

Draft ENERGY STAR® Specification 1.0 and 1.1 Requirements for Heat/Energy Recovery Ventilators

Eligibility Criteria

This is the draft product specification (versions 1.0 and 1.1) for ENERGY STAR qualified heat/energy recovery ventilators. A heat recovery ventilator or an energy recovery ventilator must meet all of the identified criteria to be qualified as ENERGY STAR.

1) Definitions and References:

Below are definitions of a heat recovery ventilator, an energy recovery ventilator and other items and references that are relevant to this ENERGY STAR specification.

- A. *Heat-recovery ventilator (HRV)* — a factory-assembled packaged unit including fans or blowers that transfers heat between two isolated airstreams.
- B. *Energy-recovery ventilator (ERV)* — a heat-recovery ventilator designed to transfer heat and moisture.
- C. *Sensible heat recovery efficiency (SRE)* — the apparent effectiveness adjusted per clause 9.3.3 of CSA C439 to take into account fan energy, leakage (exhaust air transfer), mass and flow imbalance, frost control, and certain other external and internal energy gains and losses.
- D. *Net Airflow* — the gross airflow during an energy performance test reduced by the measured amount of leakage (identified in C439 as exhaust air transfer ratio (EATR)). Net airflow is the actual amount of outside air supplied by the unit and it is reported in the HVI 911 directory for each energy performance test.
- E. *Test Airflow* — the net airflow in cubic feet per minute (CFM) for an energy performance test for which a certified performance rating with 0°C outdoor air temperature and/or -25°C outdoor air temperature is provided in the current HVI 911 directory of certified performance.
- F. *Power Consumption in Watts (W)* — the average power consumed during a specific energy performance test as reported in the HVI 911 directory.
- G. *Fan Efficacy (cfm/W)* — the test airflow listed in the HVI 911 directory during a heating mode energy performance test with 0°C supply air temperature divided by the power consumption listed in the HVI 911 directory for the same test. Fan Efficacy (cfm/W) shall be rounded to and reported at the nearest one decimal place (tenth).
- H. *Standby Power (W)* — the power consumption determined when the HRV/ERV is not in use, measured in accordance with CSA C439-08. (Not used in draft specification 1.0 or 1.1)
- I. *Certified data* — Energy performance data published in the current edition of the HVI 911 Certified Home Ventilating Products Directory or the equivalent HVI on-line directory of certified performance data.
- J. CSA C439-08 “Standard Laboratory Methods of Test for Rating the Performance of Heat/Energy-Recovery Ventilators”.

- K. HVI 920 “HVI Product Performance Certification Procedure Including Verification and Challenge”: Publication that defines and specifies certain aspects of the procedures, covering such points as the actual testing, the certification and verification process, challenge procedures, and the use of HVI trademark and labels.
- L. HVI 911 “Certified Home Ventilating Products Directory”: HVI publishes a Certified Products Directory that is updated monthly (www.hvi.org).

2) **Qualifying Products:** In order to qualify as ENERGY STAR, a heat/energy recovery ventilator must meet the definition in Section 1A or 1B and comply with the testing and minimum performance requirements provided in this specification.

3) **ENERGY STAR Specification Requirements for Qualifying Products:** Only those products described in Section 2 that meet the energy-efficiency criteria outlined in Table 1 or Table 2 may qualify for the ENERGY STAR designation. In addition, all ENERGY STAR heat/energy recovery ventilators must meet all requirements listed in this specification.

Table 1: Specification 1.0 Criteria for ENERGY STAR Qualified Heat/Energy recovery ventilators - Minimum SRE and Fan Efficacy – Effective July 1, 2009 to June 30, 2011.

<i>Minimum SRE</i>	
@ 0°C supply temperature	60 %
@ -25°C supply temperature	55 %
<i>Minimum Fan Efficacy with 0°C supply temperature</i>	
SRE less than 75%	1.0 cfm/W
SRE 75% or greater	Any cfm/w

Note: The net supply flows at which the HRV/ERV qualifies for ENERGY STAR designation must be specified in product literature and labelling.

Table 2: Specification 1.1 Criteria for ENERGY STAR Qualified Heat/Energy recovery ventilators - Minimum SRE and Fan Efficacy – Effective July 1, 2011

<i>Minimum SRE</i>	
@ 0°C supply temperature	65 %
@ -25°C supply temperature	60 %
<i>Minimum Fan Efficacy with 0°C supply temperature</i>	
SRE less than 75%	1.2 cfm/W
SRE 75% or greater	0.8 cfm/W

Note: The net supply flows at which the HRV/ERV qualifies for ENERGY STAR designation must be specified in product literature and labelling.

4. Quality Assurance Requirements: To assure the quality of ENERGY STAR qualified HRV/ERVs, the following quality assurance requirements must be met for an HRV/ERV to qualify as ENERGY STAR:

4.1. Warranty

Partner shall provide a minimum five-year warranty for a product to qualify for ENERGY STAR.

5. Inclusion of Installation Instruction and Consumer Recommendations:

5.1 Picture diagram-type installation instructions shall be included with each qualified ventilating HRV/ERV. The instructions shall indicate the following:

1. How to properly seal the openings to the exterior of the thermal envelope of the building with caulk or other similar material to inhibit air leakage.
2. Recommended ductwork installation including type, elbows (including radii), terminations, sealants, and lengths that will minimize static pressure losses and promote adequate airflow.
3. Proper installation of vibration deadening materials such as short pieces of flexible duct.
4. Proper installation of insulation around the product and connecting ducts to minimize building heat loss and gain.

5.2 Installation Instructions: Manufacturers must include the following information on the product or in product literature as well as on Partner's Web site:

To ensure quiet operation of ENERGY STAR qualified HRV/ERVs, each product should be installed using sound attenuation techniques appropriate for the installation. For general ventilation applications, at least 8 feet of insulated flexible duct must be installed between any exhaust or supply grille(s) and the HRV/ERV.

The way that your Heat/Energy recovery ventilator is installed may make a significant difference to the electrical energy that you will use. To minimize the electricity use of the Heat/Energy recovery ventilator, a stand-alone fully ducted installation is recommended. If you choose a simplified installation that operates your furnace air-handler for room-to-room ventilation, an electrically efficient furnace that has an electronically commutated (EC) variable speed blower motor will reduce your electrical energy consumption and operating cost.

6. Product Testing:

Manufacturers are required to perform tests, according to the requirements included in this Version 1.0 and Version 1.1 specification, and then submit qualifying model

information for approval. Each qualifying model must be tested in accordance with CSA C439 and be certified by HVI.

7. Effective Dates:

The date that manufacturers may begin to qualify products as ENERGY STAR under the Version 1.0 specification will be defined as the effective date of this agreement. The ENERGY STAR Heat/Energy recovery ventilators (Version 1.0) specification shall go into effect on July 1, 2009. The ENERGY STAR Heat/Energy recovery ventilators (Version 1.1) specification shall go into effect on July 1, 2011

8. Qualifying and Labelling Products under the Version 1.0 and Version 1.1

Specification:

All products, including models originally qualified under Version 1.0 with a date of manufacture on or after July 1, 2011, must meet the Version 1.1 requirements in order to use the ENERGY STAR on the product or in product literature. The date of manufacture is specific to each unit, and is the date (e.g., month and year) of which a unit is considered to be completely assembled.

9. Exclusion of Automatic Grandfathering:

ENERGY STAR qualification under Version 1.0 and Version 1.1 will not automatically be granted for the life of the product model. Therefore, any product sold, marketed, or identified by the manufacturing partner as ENERGY STAR must meet the current specification that is in effect at that time.

10. Heat/Energy recovery ventilator models with Resistance Heating:

Heat/Energy recovery ventilators with electric resistance heaters will not qualify as ENERGY STAR.

11. Reporting of unit sales:

Manufacturers shall provide, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, the Partner must submit the total number of ENERGY STAR qualified HRVs and ERVs shipped (in units by model) or an equivalent measurement as agreed to in advance. The Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g. efficiency, capacity, power consumption or other as relevant), total unit shipments for each model in its product line, and percent of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party to be designated. The data will be used for program evaluation purposes and will be closely controlled. Any information released will be in a generic format to protect the confidentiality of the Partner.

12 Future Specification Revisions:

ENERGY STAR reserves the right to revise the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. It is

anticipated that a more stringent HRV/ERV Specification 2.0 will be developed within five years of the effective date of Specification 1.0. This will provide HRV/ERV ENERGY STAR partners with some lead-time to improve the overall performance of their products while allowing them to benefit from Energy Star specification 1.0 and 1.1 market development programs.