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Interpretations of Standard ANSI/RESNET/ICC 380-2022 apply to the RESNET® HERS®

Interpretation: Envelope Leakage Test Set-up for Buildings with Air Source Heat Pump Water Heaters Intake Air and Exhaust Air Openings

Designation IR 380-2022-005

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Reference: This request for interpretation refers to the requirements presented in Standard: ANSI/RESNET/ICC Standard 380-2022

Page Number(s): Chapter 4 page 11
Section(s): 4.2.13.4
Table(s): n/a
Relating to: Ventilation air openings besides those listed in Section 4.2.13.3 shall be left in their as-found position and shall not be sealed.

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Background: Intake air and Exhaust air for air source heat pump water heaters (when so equipped) are not specifically addressed in Std 380-2022. With the proliferation of all electric homes, specifically those with Air Source Heat Pump Water Heaters where space constraints require separate ducted Intake and Exhaust air be provided to the room or the water heater/heat pump portion directly, (referred to as snorkel kits on occasion), it is unclear if these can be sealed for air infiltration testing. Many homes may pass Code level air infiltration tests, but when seeking Phius Certification, the air tightness targets are several orders of magnitude tighter than those required by IECC & local codes and for EPA and DOE Program Certifications. As an example, Phius requires 0.06 CFM/SF of building envelope surface area for combustible construction 5 stories or less. With SF detached and MF dwellings with unitary ASHP water heaters that employ intake and exhaust ductwork to the room or DWH directly this can be problematic. For reference, Std 380 is generally in agreement with and consistent with other test standards. Since many of these standards were written and adopted prior to widespread use of ASHP Water Heaters, an interpretation is overdue. These standards do differentiate between an enclosure test and an operation test and allow for testing in both conditions. For reference:

ASTM E-779 does not address building set-up
ASTM E-1827, Table 1 seems to indicate testing with and without intake and exhaust with no dampers can be sealed (for Occupied) and Closed (envelope conditions)
ASTM E-3158, Table 1 indicates testing in both sealed and open conditions (Building Envelope test and Operational Envelope Test respectively)
Air Barrier Association of America "*Standard Method for Building Enclosure Airtightness Compliance Testing"* **,** Table 1 allows for testing in the sealed and unsealed condition (air barrier systems enclosure test and operational enclosure test respectively).

Due to dwelling unit set-up confusion, clarification of the disposition of how ASHP Water Heater Intake/Exhaust openings in the building envelope (when provided) are to be treated for air infiltration (blower door) testing is needed. This would apply to both SF detached and MF dwellings. An interpretation of whether or not these are to be left open in all conditions, or whether or not air tightness test set up can include tests with them sealed and open consistent with other test standards is needed.

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Interpretation: Based on Section 4.2.13.4, ASHP Water Heater Intake/Exhaust openings in the building envelope fall under the category of "***Ventilation air openings besides those listed in Section 4.2.13.3*** " therefore shall be left in their as-found position and shall not be sealed for air infiltration testing.

Question: Is this Interpretation correct?

SDC Answer: Yes

SDC Comments: The SDC300 agrees that the intake/exhaust openings in the building envelope that are associated with ASHP water heaters shall be left in their as-found position and shall not be sealed for air infiltration testing.

While the interpretation references the section related to "ventilation air" openings, the following section 4.2.14 for "make-up air" is likely more applicable and results in the same interpretation. In the next edition of 380, this section will be clarified to be more inclusive of these openings.