Home Energy Rating System

Fact Sheet | March 2018

HEARTH & HOME technologies®
The Hearth Experts™

RESNET®
RESIDENTIAL ENERGY SERVICES NETWORK

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OVERVIEW

The Home Energy Rating System (HERS) does not specifically test the hearth system beyond evaluating air leakage and potential combustion safety issues of the overall building.

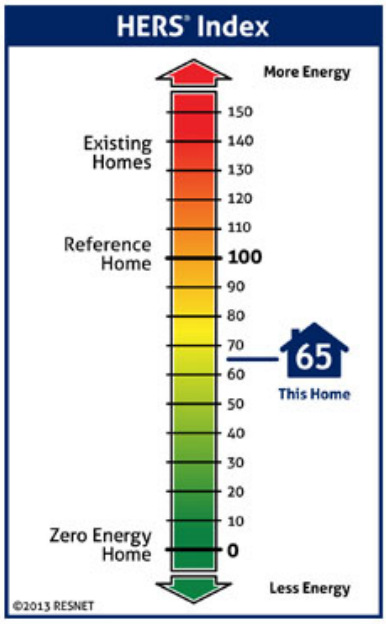
The primary concern for hearth products is the proper sealing of the firebox and venting to eliminate air/heat loss and condensation concerns that can be revealed during door blower testing and negatively impact the home's HERS rating. These issues are extremely hard to remedy and commonly require reinstallation.

The only exception to this is EPA-rated units that function as the home's primary heating source. These units are tested as HVAC systems and must meet the stated efficiency rating.

(SOURCE: Building Knowledge)

Formal Language - http://www.resnet.us/professional/

The RESNET HERS Index is the industry standard by which a home's energy efficiency is measured. The HERS or Home Energy Rating System was developed by RESNET and is the nationally recognized system for inspecting and calculating a home's energy performance.



The U.S. Department of Energy has determined that a typical resale home scores 130 on the HERS Index, while a standard new home is awarded a rating of 100.

A HERS home energy rating is conducted by a certified RESNET Home Energy Rater. The comprehensive rating provides a computerized simulation analysis utilizing RESNET Accredited Rating Software to calculate a rating score on the HERS Index and contains a cost/benefit analysis of recommended improvements and their expected return on investment.

The comprehensive HERS diagnostic testing uses specialized equipment, such as a blower test, duct leakage tester, combustion analyzer and infrared cameras to determine:

- The amount and location of air leaks in the building envelope
- The amount of leakage from HVAC distribution ducts
- The effectiveness of insulation inside walls and ceilings
- Any existing or potential combustion safety issues

Other variables that are taken into account include:

- Floors over unconditioned spaces (like garages or cellars)
- Attics, foundations and crawlspaces
- Windows and doors, vents and ductwork
- Water heating system and thermostats

The energy rating provides the following benefits:

- When buying a home, an energy rating allows you to compare homes by how energy efficient they are
- An energy rating allows you to know the energy performance of your home and identifies cost-effective improvements that you can make to increase your comfort and energy efficiency at home
- An energy rating is required to qualify for an energy efficient mortgage
- An energy rating is required for a home to be eligible for the ENERGY STAR label

1. PURPOSE

1.1 The provisions of this document are intended to establish national standard for testing the airtightness of enclosures and heating and cooling air distribution systems, and the airflow of mechanical ventilation systems. This standard is intended for use by parties evaluating the performance of residential buildings including home energy raters, energy auditors, or code officials.

2. SCOPE

2.1 This Standard defines procedures for measuring the airtightness of building enclosures, the airtightness of heating and cooling air distribution systems, and the airflow of mechanical ventilation systems.

This Standard is applicable to all single-family dwelling units.

The procedure for measuring the airtightness of building enclosures is also applicable to dwelling units in multifamily buildings.

The procedure for measuring the airtightness of heating and cooling air distribution systems is also applicable to dwelling units in multifamily buildings, where each dwelling unit has its own duct system separate from other dwelling units.

The procedure for measuring the airflow of mechanical ventilation systems is also applicable to dwelling units in multifamily buildings, where each dwelling unit has its own ventilation system separate from other dwelling units.

3. PROCEDURE FOR MEASURING AIRTIGHTNESS OF BUILDING ENCLOSURE

3.1. EQUIPMENT

The Equipment listed in this section shall have their calibrations checked at the manufacturer's recommended interval, and at least annually if no time is specified.

3.1.1. AIR-MOVING FAN. A fan that is capable of moving air into or out of the building to achieve one or more target pressure differences between the house and the exterior.

3.1.2. MANOMETER. A device that is capable of measuring pressure difference with a maximum error of 1% of reading, or 0.25 Pa (0.001 in. H2O), whichever is greater.

3.1.3. AIRFLOW METER. A device to measure volumetric airflow with a maximum error of 5% of the measured flow.

3.1.4. THERMOMETER. An instrument to measure air temperature with an accuracy of ±1°C (2° F).

3.1.5. BLOWER DOOR. A device that combines an Air-Moving Fan as defined in Section 3.1.1, an Airflow Meter as defined in Section 3.1.3, and a covering to integrate the Air-Moving fan into the building opening.

3.2 PROCEDURE TO PREPARE THE BUILDING FOR TESTING

3.2.1. FENESTRATION. Exterior doors and windows shall be closed and latched.

3.2.2. ATTACHED GARAGES. All exterior garage doors and windows shall be closed and latched unless the blower door is installed between the house and the garage, in which case the garage shall be opened to outside by opening at least one exterior garage door.

3.2.3. CRAWLSPACES. If a crawlspace is unvented, interior access doors an hatches between the house and the crawlspace shall be opened and exterior crawlspace access doors, vents, and hatches shall be closed. If a crawlspace is vented the interior access doors and hatches shall be closed and crawlspace vents shall be left in their as-found position and their position shall be recorded on the test report.

3.2.4. ATTICS. Attic access doors and hatches shall be closed unless the attic is air sealed and insulated at the roof deck, in which case the access doors and hatches shall be opened. The position of the attic access doors and hatches shall be recorded. Exterior access doors, dampers, or vents shall be left in their as-found position and their position shall be recorded on the test report.

3.2.5. BASEMENTS. All doors between basements and Conditioned Space Volume shall be opened unless the house floor above the basement is air sealed and insulated, in which case the door between the basement and Conditioned Space Volume shall be closed. The position of the basement doors shall be recorded. Where the door to the basement is required to be closed, the basement shall be excluded from the Infiltration Volume and Conditioned Floor Area.

3.2.6 INTERIOR DOORS. All doors between rooms inside the Conditioned Space Volume shall be opened.

3.2.7. CHIMNEY DAMPERS AND COMBUSTION-AIR INLETS ON SOLID APPLIANCES. Chimney dampers and combustion-air inlets on solid fuel appliances shall be closed. Precautions shall be taken to prevent ashes or soot from entering the house during testing.

3.2.8. COMBUSTION APPLIANCE FLUE GAS VENTS. Combustion appliances flue gas vents shall be left in their as-found position.

3.2.9. FANS. Any fan or appliance capable of inducing airflow across the buildings enclosure shall be turned off including, but not limited to, clothes dryers, attic fans, kitchen and bathroom exhaust fans, air handlers, ventilation fans used in a whole-house mechanical ventilation system, and crawlspace and attic ventilation fans. This requirement to turn fans off includes accessible fans in adjacent attached dwelling units.

3.2.10. DAMPERS

3.2.10.1. Non-motorized dampers that connect the Conditioned Space Volume to the exterior or to Unconditioned Space Volumes shall be left in their as-found positions.

3.2.10.2. Motorized dampers that connect the conditioned space volume to the exterior or unconditioned spaces shall be placed in their closed positions and shall not be further sealed.

3.2.11. NON-DAMPERED OPENINGS FOR VENTILATION, COMBUSTION AIR AND MAKE-UP AIR

3.2.11.1. Non-dampered ventilation openings of intermittently operating local exhaust ventilation systems that connect the Conditioned Space Volume to the exterior or to Unconditional Space Volume shall be left open.

3.2.11.2. Non-dampered ventilation openings of intermittently operating whole-house ventilation systems, including HVAC fan-integrated outdoor air inlets, that connect the Conditioned Space Volume to the exterior or to Unconditioned Space Volume shall not be sealed.

3.2.11.3. Non-dampered ventilation openings of continuously operating local exhaust ventilation systems that connect the Conditioned Space Volume to the exterior or to the Unconditioned Space Volume shall be sealed at the exterior of the enclosure where conditions allow.

3.2.11.4. Non-dampered ventilation openings of continuously operating whole-house ventilation systems that connect the Conditioned Space Volume to the exterior or to Unconditioned Space Volume shall be sealed at the exterior of the enclosure where conditions allow.

3.2.11.5. All other Non-dampered intentional openings between Conditioned Space Volume and the exterior or Unconditioned Space Volume shall be left open.

3.2.12. Whole-building fan louvers/shutters. Whole-building fan louvers and shutters shall be closed. In addition, if there is a seasonal cover present, it shall be installed.

3.2.14. Operable window trickle-vents and through-the-wall vents. Operable window trickle-vents and through-the-wall vents shall be closed.

3.2.15. Supply registers and return grilles. Supply registers and return grilles shall be left in their as-found position and left uncovered.

3.2.16. Plumbing drains with -traps. Plumbing drains with empty p-traps shall be sealed or filled with water.

3.2.17. Vented combustion appliances. Vented combustion appliances shall remain off or in "pilot only" mode for the duration of the test.