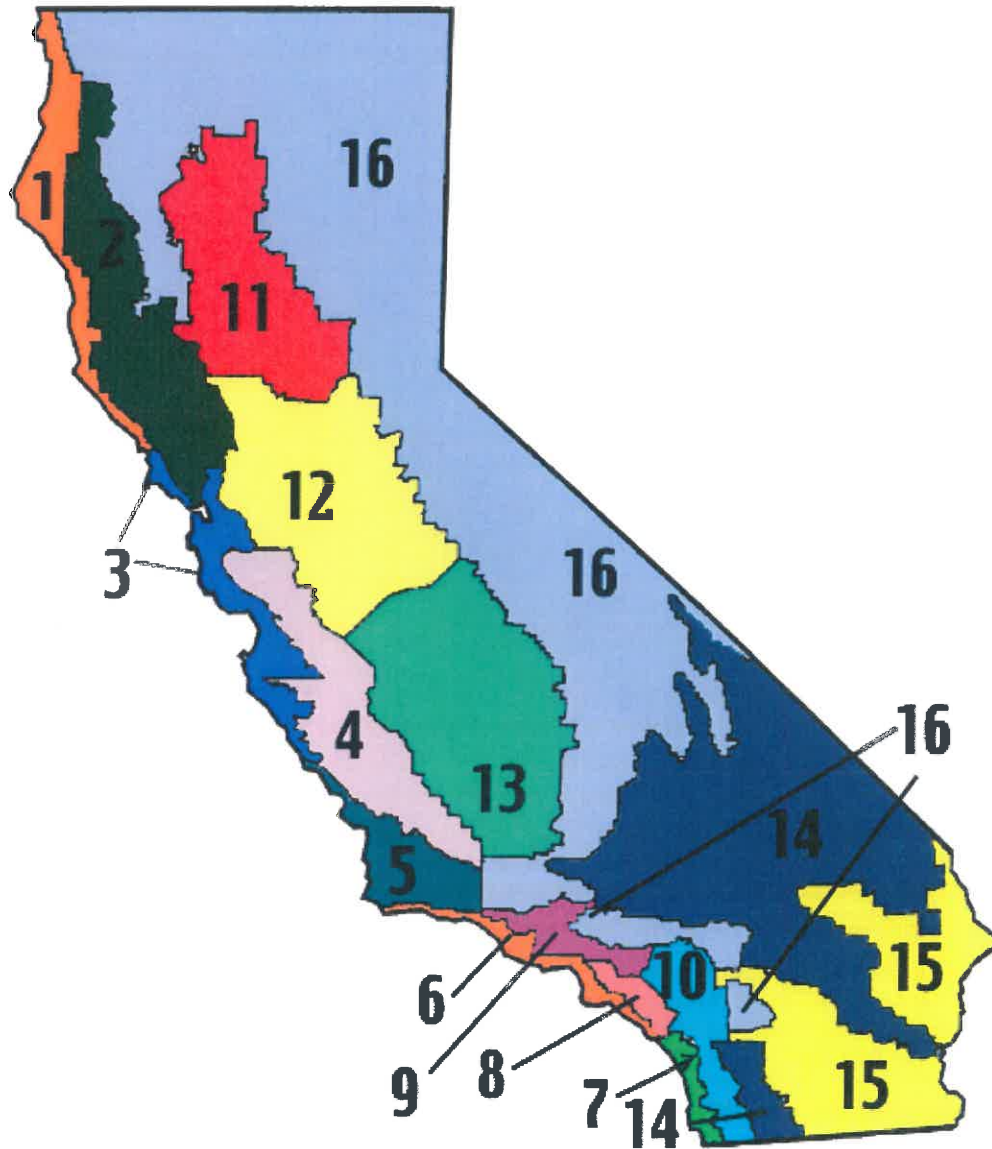




California's Climate Zones Map

The Pacific Energy Center's Guide to:

California Climate Zones





http://www.energy.ca.gov/maps/climate_zones.html

and Bioclimatic Design

October 2006

Building Climate Zones California, 2017

-  Building Climate Zones
-  County Boundary



Source: California Energy Commission

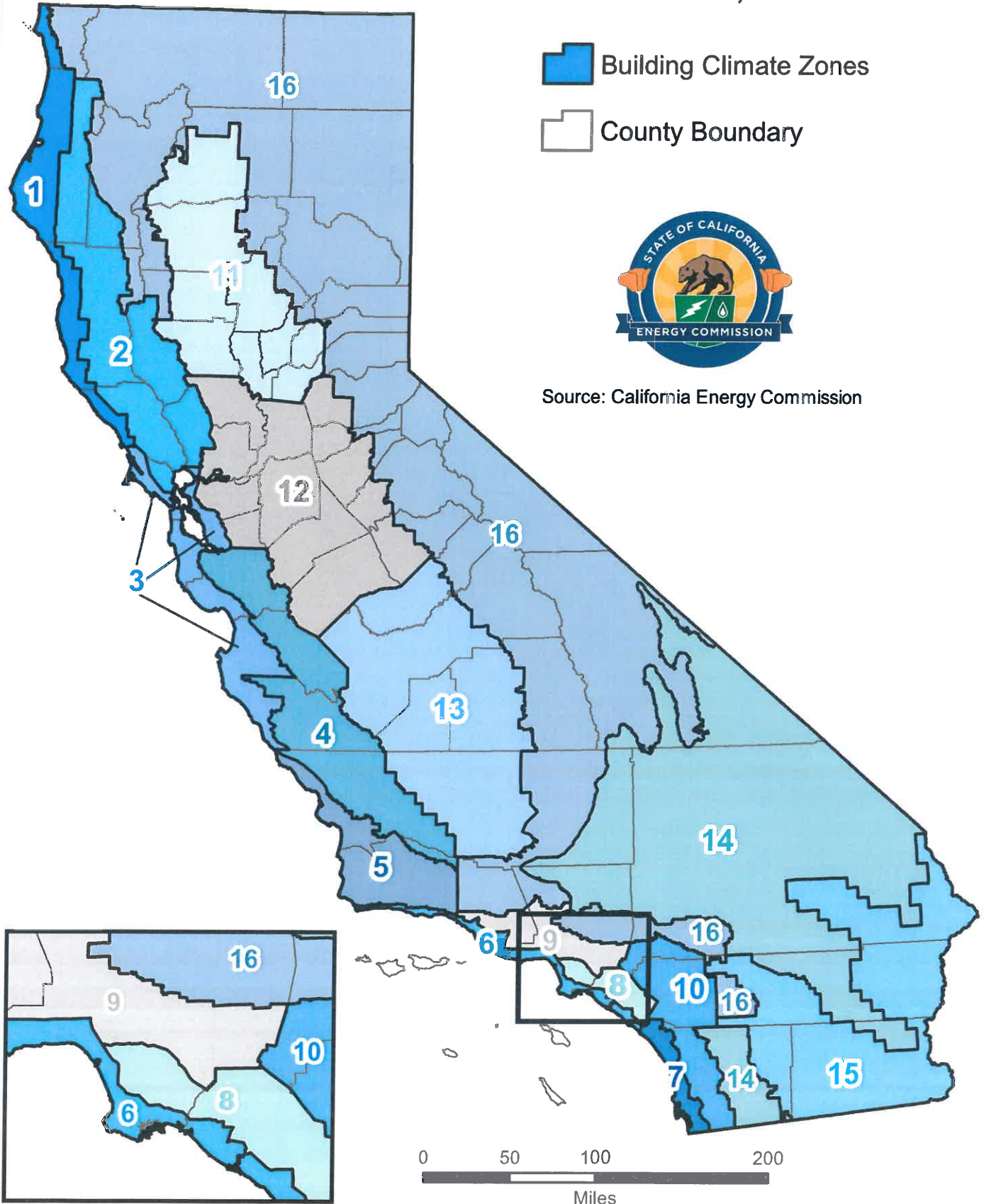


TABLE 150.1-A COMPONENT PACKAGE – Single Family Standard Building Design

Single Family		Climate Zone															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Building Envelope		Building Envelope Insulation															
		Roofs/Ceilings															
Below Grade	Below Grade Exterior ⁸	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0
	Below Grade Interior ⁶	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13
Above Grade	Mass Wall Exterior ^{4,5}	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0
	Mass Wall Interior ^{4,5}	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13
Option C (meets §150.1(c)9B)	Framed ³	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.065	U 0.065	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048	U 0.048
	Radiant Barrier	NR	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ
Option B (meets §150.1(c)9A)	Ceiling Insulation	R 38	R 38	R 30	R 38	R 30	R 30	R 30	R 30	R 30	R 30	R 38	R 38	R 38	R 38	R 38	R 38
	Radiant Barrier	NR	REQ	REQ	NR	REQ	REQ	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Below Roof Deck Insulation ^{1,2} (With Air Space)	Below Roof Deck Insulation ^{1,2} (With Air Space)	NR	NR	NR	R 19	NR	NR	NR	R 19	R 19	R 19	R 19	R 19	R 19	R 19	R 19	R 19
	Ceiling Insulation	R 38	R 38	R 30	R 38	R 30	R 30	R 30	R 38	R 38	R 38	R 38	R 38	R 38	R 38	R 38	R 38

TABLE 150.1-A COMPONENT PACKAGE – Single Family Standard Building Design (continued)

		Climate Zone																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
Floors	Slab Perimeter	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	U 0.58 R 7.0			
	Raised	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19			
	Concrete Raised	U 0.092 R 8.0	U 0.092 R 8.0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.138 R 4.0	U 0.092 R 8.0	U 0.092 R 8.0	U 0.138 R 4.0	U 0.138 R 4.0	U 0.092 R 8.0	U 0.092 R 8.0		
Building Envelope	Quality Insulation Installation (QII)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
		Roofing Products	Low-sloped	Aged Solar Reflectance	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
				Thermal Emittance	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	Step-sloped	Aged Solar Reflectance	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
		Thermal Emittance	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	fenestration	Maximum U-factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Maximum SHGC		NR	0.23	NR	0.23	NR	0.23	NR	0.23	NR	0.23	NR	0.23	NR	0.23	NR	0.23	NR	NR		
Maximum Total Area		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%		
Door	Maximum West Facing Area	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	NR		
	Maximum U-factor	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20		

TABLE 150.1-A COMPONENT PACKAGE – Single Family Standard Building Design (continued)

		Climate Zone																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
HVAC SYSTEM	Space Heating ⁹	Electric-Resistance Allowed	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
		If gas, AFUE	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN
	Space Cooling	If Heat Pump, HSPF ⁷	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN
		SEER	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN
Central System Air Handlers	Refrigerant Charge Verification or Fault Indicator Display	NR	REQ	NR	NR	NR	NR	NR	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	NR	
	Whole House Fan ⁸	NR	NR	NR	NR	NR	NR	NR	REQ	REQ	REQ	REQ	REQ	REQ	REQ	NR	NR	
Water Heating	Central System	Central Fan Integrated Ventilation System Fan Efficacy	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ
		Ducts ¹⁰	R-8	R-8	R-6	R-8	R-6	R-6	R-6	R-8	R-8	R-8	R-8	R-8	R-8	R-8	R-8	R-8
	Roof/Ceiling	Options B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Options C	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6	R-6
All Buildings		System Shall meet Section 150.1(c)8																

Footnote requirements to TABLE 150.1-A:

1. Install the specified R-value with an air space present between the roofing and the roof deck. Such as standard installation of concrete or clay tile.
2. R-values shown for below roof deck insulation are for wood-frame construction with insulation installed between the framing members. Alternatives including insulation above rafters or above roof deck shall comply with the performance standards.
3. Assembly U-factors for exterior framed walls can be met with cavity insulation alone or with continuous insulation alone, or with both cavity and continuous insulation that results in an assembly U-factor equal to or less than the U-factor shown. Use Reference Joint Appendices JA4 Table 4.3.1, 4.3.1(a), or Table 4.3.4 to determine alternative insulation products to be less than or equal to the required maximum U-factor.
4. Mass wall has a heat capacity greater than or equal to 7.0 Btu/h-ft². “
5. “Interior” denotes insulation installed on the inside surface of the wall. “Exterior” denotes insulation installed on the exterior surface of the wall.
6. Below grade “interior” denotes insulation installed on the inside surface of the wall; and
Below grade “exterior” denotes insulation installed on the outside surface of the wall.
7. HSPF means "heating seasonal performance factor."
8. When whole house fans are required (REQ), only those whole house fans that are listed in the Appliance Efficiency Directory may be installed. Compliance requires installation of one or more WHFs whose total airflow CFM is capable of meeting or exceeding a minimum 1.5 cfm/square foot of conditioned floor area as specified by Section 150.1(c)12.
9. A supplemental heating unit may be installed in a space served directly or indirectly by a primary heating system, provided that the unit thermal capacity does not exceed 2 kilowatts or 7,000 Btu/hr and is controlled by a time-limiting device not exceeding 30 minutes.
10. For duct and air handler location: REQ denotes location in conditioned space. When the table indicates ducts and air handlers are in conditioned space, a HERS verification is required as specified by Reference Residential Appendix RA3.1.4.3.8.