

## DOCKETED

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**On Residential Appendix RA Language**

*Additional submitted attachment is included below.*

March 5, 2018

To: California Energy Resources Conservation and Development Commission

**Docket # 17-BSTD-02**

RE: **CalCERTS Comments on Residential Appendix RA Language**

CalCERTS' goal in providing these comments is to improve the overall compliance with the energy code by making it easier to understand, enforce, and follow. These are mostly clarifications and suggestions for rewording of the language. They are not substantive changes.

**RA3.1.4.2.3** references section RA3.3.4 for airflow measurement. It should reference RA3.3.3.

**RA3.1.4.3** reads: "Table RA3.1-2 shows the leakage compliance criteria and test procedures that may be used to demonstrate compliance." Recommend changing to "Table RA3.1-2 summarizes the leakage test procedures that may be used to demonstrate compliance."

**Table RA3.1-2** All of the compliance criteria have been removed from this table, presumably because it is in the code language. This now requires having both documents on hand to understand the protocol. It also scatters the information into different sections of the code. CalCERTS recommends that a single table that summarizes the criteria be somewhere in RA3.

**RA3.1.4.3.1** CalCERTS recommends adding the following language to clarify certain situations that have caused confusion to raters and installers:

- Floor registers on carpeted floors may be removed and the opening sealed to the floor under the carpet.
- If allowed by the equipment manufacturer, the installer may seal the airhandler blower compartment access panel with an approved tape, if approved by the manufacturer. Do not use mastic or other permanent sealing material.

**RA3.1.4.3.1** The last two items, (h) and (i), have a formatting issue. They also reference "compliance criterion from Table RA3.1-2, but the criteria have been removed from the table.

**RA3.1.4.3.2.1** The last two items (h) and (i), have a formatting issue. They also reference "compliance criterion from Table RA3.1-2, but the criteria have been removed from the table.

**RA3.1.4.3.2.2** The last two items, (h) and (i), have a formatting issue. They also reference "compliance criterion from Table RA3.1-2, but the criteria have been removed from the table.

**RA3.1.4.3.3** “After installing the interior finishing **drywall, or other finishing material**, and verifying that one of the above rough-in tests was completed, the following procedure shall be used:”

**RA3.1.4.3.4 Item (d)** “Attach a blower door to an external doorway. **If the door between the house and the garage is used, the garage car-bay doors must be open.**” Items (i) and (j) reference “compliance criterion from Table RA3.1-2, but the criteria have been removed from the table.

**RA3.1.4.3.6** We recommend item (c) be edited to read as follows:

“The system shall pass the test if no visible smoke exits the accessible portions of the duct system, except the furnace cabinet which is gasketed and sealed by the manufacturer.”

**RA3.1.4.3.7** We recommend the following edits:

~~For altered existing ducts that fail the leakage tests,~~ The objective of this inspection in conjunction with the smoke test (RA3.1.4.3.6) is to confirm that all accessible leaks have been sealed.

Visually inspect to verify that the following locations have been sealed:

- (a) Connections to plenums, **evaporator coils**, and other connections to the forced air unit
- (b) Refrigerant lines, **p-traps**, and other penetrations into the forced air unit
- (c) Air handler door panel (do not use permanent sealing material, metal tape is acceptable)
- (d) Register boots sealed to surrounding material **at all registers and return grilles.**
- (e) Connections between lengths of duct, as well as connections to takeoffs, wyes, tees, and splitter boxes.

**RA3.1.4.3.9** We recommend the following edit: “An additional performance compliance credit is available for verified low leakage ducts **that leak less than the default target** if a qualified low leakage air-handling unit is installed.”

**RA3.2.2** (paragraph right after *Table RA3.2-1*) We recommend the following edits:

“The standard charge verification procedure detailed in this section **shall may** be completed when the outdoor temperature is within the manufacturer’s specified temperature range, or the outdoor temperature is 55°F or higher, after the HVAC installer has installed and charged the system in accordance with the manufacturer’s specifications. The return dry bulb temperature shall be **able to be** maintained above 70°F during the test, otherwise the weigh in method can be used.”

**RA3.2.2.5 Item (b)** Liquid line filter driers are a mandatory measure. The statement “if required per outdoor condensing unit manufacturer's instructions” can be deleted.

**Figures 3.2-1 and 3.3-1** are only appropriate to typical split systems. We recommend adding diagrams for soffit mounted units (aka “pancake” units) and fan coil units.

**RA3.3.3.1.5** Section RA3.3.3.3 is incorrectly referenced. If the target value of 300 is deleted, direction should be provided for where to find the compliance criteria.

**RA3.4.4.2** What is the compliance criterion for this? How does the user know what passes or fails? Does it have to match exactly?

**RA3.5.3.2.10** Moving Gabel Ends from section RA3.5.3.2.5 removes the requirement “The backside of air permeable insulation exposed to the unconditioned attic space shall be completely covered with rigid board insulation or an air barrier.” Was this intentional?

**RA3.5.3.3.4** We recommend clarifying the issue that was addressed in the Blueprint Newsletter, Issue #121, about attics over garages and some version of the following diagram be included:

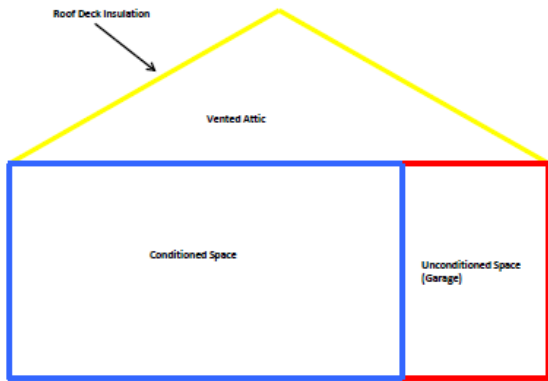


Figure 3 - House with attic insulation extending over conditioned and unconditioned spaces

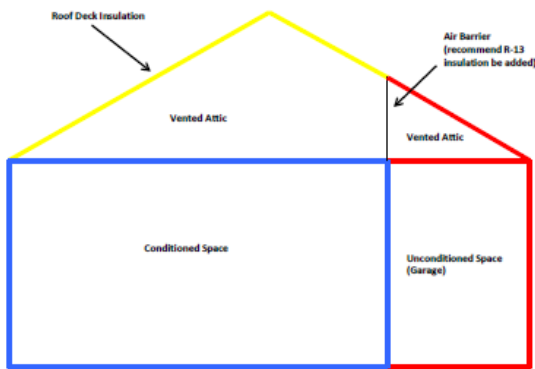


Figure 4 - House with attic insulation extending over conditioned space, attic over conditioned and unconditioned space separated by an air barrier

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**RA3.5.3.4.2** Clearly states that the floor over the garage shall be insulated with batt or blanket insulation against the subfloor, but the first diagram in figure Ra3.5-1 shows otherwise.

**Figures RA3.5-1 and RA3.5-2** and similar figures in other sections are missing air barriers on vertical knee walls, dams for loosefill insulation, air barrier at ends of batts, etc.

Thank you for this opportunity to comment on the 2019 code. We look forward to the Commission's response to these comments. Please let us know if we can help.

Sincerely,

Russell King, M.E.  
Senior Director of Technical Services,  
CalCERTS, Inc.