INTERPRETATION IC 90.1-2019-14 OF
ANSI/ASHRAE/IES STANDARD 90.1-2019
Energy Standard for Buildings Except Low-Rise Residential Buildings

Date Approved: January 30, 2024

<u>**Request from:**</u> Glen Clapper, Director, Technical Services, National Roofing Contractors Association (NRCA), 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018.

<u>**Reference:**</u> This request for interpretation refers to the requirements presented only in ANSI/ASHRAE/IES Standard 90.1-2019, Section 3.2, 4.1.2, 4.2.1.3, and 5.1.3, regarding roof replacement.

<u>**Background:**</u> Specifically:

3.2 Definitions

- o *addition:* (see Standard)

- o *alteration:* (see Standard)

- o maintenance (undefined)

- o *repair:* (see Standard)

- o re-roofing (undefined)

- o *roof:* (see Standard)

- o *roof covering:* (see Standard)

- o *roof recovering:* (see Standard)

- o roof replacement (undefined)

- o service (undefined)

4.1.2 Administrative Requirements.

Administrative requirements relating to permit requirements, enforcement by the authority having jurisdiction, locally adopted energy standards, interpretations, claims of exemption, and rights of appeal are specified by the authority having jurisdiction.

- ● **4.2.1.3 Alterations of Existing Buildings.**

Alterations of existing buildings shall comply with the provisions of Sections 4.2.2 through

4.2.5 and one of the following:

a. Section 5, "*Building Envelope*"; Section 6, "Heating, Ventilating, and Air Conditioning"; Section 7, "*Service Water Heating*"; Section 8, "Power"; Section 9, "Lighting"; and Section 10, "Other *Equipment*," or

   b. Section 11, "Energy Cost Budget Method," or

   c. Normative Appendix G, "Performance Rating Method."

in accordance with Section 4.2.1.1.

5.1.3 Envelope Alterations.

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

Exceptions 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.
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. Removal and replacement of a *roof* membrane where there is existing *roof* insulation integral to or 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.

Interpretation No.1: An existing *roof with insulation entirely above deck* must be replaced down to the *roof* deck on an existing *building.* Existing constraints on the roof, the height of parapet openings (scuppers), equipment curbs, skylight curbs, windowsills, door thresholds and other similar elements with flashings for the roof system prohibit a cost-   effective increase in height solely to provide adequate insulation thickness for compliance with Standard 90.1 - 2019. Standard 90.1 - 2019, does not provide a specific mechanism for addressing the work described with existing constraints. Therefore, in the spirit and with the intentions of the framers of the eight Exceptions to Section 5.1.3, "The following *alterations* need not comply with these requirements, provided such *alterations* will not increase the *energy* use of the *building*:," the R-value of insulation shall

be equal to or as great as practical to the R-value of the insulation prior to replacement of the affected area of the *roof*.

Question No.1: Is this interpretation correct?

Answer No.1: No

Comment(s) No.1: The only provisions to allow or limit the amount of required new insulation after the *roof* replacement insulation to the amount that existed prior to the roof replacement are limited to only two scenarios as described in Exception 5 or Exception 6 to Section 5.1.3. This scenario has been further addressed in Section 5.1.4.1 of the ASHRAE 90.1-2022 publication.

Interpretation No.2: If the replacement of a *roof with the insulation entirely above deck* cannot cost-effectively meet the insulation requirements of the 2019 standard due to existing physical constraints associated with the *roof*, the local *authority having jurisdiction* shall address the question regarding the above deck roof insulation replacement in accordance with Section 4.1.2?

Question No.2: Is this interpretation correct?

Answer No.2: Yes

Comment(s) No.2: The "Administrative Requirements" in Section 4.1.2 describes that the *authority having jurisdiction* specifies the processes for enforcement, locally adopted energy standards, interpretations, claims of exemption, and rights of appeal related to Standard 90.1-2019.

This response does not make a determination on whether the interpretation's stipulated "cannot cost-effectively meet" circumstance is justified for any particular project-specific condition. This scenario has been further addressed in Section 5.1.4.1 of the ASHRAE 90.1-2022 publication.