



			CZ 7	CZ 10	CZ 14	CZ 15	Comments	
<b>Insulation<sup>A</sup></b>	Roofs	Opt A No Air Space	No c.i. <sup>K</sup> R-30 ceiling Rad Barrier	R-8 c.i. R-38 ceiling Rad Barrier	R-8 c.i. R-38 ceiling Rad Barrier	R-8 c.i. R-38 ceiling Rad Barrier		
		Opt A With Air Space	No c.i. R-30 ceiling Rad Barrier	R-6 c.i. R-38 ceiling Rad Barrier	R-6 c.i. R-38 ceiling Rad Barrier	R-6 c.i. R-38 ceiling Rad Barrier		
		Opt B <sup>E</sup> No Air Space	No b.r.d. <sup>K</sup> R-30 ceiling Rad Barrier	R-18 b.r.d. R-38 ceiling No Rad Barrier	R-18 b.r.d. R-38 ceiling No Rad Barrier	R-18 b.r.d. R-38 ceiling No Rad Barrier		
		Opt B <sup>E</sup> With Air Space	No b.r.d. R-30 ceiling Rad Barrier	R-13 b.r.d. R-38 ceiling No Rad Barrier	R-13 b.r.d. R-38 ceiling No Rad Barrier	R-13 b.r.d. R-38 ceiling No Rad Barrier		
		Opt C	No c.i. R-30 ceiling Rad Barrier Ducts in cond. space	No c.i. R-30 ceiling Rad Barrier Ducts in cond. space	No c.i. R-38 ceiling Rad Barrier Ducts in cond. space	No c.i. R-38 ceiling Rad Barrier Ducts in cond. space		
	Walls	Above Grade	Framed <sup>F</sup>	U-0.065	U-0.051	U-0.051	U-0.051	
			Mass Wall Interior <sup>G</sup>	U-0.070 R-13	U-0.070 R-13	U-0.070 R-13	U-0.070 R-13	or higher
			Mass Wall Exterior <sup>G</sup>	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 <sup>G</sup>	U-0.070 R-13	U-0.070 R-13	U-0.070 R-13	U-0.070 R-13	or higher
			Below Grade Exterior <sup>G</sup>	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 <sup>L</sup>	NR	NR	NR	
		Raised		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
	<b>Roofing Products</b>	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	
<b>Fenestration</b>	Maximum U factor <sup>H</sup>		0.32	0.32	0.32	0.32		
	Maximum SHGC <sup>I</sup>		0.25	0.25	0.25	0.25		
	Maximum Total Area		20%	20%	20%	20%		
	Maximum West Facing Area		5%	5%	5%	5%		
<b>Space Heating<sup>B, C</sup></b>	Electric-Resistance Allowed		No	No	No	No		
	If gas, AFUE		MIN	MIN	MIN	MIN	Central furnace: ≥225,000 kBtuh 80% AFUE or higher <sup>N</sup>	
	If Heat Pump, Heating Seasonal Performance Factor (HSPF)		MIN	MIN	MIN	MIN	Single-phase air source Split: < 65 kBtuh 8.2 HSPF Packaged: < 65 kBtuh 8.0 HSPF or higher <sup>N</sup>	
<b>Space Cooling</b>	SEER		MIN	MIN	MIN	MIN	Central air conditioner or central air source heat pump	
	Refrigerant Charge Verification or Charge Indicator Display		NR	REQ	REQ	REQ	Split: < 45 kBtuh 14.0 SEER/12.2 EER ≥ 45 but < 65 kBtuh 14 SEER/ 11.7 EER	
	Whole House Fan <sup>J</sup>		NR	REQ	REQ	NR	Packaged: < 65 kBtuh 14 SEER/ 11 EER or higher <sup>N</sup>	
<b>Central System Air Handlers</b>	Central Fan Integrated Ventilation System Fan Efficacy		REQ	REQ	REQ	REQ		
<b>Ducts<sup>D</sup></b>	Duct Insulation		R-6	R-6 or R-8 <sup>M</sup>	R6 or R-8 <sup>M</sup>	R-6 or R-8 <sup>M</sup>	or higher	
<b>Water Heating</b>	All Buildings		Gas Storage ≤ 55 gallons; ≤ 105 kBtuh Tankless Instantaneous ≤ 200 kBtuh				Apr 16, 2015: 0.675-(0.0015*V) <sup>O</sup> EF or higher	

# Notes

- A The U-factors/R-values shown for ceiling, wall and raised floor insulation 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 Furnaces shall have an electrical standby mode power consumption and electrical off mode power consumption not more than the following:
- Non-weatherized gas furnaces (not including mobile home furnaces)..... 10W
  - Non-weatherized oil-fired furnaces (not including mobile home furnaces)..... 11W
  - Electric furnaces ..... 10W
- Central air conditioners and central air conditioning heat pumps manufactured on or after January 1, 2015, shall have an average off mode electrical power consumption of:
- Split-system air conditioners..... 30W
  - Split-system heat pumps..... 33W
  - Single-package air conditioners..... 30W
  - Single-package heat pumps ..... 33W
  - Small-duct, high-velocity systems..... 30W
  - Space-constrained air conditioners..... 30W
  - Space-constrained heat pumps..... 33W
- D Duct sealing is a Mandatory Requirement in all climate zones, as confirmed through field verification and diagnostic testing. See [Section 150.0\(m\)11](#).
- E For Option B, where insulation directly below the roof deck is required, either R-13 insulation between rafters with an air space or R-18 insulation between the rafters with no air space is required.
- F U-factors can be met by cavity insulation alone or with continuous insulation alone, or with both cavity and continuous insulation that results in a U-factor  $\leq$  the U-factor shown. Any combination of cavity insulation and/or continuous insulation that results in a U-factor  $\leq$  the Prescriptive requirement is allowed.
- G Mass wall has a thermal heat capacity  $\geq 7.0$  Btuh-ft<sup>2</sup>. 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.
- H The installed fenestration products shall meet the requirements of [Section 150.1\(c\)3](#).
- I The installed fenestration products shall meet the requirements of [Section 150.1\(c\)4](#).
- J When whole house fans (WHF) are required, only those listed in the [Energy Commission Title 20 Appliance Efficiency Database](#) may be installed. Compliance requires installation of one or more WHFs with total airflow capable of meeting or exceeding a minimum 1.5 cfm/ft<sup>2</sup> of conditioned floor area per [Section 150.1\(c\)12](#).
- K c.i. = continuous insulation  
b.r.d. = below roof deck insulation
- L NR = No Requirement
- M If Prescriptive Roof Option A or B is used, R-8 duct insulation is required. For Prescriptive Option C, R-6 is required.
- N For information about other HVAC equipment efficiency requirements, refer to [Chapter 4 of the 2016 Residential Compliance Manual](#).
- O V= rated storage volume of water heater in gallons

## For more information

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



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