

Proposal Submeasure Summary



2022 California Energy Code (Title 24, Part 6)

Nonresidential High-Performance Envelope – Roof Alterations

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Prepared by: Benny Zank, Energy Solutions

Introduction

The document summarizes proposed revisions to the California Energy Code (Title 24, Part 6) that will be discussed during a utility-sponsored stakeholder meeting on April 23, 2020. The Statewide Utility Codes and Standards Enhancement (CASE) Team is seeking input and feedback. Please share comments by email to info@title24stakeholders.com.

Measure Description

This proposal would update the prescriptive insulation requirements for roof alterations in the following ways:

- Require U-0.049 for Climate Zones 6-8 and U-0.034 for Climate Zones 1-5, & 9-16 to align with new construction requirements;
- Require insulation of at least R-8 for roof recoveries if the U-factors above are not met;
- Modify the exception for limited base flashing height for mechanical equipment to only apply in Climate Zones 3-9 if it is not practical to install insulation below deck;
- Strike exception for limiting the amount of insulation at penthouse and parapet walls due to base flashing height; and
- Add a field inspection to verify existing insulation and the installment of new insulation.

In 2018, it became possible to fully deduct the expense of roof replacements in the year completed, rather than over a 39-year period, which makes it significantly more affordable to replace roofs and add insulation. Adequate insulation levels increase the effectiveness of the building envelope and reduce the energy required to maintain the temperature in conditioned space. Adding insulation during a roof replacement is the most cost-effective time to do so and is a key component for California to achieve its carbon reduction goals.

Draft Code Language

The proposed changes to the Standards and Reference Appendices are provided below. Changes to the 2019 documents are marked with red underlining (new language) and ~~strikethroughs~~ (deletions).



Standards

Section 100.1

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

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

Section 141.0(b)2Biii: For nonresidential buildings, high-rise residential buildings and hotels/motels when low-sloped roofs ~~are exposed to the roof deck or to the roof recover boards, and meets~~ Section 141.0(b)2Bia or iia, the ~~exposed~~ area of the roof alteration shall be insulated to the levels specified in TABLE ~~140.3-B, C, or D 141.0-C.~~

EXCEPTION to Section 141.0(b)2Biii

- 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 TABLE 141.0-C. Roof recovers shall be insulated to at least R-8 if they do not meet the U-factors in TABLES 140.3-B, 140.3-C, or 140.3-D.~~
- b. In Climate Zones 3, 4, 5, 6, 7, 8, 9 ~~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 if the ceiling is not accessible for adding insulation.
- c. ~~If adding the required insulation will reduce the base flashing height to less than 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, 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 of 8 inches (203 mm); and~~
 - iii. ~~For nonresidential buildings, the ratio of the replaced roof area to the linear dimension of affected penthouse or parapet walls shall be less than 25 square feet per linear foot for Climate Zones 2, and 10 through 16, and less than 100 square feet per linear foot for Climate Zones 1, and 3 through 9; and~~
 - iv. ~~For high-rise residential buildings, hotels or motels, the ratio of the replaced roof area to the linear dimension of affected penthouse or parapet walls shall be less than 25 square feet per linear foot for all Climate Zones.~~
- d. ~~c.~~ Tapered insulation may be used which has a thermal resistance less than that prescribed in TABLE ~~140.3-B, C, or D 141.0-C~~ at the drains and other low points, provided that the thickness of insulation is increased at the high points of the roof so that the average thermal resistance equals or exceeds the value that is specified in TABLE ~~140.3-B, C, or D 141.0-C.~~

TABLE 141.0-C INSULATION REQUIREMENTS FOR ROOF ALTERATIONS

	<i>Nonresidential</i>		<i>High-Rise Residential and Guest Rooms of Hotel/Motel Buildings</i>	
<i>Climate-Zone</i>	<i>Continuous Insulation R-value</i>	<i>U-factor</i>	<i>Continuous Insulation R-value</i>	<i>U-factor</i>
<i>1</i>	<i>R-8</i>	<i>0.082</i>	<i>R-14</i>	<i>0.055</i>
<i>2</i>	<i>R-14</i>	<i>0.055</i>	<i>R-14</i>	<i>0.055</i>
<i>3-9</i>	<i>R-8</i>	<i>0.082</i>	<i>R-14</i>	<i>0.055</i>
<i>10-16</i>	<i>R-14</i>	<i>0.055</i>	<i>R-14</i>	<i>0.055</i>