RESNET
RESIDENTIAL ENERGY SERVICES NETWORK

Setting the **Standards** for
Home Energy Efficiency

Interpretation: Air tightness test requirement

Designation: IR 301-2019-019, 301-2022-015 and 301-2025-015

Approved: October 25, 2020 by RESNET SDC 300

Effective Date: November 23, 2020

Reference:

Standard ANSI/RESNET/ICC 301-2019
ANSI/RESNET/ICC 301-2022
ANSI/RESNET/ICC 301-2025
Page Number(s): 20-22
Sections(s): 4.2
Table(s): 4.2.2(1)
Relating to: Air exchange rate

Request from:

Name: Mike Moore
Affiliation: Newport Partners
Address: 3760 Tanglewood Ln.
City: Davidsonville State: MD Zip: 21035
Email: mmoore@newportventures.net

Background Statement:

Table 4.2.2(1) states, "For residences without Dwelling Unit Mechanical Ventilation Systems, or without measured airflow, or where $A_{ext}^{i} < 0.5$ and the Mechanical Ventilation System is solely an Exhaust System, the Infiltration rate[j] shall be as determined above, but not less than 0.30 ACH." More clarity would be appreciated with respect to the type of airflow that is referenced by this sentence (e.g., the airtightness test result or the dwelling unit mechanical ventilation system airflow). Also, more clarity would be appreciated with respect to the method that is referenced by the clause "as determined above".

Proposed Interpretation:

1. Based on the following language, RESNET 301-2019 requires an airtightness test in accordance with ANSI/RESNET/ICC 380 for all dwelling units complying with the

standard: "In accordance with Standard ANSI/RESNET/ICC 380, obtain airtightness test results for: * Building enclosure (for Detached Dwelling Units) * Compartmentalization Boundary (for Attached Dwelling Units)." Is this correct?

2. If an airtightness test is not performed for a dwelling unit, the dwelling unit does not meet the requirements for the Rated Home and therefore is not eligible to receive a HERS Index. Is this correct?
3. Where "airflow" is referenced in the following clause, it refers to the Dwelling Unit Mechanical Ventilation System airflow: "For residences without Dwelling Unit Mechanical Ventilation Systems, or without measured airflow." Is this correct?
4. Where the infiltration rate is required to be "as determined above" within the air exchange rate section of Table 4.2.2(1), this infiltration rate is required to be determined in accordance with ANSI/RESNET/ICC 380. Is this correct?

SDC Response:

Is the proposed interpretation #1 correct?	__X__ Yes	_____ No
Is the proposed interpretation #2 correct?	__X__ Yes	_____ No
Is the proposed interpretation #3 correct?	__X__ Yes	_____ No
Is the proposed interpretation #4 correct?	__X__ Yes	_____ No

SDC Comments:

The SDC comments are as numbered in the Proposed Interpretation above

1. In addition to the Table 4.2.2(1) specification under the Air exchange rate column, which does not provide an exception for testing, table note (j) is explicit that the air exchange rate test must be performed and documented stating the following: "Envelope (for Detached Dwelling Units) or Compartmentalization Boundary (for Attached Dwelling Units) leakage shall be tested and documented in accordance with requirements of Standard ANSI/RESNET/ICC 380 by an Approved Tester."
2. If an envelope leakage test is not performed and documented by an Approved Tester, then there is no alternative means to configure the Rated Home to perform the simulations required to determine the Energy Rating Index.
3. It is the considered determination of the SDC that the intent of the term "airflow" is with respect to the mechanical ventilation system fan airflow and not with respect to the infiltration rate. The principle reason for this interpretation is that the infiltration rate is not measured. Rather only the envelope leakage area is measured. While this leakage measurement is characterized as ACH50, it is not an infiltration rate but rather is actually only a characterization of the size of the envelope leakage area.

4. As stated in item #3, Standard ANSI/RESNET/ICC 380 determines envelope leakage area and not infiltration rate. However, envelope leakage area along with certain climate factors is required to determine infiltration rate. Perhaps this could be more artfully stated by replacing the term “infiltration rate” with “envelope leakage” but the intent is that the infiltration rate for the dwelling unit is to be determined using the envelope leakage determined by Standard ANSI/RESNET/ICC 380 testing results.