

# Legacy Construction Development

## Housing California 2014

Global Pricing for Green Strategies

Project:		50 Unit Multi-Family Project										
Description:		Mix 2-3 Bedroom Units with Community Center										
Green Elements Employed	Quantity Units	Traditional Approach			Green Alternative			Variance PSF	Benefit			
		Cost Per Item	Project Cost	Cost PSF	Cost Per Item	Project Cost	Cost PSF					
<b>Division 1 (General Requirements)</b>												
19316	Recycling Programs	14	months	\$0.00	\$6,000	\$0.12	\$0.00	\$6,000	\$0.12	\$0	#	Add one dumpster per month dedicated for recycling
<b>TOTAL</b>					<b>\$6,000</b>	<b>\$0.12</b>	<b>\$0.00</b>	<b>\$6,000</b>	<b>\$0.12</b>	<b>\$0</b>	<b>#</b>	
<b>Division 2 (Site Construction)</b>												
24200	Removal/Salvage of Construction Materials	0		\$0	\$0	\$0.00	\$0.00	\$0	\$0.00	\$0	#	
<b>TOTAL</b>					<b>\$0</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0</b>	<b>\$0.00</b>	<b>\$0</b>	<b>#</b>	
<b>Division 3 (Concrete)</b>												
30513	Coal Fly Ash	500	cubic yards	\$80.00	\$40,000	\$0.80	\$80.00	\$40,000	\$0.80	\$0	#	Diverts Fly Ash from the waste stream
33000	Light colored concrete (site work reflectivity) in lieu of colored concrete	100	cubic yards	\$60.00	\$6,000	\$0.12	\$60.00	\$6,000	\$0.12	\$0	#	
<b>TOTAL</b>					<b>\$46,000</b>	<b>\$0.92</b>	<b>\$140.00</b>	<b>\$46,000</b>	<b>\$0.92</b>	<b>\$0</b>	<b>#</b>	
<b>Division 4 (Masonry)</b>												
40513	Masonry Mortar utilizing Fly Ash	20	cubic yards	\$80.00	\$1,600	\$0.03	\$80.00	\$1,600	\$0.03	\$0	#	Diverts Fly Ash from the waste stream
<b>TOTAL</b>					<b>\$1,600</b>	<b>\$0.03</b>	<b>\$80.00</b>	<b>\$1,600</b>	<b>\$0.03</b>	<b>\$0</b>	<b>#</b>	
<b>Division 5 (Wood &amp; Plastic)</b>												
60573	Wood Treatment (Borate pest treatment) in lieu of Chemical Treatment	50,000	square feet	\$0.10	\$5,000	\$0.10	\$0.10	\$5,000	\$0.10	\$0	#	Improved Indoor Air Quality (IAQ) with non-chemical treatment

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61101	50% Use of FSC Certified Wood Framing Lumber	50	units	\$4,800.00	\$240,000	\$4.80	\$6,480.00	\$324,000	\$6.48	# # #	# # #	Promotes sustainable timber growth/harvest
61113	Engineered Wood Framing Products	50	units	\$9,600.00	\$480,000	\$6.00	\$9,600.00	\$480,000	\$9.60	\$0	# #	Requires fewer members (less lumber) to achieve the same structural support system
61600	Sheathing (Roof)	900	sheets	\$15.00	\$13,500	\$0.27	\$9.00	\$8,100	\$0.16	# #	(\$0.11)	OSB in lieu of plywood  reduces wood waste by utilizing small pieces of wood to comprise the panel
61613	Insulating Sheathing (Roof)	900	sheets	\$9.00	\$8,100	\$0.16	\$12.00	\$10,800	\$0.22	# #	# #	OSB with Radiant Barrier
62203	Door Casing and Window Trim - Fiberboard Millwork (MDF without added Urea Formaldehyde)	27,600	lineal feet	\$0.39	\$10,764	\$0.22	\$0.51	\$14,076	\$0.28	# #	# #	Improved Indoor Air Quality (IAQ) with no added Urea Formaldehyde
64023	Interior Architectural Woodwork Substrate (Cabinets)	50	units	\$2,200.00	\$110,000	\$2.20	\$2,288.00	\$114,400	\$2.29	# #	# #	MDF with no added Urea Formaldehyde and with Recycled Content
64603	Fiberboard Trim (Base) MDF without added Urea Formaldehyde	17250	lineal feet	\$2.00	\$34,500	\$0.69	\$2.60	\$44,850	\$0.90	# #	# #	Improved Indoor Air Quality (IAQ) with no added Urea Formaldehyde
<b>TOTAL</b>					<b>\$901,864</b>	<b>\$14.44</b>	<b>\$18,392.21</b>	<b>\$1,001,226</b>	<b>\$20.02</b>	# #	# #	<b>\$1.99</b>

	Green Elements Employed	Quantity Units	Cost Per Item	Project Cost	Cost PSF	Cost Per Item	Project Cost	Cost PSF	PSF	Benefit
<b>Division 7 (Thermal &amp; Moisture Protection)</b>										
										No added Urea Formaldehyde in lieu of traditional

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72100	Thermal Insulation (NAUF)	50	units	\$662.00	\$33,100	\$0.66	\$662.00	\$33,100	\$0.66	\$0	#	#	
72100	Thermal Insulation (Quality Insulation Inspection)	50	units	\$662.00	\$33,100	\$0.66	\$703.00	\$35,150	\$0.70	#	#	#	Quality Insulation Installation
72130	Radiant Barriers	50	units	\$662.00	\$33,100	\$0.66	\$1,080.00	\$54,000	\$1.08	#	#	#	FSK facing for exterior walls and ceiling joist insulation
72217	Insulation Baffles	25	units	\$0.00	\$0	\$0.00	\$24.00	\$600	\$0.01	\$600	#	#	At perimeter bird blocking to promote air flow over the insulation
74646	Fiber Cement Siding	60,000	square feet	\$6.50	\$390,000	\$7.80	\$5.00	\$300,000	\$6.00	#	#	(\$1.80)	Fiber Cement Siding in lieu of three coat stucco
77220	Roof Ventilation Products	10	roof vents	\$0.00	\$0	\$0.00	\$125.00	\$1,250	\$0.03	#	#	#	Additional roof venting for good heat exchange in attic spaces(dormer vents in comp shingle roof)
79213	Caulk Joint Sealants (Low VOCs)	50,000	square feet	\$0.25	\$12,500	\$0.25	\$0.25	\$12,500	\$0.25	\$0	#	#	Low VOC Products are readily available
<b>TOTAL</b>											#	#	(\$1.30)

Division 8 (Doors & Windows)													
81600	Composite Doors (Solid Core)	64	ext. doors	\$82.50	\$5,280	\$0.11	\$107.25	\$6,864	\$0.14	#	#	#	Materials with No Added Urea Formaldehyde
81600	Composite Doors (Hollow Core)	450	int. doors	\$36.76	\$16,542	\$0.33	\$50.91	\$22,910	\$0.46	#	#	#	Materials with No Added Urea Formaldehyde
86223	Tubular Skylights	15	skylights	\$0.00	\$0	\$0.00	\$991.00	\$14,865	\$0.30	#	#	#	Solatube (or equivalent) brand
88000	Glazing (Low emittance coatings)	350	windows	\$650.00	\$227,500	\$4.55	\$650.00	\$227,500	\$4.55	\$0	#	#	Low-e 366 coatings are current industry standard and have low emissivity
89100	Louvers (shading device)	25	devices	\$0.00	\$0	\$0.00	\$700.00	\$17,500	\$0.35	#	#	#	
<b>TOTAL</b>											#	#	

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Green Elements Employed	Quantity Units		Cost Per Item	Project Cost	Cost PSF	Cost Per Item	Project Cost	Cost PSF	PSF	Benefit		
<b>Division 9 (Finishes)</b>												
92900	Drywall (recycled paper, local materials)	50	units	\$4,600.00	\$230,000	\$4.60	\$4,600.00	\$230,000	\$4.60	\$0	#	Nearly all drywall uses recycled content in the paper covering
93000	Tiling (post-consumer recycled content)	50	units	\$245.00	\$12,250	\$0.25	\$245.00	\$12,250	\$0.25	\$0	#	Material cost for tub/shower surround (white tile, white grout) Diverts waste from landfill
96013	Flooring Adhesives (No VOC)	50,000	square feet	\$0.08	\$4,000	\$0.08	\$0.08	\$4,000	\$0.08	\$0	#	No VOC content is industry standard for flooring adhesives
96519	Linoleum Flooring in Kitchens and Baths	5,225	square feet	\$0.80	\$4,180	\$0.08	\$3.00	\$15,675	\$0.31	#	#	Linoleum is comprised of natural materials (cork & linseed oil)
99103	Recycled Paints (Primer)	50	units	\$1,100.00	\$55,000	\$1.10	\$1,100.00	\$55,000	\$1.10	\$0	#	Labor to recapture and blend paint offset by cost savings for new primer
99123	Interior Paints (Low VOC)	50	units	\$1,100.00	\$55,000	\$1.10	\$1,100.00	\$55,000	\$1.10	\$0	#	Low VOC (50gm/liter) are readily available for no added cost for improved Indoor Air Quality (IAQ)
99123	Interior Paints (No VOC)	50	units	\$1,100.00	\$55,000	\$1.10	\$1,375.00	\$68,750	\$1.38	#	#	No VOC content for optimal Indoor Air Quality (IAQ)
<b>TOTAL</b>				<b>\$8,145.88</b>	<b>\$415,430</b>	<b>\$8.31</b>	<b>\$8,423.08</b>	<b>\$440,675</b>	<b>\$8.81</b>	<b>\$0</b>	<b>#</b>	

<b>Division 10 (Specialties)</b>												
107113	Exterior Sun Control Devices (Landscaping)	50,000		#	\$150,000	\$3.00	\$3.00	\$150,000	\$3.00	\$0	#	No added cost if plants that provide shading are selected and located by the Design Team
<b>TOTAL</b>					<b>\$150,000</b>	<b>\$3.00</b>	<b>\$3.00</b>	<b>\$150,000</b>	<b>\$3.00</b>	<b>\$0</b>	<b>#</b>	

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Green Elements Employed		Quantity Units		Cost Per Item	Project Cost	Cost PSF	Cost Per Item	Project Cost	Cost PSF	PSF	Benefit
<b>Division 11 (Equipment)</b>											
113114	Refrigerators/Freezers (18CF)	50	units	#	\$21,000	\$0.42	\$468.00	\$23,400	\$0.47	#	Energy Star rated for low energy usage
113116	Dishwashers	50	units	#	\$11,450	\$0.23	\$307.00	\$15,350	\$0.31	#	Energy Star rated for low energy usage
113123	Laundry Equipment (Electric washer 4CF Front Loader) in lieu of non-Energy Star rated top loader	50	units	#	\$29,700	\$0.59	\$449.00	\$22,450	\$0.45	#	Energy Star rated for low energy usage (no electric Energy Star rated dryers available)
<b>TOTAL</b>					<b>\$62,150</b>	<b>\$1.24</b>	<b>\$1,224.00</b>	<b>\$61,200</b>	<b>\$1.22</b>	#	<b>(\$0.02)</b>

<b>Division 15 (Mechanical)</b>											
223600	Water Heaters - Tankless in lieu of storage tank	50	units	\$573.00	\$28,650	\$0.57	\$1,312.00	\$65,600	\$1.31	#	Gas fired
224113	Toilets - Ultra Low Flush	75	toilets	\$98.00	\$7,350	\$0.15	\$148.00	\$11,100	\$0.22	#	Low flush water usage
224142	Shower Heads	75	heads	\$17.75	\$1,331	\$0.03	\$14.25	\$1,069	\$0.02	#	2.5 GPM standard or 1.5 GPM Ultra Low flow for low water usage
230900	HVAC - 15 SEER in lieu of 13 SEER	50	units	\$1,500.00	\$75,000	\$1.50	\$2,375.00	\$118,750	\$2.38	#	High SEER(15 SEER) rating save 25-30% energy usage
232323	Refrigerants	50	units	\$100.00	\$5,000	\$0.10	\$100.00	\$5,000	\$0.10	\$0	Non CFC is required
233420	Bathroom Vent and Light Kit (interconnected)	75	kits	\$75.00	\$5,625	\$0.11	\$100.00	\$7,500	\$0.15	#	Fan and Light connected to exhaust room efficiently
											Added duct dampers for increased balancing adjustment

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230593	Testing, Adjusting, Balancing	50	units	\$800.00	\$40,000	\$0.80	\$920.00	\$46,000	\$0.92	#	#	
234000	HVAC Air Cleaning Devices (filters)	50	units	\$10.00	#	\$0.01	\$30.00	\$1,500	\$0.03	#	#	Increased Density Filters
238126	Multi-Split HVAC systems with multi room capacity in lieu of conventional split systems	50	units	\$6,200.00	\$310,000	\$6.20	\$8,700.00	\$435,000	\$8.70	#	#	Single condenser with capability for 8 separately controlled rooms
TOTAL					\$310,000	\$6.20	\$8,700.00	\$435,000	\$8.70	#	#	
Green Elements Employed		Quantity Units		Cost Per Item	Project Cost	Cost PSF	Cost Per Item	Project Cost	Cost PSF	PSF	PSF	Benefit
Division 16 (Electrical)												
265100	Interior Lighting (Motion Sensors in closets)	50	units	\$15.00	#	\$0.02	\$35.00	\$1,750	\$0.04	#	#	Motion Sensors in closets turn lights off when not occupied
265114	Interior Light Fixtures	50	units	\$1,500.00	#	\$1.50	\$2,000.00	\$100,000	\$2.00	#	#	High efficiency ballasts and lamps
265117	Fluorescent Lamps	50	units	\$75.00	\$3,750	\$0.08	\$75.00	\$3,750	\$0.08	\$0	#	Almost all fixtures/lamps are fluorescent to comply with T- 24
265600	Exterior Lighting	30	fixtures	\$500.00	#	\$0.30	\$500.00	\$15,000	\$0.30	\$0	#	Fixtures using fluorescent lamps in lieu of incandescent lamps
TOTAL					#	\$1.89	\$2,610.00	\$120,500	\$2.41	#	#	

TOTAL				\$2,716,844	\$50.74	\$43,521.54	\$2,943,801	\$58.88	#	#	\$4.54
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Total Hypothetical Construction Cost Green Cost as Percentage of Total Construction Cost