



RESNET Home Energy Rating Standards of Practice

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1. PURPOSE AND SCOPE

- 1.1 The purposes of these standards of practice are to ensure that accurate and consistent home energy ratings are performed by accredited home energy rating systems nationwide, to increase the credibility of the rating systems with the mortgage finance industry, and to promote voluntary participation in an objective, cost-effective, sustainable home energy rating process. This document is intended to be a summary for information purposes only.

The Residential Energy Services Network (RESNET) Home Energy Rating Standards of Practice establish minimum and uniform standards for home energy raters who are certified by RESNET-accredited rating providers. Home energy ratings performed to these standards of practice are intended to provide the home owner/builder with a certified rating according to the RESNET's Mortgage Industry National Home Energy Rating Standard. These standards are posted at www.natresnet.org/accred/standards.pdf. The rater reports to a provider, who is responsible for quality control of the rating.

- 1.2 Raters will follow the provisions set forth in the national home energy rating standard. The standard specifically recognizes the authority of each state through legislation or regulation that governs rater licensing or certification.
- 1.3 The national home energy rating standard applies to existing and proposed, site-constructed or manufactured, one- and two-family residential structures, or other residential buildings three stories or less in height, excluding hotels and motels.
- 1.4 The rater shall be responsible for:
- 1.4.1 Inspecting and testing the home's minimum rated features listed in B of the standards of practice.
 - 1.4.2 Entering the data collected into the RESNET-accredited rating software tool.
 - 1.4.3 Providing the client with the home's rating reports, including RESNET's rating financial standard disclosure form, generated by the rating software tool.
- 1.5 The standards of practice are not intended to limit raters from:
- 1.5.1 Including other inspection services, systems, or components in addition to those required in the standards of practice.
 - 1.5.2 Providing consulting services to the client on how to improve the energy performance of the rated home.
 - 1.5.3 Undertaking the energy improvements of the home as long as the rater provides the RESNET rating financial standard

disclosure form to the client and the accredited rating provider.

2. OVERVIEW

2.1 *Residential Energy Services Network* – RESNET’s mission is to improve the energy efficiency of the nation’s housing stock and to qualify more families for home ownership by expanding the national availability of mortgage financing options and home energy ratings. RESNET is a membership 501(c)(3) non-profit organization. RESNET’s activities focus on:

2.1.1 Adopting and maintaining the national standards for home energy ratings.

2.1.2 Accrediting home energy rating providers, energy rating training providers, and home energy rating software programs.

2.1.3 Working with the mortgage industry in developing innovative residential energy efficiency financing products.

2.1.4 Educating the public and the housing industry on the benefits of residential energy efficiency.

2.2 *Overview of Home Energy Ratings* – Home energy ratings provide a standard measurement of a home’s energy efficiency. Ratings are used for both new and existing homes. In new homes, ratings often verify energy performance for the ENERGY STAR[®] homes program, energy efficient mortgages, and energy code compliance. Homeowners who want to upgrade their home’s energy efficiency can use the energy rating to evaluate and pinpoint specific, cost-effective improvements. In existing homes, homeowners receive a report listing cost-effective options for improving the home’s energy rating. An energy rating allows a home buyer to easily compare the energy costs for homes being considered.

There are two types of ratings:

Projected ratings – Ratings performed prior to the construction of a home or prior to the installation of energy improvements to an existing home

Confirmed ratings – Ratings completed using data gathered from an on-site inspection, which could include a performance testing of the home

Confirmed home energy ratings involve an on-site inspection of a home by a residential energy efficiency professional: a home energy rater. Home energy raters are trained and certified by a RESNET-accredited home energy rating provider.

The home energy rater reviews the home to identify its energy characteristics, such as insulation levels, window efficiency, wall-to-window ratios, the heating and cooling system efficiency, the solar orientation of the home, and the water heating system. Performance testing, such as the blower door test for air leakage and duct leakage testing, is usually part of the assessment.

The data gathered by the home energy rater is entered into an accredited rating software program and translated into rating scoring points. The home receives a point score between 0 and 100, depending on its relative efficiency. An estimate of the home's energy costs is also provided. The home's energy rating is then equated to a star rating ranging from one star for a very inefficient home to five stars for a highly efficient home.

Unlike an energy audit or a weatherization assessment, a home energy rating is a recognized tool in the mortgage industry. Home energy ratings can be used in a variety of ways in the housing industry. The star and rating score provides an easily understandable means to compare more efficient homes by their relative energy efficiency, since a rating quantifies the energy performance of the home.

The mortgage industry and the states recognize the necessity of this accreditation process for home energy rating programs. The mortgage industry, government, and residential energy efficiency programs use this accreditation process to measure and label a home's energy performance in a uniform and consistent manner.

2.3 *Rater Certification Overview* – A rater must successfully complete training by a RESNET-accredited rater training provider and must be certified by a RESNET-accredited rating provider.

2.3.1 *Rater Training* – A rater completes training by an accredited rater training organization prior to performing rating tasks without supervision. The training shall be conducted in accordance with a syllabus developed by RESNET. The syllabus must specify subjects applicable to each position and must include classroom training. The minimum knowledge base and skill sets that a rater must have are posted at www.natresnet.org/accred/standards.pdf.

2.3.2 *Field Training* – Each rater must perform five ratings including software operations, two of which shall be in the presence of trainers.

2.3.3 *Continuing Education* – Each rater must complete a minimum of 12 hours of approved continuing education during each three-year period of certification.

- 2.3.4 *Minimum Rater Competencies* – Certified raters must pass examinations that demonstrate a practical, working ability to effectively use the knowledge and skills contained in Section 5.3 of Chapter 2 of the national home energy rating standard to produce accurate and fair home energy ratings, including the following:
 - 2.3.4.1 The ability to accurately gather information from building drawings, field inspections, product specification and nameplate information, and/or field performance testing. The rater must be able to input such gathered data into a home energy rating system software tool to produce accurate and fair home energy ratings in accordance with the National Home Energy Rating Technical Guidelines.
 - 2.3.4.2 Knowledge of the purposes and benefits of home energy ratings, and the ability to communicate these items to existing and potential customers.
 - 2.3.4.3 Knowledge of the basics of energy-efficient mortgages, energy improvement mortgages, and similarly related products, and the ability to communicate these products' benefits to existing and potential customers.
- 2.3.5 *Written Exam* – Prospective home energy raters, to become certified, shall demonstrate through a nationally administered written examination a practical, working knowledge of these materials sufficient to produce accurate and fair home energy ratings.

3. MINIMUM RATED FEATURES

The rater shall be responsible for a whole house inspection and for testing the energy features of a home. Appendix A of RESNET's Mortgage Industry National Home Energy Rating Standard contains the specific on-site protocols for inspecting or testing the home's energy features. The appendix can be downloaded at www.natresnet.org/accred/standards.pdf.

The rater shall account for the following minimum rated features:

- 3.1 Foundation
 - 3.1.1 *Conditioning of Space* – The rater shall determine whether a crawl space or basement is unconditioned, indirectly conditioned, or directly conditioned.
 - 3.1.2 *Construction Type*
 - 3.1.2.1 The rater shall identify floor area over crawl space basement, exterior space, or unconditioned garage.

- 3.1.2.2 The rater shall identify slab-on-grade foundation or walkout basement.
 - 3.1.3 *Interior Surface Condition* – The rater shall determine the inside surface condition of floor.
 - 3.1.4 *Surface Area* – The rater shall measure floor dimensions.
 - 3.1.5 *Thermal Mass* – The rater shall determine the presence of thermal mass.
 - 3.1.6 Walls of Basement or Crawl Space
 - 3.1.6.1 *Insulation* – The rater shall determine the type, thickness, and R-value of insulation in walls of conditioned basement or crawl space.
 - 3.1.7 Slab-on-Grade
 - 3.1.7.1 *Perimeter* – The rater shall determine the perimeter of slab foundation.
 - 3.1.7.2 *Insulation* – The rater shall determine if slab perimeter insulation exists.
- 3.2 Walls
 - 3.2.1 *Color* – The rater shall determine the color of the outside wall.
 - 3.2.2 *Construction Type* – The rater shall determine the structural system of walls.
 - 3.2.3 *Framing Members* – The rater shall determine framing member size for all framed walls exposed to unconditioned space.
 - 3.2.4 *Insulation Value* – The rater shall determine the type, thickness, and R-value of insulation in the wall assembly.
 - 3.2.5 *Location* – The rater shall determine whether walls border exterior space, attic, garage, or crawl space.
 - 3.2.6 *Thermal Mass* – The rater shall determine the type and thickness of all mass walls.
- 3.3 Roof/Ceiling
 - 3.3.1 *Ceiling Areas Between Conditioned and Unconditioned Space*
 - 3.3.1.1 The rater shall obtain measurements of all accessible ceiling areas.
 - 3.3.1.2 The rater shall determine construction type.

- 3.3.1.3 The rater shall determine the size of the framing members for framed ceiling.
 - 3.3.2 *Color* – The rater shall determine the color of the roof.
 - 3.3.3 *Construction Type* – The rater shall determine the roof's construction type.
 - 3.3.4 *Insulation Value* – The rater shall determine the type, thickness, and R-value in the attic and framed ceiling.
- 3.4 Rim Joist
 - 3.4.1 *Insulation Value* – The rater shall determine the type, thickness, and R-value of the rim joist's insulation.
- 3.5 Doors
 - 3.5.1 *Construction Type* – The rater shall determine the construction type of all exterior doors.
 - 3.5.2 *Insulation Value* – The rater shall determine whether the doors are insulated.
 - 3.5.3 *Surface Area* – The rater shall calculate the surface area of exterior doors.
- 3.6 Windows
 - 3.6.1 *Area* – The rater shall calculate the area of windows.
 - 3.6.2 *Construction Type* – The rater shall determine the window framing and glazing characteristics.
 - 3.6.3 *Orientation* – The rater shall determine the orientation of all windows.
 - 3.6.4 *Shading* – The rater shall determine the shading of windows.
 - 3.6.5 *Solar Heat Gain Coefficient* – The rater shall determine the solar heat gain coefficient for all glazing.
 - 3.6.6 *U-factor* – The rater shall determine the U-factor of each window.
- 3.7 Skylights
 - 3.7.1 *Area* – The rater shall calculate the area of the skylights.
 - 3.7.2 *Construction Type* – The rater shall determine the framing and glazing characteristics of the skylights.
 - 3.7.3 *Orientation* – The rater shall determine the orientation of the skylights.
 - 3.7.4 *Shading* – The rater shall determine the shading of the skylights.

- 3.7.5 *Solar Heat Gain Coefficient* – The rater shall determine the solar heat gain coefficient of the skylights.
- 3.7.6 *Tilt* – The rater shall calculate the tilt of each of the skylights.
- 3.7.7 *U-factor* – The rater shall determine the skylight U-factors.
- 3.8 Air Leakage
 - 3.8.1 *Conditioned Volume of the Space of the Home* – The rater shall calculate the conditioned volume space of the home.
 - 3.8.2 *Performance Testing* – To receive credit for air tightness, the home must undergo a performance test such as a blower door test.
 - 3.8.3 *Estimating Air Leakage* – If performance equipment, such as a blower door, is not used in the rating, the rater shall use the default value contained in Chapter 3 Section 5.e. of the National Home Energy Rating Standard.
- 3.9 Heating and Cooling
 - 3.9.1 *Fuel Type* – The rater shall determine the energy source for the heating and air conditioning systems.
 - 3.9.2 *Types of Heating and Cooling Equipment* – The rater shall identify the types of heating and/or cooling equipment.
 - 3.9.3 *Control System*
 - 3.9.3.1 The rater shall identify the control system (thermostat) for the heating and cooling systems.
 - 3.9.3.2 The rater shall determine if programmable thermostats are present.
 - 3.9.4 *Efficiency of Systems* – The rater shall determine the efficiency of the heating and cooling equipment.
 - 3.9.5 *Location* – The rater shall determine the location of the heating and cooling equipment.
 - 3.9.6 *Distribution System*
 - 3.9.6.1 *Type* – The rater shall identify the type of distribution system.
 - 3.9.6.2 *Location of Distribution System* – The rater shall determine the location of the distribution system.
 - 3.9.6.3 *Duct Air Leakage*
 - 3.9.6.3.1 To receive credit for the tightness of the ducts, a performance test must be performed in accordance with ASHREA Standard 152-04.

3.9.6.3.2 If performance equipment is not used, the rater must consider the location and characteristics of the distribution system and select a standard default value from Table 6 of Chapter 3 of the National Home Energy Rating Standards.

3.9.6.4 *Insulation* – The rater shall determine the value of the insulation of the distribution system.

3.10 Hot Water Heating

3.10.1 *Fuel Type* – The rater shall determine the energy source for the water heating system.

3.10.2 *Location* – The rater shall determine the location of the water heater.

3.10.3 *Water Heater Type* – The rater shall determine the type and energy source of the water heater.

3.10.4 *Efficiency of Water Heating Appliance* – The rater shall determine the energy factor or seasonal efficiency of the water heater.

3.10.5 *Extra Tank Insulation* – The rater shall determine the presence and insulation value of any extra insulation extra wrap.

3.11 Solar Water System (if present)

3.11.1 *Solar Collector Type* – The rater shall identify the type of solar water heating collector.

3.11.2 *Solar Collector Details* – The rater shall determine the area, orientation, and tilt of collector.

3.11.3 *Efficiency of System* – The rater shall determine the efficiency of the solar water heating system.

3.11.4 *Water Storage Tank Size and Location* – The rater shall determine the capacity of the storage tank and its location.

3.11.5 *Extra Tank Insulation* – The rater shall determine the presence and insulation value of any extra insulation wrap.

3.11.6 *Water Pipe Insulation* – The rater shall determine the presence and insulation value of any water pipe insulation.

3.12 Passive Solar System (if system is present)

3.12.1 *Direct Gain System* – The rater shall identify the type of passive solar system type and identify the solar orientation and aperture area.

- 3.12.2 *Greenhouse or Solarium* – The rater shall identify solar type, solar orientation, and aperture opening, and shall calculate thermal mass.
- 3.12.3 *Thermal Mass* – The rater shall collect information about the thermal mass.
- 3.12.4 *Thermosiphon Air Panel* – The rater shall identify the system type and its location.

4. RATING REPORT

The rater or the rater's provider shall generate a report for each confirmed rating that contains the following information:

- 4.1 The numeric rating score calculated by the rating software tool with the information on the home's energy features as calculated by the rater.
 - 4.1.1 The rating software tool uses the national rating method adopted by RESNET to calculate the rating score.
 - 4.1.2 A score of 80 is the definition of the minimum energy efficiency of new homes.
 - 4.1.3 Nationally, for a home to be labeled as ENERGY STAR[®], it must achieve a minimum score of 86 or be at least 15% more efficient than the local minimum energy code.
- 4.2 The star rating based on the rating numeric score.
- 4.3 The estimated annual purchased energy consumption for space heating, space cooling, water heating, and all other energy use, and an estimate of the total purchased energy consumed in the home.
- 4.4 The estimated annual energy cost for space heating, space cooling, water heating, and all other energy use and the total of these estimates.
- 4.5 The street address or recorded real property identifier of the rated home.
- 4.6 The name of the rater.
- 4.7 The date that the rating was completed.
- 4.8 The rating software program and its version number used to calculate the rating.
- 4.9 If improvements are being planned for the home, the rater may produce an energy improvement report, which contains:
 - 4.9.1 A listing of recommended improvements.
 - 4.9.2 Estimated annual savings from each measure.

- 4.9.3 Typical installed costs for each measure.
 - 4.9.4 Estimated useful life of for each improvement.
 - 4.9.5 Estimated economic return from each measure.
 - 4.9.6 Estimated total savings resulting from the recommendations.
 - 4.9.7 Improved rating score resulting from the recommendations.
 - 4.9.8 Estimated annual savings resulting from the recommendations.
- 4.10 If the homebuyer plans on applying for an energy mortgage, the rater can produce an Energy Mortgage Report (if an energy mortgage will be applied for). The energy mortgage report contains information needed by a lender to underwrite an energy mortgage, including the monthly energy savings and the added energy value to the home's appraisal. There are specific reports for:
- Fannie Mae.
 - Freddie Mac.
 - Federal Housing Administration.
 - Veterans Administration.

5. RATER FINANCIAL INTEREST STANDARD DISCLOSURE

The rater shall prepare and present to the client the RESNET rating standard financial disclosure form that indicates any financial interest the rater may have in the home being rated. The financial disclosure form can be viewed on RESNET's web site at www.natresnet.org/disclosure.

6. GENERAL LIMITATIONS AND EXCLUSIONS

- 6.1 General limitations:
- 6.1.1 The energy use information contained in the rating report does not constitute any warranty of energy cost or savings.
 - 6.1.2 Inspections performed in accordance with these standards of practice:
 - 6.1.2.1 Are not technically exhaustive.
 - 6.1.2.2 Will not identify concealed conditions or latent defects.
 - 6.1.3 The home energy rating is not intended to be an inspection of the structural soundness of the home or any other attributes of the home other than the home's energy features.

- 6.1.4 The home energy rating is not applicable to building design and construction features except those specified in the minimum rated features listed in section 3.
- 6.2 General exclusions
 - 6.2.1 Raters are NOT required to perform any action or make any determination unless specifically stated in the standards of practice.
 - 6.2.2 Raters are NOT required to determine:
 - 6.2.2.1 The condition of systems or components that are not readily available.
 - 6.2.2.2 The remaining life of any system or component.
 - 6.2.2.3 Compliance with regulatory requirements (codes, regulations, laws, ordinances, etc.).
 - 6.2.2.4 Future conditions, including but not limited to failure of systems and components.
 - 6.2.2.5 The market value of the home or its marketability.
 - 6.2.2.6 The presence of environmental hazards, including but not limited to mold, indoor air quality, toxins, carcinogens, and contaminants in soil, water, and air.
 - 6.2.2.7 The effectiveness of any system installed or methods used to control or remove suspected hazardous substances.
 - 6.2.2.8 The presence of potentially hazardous plants or animals, including but not limited to wood destroying organisms, or diseases harmful to humans.
 - 6.2.2.9 The acoustical properties of any system or component.
 - 6.2.3 Raters are NOT required to offer or perform:
 - 6.2.3.1 Any act or service contrary to law.
 - 6.2.3.2 Engineering or design services.
 - 6.2.3.3 Heating or cooling system design or sizing consulting.
 - 6.2.3.4 Indoor air quality consulting.
 - 6.2.3.5 Work in any trade or any professional service other than home energy rating.
 - 6.2.3.6 Warranties or guarantees of any kind.
 - 6.2.4 Raters are NOT required to operate:

- 6.2.4.1 Any system or component that is shut down or otherwise inoperable.
- 6.2.4.2 Any system or component that does not respond to normal operating conditions.
- 6.2.4.3 Shut-off valves.
- 6.2.5 Raters are NOT required to inspect or test:
 - 6.2.5.1 Systems or components that are not installed.
 - 6.2.5.2 Systems or components located in areas that are not entered in accordance with these standards of practice.
 - 6.2.5.3 Detached structures.
- 6.2.6 Raters are NOT required to:
 - 6.2.6.1 Enter any area that will, in the opinion of the rater, likely be dangerous to the rater or other persons or damage the property or its systems or components.
 - 6.2.6.2 Perform any procedure or operation that will, in the opinion of the rater, likely be dangerous to the rater or other persons or may damage the property or its systems or components.
 - 6.2.6.3 Move suspended ceiling tiles, personal property, furniture, equipment, plants, soil, snow, ice, or debris.
 - 6.2.6.4 Dismantle any system or component, except as explicitly required by the standards of practice.
- 6.3 If, in determining that some of the minimum rated features of the home are not present or available for inspection according to the exclusions above, the rater may, at his or her discretion, choose to use default values for those features, or conclude that a legitimate rating is not possible under the circumstances. In no case may the rater be required to use defaults that are not allowed by RESNET's Mortgage Industry National Home Energy Rating Standard to produce a rating.