



Setting the Standards for Home Energy Efficiency

Interpretation: Duct Insulation Inspection

Designation MINHERS Interpretation 2019-02

Approved: September 12, 2019 by RESNET SDC 300

Effective Date: October 12, 2019

Request from: Name: John Rodenhizer 9335873 (RTIN)

Affiliation: JSR Adaptive Energy Solutions LLC

Address: 6 Pilgrim Road

City: S. Hamilton State: MA Zip: 01982

Telephone: 978-468-0297

E-mail: jsr@jsradaptiveenergy.com

Reference: This request for interpretation refers to the requirements presented in Standard:
 A-10 Building Element, Heating and Cooling Distribution System RESNET Standards Continuous Maintenance

Page Number(s): page xx

Section(s): A-10.2

Table(s): _____

Relating to: Inspection of Duct Insulation. Does not clarify the use of radiant barriers with airspace

Background
from
Requester:

The use of a radiant barrier with air space to meet prescriptive R-value requirements. There seems to be some ambiguity in the Rater community with this regard to bubble wrap insulation and the claims of the manufactures, that it meets a certain R-value with an airspace. RESNET has worked hard to ensure standards that are in line with the “I” codes yet it has been unclear on the use of Bubble wrap on ductwork. Raters need to be consistent in their ratings and not allow an advantage to use one rater over another because of different rating practices. The International Mechanical Code is clear on this,

IMC 604.7 Identification. External duct insulation, except spray polyurethane foam, and factory-insulated flexible duct shall be legibly printed or identified at intervals not greater than 36 inches (914 mm) with the name of the manufacturer, the thermal resistance R-value at the specified installed thickness and the flame spread and smoke-developed indexes of the composite materials. **Duct insulation product R-values shall be based on insulation only, excluding air films, vapor retarders or other duct components**, and shall be based on tested C-values at 75°F (24°C) mean temperature at the installed thickness, in accordance with recognized industry procedures.

In a effort to promote clarity across the industry to reduce errors in ratings this should be addressed. Insulation alignment is enforced in all other areas.

(This statement should identify what is unclear or contradictory in the standard and why clarification is necessary.)

Requester's
Interpretation:

This has a large effect on a HERS ratings, when duct work is located in unconditioned spaces. RESNET's alignment with the “I” codes have streamlined the industry and produced consistent accountability in HERS ratings. The IMC is clear in its requirement for duct insulation and therefore RESNET should make a ruling to align with the IMC.

(State what you consider the clarification should be. Note: Interpretations are solely the opinion of the SDC. There is no public review or comment incorporated in their development. Interpretations should not create new requirements for national consensus standards.)

Question:

Is this Interpretation correct?



Setting the **Standards** for
Home Energy Efficiency

SDC300 No.
Answer:



Setting the Standards for
Home Energy Efficiency

SDC300
Comments:

This request seeks an interpretation on language that does not currently exist in MINHERS or ANSI/RESNET/ ICC 301-2019 so the SDC300 is unable to agree with your interpretation.

First, please note that the Background and Interpretation provided by the Requester mixes terms referring to different product types. “Radiant barriers” and “reflective insulation” are two different types of products that have different requirements and characteristics. It is our assumption that the Requester is referring to “reflective insulation” installed around ductwork for the purpose of serving as duct insulation.

The SDC 300 agrees that there could and should be more clarity added to the Standards regarding the use of “reflective insulation” on ducts. This is a work item that will be considered as part of our future work plan.

The Requester’s statement that MINHERS Appendix A, section A-10.2 describes the inspection of duct insulation is correct, as is the statement that it “does not clarify the use of radiant barriers with airspace.” The same holds true for, ANSI/RESNET/ICC 301-2019, Appendix B, under Heating and Cooling Distribution System, Insulation as it does not specifically address these products either.

An “interpretation” cannot be used to increase the scope of this requirement to explicitly exclude “reflective insulation” installed on ductwork or to write new standard language. An “amendment” to the Standards would have to be proposed and approved to accomplish that.

While the SDC300 answer is “no” for the above reasons, the following guidance may be useful.

While in both MINHERS and 301-2019, the definitions of R-Value are given the units h-ft²-F/Btu, they are not currently constrained by compliance with an ASTM standard. However, the Federal Trade Commission (FTC) Part 460 - Labeling and Advertising Home Insulation does address the test standards by which certain insulation product types must be tested in order for manufacturers to claim and label their products with a given R-value. For example:

460.5, R-value tests, subsection (c).



Setting the **Standards** for
Home Energy Efficiency

Reflective Insulation systems with more than one sheet, and single sheet systems that are intended for applications that do not meet the conditions specified in Table 3 in the ASHRAE Handbook, Chapter 25, must be tested with ASTM C1363-11, “Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus,” in a test panel constructed according to ASTM C1224-15, “Standard Specification for Reflective Insulation for Building Applications” and under the test conditions specified in ASTM C1224-15. To get the R-value from the results of those tests, use the formula specified in ASTM C1224-15.

Additionally, ANSI/RESNET/ICC 301-2019, Appendix A Section A-2.3 addresses the installation of Reflective Insulation and Radiant Barriers. Although it does not specifically mention ducts, the general principles for reflective insulation are applicable as the product relies on an enclosed air space for most of its claimed thermal performance.

Manufacturers are also required to provide installation instructions which must be followed to achieve the claimed thermal performance of their specific product(s) according to ANSI/RESNET/ICC 301-2019, Appendix A Section A-1.1, Minimum General Installation Requirements. If this installation is not achieved, then the published R-Value is not valid.

It is the responsibility of the HERS Rater to determine whether or not that installation is achieved in the field and can therefore be assigned the published R-Value.