

DOCKETED

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Restructuring of Multifamily - Roof Alteration Requirements

Additional submitted attachment is included below.

Sent via Electronic Mail

December 14, 2020

California Energy Commission
Docket Unit, MS-4
Docket No. 19-BSTD-03
1516 Ninth Street
Sacramento, CA 95814-5512
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Re: Restructuring of Multifamily: Roof Alteration Requirements, 2022 Building Energy Efficiency Standards (Title 24, Part 6), Docket No. 19-BSTD-03

Dear Energy Commission,

Thank you for the opportunity to comment on proposed changes to California's Building Energy Efficiency Standards (Title 24, Part 6) presented in the Statewide CASE Team's November 2020 final report: Multifamily Restructuring. Our comments below, submitted on behalf of the Polyisocyanurate Insulation Manufacturers Association,¹ focus on proposals related to roof alterations. We urge the CEC to modify the Multifamily Restructuring proposal to bring it more in-line with the CASE Team's Nonresidential High Performance Envelope proposal released in October and with the national model energy codes with respect to the terminology used and the level of stringency.

I. Update Definition of Roof Replacement

For purposes of knowing when the insulation requirements for roof replacements are triggered, section 180.2(b)1Bii of the Multifamily Restructuring proposal reads: "Non Attic Roof. When low-sloped roofs are exposed to the roof deck or to the roof recover boards, the exposed area shall be insulated to R-14 continuous insulation or a U-factor of 0.055."

Similar language that relied on the "exposure" of certain roof components was used under the 2009 and 2012 versions of the IECC, which created confusion, complicated enforcement, and generally undercut efforts to improve roofs when they were replaced in other states. In response, the 2015 IECC modified this language by adding new definitions for "roof replacement" and "roof recover," and new language that made it clear that reroofing activity that qualifies as a "roof replacement" must comply with the insulation requirements for new construction. In addition, the definitions related to roof alterations are the same in the IECC and IBC and this alignment has had a positive impact on compliance.

¹ More information available at: www.polyiso.org.

We urge you to modify the Multifamily Restructuring proposal along the lines suggested below. This will bring the proposal in alignment with the Nonresidential High Performance Envelope proposal, and with the national model codes. Also, adding definitions related to reroofing to the energy code will provide greater clarity for the code user. Although simply referencing the same reroofing definitions contained in the California Building Code might be sufficient, locating them in the energy code is recommended because they are important to the reroofing energy requirements. The Nonresidential High Performance Envelope proposal for roof alterations represents a significant break from the past, so we believe contractors, suppliers and building owners would all benefit from having these definitions located within the energy code. These changes do not affect the energy code's stringency; however, based on our experience with the reroofing market, we believe these clarifying changes will eliminate ambiguities, contribute to easier enforcement, and lead to better compliance.

A. Suggested Changes

i. Amend Section 100.1 by adding the following:

REROOFING. The process of recovering or replacing an existing roof covering. See "Roof recover" and "Roof replacement."

ROOF RECOVER. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

ROOF REPAIR. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

ii. Amend Section 180.2(b)1Bii accordingly:

"Non Attic Roof. When low-sloped roofs are ~~replaced exposed to the roof deck or to the roof recover boards~~, the ~~replaced exposed~~-area shall be insulated to R-14 continuous insulation or a U-factor of 0.055."

II. Eliminate References to 8 Inch Base Flashing Height

Although minimum flashing heights of 8 inches are referenced in industry guidance and installation instructions as general rules, flashings of lesser heights are often permitted and installed. A casual survey of existing roofs will reveal many constructed with less than 8-inch flashing heights, especially along the perimeter of roofs. Additionally, the 8-inch minimum originates from installation instructions for more traditional roof system types (e.g., asphalt) and has been handed down year-over-year as a rule of thumb (not a minimum performance requirement). However, new roof covering technologies, installation practices and other system components (e.g., PMMA flashing systems) allow for greater flexibility when installing new roofs on existing buildings. Furthermore, we are not aware of any other jurisdiction that stipulates minimum flashing heights in its energy code. As a result, this exception places an unnecessary ceiling on the amount of insulation added in roof replacement projects.

The Nonresidential Compliance Manual (see pages 3-77 and 3-78) already provides helpful guidance on this point, but California's current building energy code and the Multifamily Restructuring proposal seems to conflict with this guidance by characterizing the 8-inch flashing height as a hard-and-fast rule. Conversely, the changes proposed under the Nonresidential High Performance Envelope proposal, which instead references manufacturer's installation instructions, will allow additional flexibility in specific instances while ensuring code compliant roofs. It should be noted that the Compliance Manual explanation

of this issue could be updated if additional guidance is needed by stakeholders. The proposed change below does not affect the energy code's stringency, but based on our experience with the reroofing market, we believe these changes will provide greater flexibility to accommodate different flashing heights and improved compliance.

A. Suggested change

i. Amend Section 180.2(b)1Bii accordingly:

EXCEPTION to Section 180.2(b)1Bii

- a. Existing roofs that are insulated with at least R-7 insulation or that has a U-factor lower than 0.089 are not required to meet the R-value requirement of 180.2(b)1Bi
- b. If mechanical equipment is located on the roof and will not be disconnected and lifted as part of the roof replacement, insulation added may be limited to the maximum insulation thickness that will allow a height ~~of 8 inches (203 mm)~~ from the roof membrane surface to the top of the base flashing, that is in accordance with manufacturer's instructions.
- c. If adding the required insulation will reduce the base flashing height to less than the manufacturer's instructions 8 inches (203 mm) at penthouse or parapet walls, the insulation added may be limited to the maximum insulation thickness that will allow a height ~~of 8 inches (203 mm)~~ from the roof membrane surface to the top of the base flashing that is in accordance with manufacturer's instructions, provided that the conditions in Subsections i through iv apply:
 - I. The penthouse or parapet walls are finished with an exterior cladding material other than the roofing covering membrane material; and
 - II. The penthouse or parapet walls have exterior cladding material that must be removed to install the new roof covering membrane to maintain a base flashing height in accordance with manufacturer's instructions of 8 inches (203 mm); and

III. Relative Stringency

The requirements for roof replacements under section 180.2(b)1Bii of the Multifamily Restructuring proposal is copied with some minor modification from California's current energy code requirements for commercial buildings. The U-factor/R-value stringency and the exceptions, which have been unchanged since 2008, are essentially preserved. However, under the Nonresidential High Performance Envelope proposal the CASE Team has proposed a number of overdue reforms, including:

- Increased stringency in U-factor/R-value requirements for roof replacements;
- New insulation requirement for roof recovers;
- New requirement for above deck insulation that addresses both energy and condensation issues;
- Reduction in the number of exceptions; and
- New backstops requiring some improvement regardless of the exceptions.

We recognize that the operation and energy use of multifamily buildings is different from that of commercial buildings, but we urge you to consider including some or all of these increases in stringency for the Multifamily Restructuring proposal where cost-effective. The increase in stringency proposed under the Nonresidential High Performance Envelope final report has very good benefit-to-cost ratios: 1.74 for the roof

replacements and 1.87 for roof recovers. Therefore, even considering differences between these building categories, it seems likely that many or all of these improvements will be cost effective for multifamily buildings as well.

If the CEC is not prepared to adopt the roof alteration recommendations under the Nonresidential High Performance Envelope proposal for multifamily buildings, then, at the very least, you should eliminate the exception for existing insulation or change that exception from R-7 to R-10. The justification for the old R-7 exception is partly due to the fact that for some climate zones, roof replacements were required to have only R-8, so it did not make sense to require the addition of R-1 if R-7 was already present. With R-14 proposed for all climate zones, it seems reasonable that this exception could be eliminated or at least increased to R-10.

A. Suggested change

i. (option 1) Amend Section 180.2(b)1Bii accordingly:

EXCEPTION to Section 180.2(b)1Bii

- a. ~~Existing roofs that are insulated with at least R-7 insulation or that has a U-factor lower than 0.089 are not required to meet the R-value requirement of 180.2(b)1Bi~~

ii. (option 2) Amend Section 180.2(b)1Bii accordingly:

EXCEPTION to Section 180.2(b)1Bii

- a. Existing roofs that are insulated with at least ~~R-7~~ **R-10** insulation or that has a U-factor lower than ~~0.089~~ **0.070** are not required to meet the R-value requirement of 180.2(b)1Bi

Information about the Polyisocyanurate Insulation Manufacturers Association

PIMA is the trade association for North American manufacturers of rigid polyiso foam insulation – a product that is used in most low-slope commercial roofs as well as in commercial and residential walls. Polyiso insulation products and the raw materials used to manufacture polyiso are produced in over 50 manufacturing facilities across North American.

Thank you for the opportunity to submit these comments.

Sincerely,



Justin Koscher
President