

**CALIFORNIA ENERGY COMMISSION**

1516 Ninth Street Sacramento, California 95814

Main website: [www.energy.ca.gov](http://www.energy.ca.gov)**2013 BUILDING ENERGY EFFICIENCY STANDARDS****CALIFORNIA CODE OF REGULATIONS****Title 24, Part 6, and Associated Administrative Regulations in Part 1****(CALIFORNIA ENERGY CODE)****CALIFORNIA ENERGY COMMISSION****DOCKET NUMBER 12-BSTD-1****NONSUBSTANTIAL ERRATA****SEPTEMBER 2013****1. PART 6, TABLE 110.2-E, Ca.E.C.<sup>1</sup> p.81**

## Explanation:

Restoring footnotes as shown in published 15-day Language adopted May 2012, p. 94, but inadvertently removed in final **Ca.E.C.** language publication.

## Errata:

<sup>a</sup> – cap means the rated cooling capacity of the product in Btu/h. If the unit's capacity is less than 7000 Btu/h, use 7000 Btu/h in the calculation. If the unit's capacity is greater than 15,000 Btu/h, use 15,000 Btu/h in the calculation.

<sup>b</sup>Replacement units must be factory labeled as follows: "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY; NOT TO BE INSTALLED IN NEWLY CONSTRUCTED BUILDINGS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches high or less than 42 inch wide and having a cross-sectional area less than 670 square inches.

<sup>c</sup>Applicable test procedure and reference year are provided under the definitions

<sup>1</sup> Ca.E.C. references are to Building Energy Efficiency Standards for Residential and Nonresidential Buildings, Cal. Code Regs., Title 24, Part 6, and Associated Administrative Regulations in Part 1, California Energy Commission publication no. CEC-400-2012-004-CMF, May 2012, available at: <http://www.energy.ca.gov/2012publications/CEC-400-2012-004/CEC-400-2012-004-CMF.pdf>

**2. PART 6, SECTION 120.2(i), BSC<sup>2</sup> p. 51, Ca.E.C., p. 103**

Explanation:

**Added for clarification that the return air temperature sensor requirement is only applicable for differential temperature control (which is an acceptable control method based on table 140.4-B.)**

Erratum:

- (i) **Economizer Fault Detection and Diagnostics (FDD).** All newly installed air-cooled unitary direct-expansion units, equipped with an economizer and with mechanical cooling capacity at AHRI conditions of greater than or equal to 54,000 Btu/hr, shall include a Fault Detection and Diagnostics (FDD) system in accordance with Subsections 120.2(i)1 through 120.2(i)9. Air-cooled unitary direct expansion units include packaged, split-systems, heat pumps, and variable refrigerant flow (VRF), where the VRF capacity is defined by that of the condensing unit.
1. The following temperature sensors shall be permanently installed to monitor system operation: outside air, supply air, ~~and return air~~ and, when required for differential economizer operation, a return air sensor; and

**3. PART 6, SECTION 130.5, Ca.E.C. p. 145**

Explanation:

Relocate position of exception to Section 130.5(a) from under subdivision (b) to subdivision (a).

Erratum:

(a) **Service Metering.** Each electrical service shall have permanently installed user-accessible metering of total electrical energy use per TABLE 130.5-A.

**EXCEPTION to Section 130.5(a) Buildings for which the utility company provides a meter for occupant or user use that indicates instantaneous kW demand and kWh for a user-resettable period.**

**4. PART 6, SECTION 140.1 BSC p. 75 Ca.E.C. p. 149**

Explanation:

The phrase “Indoor lighting” was inadvertently deleted from 15-day language. As stated in the Initial Statement of Reasons at the inception of the rulemaking, the performance approach compares a proposed building’s energy use with the energy use of a similar building that adhered to the prescriptive requirements. (See Initial Statement of Reasons, pp. 2, 17; see also Final Statement of Reasons, p. 42.) Covered processes are subject to the same installation and efficiency requirements independent of whether the building in which they are placed demonstrate compliance with the Building Energy Efficiency Standards using the performance or prescriptive approaches. Adding “covered process loads” to Section 140.1(b) is not a material change because it brings the text into conformance with the stated intent of the rulemaking and maintains the internal consistency of the regulations.

<sup>2</sup> B.S.C. references are to Building Standards Commission published codes available at: <http://www.bsc.ca.gov/codes.aspx>.

Erratum:

- (b) **Energy Budget for the Proposed Design Building.** The energy budget for a Proposed Design Building is determined by calculating the TDV energy for the Proposed Design Building. The energy budget is the sum of the TDV energy for space-conditioning, indoor lighting, mechanical ventilation and service water heating and covered process loads.

**5. PART 6, SECTION 140.3 (a)1A.iii. BSC p. 76 Ca.E.C. p. 151**

Explanation:

Added Climate Zone 9 to conform to Table 140.3-C as published in 15-Day Language and final **Ca.E.C.** published language and BSC pg. 81.

Erratum:

- ii. High-rise residential buildings and hotels and motels:
  - a. Low-sloped roofs in Climate Zones 9, 10, 11, 13, 14 and 15 shall have a minimum aged solar reflectance of 0.55 and a minimum thermal emittance of 0.75, or a minimum SRI of 64.

**6. PART 6, TABLE 140.3-C BSC p. 81 Ca.E.C. p. 160**

Explanation and Erratum:

Corrected footnote to proper unit of measurement, in Table 140.3-C from Btu/h-ft<sup>2</sup> to Btu/ft<sup>2</sup>-F<sup>0</sup>.

**7. PART 6, SECTION 140.4 (e)4C. BSC p. 85 Ca.E.C. p. 167**

Explanation:

Corrected definition to conform to **Ca.E.C.** 15-day Language adopted May 2012.

Erratum:

- C. **Damper leakage.** Economizer and return dampers shall be certified to have a maximum leakage rate of 10 cfm/sf at 1.0 in. w.g. when tested in accordance with AMCA Standard 500. ~~Economizer and return dampers shall be certified in accordance with AMCA Publication 500 to have a maximum leakage rate of 10 cfm/sf at 1.0 in. w.g.~~

**8. PART 6, SECTION 141.0, BSC p. 109 Ca.E.C., p. 199**

**Explanation:**

**Added final language published by Ca.E.C. in 15-Day Language adopted May 2012, but missing in BSC publication.**

**Erratum:****EXCEPTION to Section 141.0(b)2Biii**

- a. Existing roofs that are insulated with at least R-7 insulation or it has a U-factor lower than 0.089 are not required to meet the R-value requirement of TABLE 141.0-C.
- b. If mechanical equipment is located on the roof and will not be disconnected and lifted as part of the roof replacement, insulation added may be limited to the maximum insulation thickness that will allow a height of 8 inches (203 mm) from the roof membrane surface to the top of the base flashing.
- c. If adding the required insulation will reduce the base flashing height to less than 8 inches (203 mm) at penthouse or parapet walls, the insulation added may be limited to the maximum insulation thickness that will allow a height of 8 inches (203 mm) from the roof membrane surface to the top of the base flashing, provided that the conditions in Subsections i through iv apply:

**9. PART 6, SECTION 141.0, BSC p. 110 Ca.E.C. p. 201****Explanation:**

**Section 141.0(b)2Ei** describes the requirements for installation of demand responsive thermostats in alteration. **Section 141.0(b)2Eii** describes the duct sealing requirements in alterations. These two subdivisions are mutually exclusive. Exceptions 1, 2, and 3 immediately following subdivision ii contain the phrase “Duct Sealing” in the header. These three exceptions address only issues related to the duct sealing provisions of subdivision ii. They do not concern the provisions of subdivision i regarding demand responsive thermostats. Clarifying the exceptions as related to the duct sealing requirements by adding the precise citation to subdivision ii does not materially affect the requirements of the regulation.

Errata:

**EXCEPTION 1 to Section 141.0(b)2Eii: Duct Sealing.** Buildings altered so that the duct system no longer meets the criteria of Sections 144 (l)1, 2, and 3 are exempt from the requirements of Subsection 141.0(b)2Eii.

**EXCEPTION 2 to Section 141.0(b)2Eii: Duct Sealing.** Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2 are exempt from the requirements of Subsection 141.0(b)2Eii.

**EXCEPTION 3 to Section 141.0(b)2Eii: Duct Sealing.** Existing duct systems constructed, insulated or sealed with asbestos are exempt from the requirements of Subsection 141.0(b)2Eii.

**10. PART 6, SECTION 150.0 (c) BSC p. 115 Ca.E.C. p.209**

Explanation:

Corrected numbering.

Errata:

**EXCEPTION to Section 150.0(c):** Existing walls already insulated to an installed thermal resistance of R-11 or greater.

**11. PART 6, SECTION 150.0(m)13A AND 150.0(m)15 BSC p. 122 Ca.E.C. p. 217**

Explanation:

**Added “or equal to” to accommodate variations in measurement and instrumentation. The edit does not materially change the substantive requirement.**

Errata:

**EXCEPTION to 150.0(m)13A:** Systems that cannot conform to the specifications for hole location in Reference Residential Appendix Figure RA3.3-1 shall not be required to provide holes as described in Figure RA3.3-1.

B. Demonstrate, in every control mode, airflow greater than or equal to 350 CFM per ton of nominal cooling capacity through the return grilles, and an air-handling unit fan efficacy less than or equal to 0.58 W/CFM as confirmed by field verification and diagnostic testing in accordance with the procedures given in Reference Residential Appendix RA3.3.

15. **Zonally Controlled Central Forced Air Systems.** Zonally controlled central forced air cooling systems shall be capable of simultaneously delivering, in every zonal control mode, an airflow from the dwelling, through the air handler fan and delivered to the dwelling, of greater than or equal to 350 CFM per ton of nominal cooling capacity, and operating at an air-handling unit fan efficacy of less than or equal to 0.58 W/CFM as confirmed by field verification and diagnostic testing in accordance with the applicable procedures specified in Reference Residential Appendix RA3.3.

**12. PART 6, TABLE 150.1 –A, COMPONENT PACKAGE-A STANDARD BUILDING DESIGN BSC p. 132 Ca.E.C. pp. 228 and 229**

Explanation and Errata:

Restored inadvertently omitted value of R-38 for roof/ceiling insulation in climate zone 12. R-38 is equivalent to a U-Factor of 0.025. (See Reference Joint Appendix JA4.2, Table 4.2.1.)

Corrected values in Table 150.1-A to conform to text of Section 150.1(c)11B, as shown in BSC publication, of 0.63 for low-sloped aged solar reflectance for climate zones 13 and 15, which was inadvertently crossed out in the table in the Ca.E.C published 15-day language.

Moved footnote indicator #8 from “central system air handlers” to reference “space heating.”

**13. PART 6, SECTION 150.2 Ca.E.C. p. 232-238**

Explanation and Erratum:

**Fixed footer from 150.1 to correspond to 150.2 in CEC publication only.**

**14. PART 6, RA3.1.1, RA3.1.4, 3.1.4.1.4 Ca. E.C. p. RA3-3 TO RA 3-5**

Explanation:

Remove the word “supply” from the first sentence of RA3.1.1 and the first column of Table RA3.1-1 to more accurately reflect the content of Section RA3.1, Field Verification and Diagnostic Testing of Air Distribution Systems. There are no changes to the requirements contained in Section RA3.1.

Errata:

**RA3.1.1 Purpose and Scope**

- Table RA3.1-1 contains procedures for measuring the air leakage in forced air distribution systems as well as procedures for verifying ~~supply~~ duct location, ~~supply~~ duct surface area, ~~supply~~ duct R-value, return duct design, return grille design, and air filter installation.

*Table RA3.1-1 – Summary of Duct System Field Verification and Diagnostic Test Protocols*

Verification/Diagnostic	Description	Procedure
<del>Supply</del> Duct Location, Surface Area and R-value	Verify duct system was installed according to the specifications on the Certificate of Compliance or in accordance with an approved duct system design layout.	RA3.1.4.1
Verified Duct System Design	Procedure for duct system design layout approval and field verification	RA3.1.4.1.1
Duct Leakage	Verify that duct leakage is less than or equal to the compliance criteria given in Table RA3.1-2.	RA3.1.4.3
Return Duct Design	Verify compliance with the return duct and return grill sizing requirements of Table 150.0-C or Table 150.0-D).	RA3.1.4.4
Air Filter Device Design	Verify compliance with the requirements in 150(m)12.	RA3.1.4.5
Verification of Prescriptive Bypass Duct Requirements	Verification to confirm zonally controlled systems comply with the bypass duct requirements in 150.1(c)13	RA3.1.4.6

**15. PART 6, RA3.1.4.3**

Explanation:

The language in Section 150.0(m)(11) of the Standards and Section RA 3.1.4.3 of the Residential Appendix allow multiple procedures to verify duct sealing in a new home. The sentence in section RA3.1.4.3 that "Diagnostic Duct Leakage from Fan Pressurization of Ducts" conflicts with the surrounding text. It should be stricken to remove the inconsistency.

**Erratum:**

**RA3.1.4.3 *Diagnostic Duct Leakage***

Diagnostic duct leakage measurement is used by installers and raters to verify that total leakage meets the criteria for any sealed duct system specified in the compliance documents. ~~Diagnostic Duct Leakage from Fan Pressurization of Ducts (Section RA3.1.4.3.1) is the only procedure that may be used by a HERS rater to verify duct sealing in a new home.~~ Table RA3.1-2 shows the leakage compliance criteria and test procedures that may be used to demonstrate compliance.