**Interpretation:** Constraints on interpreting hourly Mechanical Ventilation as Balanced

**Designation:** IR 301-2019-028

**Approved:** August 31, 2022, by RESNET SDC 300

**Effective Date:** September 30, 2022

**Reference:**

Standard 301-2019\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 Sections(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Table(s): \_\_4.2.2(1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Relating to: \_\_Note (h)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**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.*

Discussions within the Software Consistency Committee have found a substantive inconsistency in how hourly mechanical ventilation is classified as balanced or imbalanced by RESNET-accredited software tools.

As defined in Std 301-2019:

* ***Balanced Ventilation System (Balanced System)*** – A Ventilation system where the total supply airflow and total exhaust airflow are simultaneously within 10 percent of their average.

In the absence of an hourly schedule of operation for two or more intermittent Dwelling Unit Mechanical Ventilation Systems, it is unclear when any two may be operating simultaneously. For instance, if both an exhaust-only and a supply-only system each runs for 8 hrs/day (with matching flowrates), it is possible to assume hourly schedules where:

* The two systems never run in the same hour (i.e. imbalanced operation), or
* Always run in the same hour (i.e. balanced operation), or
* Sometimes run in the same hour, sometimes not.

Where a Rated Home can be modeled with a Balanced System, the mechanical ventilation impact on total air change is more effective. If that Rated Home requires ventilation adjustments to meet the required total air exchange of 0.03\*CFA + 7.5\*(nBr+1), the adjustment is smaller than it would be for imbalanced ventilation. Consequently, the Balanced scenario will generate a smaller ERI, all other things being equal.

To resolve this consistency issue between software tools, a consistent interpretation of this generic scenario is required. Given that Dwelling Unit Mechanical Ventilation Systems are independently-controlled and generally not tied to a time-of-day clock, obtaining schedule information is impractical. Thus, this proposed interpretation does not rely on actual schedule data.

**Proposed Interpretation:** *Provided by person requesting the interpretation.*

Where a home has more than one Dwelling Unit Mechanical Ventilation System, and:

* includes both supply-only and exhaust-only strategies, and
* where either the supply-only or exhaust-only system runs intermittently, and
* where the user has not provided an hourly schedule for the operation of each system,

then simulation software shall treat each separate supply-only system and exhaust-only system as imbalanced ventilation in accordance with Note (h) to Table 4.2.2(1). This shall be true even when the exhaust and supply flowrates might appear to achieve balanced operation for some hours of the day.

In addition, each separate Dwelling Unit Mechanical Ventilation System shall be simulated with a flow rate prorated to run 24 hours per day, such that the total ventilation airflow per day matches the user inputs for flow rate and runtime.

**SDC Response:**

Is the proposed interpretation correct? \_\_X\_\_ Yes \_\_\_\_\_ No

**SDC Comments:**

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