



			CZ 7	CZ 10	CZ 14	CZ 15	Comments	
Insulation	Roofs ^A		Opt B ^D With Air Space	No b.r.d. R-30 ceiling Rad Barrier	R-19 b.r.d. R-38 ceiling No Rad Barrier	R-19 b.r.d. R-38 ceiling No Rad Barrier	R-19 b.r.d. R-38 ceiling No Rad Barrier	
			Opt C	R-30 ceiling Rad Barrier Ducts in cond. space	R-30 ceiling Rad Barrier Ducts in cond. space	R-38 ceiling Rad Barrier Ducts in cond. space	R-38 ceiling Rad Barrier Ducts in cond. space	
	Walls	Above Grade	Framed ^{A,E}	U-0.065	U-0.048	U-0.048	U-0.048	
			Mass Wall Interior ^F	U-0.077 R-13	U-0.077 R-13	U-0.077 R-13	U-0.077 R-13	or higher
			Mass Wall Exterior ^F	U-0.125 R-8	U-0.125 R-8	U-0.125 R-8	U-0.125 R-8	or higher
		Below Grade	Below-Grade Interior ^F	U-0.077 R-13	U-0.077 R-13	U-0.077 R-13	U-0.077 R-13	or higher
			Below-Grade Exterior ^F	U-0.200 R-5	U-0.200 R-5	U-0.100 R-10	U-0.100 R-10	or higher
	Floors	Slab Perimeter		NR ^K	NR	NR	NR	
		Raised ^A		U-0.037 R-19	U-0.037 R-19	U-0.037 R-19	U-0.037 R-19	or higher
		Concrete Raised		U-0.269 R-0	U-0.269 R-0	U-0.092 R-8	U-0.138 R-4	or higher
	Quality Insulation Installation (QII)			YES	YES	YES	YES	Requires HERS verification
	Roofing Products	Low-sloped	Aged Solar Reflectance	NR	NR	NR	0.63	or higher
			Thermal Emittance	NR	NR	NR	0.75	or higher
		Steep-sloped	Aged Solar Reflectance	NR	0.20	0.20	0.20	or higher
			Thermal Emittance	NR	0.75	0.75	0.75	or higher
Fenestration	Maximum U factor ^G		0.30	0.30	0.30	0.30		
	Maximum SHGC ^H		0.23	0.23	0.23	0.23		
	Maximum Total Area		20%	20%	20%	20%		
	Maximum West Facing Area		5%	5%	5%	5%		
Doors	Maximum U factor		0.20	0.20	0.20	0.20	Doors with ≥ 25% glazed area must meet applicable fenestration requirements (Section 100.1(b)). Doors require NFRC labels per Section 110.6(a)2	
Space Heating^B	Electric-Resistance Allowed		No	No	No	No		
	If gas, AFUE		MIN	MIN	MIN	MIN	Central furnace: <225 kBtuh: 80% AFUE or higher ^L	
	If Heat Pump, Heating Seasonal Performance Factor (HSPF)		MIN	MIN	MIN	MIN	Single-phase air source • Split: < 65 kBtuh 8.2 HSPF ^L • Packaged: < 65 kBtuh 8.0 HSPF or higher ^L	
Space Cooling	SEER		MIN	MIN	MIN	MIN	Central air conditioner or central air source heat pump • Split: < 45 kBtuh 14.0 SEER/12.2 EER ≥ 45 but < 65 kBtuh 14 SEER /11.7 EER • Packaged: < 65 kBtuh 14 SEER/11 EER or higher ^L	
	Refrigerant Charge Verification or Fault Indicator Display		NR	REQ	REQ	REQ		
	Whole House Fan (WHF) ^I		NR	REQ	REQ	NR		
Central System Air Handlers	Central Fan Integrated Ventilation System Fan Efficacy		REQ	REQ	REQ	REQ		
Ducts^C	Duct Insulation		R-6	R-6 or R-8 ^K	R6 or R-8 ^K	R-6 or R-8 ^K	or higher	
Water Heating	All Buildings		• One or more Gas Instantaneous ≤ 200 kBtuh • One Gas Storage ≤ 55 gallons; ≤ 75 kBtuh ^M • One Gas Storage ≥ 55 gallons; ≤ 75 kBtuh • One Heat Pump Water Heater (HPWH) located in garage or conditioned space ^N • One HPWH NEEA Tier 3 or higher located in garage or conditioned space ^O					

Notes

- A The U-factors/R-values shown are for wood-frame construction with insulation installed between the framing members, with continuous insulation where appropriate. For alternative construction assemblies, see [Section 150.1\(c\)1A, B and C](#).
- B 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 kW or 7,000 Btuh and is controlled by a time-limiting device not exceeding 30 minutes.
- C Duct sealing is a Mandatory Requirement in all Climate Zones, as confirmed through field verification and diagnostic testing. See [Section 150.0\(m\)11](#).
- D For Option B, where insulation directly below the roof deck is required, install R-19 (when specified) with an air space between the roofing and roof deck.
- E Any combination of cavity insulation and/or continuous insulation that results in a U-factor \leq the Prescriptive requirement is allowed.
- F Mass wall has a thermal heat capacity ≥ 7.0 Btuh-ft². Below-grade "interior" denotes insulation installed on the inside surface of the wall. Below-grade "exterior" denotes insulation installed on the outside surface of the wall. Insulation R-values are for continuous insulation for both above and below grade.
- G The installed fenestration products must meet the requirements of [Section 150.1\(c\)3](#). Specifically note exceptions in [Section 150.1\(c\)3A](#).
- H The installed fenestration products must meet the requirements of [Section 150.1\(c\)4](#). Note that there are options provided for SHGC compliance in [Section 150.1\(c\)4](#).
- I When whole house fans (WHF) are required, only those listed in the [California Energy Commission's Modernized Appliance Efficiency Database \(MAEDbS\)](#) may be installed. Compliance requires installation of one or more WHFs with total airflow capable of meeting or exceeding a minimum 1.5 cfm/ft² of conditioned floor area per [Section 150.1\(c\)12](#).
- J NR = No Requirement
- K For Climate Zones 8, 9 and 10, R-8 minimum is required if complying with Option B. If Option C is used, R-6 minimum and duct leakage testing is required.
- L For information about other HVAC equipment efficiency requirements, refer to [Chapter 4 of the 2019 Residential Compliance Manual](#).
- M Additionally, fenestration with a weighted average U-factor ≤ 0.24 , and one of the following:
a. HERS-verified compact hot water distribution system OR
b. HERS-verified drain water heat recovery system.
- N Additionally, the HPWH must be located in the garage or conditioned space and one of the following:
a. HERS-verified compact hot water distribution system and HERS-verified drain water heat recovery system OR
b. For Climate Zones 2-15, a photovoltaic system capacity of 0.3 kWdc > the Prescriptive sizing requirement ([Section 150.1\(c\)14](#)).
c. For Climate Zones 1 and 16, a photovoltaic system capacity of 1.1 kWdc > the Prescriptive sizing requirement ([Section 150.1\(c\)14](#)).
- O Additionally, the HPWH must be located in the garage or conditioned space and for Climate Zones 1 and 16, a photovoltaic system capacity of 0.3 kWdc > the Prescriptive sizing requirement ([Section 150.1\(c\)14](#)), or HERS-verified compact hot water distribution system.

For more information

- See Energy Code Ace Quick Reference Sheets:
energycodeace.com/content/resources-fact-sheets/
 - Residential Heating & Cooling Equipment Minimum Efficiencies 2019
 - Short Glossary of Terms 2019



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