

1323.0656 ENERGY RECOVERY.

Subpart 1. **ASHRAE 90.1 section 6.5.6.1.1 Nontransient dwelling units.** ASHRAE 90.1 section 6.5.6.1.1 is amended by modifying exception 2 to read as follows:

2. Nontransient dwelling units with no more than 750 ft² of conditioned floor area.

Subp. 2. **ASHRAE 90.1 section 6.5.6.1.2 Spaces other than nontransient dwelling units.** ASHRAE 90.1 section 6.5.6.1.2 is amended to read as follows:

6.5.6.1.2 Spaces Other than Nontransient Dwelling Units. Each fan system serving spaces other than nontransient dwelling units shall have an energy recovery system where the design supply fan airflow rate exceeds the value listed in Table 6.5.6.1.2, based on the climate zone and percentage of outdoor air at design airflow conditions.

Exceptions:

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 percent of the outdoor air heating energy is provided from site-recovered energy or site-solar energy in Climate Zones 5 through 8.
4. Enthalpy recovery ratio requirements at cooling design condition in Climate Zones 3C, 4C, 5B, 5C, 6B, 7, and 8.
5. Where the sum of the airflow rates exhausted and relieved within 20 feet of each other is less than 75 percent of the design outdoor airflow 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.
6. Systems expected to operate less than 20 hours per week at the outdoor air percentage covered by Table 6.5.6.1.2.
7. Indoor pool dehumidifiers meeting Section 6.5.6.4.

6.5.6.1.2.1 Minimum Enthalpy Recovery Ratio. Energy recovery systems required by this section shall result in an enthalpy recovery ratio of at least 50 percent. A 50 percent enthalpy recovery ratio shall mean a change in the enthalpy of the outdoor air supply equal to 50 percent of the difference between the outdoor air and entering exhaust air enthalpies at design conditions. The energy recovery system shall provide the required enthalpy recovery ratio at both heating and cooling design conditions unless one mode is not required for the climate zone by Exception 6.5.6.1.2.2.

6.5.6.1.2.2 Provision for Air Economizer or Bypass Operation. Provision shall be made for both outdoor air and exhaust air to bypass or control the energy recovery system to enable economizer operation as required by Section 6.5.1.1. The bypass or control shall meet the following criteria:

- a. For energy recovery systems where the transfer of energy cannot be stopped, bypass provision shall prevent the total airflow rate of either outdoor air or exhaust air through the energy recovery exchanger from exceeding 10 percent of the full design airflow rate.
- b. The pressure drop of the outdoor air through the energy recovery exchanger shall not exceed 0.4 inch of water. The pressure drop of the exhaust air through the energy recovery exchanger shall not exceed 0.4 inch of water.

Exception to 6.5.6.1.2.2: Energy recovery systems with 80 percent or more outdoor air at full design airflow rate and not exceeding 10,000 cfm.

Subp. 3. **Table 6.5.6.1.2.** ASHRAE 90.1 Table 6.5.6.1.2-1 and Table 6.5.6.1.2-2 are deleted and replaced with the following:

Table 6.5.6.1.2

Exhaust Air Energy Recovery Requirements for Ventilation Systems

Percent (%) Outdoor Air At Full Design Airflow Rate								
Climate Zone	≥10% and <20%	≥20% and <30%	≥30% and <40%	≥40% and <50%	≥50% and <60%	≥60% and <70%	≥70% and <80%	≥80%
Design Supply Fan Airflow Rate (cfm)								
6A	NR	≥16,000	≥5,500	≥4,500	≥3,500	≥2,000	≥1,000	≥120
7	NR	≥4,000	≥2,500	≥1,000	≥140	≥120	≥100	≥80

NR= Not required.

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