

Proposal Summary



2022 California Energy Code (Title 24, Part 6)

Compliance Requirements for Variable Capacity Cooling Systems

Last updated: August 6, 2019

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Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during a utility-sponsored stakeholder meeting on October 10, 2019. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. To provide your comments, email info@title24stakeholders.com by October 24, 2019.

Measure Description

This measure will improve compliance modeling of duct performance for two-speed or variable speed split system HVAC systems (excluding mini- and multi-split systems) unless ducts are located inside conditioned space, or if systems utilize qualified zone controls. Variable capacity split system air conditioners and heat pumps typically have significantly higher SEER and EER ratings than single speed equipment. Current compliance calculations allow full credit for the higher ratings, yet research conducted by the UC Davis Western Cooling Efficiency Center (WCEC) has shown that reduced air velocity in ducting significantly degrades cooling performance when ducts are in hot attics. "Qualified zone controls" are those that modulate compressor and fan speed based on the number of zones calling. As proposed, modifications to CBECC-Res will account for reduced distribution airflow and will be calibrated and verified using the WCEC's laboratory test data and simulation model.

Draft Code Language

The proposed changes to the Standards and Reference Appendices are provided below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions).

SUBCHAPTER 8 LOW-RISE RESIDENTIAL BUILDINGS – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES

SECTION 150.1 – PERFORMANCE AND PRESCRIPTIVE COMPLIANCE APPROACHES FOR LOW-RISE RESIDENTIAL BUILDINGS

(b) Performance Standards. A building complies with the performance standards if the energy consumption calculated for the Proposed Design Building is no greater than the energy budget calculated for the Standard Design



Building using Commission-certified compliance software as specified by the Alternative Calculation Methods Approval Manual.

3. Compliance Demonstration Requirements for Performance Standards.

B. **Field Verification.** When performance of installed features, materials, components, manufactured devices or systems above the minimum specified in Section 150.1(c) is necessary for the building to comply with Section 150.1(b), or is necessary to achieve a more stringent local ordinance, field verification shall be performed in accordance with the applicable requirements in the following subsections, and the results of the verification(s) shall be documented on applicable Certificates of Installation pursuant to Section 10-103(a)3 and applicable Certificates of Verification pursuant to Section 10-103(a)5.

- x. **Multispeed and Variable Speed Systems.** When performance compliance requires multispeed or variable speed systems and zone controls are installed as specified in Section 150.0(m)13C, the zone controls shall be field verified in accordance with the procedures specified in Residential Appendix RA3.4.5.

Residential Appendix RA3

RA3.4 *Field Verification of Installed HVAC System Components and Devices*

RA3.4.5 *Verification of Zone Controls for Multi-Speed and Variable Speed HVAC Systems*

[To be developed.]