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May 29, 2012

To: Dockets Office, California Energy Commission
 From: Gary Farber, Farber Energy Design
 RE: Adoption of 15 Day Language for 2013 Building Energy Efficiency Standards
 Docket number 12-BSTD-1

I want to first thank Commission staff for responding to many of the technical comments I have previously made on the proposed 2013 Standards. I understand that the 15 day review is limited to technical problems with the draft language; I will keep my comments to areas where I feel that the proposed language is technically faulty or not in keeping with the intent of the Standards.

SECTION 120.7 -MANDATORY INSULATION REQUIREMENTS

Issues:

1. Proposed metal frame wall U-factor is 0.98. The '08 JA4 R-13/metal frame/R-5 continuous insulation assembly U is 0.104. The draft '13 Prescriptive metal frame wall insulation U-factor for high-rise residential/hotel/motel buildings (Table 140.3-C) is 0.105. To make the mandatory metal frame wall insulation consistent with the Prescriptive high-rise residential requirements, and to allow for the common construction of R-13 batt + R-5 sheathing, change the minimum metal frame wall insulation to 0.105 U-factor.
2. "Glass Spandrel Panels and Glass Curtain Wall" should be changed to "Glass or Metal Spandrel Panels and Curtain Wall". Otherwise, metal spandrel panel construction is not addressed.
3. Raised Mass Floors: While no insulation requirement is appropriate for nonresidential buildings, no insulation in not an appropriate minimum requirement for high-rise residential and hotel/motel guest rooms. The highest (least restrictive) mass floor U-factor on the draft '13 Table 140.3-C is 0.098. I would suggest that this is an appropriate minimum insulation requirement for dwelling and guest room raised mass floors.

Proposed language: 120.7(c)1. Raised Mass Floors:

- a) High-rise residential dwelling units and hotel/motel guest rooms: The weighted average U-factor of the floor assembly shall not exceed 0.092.
- b) Nonresidential occupancies: Shall have a minimum of 3 inches of lightweight concrete over a metal deck or the weighted average U-factor of the floor assembly shall not exceed 0.269.

SECTION 140.3 – PRESCRIPTIVE REQUIREMENTS FOR BUILDING ENVELOPES

Issues:

1. In section 140.3(a)5, for chromogenic glazing (which changes energy values depending on environmental conditions), there is an exception for U-factor, RSHGC and VT. Each exception allows chromogenic glazing to be modeled using the most efficient value in the range of measured energy values for the particular product to be modeled. This is not in keeping with Standards conventions, where products that have variable efficiency ratings are required to be modeled with the least efficiency ratings. If, due to the expected efficiency benefits of this glass, it is felt that using least efficient energy values would exact too great a penalty, then consider requiring that the energy modeling of this product use the mathematical average between the most efficient and least efficient ratings for each energy value.
2. At Exception to Section 140.3(a)5.B the text includes the wording "...modulate the amount of U-factor into the space ...". This may not be technically correct.

SECTION 150.0 – MANDATORY FEATURES AND DEVICES

150.0(d) Raised-floor Insulation

The 2008 Standards requirement is that all mass floors have an insulation value (or equivalent) of R-13. The draft 2013 language raises this minimum floor insulation requirement to R-19. The '08 JA4 R-13/wood frame assembly not above crawl space U-factor is 0.064. The '08 JA4 raised concrete floor/R-12 assembly U-factor is 0.069. The '08 JA4 R-19/wood frame assembly not above crawl space U-factor is 0.048.

Issue: The closest '08 JA4 assembly to R-13 spray-on insulation on concrete, which is commonly indicated by spray insulation installers to be the maximum R that can be installed by this method, is raised concrete floor/R-12. The U-factor for this assembly is greater than the current minimum allowed U-factor, and is much greater than the proposed minimum allowed U-factor.

Proposal: Unless the CEC wants to force raised concrete floors to be insulated by adding wood framing members below or above the deck to accommodate thicker insulation than R-13, the mandatory minimum U-factor for raised concrete floors should match the U-factor for concrete floor with R-12 spray-on insulation.