



# Basic and Alternative Compliance Packages for New Residential Buildings

Component			Basic Package C (Electric Resistance)			Basic Package D (Standard)			Basic Package E (Metal Frame)		
			Climate Zone			Climate Zone			Climate Zone		
			6	9	16	6	9	16	6	9	16
Insulation minimums <sup>1</sup>	Ceilings		R38	R38	R49	R30	R30	R38	R38	R30	R49
	Walls	Wood-frame walls	R21	R21	R29	R13	R13	R21	R19	R19	R21
		Heavy mass walls	NA	NA	NA	R2.44	R2.44	R4.76	(R2.44)	(R2.44)	(R4.76)
		Light mass walls	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Below-grade walls	NA	NA	NA	R0	R0	R13	R0	R0	R13
	Floors	Slab floor perimeter	R7	R7	R7	NR	NR	R7	NR	NR	R7
		Raised floors	R21	R21	R30	R19	R19	R19	R19	R19	R19
Concrete raised floors		NA	NA	NA	R0	R0	R8	R0	R0	R8	
Radiant Barrier			NR	REQ	NR	NR	REQ	NR	NR	REQ	NR
Roofing Products	Low-sloped	Aged Solar Reflectance	NR	NR	NR	NR	NR	NR	NR	NR	NR
		Thermal Emittance	NR	NR	NR	NR	NR	NR	NR	NR	NR
	Steep Sloped (less than 5 lb/ft <sup>2</sup> )	Aged Solar Reflectance	NR	NR	NR	NR	NR	NR	NR	NR	NR
		Thermal Emittance	NR	NR	NR	NR	NR	NR	NR	NR	NR
	Steep Sloped (5 lb/ft <sup>2</sup> or more)	Aged Solar Reflectance	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
		Thermal Emittance	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Fenestration	Maximum U-factor <sup>2</sup>		0.38	0.38	0.38	0.40	0.40	0.40	0.57	0.57	0.45 <sup>9</sup>
	Maximum Solar Heat Gain Coefficient (SHGC) <sup>3</sup>		0.40	0.40	NR	0.40	0.40	NR	0.40	0.40	NR
	Maximum Total Area		14%	14%	14%	20%	20%	20%	20%	20%	20%
	Maximum West Facing Area		NR	5%	NR	NR	5%	NR	NR	5%	NR
THERMAL MASS <sup>4</sup>			REQ	REQ	REQ	NR	NR	NR	NR	NR	NR
SPACE- HEATING <sup>5, 10</sup>	Electric-resistant allowed		Yes	Yes	Yes	No	No	No	No	No	No
	If gas, AFUE =		MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN <sup>9</sup>
	If heat pump, HSPF <sup>6</sup> =		MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN <sup>9</sup>
SPACE- COOLING	SEER =		MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN
	If split system, Refrigerant charge measurement or charge indicator display		NR	REQ	NR	NR	REQ	NR	NR	REQ	NR
Central Forced Air Handlers	Cooling Airflow and Watt Draw		NR	NR	NR	NR	NR	NR	NR	NR	NR
	Central Fan Integrated Ventilation System Watt Draw		REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ
Ducts	Duct Sealing*		REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ
	Duct Insulation		R-8	R-8	R-8	R-4.2	R-6	R-8	R-4.2	R-6	R-8
Domestic Water Heating Type System must meet budget, see sections 151(b) <sup>7</sup> or 151(f) <sup>8</sup>			50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget	50 Gallons or Meet Budget

Legend: NR = Not Required; NA = Not Applicable; MIN - Minimum Rated Capacity

\* Duct Sealing and thermostatic expansion valve shall be field verified by HERS (Home Energy Rating System) rater.

- 1 The R-values shown for ceiling, wood frame wall and raised floor are for wood-frame construction with insulation installed between the framing members. For alternative construction assemblies, see Section 151(f)1A.  
The heavy mass wall R-value in parentheses is the minimum R-value for the entire wall assembly if the wall weight exceeds 40 pounds per square foot. The light mass wall R-value in brackets is the minimum R-value for the entire assembly if the heat capacity of the wall meets or exceeds the result of multiplying the bracketed minimum R-value by 0.65. Any insulation installed on heavy or light mass walls must be integral with, or installed on the outside of, the exterior mass. The inside surface of the thermal mass, including plaster or gypsum board in direct contact with the masonry wall, shall be exposed to the room air. The exterior wall used to meet the R-value in parentheses cannot also be used to meet the thermal mass requirement.
- 2 The installed fenestration products shall meet the requirements of Section 151(f)3.
- 3 The installed fenestration products shall meet the requirements of Section 151(f)4.
- 4 If the package requires thermal mass, the thermal mass shall meet the requirements of Section 151(f)5.
- 5 Thermostats shall be installed in conjunction with all space-heating systems in accordance with Section 151(f)9.
- 6 HSPF means "heating seasonal performance factor."
- 7 Electric-resistance water heating may be installed as the main water heating source in Package C only if the water heater is located within the building envelope and a minimum of 25 percent of the energy for water heating is provided by a passive or active solar system.
- 9 As an alternative under Package E in climate zone 16, glazing with a maximum 0.57 U-factor and a 90% AFUE furnace or an 8.4 HSPF heat pump may be substituted for the Package E glazing U-factor requirement. All other requirements of Package E must be met.
- 10 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.