

# DOCKET

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California Energy Commission  
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Via email: [docket@energy.state.ca.us]

To: Mazi Shirakh

**SUBJECT: Docket number 10-BSTD-01  
Staff Workshop on Achieving Energy Savings in California Buildings**

The California Building Industry Association is a statewide trade association with over 5,000 member-companies involved in residential and light-commercial construction. CBIA-member companies produce over 90% of the new residential dwellings constructed in California on an annual basis.

The California Building Industry Association is always concerned the new construction techniques being introduced have been thoroughly researched and vetted with material suppliers, installers and code agencies. We are concerned that the proposal for above roof deck insulation may not meet those criteria. In addition, CBIA has recommended that new energy efficient construction techniques that seem promising should be given energy credit in the T-24 Energy Code instead of being introduced as a package requirement. This allows the industry to use the new technique and determine practical installation criteria, develop installation guides and gain valuable experience with this technique. CBIA has the following concerns regarding the inclusion of above roof deck insulation in the 2013 Standards Package.

Our first concern is with the problem of moisture accumulation due to the presence of the roof deck insulation in contact with wood. The APA recently issued a bulletin due to their concern about wood moisture content and how it can be affected by insulation, titled *Technical Topics: Wood Moisture Content and the Importance of Drying in Wood Building Systems* (TT-111A, March 2011). The bulletin references applying insulation to the underside of roof sheathing and states "the direct application of some insulation material may limit the ability of wood structural panel sheathing to dry." It further states: "when such insulation materials are used in combination with an impermeable layer on the top of roof sheathing ... the risk of moisture problems due to reduced drying potential of the system will increase substantially." APA is the engineered wood association and the lead source of technical information for the composite wood industry. This warning was directed at under roof deck insulation; however, others in the roofing industry have expressed moisture concerns about above roof deck insulation. CBIA requests the CEC respond to the following questions: Will there be extra steps or materials needed in the construction of insulated roof decks to allow proper drying? Is there extra time needed for roof decks to dry if roof deck insulation is applied? If so, how long?

It is important to specify what products are available to fulfill the roof deck insulation requirement. The CEC residential consultant has proposed that roof deck insulation will be Expanded Polystyrene. There are significant concerns using either Expanded Polystyrene (EPS) or Extruded polystyrene (XPS) on roof decks.

Heat and fire safety are a major concern with insulation materials above the roof deck. According to ASTM report 578-08b (Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation), both EPS and XPS are not rated to be used at temperatures over 165°F, a temperature that roofs can reach under normal conditions. CBIA presumes that using a product outside of its design conditions would void the product's warranty. Has the CEC investigated the applicability of EPS and XPS on roof decks and how using a product outside its technical specifications for thermal performance impacts the long term performance of the product and the roof assembly warranty? Also, would using both a radiant barrier and above deck insulation on the same roof assembly cause even higher roof deck temperature? How could this CEC proposed combination (R-4 above roof deck plus radiant barrier) for CZs 9- 15 impact thermal performance and roof warranties?

Furthermore, the State Fire Marshal's office tells CBIA that the addition of above deck insulation will probably require a retesting of all roof assemblies under ASTM E108 to determine class A, B, and C for each assembly. Some roof assemblies that are currently used may not pass into Class A with this addition, as the insulation could act as an accelerant over the entire roof system. Has the Commission considered the impact of the insulation on the fire rating of the roof? If roofs need to be retested, what is the cost of these tests to the roofing industry and how long will it take for these tests to be performed?

Approximately 50% of the State is covered by the California Wildland Urban Interface Code (WUI: revised July, 2011). This code requires significant fire ratings for much of the exterior surfaces on homes. How does the above roof deck insulation impact the California Wildland Urban Interface Code requirements? What are the installation requirements for the addition of this insulation (exterior coverage; 1 hour fire rating, flame spread, etc.). How does the addition of above roof deck insulation affect the approval of roofs allowed in the WUI Product approval by the California Department of Forestry & Fire Protection?

The working assumption of the Commission seems to be that the roofing materials market in the state is close to 100% tile roofing. Is the market being correctly represented by this assumption? An article from *Western Roofing magazine* Sept/Oct 2007 entitled "The Western Steep-Slope Market" states in their industry market survey for 2007 that the market for new construction was over 43% fiberglass shingles and less than 21% tile (clay and concrete). Roof deck insulation causes problems when dealing with fiberglass shingles, which CBIA believes to be a significant portion of the roofing market in California.

Asphalt shingles must lay flat to create a seal after they are installed. Nailing into 1" EPS can cause the EPS to compress and the shingles themselves to be uneven rather than flat, causing the possibility of roof leaks when the shingles are unable to seal properly. Is the possibility for roof leaks under these

circumstances being addressed? How could this impact roof warranties? Roofers have told us that the only way to comply with this requirement using a composition shingle is to double skin the roof, creating a site built SIP roof system, which is neither cost effective nor practical. In addition, roofers have told us that their equipment (nailing guns) will not accommodate nails lengths required to secure roofing material over 1" of rigid insulation. Was the added cost of additional equipment considered in the costing of above roof deck insulation?

CBIA has many questions about above deck roof insulation. We appreciate the CEC's responding to our questions so we can generate code compliant installation criteria for our members to cost. Once we have this data and the appropriate technical specifications that do not void roof warranties we will respond to the cost effectiveness of the above roof deck requirement in Package A3 and A3b.

Sincerely,



Michael G. Hodgson  
Chair, CBIA Energy Committee

Cc: Chair Robert Weisenmiller  
Commissioner Karen Douglas  
Deputy Director Panama Bartholomy  
Bruce Wilcox, CEC lead consultant for 2013 Residential Standards  
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