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August 18, 2014

Maziar Shirakh, P.E.
Senior Mechanical Engineer, Project Manager
California Energy Commission
1516 Ninth Street, MS-29
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Via electronic mail to: docket@energy.ca.gov

Dear Mr. Shirakh,

The Asphalt Roofing Manufacturers Association (ARMA) is the North American trade association representing the manufacturers of asphalt roofing used in residential and non-residential steep-slope and low-slope applications, with membership accounting for over 90% of the asphalt roofing manufacturing community. Additionally, ARMA manages the Roof Assembly Ventilation Coalition (RAVC), which represents roof vent manufacturers and is a leading authority on ventilated roof assembly design. ARMA appreciates the opportunity to provide comment on the California Energy Commission (CEC) proposal for high performance attics and ducts (HPAD):

Below-Deck Insulation Presents Concerns for Deck Inspection and Moisture Issues

The application of below-deck insulation presents several practical concerns as it relates to the installation of a roof system and the management of moisture during the service life of the roof. When installing a roof system to a substrate with below-deck insulation, the layer of insulation could potentially prevent an appropriate quality assurance inspection of the underside of the deck. Such an inspection would be used to verify the proper fastener type, penetration, spacing and placement. The lack of such an inspection could result in an inability to verify code compliance by confirming proper attachment.

Beyond these installation concerns, the presence of below-deck insulation throughout the service life of the roof will result in an inability to assess deck condition from the underside, which could lead to catastrophic deck deterioration without being able to identify the common indicators roofing contractors, consultants, building inspectors, and homeowners rely upon. Without the ability to visually inspect the deck, the identification and sourcing of incidental water that enters the roof assembly will prove difficult and therefore harder to repair. Similarly, condensation issues within the home will be more difficult to identify and address without the ability to observe the impact on the deck. Moisture issues have the potential to lead to premature roof system failures, and an inability to identify and address these issues at their start could have a deeply negative impact on the life expectancy of a roof.

Potential Confusion over Interpretation of "Ventilated Attics"

ARMA has advocated the importance of "ventilated attics" for many years. The proposed systems in CEC's recent communication reveal there is confusion attributable to different meanings for the same term (i.e. "ventilated attic"). More clearly expressed, ARMA advocates for air flow, typically from soffit to ridge, immediately beneath the sheathing to which the roofing system is attached, not simply ventilation within the attic space. The concepts being advocated by the proposed revisions to Title 24, Part 6 represent a reduction in "safety factors" that are built into current attic space designs that assure they work in a wide variety of circumstances; with fewer of these factors built into the construction, it is difficult to predict under which circumstances these constructions will or will not work, and if they do not work, no one has an accurate estimate of the magnitude of the failures. Coupled with the use of a self-adhered underlayment at eaves and valleys that is required in some climate zones in California, at-deck insulation could trap even small amounts of moisture in the wood framing and roof sheathing and eliminate normal drying cycles.

Additional Costs Associated with At-Deck Insulation

When installing at-deck insulation, there will be several additional costs that extend beyond the cost of the physical insulating materials, and ARMA requests that the CEC factor these expenses into their cost analysis. Additional ventilation components for at-deck insulation may be required to achieve necessary performance requirements. Assurances will also need to be made that the substrate/structure is suitable to support the additional insulation (and this should be based on fully saturated insulation from a safety perspective); this may even require a second deck or substrate for the shingles to be secured to. Additionally, to incorporate penetrations like skylights or bathroom vents, additional consideration will need to be made, such as spraying in additional insulation between the penetration and rigid foam insulation.

In all such examples, additional labor and material costs will be associated with these installations. Furthermore, the application of under-deck insulation creates for the building owner an additional cost associated with maintenance and repair of the roof system and insulation materials. Any time the roof or components of the deck are replaced the insulation must also be replaced, adding substantial additional material and labor costs.

Potential Building Codes Compliance Concerns

The most recent version of the International Code Council's Residential Code (IRC) contains prescriptive requirements for at-deck insulation in a fully non-ventilated attic but does not offer guidance on this application in a ventilated attic. Should California adopt this version of the IRC, the interpretation of a construction that includes a ventilated attic space with at-deck insulation may result in confusion in the marketplace and with building code officials over acceptable construction. Furthermore, there are questions that arise when there are conflicting requirements within California's Residential Code and Energy Code about which Code will take precedence. ARMA requests that the CEC ensure that these potential conflicts are fully explored and determination be made as to how compliance should be achieved under inconsistent requirements.

Potential Premature Roof System Degradation with At-Deck Insulation

As a trade association, it would be inappropriate for ARMA to discuss issues that affect an individual manufacturer's limited warranty. However, the Association will reiterate its position that increasing insulation at the deck is likely to detrimentally impact product durability due to substantial increases in temperatures for underlayment(s) and roof coverings, such as the asphalt shingles, therefore effectively having a potential negative impact on the life cycle of the roofing components. As such, ARMA would welcome the opportunity to discuss with CEC the possibility of increasing attic ventilation

as referenced in the item above as an alternative to at-deck insulation to mitigate these potential product durability effects.

Support for Raised Heel Trusses, Alternative HVAC Configurations

ARMA would like to offer the Association's support of several areas within the rule. Recognizing that further details have not yet been shared, ARMA is supportive of the concept of using raised heel trusses to allow ceiling-level insulation to provide a greater benefit. Additionally, ARMA finds the proposed approach of relocating the HVAC into the plenum rather than moving it into a sealed attic as a highly logical approach: from an energy-efficiency standpoint, minimizing the amount of conditioned space within each residence will yield the greatest benefit to minimizing overall energy consumption in California. ARMA looks forward to continuing to work with CEC to introduce innovative methods for managing energy in buildings and for collaborating with CEC on language that relates specifically to asphalt shingles.

Thank you again for the opportunity to provide feedback on the CEC proposed approach to high performance attics and ducts. Please do not hesitate to contact me at rhitchcock@kellencompany.com or 202-207-1110 if you have any comments or questions.

Sincerely,

Reed B. Hitchcock
Executive Vice President