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Setting the **Standards** for
Home Energy Efficiency

Interpretation: Fan Energy for Unmeasured Mechanical Ventilation (updated for 301-2022)

Designation: IR 301-2022-010 (formerly 301-2022-005)

Approved: August 15, 2025, by RESNET SDC 300

Effective Date: Note: This interpretation is the same as the interpretation of ANSI/RESNET/ICC 301-2019. The question answered regarding the requirement of Standard 3901has not changed. This interpretation is considered affirmation that the interpretation of Standard 301-2019 still applies to ANSI/RESNET/ICC 301-2022.

Reference:

Standard	_301-2022_____
Page Number(s):	_____
Sections(s):	_____
Table(s):	_Table 4.2.2(1)_____
Relating to:	_Air exchange rate row, Dwelling Unit Mechanical Ventilation System fan power row, and Note (zz)_____

Request from:

Name: _Brian Christensen_____
Affiliation: _Residential Energy Management Services_____
Address: _7605 Bergamo Ave_____
City: _ Sarasota _____ State: _ FL _____ Zip: __34238_____
Email: _brian@remsvc.com_____

Background Statement: *Provided by person requesting the interpretation.*

This is an updated variant of IR-301-2019-001. The essential question of that 2019 IR remains unaddressed within the language of Std 301-2022, and unfortunately, the original IR is confusing in the context of 301-2022 because of substantial edits in relevant sections.

The long-term solution for this really requires an overhaul (consolidation) of the Air Exchange content in Std 301, currently scattered in Table 4.2.2(1) and multiple Notes. The new Ventilation section (added for the CFIS addendum) provides a possible place for doing this.

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 301-2022 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 natural air changes per hour is invoked as a result,
- and the total air exchange rate (infiltration as well as mechanical ventilation) 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_max for the Rated Home is determined by Table Note (zz), 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_max is greater than zero, then because it is calculated as 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_max 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_max=0).

Proposed Interpretation: *Provided by person requesting the 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_max > 0 (cfm), the continuous flowrate Qfan_max 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_max ≤ 0 (cfm), then just as the Reference Home fan energy is zero, the Rated Home fan energy shall also be zero.

SDC Response:

Is the proposed interpretation correct? _____ Yes _____

SDC Comments: