



# ENERGY STAR Single-Family New Homes Insulation Requirements for Attic Entrances, Version 3 / 3.1

## Guidance on Items 4.9 and 4.10 of the National Rater Field Checklist

Improper air sealing and insulating of attic entrances decreases the efficiency of the home and can decrease occupant comfort. For this reason, Items 4.9 and 4.10 of the National Rater Field Checklist define attic entrance sealing and insulating requirements for certified homes as follows:

- **Item 4.9** - Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions made substantially air-tight with weatherstripping, or equivalent gasket.
- **Item 4.10** - Attic access panels, drop-down stairs, & whole-house fans equipped with a durable  $\geq R-10$  cover<sup>1</sup> that is gasketed (i.e., not caulked). Fan covers either installed on house side or mechanically operated.

This document provides further guidance on these two Items to ensure that their intent is more consistently met, given the variety of attic hatches, access panels, drop down stairs, and insulated covers available.

First, Policy Record ID 00095 clarifies that the attic access panels and drop-down stairs referenced in Item 4.10 (previously Item 5.3.2 of the Thermal Enclosure System Rater Checklist) applies only to attic access panels and drop-down stairs located in ceilings, where ceilings are defined as all non-vertical surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings). Attic access panels on vertical surfaces (i.e., walls) are not required to meet these requirements, but are required to meet the requirements for doors contained in Item 4.9.

Second, this same Policy Record ID describes two options for demonstrating compliance with the intent of Item 4.10. For both options, the insulation requirements apply to the surface area bounded by the gasketing material. See Exhibits 1 - 4 for an illustration of four configurations, where the surface shaded orange represents the applicable insulated surface area.

Partners can meet the requirements for attic access panels and drop-down stairs in Item 4.10 for a cover insulated to at least R-10 in one of two ways.

**Compliance Option 1:** Continuous  $\geq R-10$  insulation on 100% of surface area bounded by the gasketing material

One option to demonstrate compliance is to insulate 100% of the applicable surface area bounded by the gasketing material with  $\geq R-10$  insulation.

**Compliance Option 2:** Alternative Equivalent U-Factor

A second option to demonstrate compliance is through an alternative equivalent U-factor of the surface area bounded by the gasketing material that is less than or equal to 0.10, which shall be calculated using the following parameters:

1. The parallel path methodology outlined in Chapter 25 - *Heat, Air, and Moisture Control in Building Assemblies - Fundamentals* 2009 ASHRAE Handbook of Fundamentals shall be used;
2. Material U-factors shall be taken from Chapter 26 - *Heat, Air, and Moisture Control in Building Assemblies -Material Properties* of the 2009 ASHRAE Handbook of Fundamentals;
3. The calculation shall be performed moving from the interior surface to the exterior surface (heat transfer under winter conditions) to ensure consistent results;
4. A minimum of 75% of the applicable surface area shall be insulated to at least R-10.

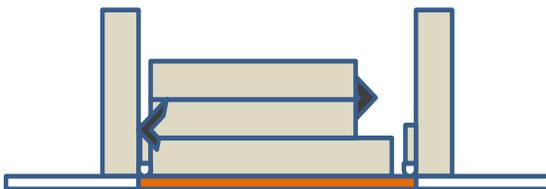
**Exhibit 1: Insulated Attic Access Panel**



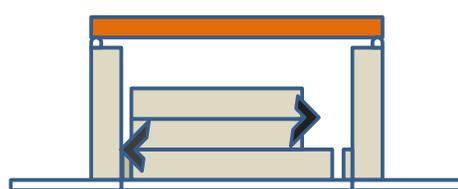
**Exhibit 2: Drop-down Stairs with Insulated Box Lid**



**Exhibit 3: Drop-down Stairs with Insulated Panel**



**Exhibit 4: Drop-down Stairs with Insulated Lid**



<sup>1</sup> Examples of durable covers include, but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping).