BSR/ASHRAE/IES Addendum dr
to ANSI/ASHRAE/IES Standard 90.1-2022

Public Review Draft

Proposed Addendum dr to Standard 90.1-2022, Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings

First Public Review (October 2025)
(Draft Shows Proposed Changes to Current Standard)

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FOREWORD

This proposal modifies heat and energy recovery ventilation (HERV) requirements to align with the latest action of the IECC-Residential Consensus Committee and the IECC-C Consensus Committee. Each of these bodies has recently acted to increase the fan efficacy for small HERVs from 1.2 cfm/W to 1.7 cfm/W and the sensible recovery efficiency (SRE) from 65 to 67 to promote cost-effective energy savings.

The incremental cost associated with improving small HERV prescriptive performance thresholds from 1.2 cfm/W to 1.7 cfm/W and SRE from 65 to 67 is estimated at $30, and the simple payback is 1.6 years. A spreadsheet with calculations is provided in a separate file.

The changes proposed by this proposal are shown in yellow highlight. Other changes that are shown are part of addendum dk, which is currently in public review.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum dr to 90.1-2022

Proposal: Revise Section 6.5.6.1 as shown below. (I-P and SI)

6.5.6.1 Exhaust Air to Outdoor Air Energy Recovery. *Nontransient dwelling units* shall comply with Section 6.5.6.1.1. All other spaces shall comply with Section 6.5.6.1.2.

6.5.6.1.1 Nontransient Dwelling Units. *Nontransient dwelling units* shall have a *ventilation system*-with *energy* recovery to transfer *energy* between the *system* exhaust air and *outdoor air* at not less than the *design minimum outdoor air rate* and comply with one of the following:

a. The exhaust air energy recovery performance of the heat exchanger shall be determined in accordance with AHRI 1060 [AHRI 1061], ~~and at the heating *design condition*~~, the heat exchanger shall comply with the following:

1. In Climate Zones 0 through 3 at the cooling design condition, the *enthalpy recovery ratio* at the *design minimum outdoor air rate* shall be not less than 50%.

2. In Climate Zones 3 through 8, where active humidification is provided to spaces served by the system, the heat exchanger's enthalpy recovery ratio at the heating design condition at the *design minimum outdoor air rate* shall be not less than 60%.

3. In Climate Zones 3 through 8, when active humidification is not provided to *spaces* served by the *system*, the heat exchanger's *sensible energy recovery ratio* at the heating *design condition* at the *design minimum outdoor air rate* shall be not less than 60%.

b. The *equipment*'s energy recovery performance shall be determined in accordance with CAN/CSA C439 and shall comply with the following:

1. In Climate Zones 4 through 8, the *equipment's* sensible recovery efficiency rating at the 32°F (0°C) outdoor air heating mode test condition shall not be less than 6~~5~~7%.

2. In Climate Zones 0A, 1A, 2A, and 3A, the *equipment's* total recovery efficiency rating at the 95°F (35°C) outdoor air cooling mode test condition shall not be less than 50%.

3. In Climate Zones other than 0A, 1A, 2A, and 3A, where active humidification is provided to spaces served by the system, the *equipment's* net moisture transfer ratio rating at the 32°F (0°C) outdoor air heating mode test condition shall not be less than 0.40.

4. The *equipment's* sensible recovery *efficiency* and net moisture transfer shall be determined from a rated value, or interpolation of rated values, at an airflow rate not less than the *design minimum outdoor air rate*.

Exceptions to 6.5.6.1.1:

5. *Nontransient dwelling units* in Climate Zone 3C.

6. *Nontransient dwelling units* with not more than 500 ft^2 of *gross conditioned floor area* in Climate Zones 0, 1, 2, 3, 4C, and 5C.

6.5.6.1.2 Other Spaces. Each fan *system* serving other *spaces* shall have an *energy* recovery *system* where the design supply fan airflow rate exceeds the value listed in Tables 6.5.6.1.2-1 and 6.5.6.1.2-2, based on the climate zone and percentage of *design minimum outdoor air rate* at design airflow conditions. Table 6.5.6.1.2-1 shall be used for all *ventilation systems* that operate less than 8000 hours per year, and Table 6.5.6.1.2-2 shall be used for all *ventilation systems* that operate 8000 or more hours per year.

Exceptions to 6.5.6.1.2:

1. Laboratory *systems* meeting Section 6.5.7.3.

2. *Systems* serving *spaces* that are not cooled and that are heated to less than 60°F.

3. Heating *energy* recovery where more than 60% of the *outdoor air* heating *energy* is provided from *site recovered energy* or *on-site renewable energy* in Climate Zones 5 through 8.

~~4. *Enthalpy recovery ratio* requirements at heating design condition in Climate Zones 0, 1, and 2.~~

~~5. *Enthalpy recovery ratio* requirements at cooling design condition in Climate Zones 3C, 4C, 5B, 5C, 6B, 7, and 8.~~

~~6~~4. Where the sum of the airflow rates exhausted and relieved within 20 ft of each other is less than 75% of the *design minimum outdoor air rate*, excluding exhaust air that is

a. used for another *energy* recovery *system*,
b. not allowed by ASHRAE/ASHE Standard 170 for use in *energy* recovery *systems* with leakage potential, or
c. of Class 4 as defined in ASHRAE Standard 62.1.

~~7~~5. *Systems* in Climate Zones 0 through 4 requiring dehumidification that employ *series energy recovery* and have a minimum *SERR* of 0.40.

4. *Systems* expected to operate less than 20 hours per week at the *design minimum outdoor air rate* percentage covered by Table 6.5.6.1.2-1.

5. *Indoor pool dehumidifiers* meeting Section 6.5.6.4.

6.5.6.1.2.1 Energy Recovery Performance. The exhaust air energy recovery performance ~~of the heat exchanger~~ shall be determined in accordance with one of the following:

a. The exhaust air energy recovery performance of the heat exchanger shall be determined in accordance with AHRI 1060 [AHRI 1061] and shall comply with the following:~~.~~

1. In Climate Zones 0A, 0B, 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B, 5A, and 6A, ~~A~~at the cooling *design condition*, the *enthalpy recovery ratio* at the *design minimum outdoor air rate* shall be not less than 50% ~~and at the heating *design condition*, the heat exchanger shall comply with the following:~~.

2. In Climate Zones 3 through 8, at the heating *design condition*:
a. Where active humidification is provided to *spaces* served by the *system*, the heat exchanger's *enthalpy recovery ratio* at the *design minimum outdoor air rate* shall be not less than 50%.
b. Where active humidification is not provided to *spaces* served by the *system*, the heat exchanger's *sensible energy recovery ratio* at the *design minimum outdoor air rate* shall be not less than 50%.

~~The *energy* recovery *system* shall provide the required *enthalpy recovery ratio* or *sensible energy recovery ratio* at both heating and cooling *design conditions* unless one mode is not required for the climate zone by the exceptions to Section 6.5.6.1.2.~~

b. The *equipment*'s energy recovery performance shall be determined in accordance with CAN/CSA C439 and shall comply with the following:

1. The *equipment*'s sensible recovery efficiency rating at the 32°F (0°C) outdoor air heating mode test condition shall not be less than 6~~5~~7%. This requirement shall not apply in Climate Zones 0 through 2.

2. The *equipment*'s total recovery efficiency rating at the 95°F (35°C) outdoor air cooling mode test condition shall not be less than 50%. This requirement shall not apply in Climate Zones 3C, 4C, 5B, 5C, 6B, 7, and 8.

3. Where active humidification is provided to spaces served by the system, the *equipment*'s net moisture transfer ratio rating at the 32°F (0°C) outdoor air heating mode test condition shall not be less than 0.40. This requirement shall not apply in Climate Zones 0 through 2.

4. The *equipment*'s sensible recovery efficiency and net moisture transfer shall be determined from a rated value, or interpolation of rated values, at an airflow rate not less than the *design minimum outdoor air rate*.

Table 6.5.3.7 Minimum Fan Efficacy for Low-Power Fans

IP:

System Type	Minimum Fan Efficacy [a,b], cfm/W	Test Method and Rating Conditions
HRV[c], ERV[d], or other system with exhaust air *energy* recovery	~~1.2~~1.7	~~CAN/~~CSA 439~~-18~~

SI:

System Type	Minimum Fan Efficacy [a,b], L/s/W	Test Method and Rating Conditions
HRV[c], ERV[d], or other system with exhaust air *energy* recovery	~~0.57~~0.80	~~CAN/~~CSA 439~~-18~~

Note: The portion of the table that is omitted remains unchanged. CAN/CSA C439 is now branded as simply "CSA C439." Additionally, as per ASHRAE standards writing practice, a standard's publication year is listed in the reference section, not in the body. Finally, the latest year of C439 is 2024, which is being updated by addendum dk.