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RESIDENTIAL ENERGY SERVICES NETWORK

Setting the **Standards** for
Home Energy Efficiency

Interpretation: Fan Energy for Unmeasured Mechanical Ventilation

Designation IR 301-2019-001

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Reference: This request for interpretation refers to the requirements presented in Standard:
ANSI/RESNET/ICC 301-2019 and MINHERS Addendum 39

Page Number(s):
Section(s): 4.2.2
Table(s): 4.2.2(1)
Relating to: Fan Energy for Unmeasured Mechanical Ventilation

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Background provided by Requester:

While this **mechanical ventilation fan energy** interpretation is framed in the context of Standard 301-2019, similar logic applies for MINHERS Addendum 39.

When a Rated Home has mechanical ventilation but the flowrate has not been measured, the required configuration adjustments in the Rated Home can make it confusing to determine the fan energy associated with the unmeasured system. In particular, the appropriate ventilation runtime (duty cycle) may be unclear in this scenario – which is the problem that this Interpretation Request seeks to resolve.

For context, Table 4.2.2(1) of Standard 301-2019 requires the following:

- Where a Rated Home has mechanical ventilation but the flowrate has not been measured in accordance with Standard ANSI/RESNET/ICC 380,
- a minimum infiltration value of 0.30 air changes per hour is invoked as a result,
- and because the home has mechanical ventilation, the total air exchange rate is required to be no less than Qtot = 0.03 x CFA + 7.5 x (Nbr+1) cfm.
- The time-averaged fan flow rate Qfan for the Rated Home is determined by Table Note (g), based on an infiltration airflow rate in cubic feet per minute (cfm) that is equivalent to 0.30 air changes per hour as the value for Qinf.

When Qfan is greater than zero, then because Qfan is a continuous flowrate, the ventilation runtime (duty cycle) is implicitly 24 hrs/day. With this established, the Rated Home fan energy is readily calculated.

But, when Qfan is zero, the infiltration used for the Rated Home is sufficient to meet the minimum required total air exchange rate -- i.e., Table 4.2.2(1) does not require added ventilation for the Rated Home. In this case, the Rated Home mechanical ventilation fan energy is appropriately zero, which also aligns with the Reference Home fan energy (which is zero because fanCFM=0 when the Rated Home Qfan=0).

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

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Requester's Interpretation: Where a Rated Home has mechanical ventilation but the flowrate has not been measured,

And where the required configuration adjustments in the Rated Home have been made,

And where the resulting Qfan > 0 (cfm), the continuous flowrate Qfan requires a runtime of 24hrs/day. In these cases, the continuous duty cycle of 24hrs/day shall be used for calculating the Rated Home fan energy for the unmeasured system.

However, where Qfan ≤ 0 (cfm), then just as the Reference Home fan energy is zero, the Rated Home fan energy shall also be zero.

(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?

SDC300 Answer: Yes

SDC300 Comments: