUCTION SCHEDULE - MODULAR

ity ID	Activity Name	Duration	Start	Finish		_	2	022															202	23				-		-				20	24	-
					Apr -1	May	Jun	Jul	Aug	Sep	Oct	Nov	-	Jar			Mar		pr	N	May	J		Jul		ug	Sep	_	-	Nov	Dec	-			1	1000
INT-1080	Corridor MEPF Rough-in - L5	25	Dec-05-22	Jan-10-23	-1	1		3	4	0	0	/	8		Corrid	0 lor M	11 EPF		12 h-in		13	1	4	15	1	6	17	1	8	19	20	-	21	22	23	2
INT-1110	Corridor Finishes - L2	25	Dec-07-22	Jan-12-23				1	1		1		-		Corrio		inishe			1		1	-		1	1			1				1			1
INT-1030	Drywall / Finishes - LI	50	Dec-07-22	Feb-16-23			•	÷								D D	ywal	Fin	ishe	es -	LI				1				-			1	1			Î
INT-1090	Corridor MEPF Rough-in - L6	25	Dec-19-22	Jan-24-23	1				1					-] Co	rrido	r ME	PFR	ough	n in	- L6	1	1		1				1			1				
INT-1120	Corridor Finishes - L3	25	Dec-21-22	Jan-26-23	1 3									<u> </u>	C	orrido	or Fin	ishes	- L3	3		1	1		1	1			1			1			1 8	1
INT-1100	Corridor MEPF Rough-in - L7	25	Jan-04-23	Feb-07-23					1				-		-	Con	ridor	NEP	FRo	pugt	h-in -	17	1		1				1			1				
INT-1130	Corridor Finishes - L4	25	Jan-06-23	Feb-09-23											-			Finis					1													1
INT-1190	Corridor MEPF Rough-in - L8	25	Jan-18-23	Feb-21-23					1	1	1						Corri	dor N	1EPF	FR	ough	-n -	18		1			1		*****		1	1			1
INT-1140	Corridor Finishes - LS	25	Jan-20-23	Feb-23-23			1	1		1	1	1	-	1	-	-	Corri	idor F	Finis	hes	- LS		1		1	1			1			1				1
INT-1150	Corridor Finishes - L6	25	Feb-03-23	Mar-09-23			1		1		1	1	-	1	-	-	C	orrid	lor F	Finis	thes	- L6	1		1	1			1							1
INT-1160	Corridor Finishes - L7	25	Feb-17-23	Mar-23-23	1 1				1	1	1		-	1		-		Co	rrid	lor f	Finist	hes -	17		1				1				1		1	1
INT-1180	Corridor Finishes - L8	25	Mar-03-23	Apr-06-23			1	1		1	1		-	1	1	1						inish			1							1				1
Start-up / Tes	sting / Punchlist / Inspections						1	1	-		1			1	1					1		1	:		:	1		1	1			1	Ĩ			ï
STRT-1000	Start-up / Testing / Inspections	20	Apr-07-23	May-04-23			1	1	1	1		1	1	1	:	1				÷.	Star	¢up	/ Tes	ting /	lņspe	ction	15	1	1			-			3	1

Run Date: Jul-22-21 Page 2 of 2	Pernahing Level of Effort Adual Level of Effort Adual Work Remaining Work Oktool Remaining Work	Optimum Modulars Affordable Housing - Modulars Project Schedule Jul-22-21	
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CONCEPTUAL CONSTRUCTION SCHEDULE - CONVENTIONAL

ctivity ID	Activity Name	Duration	Start	Finish	Apr	May	Jun							Jan	Feb	Mar	Apr	May	Jun	23 Jul	Aug	Sep	Oct N	ov [
Optimum Modul	ar Solutions - Affordable Housing Wood Frame Prototype				-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19 2
Project Milestor						1			1		1	1	1	-		-								1
PCM-1010	Start Construction	0	May-02-22			Star	Cons	ructio	-			1	1	-		1								1
PCM-1020	Construction Complete	0		Aug-30-23		1										-						Con	truction	Compl
Construction D	uration										1		1	1										
CD-1000	Construction Duration (Cal Days)	486	May-02-22	Aug-30-23			})				(1		4 1	÷	}	(****** !						Con	truction	Durati
Construction						1					1													
Site Preparatio	n					1					1		1											
SP-1000	Erect Construction Fence / SWPPPs	5	May-02-22	May-06-22	1.1	Er	ct Con	struct	tion Fe	nce / SV	YPPP	4												
SP-1080	Over-excavation / Re-compaction	10	May-09-22	May-20-22			Over-e	xcava	tion / F	e-com	pactio	n												
Concrete Struc	ture					1				1	1	1	1	·····		1								
Level 1 (8.5K sq ft)						1					1	1	1	1										
STR-1240	Lay-out / Excavate Foundations - L1	5	May-23-22	May-27-22	1		Lay-o	ut/B	xcavate	Found	htions	-11		1										
STR-1250	F/R/P Foundations - L1	10	May-31-22	Jun-1 3-22	1	1	F	R/P F	oundat	ions - L	1	1												
STR-1280	F/R/P Shafts and Columns to Podium deck	10	Jun-14-22	Jun-27-22		1		1.0.0				s to Po	dium d	leck		1								
STR-1260	Sub-slab MEP Rough-in - LI	7	Jun-28-22	Jul-07-22		1		Su	a slab	NEP R	ough-i	-LI	1	1		1								1
STR-1270	F/R/P Slab on Grade - L1	7	Jul-08-22	Jul-18-22	1	1			F/R/P	Sab on	Grad	-LI	1	1										
Level 2 Podium (9.	3ksq ft)																							
POD-1200	Shoring - Podium Deck	5	Jul-19-22	Jul-25-22	1				Shor	ing - Po	dium	Deck	1											
POD-1130	F/R/P Podium Deck	10	Jul-26-22	Aug-08-22	1			1	E F	A/P Po	dium I	Deck	-											
STR-1170	F/R/P Walls & Columns	5	Aug-09-22	Aug-15-22		1				FR/P V	Valls 8	Colum	ins	1		1								1
STR-1300	Shoring 3rd Fir Deck	5	Aug-16-22	Aug-22-22	1	1				Shori	ng 3rd	Fr De	k											
POD-1210	F/R/P 3rd Fir Deck	10	Aug-23-22	Sep-06-22		1				₽ F/	R/P 3r	d Fir De	ck											
Wood Framing	(7 flrs @ 9.3k sq ft)					1					ł.	1												
STR-1180	L3 Framing / Joists / Deck	15	Sep-07-22	Sep-27-22	1						B	ming	Joists	Deck										
STR-1190	L4 Framing / Joists / Deck	15	Sep-28-22	Oct-18-22		1				1	-	£4 Fra	ming /	pists / l	eck	1								1
STR-1200	L5 Framing / Joists / Deck	15	Oct-19-22	Nov-08-22	1							🖕 U	Fram	ing / Jois	ts/D	eck								
STR-1210	L6 Framing / Joists / Deck	15	Nov-09-22	Dec-01-22	1						1		L6	Framing	/ Joist	s/Dec	k							
STR-1220	L7 Framing / Joists / Deck	15	Dec-02-22	Dec-22-22		1						1	-	L7 Fra	ming /	joists /	Deck							
STR-1290	L8 Framing / Joists / Deck	15	Dec-23-22	Jan-16-23							1			-	8 Fra	ming / J	pists / C	Deck						
STR-1230	Roof Framing / Joists / Deck	15	Jan-17-23	Feb-06-23		1				1	1	1			R	oof Frai	ning /]	oists / E	Deck					T
Exteriors						1			1			1				1								1
EXT-1010	Exterior Finishes	90	Dec-02-22	Apr-10-23	1	1					1	1	-	-	-	-	Б	terior	Finishe	5				
EXT-1000	Roofing	15	Feb-07-23	Feb-27-23	1							1	-			Roo	ing							
Site Improvem	ents																							
SW-1000	Site Improvements	30	Apr-11-23	May-22-23		-					1	1	1			1			Site Im	prove	ments			1
SW-1010	8-Permit Work	15	May-02-23	May-22-23		1			1			1	1	1					B-Pern	nit Wo	r k			
Interior Finishe	5					1						1												
INT-1170	Remove Re-shores - LI	5	Sep-07-22	Sep-13-22	1	1					Remov	e Re-st	ores -	ų.										
INT-1020	MEP Rough-in / Framing - L1	30	Sep-14-22	Oct-25-22	1	1			1		-	MEP		n/Fra										
INT-1050	MEPF Rough-in - L2	40	Sep-28-22	Nov-22-22		÷				1	<u></u>	-	MEPF	Rough	n - Li	Ś								1
INT-1060	MEPF Rough-in - L3	40	Oct-19-22	Dec-15-22	1	1						-	-	MEPF R										
INT-1070	MEPF Rough-in - L4	40	Nov-09-22	Jan-09-23							1			<u>м</u>	EPF R	ough-in	- 1.4							
	Remaining Level of Effort					2																1		
Run Date: Jul-22-21	Adual Level of Effort			A #			num				-												-	2
Page 1 of 2	Adual Work						lous					ne												
	Remaining Work Otical Remaining Work				Proj	ects	Sche	dule	e Ju	1-22-	21												O	
																							0	2

Jan Feb 21 22	Mar 23	Apr 24	24 May 25	Jun 26	Jul	Aug 28
			20	26	27	28
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CONCEPTUAL CONSTRUCTION SCHEDULE - CONVENTIONAL

Activity ID	Activity Name	Duration	Start	Finish			2	022						la esta			10 A			2023				20.000	520-20					2	024			
					Ar	r Ma	y Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	/ Ju		I A	ug S	ep			Dec	Jan	Feb				_	_	ul Ai
-					-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	5 1	6 1	17	18	19	20	21	22	23	24	25	26	27	1 2
INT-1080	MEPF Rough-in - LS	40	Dec-02-22	Jan-30-23		:	:	:	:	:	:	1			MEP	Roug	h-in - l	Ę5	:	1	:	:	:	:	:			:	:	:	1	:	:	:
INT-1090	MEPF Rough-in - L6	40	Dec-23-22	Feb-20-23	6	1		1								MEPF					1									1	1	1	-	
INT-1100	MEPF Rough-in - L7	40	Feb-07-23	Apr-03-23	k T	1	1	1	1	1							ME	PF Ro	ugh-in	-17			1	Ĩ	1				1	1	1	1	1	1
INT-1180	MEPF Rough-in - L8	40	Feb-21-23	Apr-17-23	1	1	1	1	1	1			1	:		-		MEPF	Rough	-in - L	8	1	1	1	1				:	1	1	1	1	1
INT-1030	Drywall / Finishes - LI	50	Feb-28-23	May-08-23	1	1	1	1	1	1			1		4			•	rywal	/Finis	hes -	LI 🕴	i	1	1				1	1	1	1	1	1
INT-1110	Finishes - L2	50	Feb-28-23	May-08-23	1	1	1	1	1	1				1		_		F F	inishe	- 12	1	1	:	1	1			-	1	1	1	1	1	1
INT-1120	Finishes - L3	50	Mar-14-23	May-22-23		1		1		1										hes - L		1	1	1						:	1	1	1	1
INT-1130	Finishes - L4	50	Mar-28-23	Jun-06-23		1	1	1	1	1							_			inishes	- 14	1	1	1	1			[-	1		1	1
INT-1140	Finishes - L5	50	Apr-11-23	Jun-20-23	<u>a</u>	1	1	1	1	1			1	1			-	-	÷	Finis	hes - I	15	1	1	1			1	1	1	1	1	1	1
INT-1150	Finishes - L6	50	Apr-25-23	Jul-05-23		1	1	1	1	1			1	1		1		-	+	÷ ۴	inishe	s - 46	1	1	1				:	1	1	1	1	1
INT-1160	Finishes - L7	50	May-09-23	Jul-19-23		1	1	1	1	1			1	1		1		-	÷	÷	Finit	shes - I	17	1	1				1	1	1	1	1	1
INT-1200	Finishes - L8	50	May-23-23	Aug-02-23		1		1	1					1				1	-	+	_	Finishe		1	1				1	1	1	1	1	1
Start-up / Tes	ting / Punchlist / Inspections					1	1	1	1	1								1	1	1	1	1	1	1					-	1	1		1	1
STRT-1000	Start-up / Testing / Inspections	30	Jul-20-23	Aug-30-23	1	1	1	1	1	1									:		-	5	Start	up / Te	sting	Inspe	tions		1	:	1	1	1	1

Run Date: Jul-22-21 Permining Level of Effort Optimum Modulars Adual Level of Effort Adual View of A
Page 2 of 2 Project Schedule Jul-22-21

