

October 27, 2011

Ron Yasny
Contract Manager High Performance Buildings
and Standards Development Office
California Energy Commission
1516 Ninth Street, MS-37
Sacramento, CA 95814



Re: Public comments on draft language for 2013 Building Energy Efficiency Standards
(October 14 Workshop), docket number 10-BSTD-01

Dear Mr. Yasny:

The following are my comments on the draft proposed language for **Section 150.0**. There will be comments to follow on other sections, under separate cover.

Thank you for your consideration and the hard work of CEC staff on this important topic.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell King", is written over a light gray rectangular background.

Russell King, P.E.
V.P. Technical Services
CalCERTS, Inc. – Training Center
133 L Street, Suite C
Sacramento, CA 95758

DOCKET
10-BSTD-1
DATE <u> OCT 27 2011 </u>
RECD. <u> OCT 27 2011 </u>

150.0(g) . . . In Climate Zones 1-16 unvented crawl spaces the earth floor of the crawl space shall be covered with a Class I or Class II vapor retarder.

When you take away the editorial formatting, there appears to be some punctuation missing.

150.0(m)1 . . . Portions of supply-air and return-air ducts and plenums shall either be insulated to a minimum installed level of R-6.0 (or any higher level required by CMC Section 605) or be enclosed entirely in directly conditioned space.

We support this change. I think the intent here is that the only ducts that can be R-0 are basically exposed ducts running through a room and NOT ducts that are located in floor joist bays, etc. because those are indirectly conditioned. The words “enclosed entirely in” are

confusing.

Also, I think the intent is **not** to require R-6 on outside air ventilation ducts, but the way it is written, I think it does.

I suggest the following language:

150.0(m)1 . . . Portions of supply-air and return-air ducts and plenums of a heating or cooling system shall either be insulated to a minimum installed level of R-6.0 (or any higher level required by CMC Section 605) or be located completely within directly conditioned space.

150.0(m) . . .

11. **Duct System Leakage.** When space conditioning systems utilize forced air duct systems to supply conditioned air to an occupiable space, the ducts shall be sealed, as confirmed through field verification and diagnostic testing, in accordance with all applicable procedures specified in Reference Residential Appendix RA3.1 and leakage compliance criteria specified in Reference Residential Appendix Table RA3.1-2.

We strongly support this change for new construction and additions that would normally trigger the duct sealing requirements. I think that it is **not** the intent that duct testing would be required whenever a new connection is made in an existing system, but this is not clear. If you treat this section similar to section 150.0(m)1, which does apply to any new connection, a building department could see it that way. A clarification statement like the following would prevent this: “This requirement only applies to systems in newly constructed buildings and altered systems subject to section 150.2(b)1D, including ducts added or extended from an existing system to serve and addition.”

150.0(m) . . .

12. **Air Filtration.**

We presume that the intent of this requirement is purely to help ensure improved indoor air quality in residential buildings. The requirements of this section are severe and do not necessarily result in any energy savings. It could be questioned as to why they are part of the energy codes. Assuming that this requirement stays in the energy code, I highly suggest that an alternative approach be allowed.

As the design criteria for HVAC systems becomes more and more precise, the need to separate the various functions of an HVAC system become more and more important. The main functions are space heating, space cooling, outdoor air ventilation, and filtration. Any and all of these functions can be very adequately and very efficiently served by a dedicated system for that single function. This is already allowed (not prohibited) for the first three functions, but

not for ventilation, based on the proposed language of this section.

The impacts on the sizing of the ductwork, fittings, and/or grilles caused by the MERV 6 filters required to achieve proper airflow can be avoided if the home is provided with a separate, dedicated filtration system. I am a strong proponent of **NOT** having the ventilation system integrated with the heating and cooling system. The same reasoning applies to filtration systems.

A thermostat is a poor way to control a ventilation system and is therefore prohibited in the code as the sole control for a CFI system. Thermostats are just as bad for filtration. On very mild days, the central HVAC system may not run at all. This is likely to occur in the spring and I can personally attest that this is the time of year that needs the most filtration.

I highly suggest that you add an exemption to this section for homes that have a dedicated, permanent (not plug in), filtration system, separate from the central heating/cooling system that is engineered to whatever specifications you deem appropriate, including controls. The central heating/cooling system should then only be required to have whatever filter is recommended by the air handler manufacturer to protect the fan components. I think this is a far better option.

150.0(m) . . .

12. Air Filtration.

A. System Configuration. Mechanical systems that supply air to an occupiable space through ductwork exceeding 10 ft (3 m) in length and through a thermal conditioning component, except evaporative coolers, shall be configured to ensure that all recirculated air and all outdoor air supplied to the occupiable space is filtered . . .

It is not apparent why duct systems of less than 10 feet not be required to have filtration and why are evaporative coolers exempt. If filtration is so important to IAQ, it seems that these two common configurations should be included in the requirement.