

2016 Code Software Review 2700 Sqft / 2-Story / 20% Glazing / 4 BDRMS.	2016 Building Features	2016 Building Features	2016 Building Features	2016 Building Features	2016 Building Features
Run	2016 Code	2016 HPA Opt. A w/ R-8	2016 HPW w/ 2x6 @ 24" o.c.	2016 HPW w/ 2x4 @ 16" o.c.	
File Number	0	1	2	3	
Software	CBECC-Res 2016.2.1 (868)	CBECC-Res 2016.2.1 (868)	CBECC-Res 2016.2.1 (868)	CBECC-Res 2016.2.1 (868)	
Code Compliance - Worst Case					
Percentage Improvement	0.1%	1.9%	0.4%	-0.4%	
Compliance Margin (KTDV)	0.02	0.49	0.10	-0.10	
Proposed Design (KTDV)	26.45	25.98	26.37	26.57	
Standard Design (KTDV)	26.47	26.47	26.47	26.47	
Photovoltaic Offset	N/A	N/A	N/A	N/A	
Proposed Design (EDR)	45.5	43.7	45.4	45.5	
Required PV System Size (kWdc)	N/A	N/A	N/A	N/A	
Battery System Size (kWdc)	N/A	N/A	N/A	N/A	
2019 Compliance Margin EDR w/ Efficiency	N/A	N/A	N/A	N/A	
2019 Compliance Margin EDR w/ PV	N/A	N/A	N/A	N/A	
Envelope: Opaque Surfaces					
Wall Insulation - 2x4 Exterior Walls	N/A	N/A	N/A	R-15+R8	\$ 6,410
Wall Insulation - 2x6 Exterior Walls	R-19+R5	R-19+R5	R-19+R5 @ 24" o.c.	N/A	\$ (7,073)
Wall Insulation - 2x4 Interior Garage Walls	N/A	N/A	N/A	R-15	\$ 482
Wall Insulation - 2x6 Interior Garage Walls	R-19	R-19	R-19 @ 24" o.c.	N/A	\$ (534)
Wall Insulation - Kneewall @ Garage	R-19	R-19	R-19 @ 24" o.c.	R-19	
Insulated Entry Door(s)	N/A	N/A	N/A	N/A	
Wall Insulation - 2x4 Exterior Garage Walls	N/A	N/A	N/A	R-0+R8	\$ 895
Wall Insulation - 2x6 Exterior Garage Walls	R-0+R5	R-0+R5	R-0+R5 @ 24" o.c.	N/A	\$ (1,042)
Attic Insulation - Flat Portions	R-38	R-38	R-38	R-38	
Floor Insulation - Above Garage	R-19	R-19	R-19 @ 24" o.c.	R-19	
Insulation Installation - QII	N/A	N/A	N/A	N/A	
Insulation Installation [Verification] - QII	N/A	N/A	N/A	N/A	
Air Infiltration [Testing] - Blower Door	5.0 ACH	5.0 ACH	5.0 ACH	5.0 ACH	
Roofing Material	Tile	Tile	Tile	Tile	
Roofing Properties (Reflectance / Emittance)	0.10 / 0.85	0.10 / 0.85	0.10 / 0.85	0.10 / 0.85	
Radiant Barrier	N/A	Required	N/A	N/A	\$ 230
Above Roof Deck Insulation	N/A	R-8	N/A	N/A	\$ 1,398
Below Roof Deck Insulation	R-13	N/A	R-13	R-13	\$ (723)
Ventilated Attic (Yes / No)	Yes	Yes	Yes	Yes	
HPA HERS Inspection	N/A	N/A	N/A	N/A	
Envelope: Glazing (U-Factor / SHGC)					
Horizontal Slider	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	
Single Hung	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	
Fixed	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	
Patio Door	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	0.32 / 0.25	
HVAC: Space Heating, Cooling Systems					
Space Heating Type	Furnace	Furnace	Furnace	Furnace	
Space Heating Efficiency (AFUE)	0.80	0.80	0.80	0.80	
Space Cooling Type	ACSplit	ACSplit	ACSplit	ACSplit	
Space Cooling Efficiency (SEER / EER)	14 / 12.2	14 / 12.2	14 / 12.2	14 / 12.2	
EER [Verification]	Required	Required	Required	Required	
Refrigerant Charge [Verification/Testing]	Required	Required	Required	Required	
Fan Watt Draw [Testing]	0.58 W/cfm	0.58 W/cfm	0.58 W/cfm	0.58 W/cfm	
Adequate Airflow [Testing]	350 cfm/ton	350 cfm/ton	350 cfm/ton	350 cfm/ton	
Low Leakage Air Handler [Verification]	N/A	N/A	N/A	N/A	
HVAC: Duct System					
Duct Insulation R-Value	R-8	R-8	R-8	R-8	
Duct Location	Attic	Attic	Attic	Attic	
Buried Ducts [Verification]	N/A	N/A	N/A	N/A	
Low Leakage (Tight) Ducts [Testing]	Required @ 5%	Required @ 5%	Required @ 5%	Required @ 5%	
HVAC: Mechanical Ventilation					
Minimum Whole-House Ventilation, Continuous	65 cfm	65 cfm	65 cfm	65 cfm	
Ventilation System Type	Exhaust	Exhaust	Exhaust	Exhaust	
Ventilation System Efficiency (cfm / W/cfm)	65 / 0.25	65 / 0.25	65 / 0.25	65 / 0.25	
Whole House Fan	N/A	N/A	N/A	N/A	
Water Heating					
Water Heater Type	Tankless	Tankless	Tankless	Tankless	
Water Heater Efficiency (EF)	0.82	0.82	0.82	0.82	
Fuel Source	Natural Gas	Natural Gas	Natural Gas	Natural Gas	
External Blanket	N/A	N/A	N/A	N/A	
Drain Hot Water Recovery	N/A	N/A	N/A	N/A	
Distribution Type	Standard	Standard	Standard	Standard	
Solar Water Heater (Solar Fraction)	N/A	N/A	N/A	N/A	
Costs					
		\$ 905	\$ (527)	\$ (862)	
Compliance Margin Difference					
Percentage change in Compliance from Base		1.8%	0.3%	-0.5%	
kTDV change in Compliance from Base		0.47	0.08	-0.12	