

DOCKETED

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PIMA Comments on Commercial and Multifamily Roof Alterations

Additional submitted attachment is included below.

Sent via Electronic Mail

June 17, 2021

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 21-BSTD-01
1516 Ninth Street
Sacramento, CA 95814-5512
Docket@energy.ca.gov

Re: California 2022 Building Energy Efficiency Standards, Express Terms, Docket No. 21-BSTD-01, Roof Alteration Provisions

Dear Energy Commission,

Thank you for the opportunity to comment on the California Energy Commission's (CEC) proposed 2022 Building Energy Efficiency Standards that were released for public comment on May 6, 2021. As stated in prior comments, the Polyisocyanurate Insulation Manufacturers Association¹ **supports the proposed reforms affecting roof alterations** in nonresidential and multifamily buildings. The proposals for strengthening the reroofing requirements are important for meeting California's climate goals and these changes are well overdue. In fact, many aspects of the proposed 2022 Standards have already been implemented in most every jurisdiction outside of California. While the proposed changes address many of the obvious deficiencies under the 2019 Standards (i.e., relatively low R-values and numerous/complex exceptions), the proposal would also establish new, forward-thinking requirements that align with typical re-roofing practices and will improve compliance and enforcement.

The comments below contain information in support of the proposed reforms as well as a suggested minor modification to the proposal affecting multifamily family building roofs.

Application of energy codes to building alterations and renovations is an important policy that has been in place nationally under the model codes since 2000. The intent of this policy is to leverage the natural cycle of building upgrades and component replacements in order to improve energy efficiency in existing buildings. The most cost-effective time to improve a building's energy performance is when it is renovated or when components and systems are replaced. This process is particularly important for envelope improvements, which reduce building HVAC loads and create the potential for even greater improvement in equipment efficiencies in the future. Additionally, energy-efficiency upgrades to the envelope increase an existing building's ability to achieve net-zero energy status more cost-effectively by reducing the amount of renewable energy required to offset energy use.

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

Updated Roof Alteration R-Values: Requiring R-17 or R-23, depending on the climate zone, will bring California more in line with national standards. Although higher R-values were determined by the CASE Team to be cost effective, the proposed R-values represent a reasonable improvement for this code adoption cycle in combination with all the other proposed changes effecting roof alterations.

Modifying and/or Limiting Exceptions: Like the R-value changes, this change will also bring California more in line with national standards where exceptions are more limited. Having fewer, well defined exceptions will also help improve compliance. The number and relative complexity of the exceptions under the 2019 Standards make it very difficult, if not impossible, to monitor or enforce these requirements.

Roof Recover Requirement: This is an effective and technically sound policy for accelerating the needed improvement in envelope efficiency across a larger universe of buildings. The option to recover an existing roof is an attractive and comparatively less expensive option to a full roof replacement in part because recovers do not currently have any requirements under the California's Standards or the national model energy codes to increase building energy efficiency (i.e., typical roof recovers maintain the status quo in terms of energy usage). This proposal would help create parity between the two reroofing options of recover or replacement, and ensure both reroofing practices contribute toward improved energy efficiency.

Exception Backstop: The one major exception retained under the proposed 2022 Standards is for base flashing that is limited by the presence of equipment when that equipment is not going to otherwise be moved or lifted during the project. The retained exception would also be modified with a "backstop" that requires some insulation to be installed even if the flashing heights and roof-top equipment prevent the full R-17 or R-23 from being installed. Requiring a backstop like this prevents abuse of the exception and is another change under the CEC's proposal that will ultimately lead to better compliance.

Above-Deck Continuous Insulation: The addition of above-deck roof insulation will help mitigate condensation issues that can occur in existing buildings where original roof membranes are replaced with reflective (i.e., "cool") roofs. The wood-deck, single-rafter roof assemblies common in California that contain below deck insulation that has been damaged, displaced or otherwise deteriorated over time are particularly prone to condensation problems. Similarly, other assembly types, such as steel decks, are adversely affected by condensation. Condensation in the roof assembly affects not only the structural safety of the assembly (e.g., rust, rot), but it also impacts energy use by weakening the thermal value of the insulation that was installed below the deck and that comes into contact with the condensation. Adding continuous insulation above the roof deck when work is already underway to replace (or recover) the roof system is very cost effective and will help preserve the roof's thermal performance for a longer time period. Because of the difficulty in verifying the amount and condition of insulation below deck, this requirement will also lead to improved compliance.

Roof Area Affected Threshold for Multifamily Buildings: It appears that the intent of section 180.2(b)1Bii is to require minimum insulation for low-slope roof replacements or recovers where the affected roof area is greater than 50 percent of the roof or 2,000 square feet, whichever is less. This minimum-area-affected stipulation is the same for roof alterations in nonresidential buildings, under proposed section 141.0(b)2B (and is the same threshold used in prior versions of the Standard). The following modification is intended to clarify this provision for multifamily buildings.

Section 180.2(b)1Bii

Non Attic Roof. ~~When low-sloped roofs are replaced and recovered, and meets Section 180.2(b)1A or B, the replaced~~ When more than 50 percent of the roof area or 2,000 square feet of roof area, whichever is less, is being replaced or recovered on an existing low-sloped roof, the replaced or recovered area shall be insulated to R-14 continuous insulation or a U-factor of 0.55 in Climate Zones 1, 2, 4, and 8 through 16.

Enforcement

Noncompliance with the requirements for roof alterations is a significant problem. Although we believe that many of the CEC's proposed changes will indirectly address this issue, PIMA urges the CEC to consider improvements to the mechanisms for compliance and enforcement during the next code update cycle (i.e., for the 2025 Standard). For instance, the reforms proposed by the Statewide CASE Team in its July 2020 draft report; Nonresidential High-Performance Envelope, would have required some type of 3rd party verification of the existing levels of insulation, the need for an exception, and the amount of insulation added.

The current compliance process relies on a contractor properly filling out and submitting Form NRCC-ENV-E, which covers all of the envelope requirements for new construction, additions, and alterations. The form is difficult to understand and use, which may contribute to its ineffectiveness and the reported level of noncompliance within California. Also, plan reviews and/or inspections related to roof alterations are extremely rare. As a result, there is no verification of the roof R-values or the exceptions that may be claimed to avoid the R-value requirements, which creates an uneven playing field for the marketplace.

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 America.

Thank you for the opportunity to submit these comments.

Sincerely,



Justin Koscher
President