

REVISION RECORD FOR THE STATE OF CALIFORNIA

ERRATA

January 1, 2015

2013 Title 24, Part 6, California Code of Regulations

General Information:

1. The date of this erratum is for identification purposes only. See the History Note Appendix on the back side or accompanying page.
2. This erratum is issued by the California Building Standards Commission in order to correct nonsubstantive printing errors or omissions in California Code of Regulations, Title 24, Part 6, of the 2013 *California Energy Code*. Instructions are provided below.
3. Health and Safety Code Section 18938.5 establishes that only building standards in effect at the time of the application for a building permit may be applied to the project plans and construction. This rule applies to both adoptions of building standards for Title 24 by the California Building Standards Commission, and local adoptions and ordinances imposing building standards. An erratum to Title 24 is a nonregulatory correction because of a printing error or omission that does not differ substantively from the official adoption by the California Building Standards Commission. Accordingly, the corrected code text provided by this erratum may be applied on and after the stated effective date.
4. You may wish to retain the superseded material with this revision record so that the prior wording of any section can be easily ascertained.

Title 24, Part 6

Remove Existing Pages

131 and 132

135 and 136

Insert Buff Colored Pages

131 and 132

135 and 136

13. **HVAC system bypass ducts.** Unless otherwise specified on the certificate of compliance, bypass ducts that deliver conditioned supply air directly to the space conditioning system return duct airflow shall not be used. All zonally controlled forced air systems shall be verified by a HERS Rater utilizing the procedure in Reference Residential Appendix Section RA3.1.4.6 to confirm compliance with Section 150.1(c)13.

TABLE 150.1-A
COMPONENT PACKAGE A-STANDARD BUILDING DESIGN

		CLIMATE ZONES																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
BUILDING ENVELOPE	INSULATION ¹	ROOFS/CEILINGS	U 0.025 R-38	U 0.031 R-30	U 0.031 R-30	U 0.031 R-30	U 0.031 R-30	U 0.031 R-30	U 0.031 R-30	U 0.031 R-30	U 0.031 R-30	U 0.025 R-38	U 0.025 R-38	U 0.025 R-38	U 0.025 R-38	U 0.025 R-38	U 0.025 R-38			
		Walls	2x4 Framed ²	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5	U 0.065 R-15+4 or R-13+5		
			Mass Wall Interior ³	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.059 R-17	
		Below grade	Mass Wall Exterior ³	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 0.070 R-13	
			Below Grade Interior ³	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.070 R-13	U 0.066 R-15	
		Floors	Below Grade Exterior ³	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 0.100 R-10	U 0.100 R-10	U 0.053 R-19	
			Slab perimeter	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	U 0.058 R-7.0	
		HVAC SYSTEM ⁶	ROOFING PRODUCTS	Low-sloped	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	
				Steep-sloped	Thermal emittance	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 0.092 R-8.0	U 0.138 R-4.0	U 0.092 R-8.0	U 0.138 R-4.0	U 0.092 R-8.0
					Thermal emittance	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
FENESTRATION	Maximum U-factor ⁴		0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32		
	Maximum SHGC ⁵		NR	0.25	NR	0.25	NR	0.25	NR	0.25	NR	0.25	NR	0.25	NR	0.25	NR	0.25		
	Maximum total area		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%		
	Maximum west facing area		NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%	NR	5%		
Space Heating	Electric-resistance allowed		No	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		
	If heat pump, HSPF ⁶ =		MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN		
Space Cooling	SEER =	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN	MIN			
	Refrigerant charge verification or charge indicator display	NR	REQ	NR	NR	NR	NR	NR	NR	NR	NR	REQ	REQ	REQ	REQ	REQ	NR			
Central System Air Handlers ⁸	Whole house fan ⁷	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR			
	Central fan integrated ventilation system fan efficacy	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ	REQ			
	Duct insulation	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-8			
Water Heating	All Buildings	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-8			

System Shall meet Section 150.1(c)⁸

continued

SUBCHAPTER 9

LOW-RISE RESIDENTIAL BUILDINGS—ADDITIONS AND ALTERATIONS IN EXISTING LOW-RISE RESIDENTIAL BUILDINGS

SECTION 150.2 ENERGY EFFICIENCY STANDARDS FOR ADDITIONS AND ALTERATIONS IN EXISTING BUILDINGS THAT WILL BE LOW-RISE RESIDENTIAL OCCUPANCIES

(a) **Additions.** Additions to existing residential buildings shall meet the requirements of Sections 110.0 through 110.9, and Section 150.0(a) through (q), and either Section 150.2(a)1 or 2.

Exception 1 to Section 150.2(a): Additions 1,000 square feet or less are exempt from the ASHRAE Standard 62.2 Section 4 requirements to provide whole-building ventilation airflow as referenced by Section 150.0(o); however, all other applicable requirements of ASHRAE Standard 62.2 as referenced by Section 150.0(o) shall be met by the addition.

Exception 2 to Section 150.2(a): Additions of 300 square feet or less are exempt from the roofing requirements of Section 150.1(c)11.

Exception 3 to Section 150.2(a): Existing inaccessible piping shall not require insulation as defined under Section 150.0(j)2A iii.

Exception 4 to Section 150.2(a): Space-conditioning system. When heating or cooling will be extended to an addition from the existing system(s), the existing heating and cooling equipment need not comply with Part 6. The heating system capacity must be adequate to meet the minimum requirements of CBC Section 1204.1.

Exception 5 to Section 150.2(a): Space-conditioning system ducts. When ducts are extended from an existing duct system to serve the addition, the existing duct system and the extended ducts shall meet the applicable requirements specified in Section 150.2(b)1D.

Exception 6 to Section 150.2(a): Additions 1,000 square feet or less are exempt from the ventilation cooling requirements of Section 150.1(c)12.

1. **Prescriptive approach.** Additions to existing buildings shall meet the following additional requirements:
 - A. Additions that are greater than 700 square feet shall meet the prescriptive requirements of Section 150.1(c)3, except that the maximum allowed fenestration area shall be the greater of 175 square feet or 20 percent of the addition floor area, and the maximum allowed west-facing fenestration area shall be the greater of 70 square feet or the requirements of Section 150.1(c)3.
 - B. Additions that are 700 square feet or less shall meet all the requirements of Section 150.1(c), except that

the wall insulation value need not exceed R-13. In Climate Zones 2, 4 and 7-16; the maximum allowed west-facing fenestration area shall not be greater than 60 square feet; and shall also comply with either i or ii below:

- i. For additions that are 700 square feet or less but greater than 400 square feet, the maximum allowed fenestration area limit is the greater of 120 square feet or 25 percent of the conditioned floor area of the addition; or
 - ii. For additions that are 400 square feet or less, the maximum allowed fenestration area is the greater of 75 square feet or 30 percent of the conditioned floor area of the addition.
- C. Additions larger than 1,000 square feet shall meet the ASHRAE Standard 62.2 Section 4 requirement to provide whole-building ventilation airflow. The whole-building ventilation airflow rate shall be based on the conditioned floor area of the entire dwelling unit comprised of the existing dwelling conditioned floor area plus the addition conditioned floor area.
- D. **Water heater.** When a second water heater is installed as part of the addition, one of the following types of water heaters shall be installed and assumed to comply:
- i. A natural gas or propane water-heating system that meets the requirements of Section 150.1(c)8; or
 - ii. If no natural gas is connected to the building, an electric water heater that has an energy factor equal to or greater than required under the appliance efficiency regulations. Recirculation pumps shall not be used; or
 - iii. A water-heating system determined by the executive director to use no more energy than the one specified in Item 1 above; or if no natural gas is connected to the building, a water-heating system determined by the executive director to use no more energy than the one specified in Item 2 above; or
 - iv. Using the existing building plus addition compliance or addition alone compliance as defined in Section 150.2(a)2 demonstrate that the proposed water heating system uses no more energy than the system defined in Item 1 above regardless of the type or number of water heaters installed.

2. **Performance approach.** Performance calculations shall meet the requirements of Section 150.1(a) through (c), pursuant to the applicable requirements in Items A, B and C below.

- A. For additions alone. The addition complies if the addition alone meets the energy budgets as specified in Section 150.1(b).
- B. Existing plus alteration plus addition. The standard design for existing plus alteration plus addition energy use is the combination of the existing building's unaltered components to remain; existing building altered components that are the more efficient, in TDV energy, of either the existing conditions or the requirements of Section 150.2(b)2; plus the proposed addition's energy use meeting the requirements of Section 150.2(a)1. The proposed design energy use is the combination of the existing building's unaltered components to remain and the altered components' energy features, plus the proposed energy features of the addition.

Exception to Section 150.2(a)2B: Existing structures with a minimum R-11 insulation in framed walls showing compliance with Section 150.2(a)2 are exempt from showing compliance with Section 150.0(c).

- C. Additions larger than 1,000 square feet shall meet the ASHRAE Standard 62.2 Section 4 requirement to provide whole-building ventilation airflow. The whole-building ventilation airflow rate shall be based on the conditioned floor area of the entire dwelling unit comprised of the existing dwelling conditioned floor area plus the addition conditioned floor area.

(b) **Alterations.** Alterations to existing residential buildings or alterations in conjunction with a change in building occupancy to a low-rise residential occupancy shall meet either Item 1 or 2 below.

1. **Prescriptive approach.** The altered component and any newly installed equipment serving the alteration shall meet the applicable requirements of Sections 110.0 through 110.9 and all applicable requirements of Section 150.0(a) through (q); and

- A. **Fenestration.** Alterations that add vertical fenestration and skylight area shall meet the total fenestration area and west facing fenestration area, *U*-factor, and solar heat gain coefficient requirements of Section 150.1(c)3 and Table 150.1-A.

Exception 1 to Section 150.2(b)1A: Alterations that add fenestration area of up to 75 square feet shall not be required to meet the total fenestration area and west-facing fenestration area requirements of Section 150.1(c)3B and C.

Exception 2 to Section 150.2(b)1A: Alterations that add up to 16 square feet of new skylight area with a maximum *U*-factor of 0.55 and a maximum SHGC of 0.30 area shall not be required to meet

the total fenestration area and west-facing fenestration area requirements of Sections 150.1(c)3B and C.

- B. **Replacement fenestration.** Replacement of fenestration, where existing fenestration area in an existing wall or roof is replaced with a new manufactured fenestration product and up to the total fenestration area removed in the existing wall or roof, the replaced fenestration shall meet the *U*-factor and solar heat gain coefficient requirements of Sections 150.1(c)3A and 150.1(c)4.

Exception 1 to Section 150.2(b)1B: Replacement of vertical fenestration no greater than 75 square feet with a *U*-factor no greater than 0.40 in Climate Zones 1-16, and a SHGC value no greater than 0.35 in Climate Zones 2, 4 and 6-16.

Exception 2 to Section 150.2(b)1B: Replaced skylights must meet a *U*-factor no greater than 0.55, and a SHGC value no greater than 0.30.

Note: Glass replaced in an existing sash and frame or replacement of sashes in an existing frame are considered repairs.

- C. **Entirely new or complete replacement space-conditioning systems** installed as part of an alteration, shall include all the system heating or cooling equipment (e.g., condensing unit and cooling or heating coil for split systems; or complete replacement of a package unit); plus entirely new or replacement duct system (Section 150.2(b)1Diia); plus a new or replacement air handler.

Entirely new or complete replacement space-conditioning systems shall:

- i. Meet the requirements of Sections 150.0(h), 150.0(i), 150.0(j)2, 150.0(j)3, 150.0(m)1 through 150.0(m)11, 150.1(c)6, 150.1(c)7, 150.1(c)9 and 150.1(c)10; and
- ii. Be limited to natural gas, liquefied petroleum gas or the existing fuel type unless it can be demonstrated that the TDV energy use of the new system is more efficient than the existing system.

- D. **Altered duct systems - duct sealing.** In all climate zones when more than 40 feet of new or replacement space-conditioning system ducts are installed in unconditioned space or indirectly conditioned space:

- i. The new ducts shall meet the applicable requirements of Sections 150.0(m)1 through 150.0(m)11, and the duct insulation requirements of Table 150.1-A, and
- ii. The altered duct system shall be sealed as confirmed through field verification and diagnostic testing in accordance with all applicable procedures for duct sealing of altered existing duct systems as specified in the Reference Residential Appendix RA3.1, utilizing the leakage compliance criteria specified in

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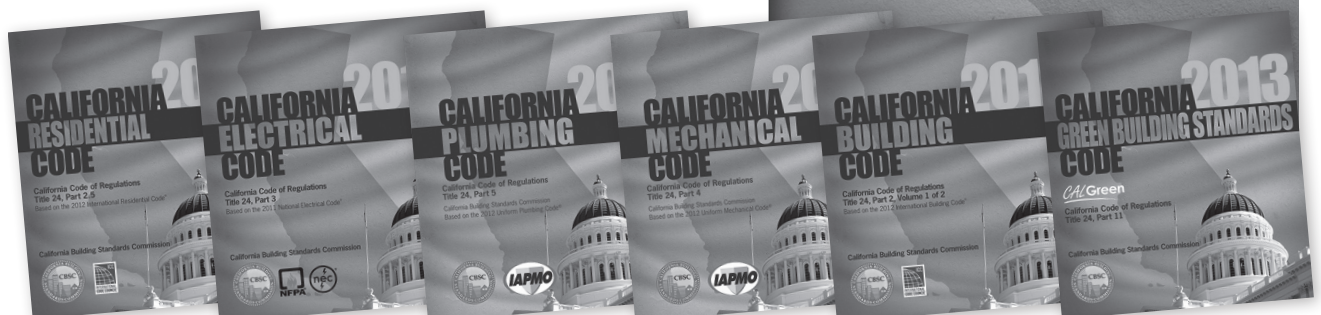
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