

ADDENDA

**ANSI/ASHRAE/IES Addendum bi to
ANSI/ASHRAE/IES Standard 90.1-2019**

Energy Standard for Buildings Except Low-Rise Residential Buildings

Approved by ASHRAE and the American National Standards Institute on July 29, 2022, and by the Illuminating Engineering Society on July 26, 2022.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (<https://www.ashrae.org/continuous-maintenance>).

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FOREWORD

Addendum bi addresses existing building envelope requirements when performing a roof replacement by

- *providing a new definition for “roof replacement” that aligns with the definition and provisions of the 2021 IBC,*
- *clarifying the specific roof replacement requirements in a new Section 5.1.3.1, and*
- *requiring that, where areas of a roof have difficult conditions that may prohibit full, code-compliant levels of insulation from being achieved, roof replacement designs must be provided to the local authority having jurisdiction for review and approval.*

Currently, roof replacements are not specifically defined in the standard. They also are not specifically addressed as an alteration in Section 5.1.3 and are not one of the specific exclusions listed. Thus, replacement roofs must comply with the charging language of Section 5.1.3 as a general requirement for any alteration. This is the case for any alteration not specifically excepted in Section 5.1.3.

This has resulted in existing roofs with challenging flashing conditions to be unable to comply simply with the increased roof insulation levels. Addendum bi provides a pathway for those roofs.

Clarifying the specific requirements for roof replacement serves to minimize marketplace confusion and inconsistency in complying with the general requirements of the standard in Section 5.1.3, particularly regarding roof replacements for roofs with insulation entirely above deck. The inclusion of specific requirements also allows roof replacements to be performed without having to comply with the entirety of Section 5, as currently required by Section 5.1.3.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striking through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum bi to Standard 90.1-2019

Modify Section 3.2 as shown (I-P and SI). *For more information, please see the reference section at the end of this document. (Note: This definition of “roof replacement” supersedes the one added by Addendum t to Standard 90.1-2019, which can be downloaded at <https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-addenda/addenda-to-standard-90-1-2019>.)*

~~**roof replacement:** an alteration that includes the removal of all existing layers of the roof assembly materials down to the roof deck and installing a new roof assembly above the roof deck.~~

roof replacement: an alteration that includes the removal of all existing layers of the roof assembly materials down to the roof deck and installing a new roof assembly above the roof deck.

Modify Section 5.13 as shown (I-P and SI).

5.1.3 Envelope Alterations. *Alterations to the building envelope shall comply with Section 5 for insulation, air leakage, and fenestration applicable to those specific portions of the building that are being altered.*

Exception to 5.1.3: The following *alterations* need not comply with these requirements, provided such *alterations* will not increase the *energy* use of the *building*:

1. Installation of storm windows or glazing panels over existing glazing, provided the storm window or glazing panel contains a low-emissivity coating. However, a low-emissivity coating is not required where the existing glazing already has a low-emissivity coating. Installation is permitted to be either on the inside or outside of the existing glazing.
2. Replacement of glazing in existing sash and frame, provided the *U-factor* and *SHGC* will be equal to or lower than before the glass replacement.
3. *Alterations to roof, wall, or floor cavities* that are insulated to full depth with insulation having a minimum nominal value of R-3.0/in(0.02/mm).

4. *Alterations to walls and floors*, where the existing structure is without framing cavities and no new framing cavities are created.
5. *Roof recovering*.
6. *Roof replacements* ~~Removal and replacement of a roof membrane where there is existing roof insulation is integral to or is located below the roof deck.~~
7. Replacement of existing *doors* that separate a *conditioned space* from the exterior shall not require the installation of a vestibule or revolving *door*, provided that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed.
8. Replacement of existing fenestration, provided that the area of the replacement *fenestration* does not exceed 25% of the total *fenestration* area of an *existing building* and that the *U-factor* and *SHGC* will be equal to or lower than before the fenestration replacement.

5.1.3.1 Roof Replacement for Roofs with Insulation Entirely above Deck. *Roof replacement for roofs with insulation entirely above deck shall comply with Section 5.5.3.1, shall not be required to comply with the requirements of Section 5.4.3, and shall not increase the energy use of the building. Where the insulation requirements in Section 5.5.3.1.1 cannot be met due to existing roof conditions, the roof replacement shall be constructed in accordance with approved construction documents, which shall include*

- a. *a roof inspection report documenting existing roof conditions and*
- b. *a roof design minimizing deviation from the requirements of Section 5.5.3.1.1.*

Informative Note: The proposed roof design should be prepared by an approved entity capable of determining whether the design complies with the requirements of Section 5.1.3.1 to the extent practical.

[...]

5.5 Prescriptive Building Envelope Compliance Path

[...]

5.5.3.1 Roof Insulation

5.5.3.1.1 All roofs shall comply with the insulation values specified in Tables 5.5-0 through 5.5-8.

5.5.3.1.2 Roof Curbs. *Skylight and other roof curbs shall be insulated to the level of roofs with insulation entirely above deck or not less than R-5.0(0.9), whichever is less.*

5.5.3.1.3 Joints in Roof Insulation. Joints in the insulation shall be installed in accordance with Section 5.8.1.10.

~~5.5.3.1.4~~ Roof Solar Reflectance and Thermal Emittance

[...]

Exceptions to 5.5.3.1.4:

[...]

Table 5.5.3.1.4 Increased Roof Insulation Level

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