

Cost-Effective Passive House Single-Family Homes in California, by Allan Gilliland

Table 2

Passive House Incremental Cost Analysis													
Project Data:		Total Cost (\$)	Size (SF)	\$/SF									
Bay Area Custom Home		1,800,000	3,000	600									
	CA Building Code Base Case				Passive House Case				Cost Increment			Notes	
	Description	Matl	Labor	Total	Description	Matl	Labor	Total	\$	Item	Project		
		\$	\$	\$		\$	\$	\$		\$	%		%
<b>Insulation</b>													
Foundation - underslab	un-insulated	0	0	0	3" R12 EPS foam under slab	2,400	1,500	3,900	3,900			1600sf @\$1.50/sf; 2man crew x 1.5 days	
Foundation - Perimeter	un-insulated	0	0	0	1" R5 XPS @ slab perimeter	300	1,500	1,800	1,800			400SF @ \$0.75/sf; 2man crew x 1.5 days	
Wall - Frame	2x4@16"oc	2,050	NC	2,050	2x6@24"oc "Advanced Frame"	2,300	NC	2,300	250			3335BF for 2x4 vs 3700BF for 2x6; \$620/MBF	
Wall - Cavity	R15 blown-in-batts	2,500	2,500	5,000	R21 blown-in-batts	3,250	3,250	6,500	1,500			50x30#bags base case; 65 bags PH case; \$50/bag	
Wall - Exterior	No ext insulation	0	0	0	R8 2" Mineral Wool	6,300	3,000	9,300	9,300			3500sf walls @\$1.80/sf; 2man crew x 3 days	
Roof - Frame	12" TJI Rafters @ 24"oc	NC	NC	NC	12" TJI Rafters @ 24"oc	NC	NC	NC	0				
Roof - Overframe	None	0	0	0	2x4@24" overframe & ply deck	3,200	2,000	5,200	5,200			1280BF 2x4 @\$0.62/BF; 60 sheets 1/2" ply @ \$40/sht	
Roof - Cavity	R30 loose fill fiberglass	2,000	2,000	4,000	R50 dense pack fiberglass	5,000	4,000	9,000	5,000			40x30#bags base case; 100 bags PH case; \$50/bag	
Roof - Exterior	No ext insulation	0	0	0	R8 2" Mineral Wool in overframe	2,700	1,000	3,700	3,700			1500sf roof @\$1.80/sf; 2man crew x 1 day	
Subtotal Insulation		6,550	4,500	11,050		25,450	16,250	41,700	30,650	177	1.7		
<b>Windows &amp; Ext Glazed Doors</b>		Double-glazed, (premium) mfg	60,000	3,000	63,000	R5 Triple-glazed, (premium) mfg	72,000	4,000	76,000	13,000	21	0.7	Premium Vendor Dbl pane base; 3P PH package
<b>Air Barrier</b>													
Air Barrier Membrane	Tyvek sheet	1,000	3,000	4,000	Peel&Stick sheet membrane	2,600	3,000	5,600	1,600			4000sf membrane; \$0.25/sf Tyvek, \$0.65/sf peel/stick	
Seam/penetration sealing	Unspecified, casual	500	500	1,000	Diligent sealing w/prem. sealants at windows, seams, penetrations	1,000	1,000	2,000	1,000				
Subtotal Air Barrier		1,500	3,500	5,000		3,600	4,000	7,600	2,600	52	0.1		
<b>Ventilation</b>													
Bathroom Exhaust	4ea bath fans w/humidity cntrl	800	800	1,600	Exhaust Registers ducted to HRV	200	600	800	-800				
Fresh Air Supply	None; continuous extract only	0	0	0	Premium Heat Recov Vent System (HRV)	4,000	2,000	6,000	6,000			HRV supply using HVAC (heat pump) system ducts	
Subtotal Ventilation		800	800	1,600		4,200	2,600	6,800	5,200	325	0.3		
Subtotals - Direct Costs		Subtotal - Direct Costs			68,850	11,800	80,650		105,250	26,850	132,100	51,450	2.9
Builder's Ovhd & Profit (20%)		Builder's Ovhd/Profit (20%)					16,130				26,420	10,290	0.6
<b>Total Cost</b>		<b>Total Cost</b>					<b>96,780</b>				<b>158,520</b>	<b>61,740</b>	<b>3.4</b>