

Date: 04/01/10

Amendment #2009-XX

Proponent: Quality Assurance and Ethics Committee

Organization: RESNET

Justification:

On February 18, 2010, the RESNET Standards Committee approved a first round of changes (a.k.a. Phase I) to the RESNET Standards submitted by the Quality Assurance and Ethics Committee which consolidate all of the RESNET quality assurance requirements into a new Chapter 9 in the Standards. Since October of 2009, the QA Committee has been working on a second round of changes to the Standards (a.k.a. Phase II) which have been a comprehensive review of the existing QA policies and procedures currently stipulated in Standards. Unlike the Phase I changes, which were primarily editorial in nature, many of the Phase II recommendations by the QA Committee are a fundamental change in how RESNET executes Quality Assurance.

Chapter One

RESNET Standards

100 RESNET NATIONAL STANDARD FOR HOME ENERGY RATINGS

101 GENERAL PROVISIONS

101.1 Purpose

The purpose of these standards is to ensure that accurate and consistent home energy ratings are performed by accredited **H**ome **E**nergy **R**ating Providers through their Raters nationwide; to increase the credibility of the rating Providers with the mortgage finance industry, federal government, state governments, local governments, utility companies, and the private sector; and to promote voluntary participation in an objective, cost-effective, sustainable home energy rating process.

Leaders in both the public and private sectors have identified the need for an accreditation process for **H**ome **E**nergy **R**ating Providers. This accreditation process may be used by these stakeholders to accept home energy ratings and to assure accurate, independent information upon which the mortgage industry may accept home energy ratings for the purposes of issuing energy efficient mortgage, or similar, products; a state may recognize the home energy ratings as a compliance method for state building energy codes; as qualification for public and private sector energy programs designed to reach specific energy saving goals; and as a way to provide housing markets the ability to differentiate residences based on their energy efficiency. These home energy rating Standards have been developed to satisfy the above purposes.

101.1.1 Relationship to State Law. These Standards specifically recognize the authority of states that have laws requiring certification or licensing of **H**ome **E**nergy **R**ating Providers. To the extent that state laws differ from these Standards, state laws shall govern.

101.2 Scope:

This document sets out the procedures for the accreditation of **H**ome **E**nergy **R**ating Providers and technical standards by which home energy ratings shall be conducted so their results will be acceptable to all public and private sector industries that may require an objective, cost-effective, sustainable home energy rating process.

102 ACCREDITATION CRITERIA

102.1 Minimum Standards for Home Energy Rating Provider Accreditation.

An accredited Home Energy Rating Provider is responsible for insuring that all of the ratings issued by the Provider comply with all of the criteria by which the Provider was accredited.

Home Energy Rating Providers shall be accredited in accordance with the Accreditation Process specified in Chapter 9 of these Standards. A Home Energy Rating Provider must specifically meet the following minimum standards for Accreditation.

102.1.1 A written Quality Assurance ([QA](#)) Process that conforms to Chapter 9 of these Standards and any specific QA requirements for other Provider categories that may apply to a particular organization.

102.1.1.1 Have a QA Designee that oversees the Provider's compliance with Chapter 9 of these Standards and any specific QA requirements for other Provider categories that may apply to a particular organization.

102.1.2 Rater Certification Standards. Certification and recertification of energy raters shall be made by Home Energy Rating Providers, which shall include the following provisions:

102.1.2.1 A Home Energy Rating Provider shall provide documentation that their Raters meet the Rater certification provisions contained in Chapter Two of these standards.

102.1.2.2 Performance evaluation of ability to perform accurate ratings. Each Rater shall complete a probationary period where close supervision is provided. This period covers a minimum of three [confirmed](#) ratings above the two supervised ratings that are conducted in Rater training, after which the supervisor shall determine if additional training is needed.

[\[No further changes until 104\]](#)

104 RATINGS PROVIDED FOR THIRD-PARTY ENERGY EFFICIENCY PROGRAMS

[104.1 See Appendix B for definition of Third Party Energy Efficiency Program \(EEP\).](#)

[104.2 When working with EEP's, Home Energy Raters may be required to perform tests, inspections and reporting that require skills not specific to Home Energy Ratings as defined in these Standards and/or are required to become a Certified Home Energy Rater. However, it is the responsibility of Certified Home Energy Raters to perform all of the stipulated tests, inspections and reporting required by the EEP when agreeing to work with their program, including proper completion of any and all checklists, certificates, or other documentation. Where a Rater does not possess the proper skill or knowledge of a particular test, inspection or reporting requirement, they shall be responsible for obtaining sufficient training from the EEP, or trainer approved by the EEP, to properly fulfill the requirement. An exception may be made in cases where portions of an EEP's certification process are completed by another company or individual who holds the required training or certifications.](#)

[104.3 See Section 906 for QA Requirements for EEP's.](#)

[\[No further changes are being made to Chapter 1\]](#)

Chapter Two

RESNET Standards

200 RESNET NATIONAL STANDARD FOR RATER TRAINING AND CERTIFICATION

201 GENERAL PROVISIONS

201.1 Purpose

The provisions of this document are intended to establish national Rater training and certification standards which an accredited ~~H~~home ~~E~~energy ~~R~~rating Provider shall follow in certifying home energy Raters. This enhances the goal of producing nationally uniform energy efficiency ratings for residential buildings.

201.1.1 Relationship to other Standards. These standards are a companion document to the “National Accreditation Procedures for Home Energy Rating Systems” as promulgated and maintained by the National Association of State Energy Officials (NASEO) and the Residential Energy Services Network (RESNET) and the “National Home Energy Rating Technical Guidelines” as promulgated and maintained by NASEO. Both guidelines are recognized by the mortgage industry.

201.1.2 Relationship to State Law. These standards specifically recognize the authority of each state that has a state law which requires certification or licensing of ~~H~~home ~~E~~energy ~~R~~rating Providers. To the extent that such state laws differ from these standards, state law shall govern.

201.2 Scope

These standards apply to the training and certification of energy Raters who will be accepted by nationally accredited ~~H~~home ~~E~~energy ~~R~~rating Providers. An energy rating identifies the energy features and estimates the energy performance of a home and does not identify structural or health and safety problems of a home.

202 DEFINITIONS AND ACRONYMS

[See Appendix B.](#)

~~**Accreditation Procedures**—The set of standards and procedures entitled “Mortgage Industry National Home Energy Rating System Standards” as published and maintained by RESNET.~~

~~**Accredited Rating System Provider**—A home energy rating Provider accredited through the Mortgage Industry National Home Energy Rating System Standards.~~

~~**Accredited Rater Training Provider or Training Provider**—A home energy Rater training organization accredited by RESNET.~~

~~**Certified Home Energy Rater or Rater**—The person trained by an Accredited Training Provider and certified by an accredited home energy rating Provider to inspect a home to evaluate the minimum rated features and prepare an energy efficiency rating (see also Rating Field Inspector and Senior Certified Rater). A Rater may employ or use a Rating Field Inspector to perform the physical inspection tasks allowed under that job designation. This definition does not restrict a Rater from conducting the inspections and necessary basic performance tests (blower door & duct blaster) to produce a home energy rating. The certified home energy Rater remains responsible for the accuracy of the information contained in the rating.~~

~~**Confirmed Rating**—An energy rating accomplished using data gathered from an on-site audit inspection and, if required, performance testing of the physical building and its installed systems and equipment.~~

~~**Certified Rater Trainer**—Class instructor who has demonstrated, by means of passing the RESNET National Rater Trainer Competency Test, mastery of the building science and rating system and competency necessary to effectively teach Rater training courses.~~

~~**Energy Efficiency Rating**—An unbiased indication of a home's relative energy efficiency based on consistent inspection procedures, operating assumptions, climate data and calculation methods.~~

~~**Energy Saving Measure or Feature**—Any material, component, device, system, construction method, process, or combination thereof that will result in a reduction of energy use.~~

~~**EPA Act**—The U.S. Energy Policy Act of 1992.~~

~~**Examination**—Test administered by an accredited Rater Training Provider from questions developed by National Rater Training Provider Accreditation Committee.~~

~~**HERS**—Home Energy Rating System.~~

~~**HERS Provider**—A firm or organization that develops, manages, and operates a home energy rating program.~~

~~**Home**—A one or two family dwelling, or multi family dwelling of three stories or less.~~

~~**NASEO**—National Association of Energy Officials~~

~~**National Core Rater Test**—Computer based examination developed by the Residential Energy Services Network's (RESNET) Training and Education Committee and administered by RESNET.~~

~~**National Home Energy Rating Technical Guidelines**—Voluntary home energy rating system technical guidelines adopted by the National Association of State Energy Officials (NASEO).~~

~~**National Rater Training Provider Accreditation Body**—The Residential Energy Services Network (RESNET) is the National Rater Training Provider Accreditation Body.~~

~~**Projected Energy Rating**—A rating performed prior to the construction of a new building or prior to implementation of energy efficiency improvements to an existing building.~~

~~**Rated Home**—The specific home being evaluated using the rating procedures contained in the National Home Energy Rating Technical Guidelines.~~

~~**Rater Specialty Certification**—Professional building performance certification recognized by RESNET as part of a Home Energy Rater’s advanced certification.~~

~~**Rater Trainer**—An individual designated by the Accredited Rater Training Provider to provide instruction and assistance to trainees.~~

~~**Rating Field Inspector**—A Field Inspector is the entry level of Rater certification. A Field Inspector under the direct supervision of a certified home energy Rater may conduct the inspections and necessary basic performance tests (blower door & duct blaster) to produce a home energy rating. This category requires the ability to identify and quantify building components and systems.~~

~~**Rating Tool**—A procedure for calculating a home’s energy efficiency rating, annual energy consumption, and annual energy costs.~~

~~**Reference Home**—A hypothetical home configured in accordance with the specifications set forth in the National Home Energy Rating Technical Guidelines for the purpose of calculating rating scores.~~

~~**RESNET**—Residential Energy Services Network~~

~~**RESNET National Rater Trainer Competency Test**—Certification test developed and administered by RESNET to ensure that accredited Rater training Provider’ trainers have the requisite knowledge and competence to serve as trainers for prospective certified Rater. The test is based on the national core competency exam developed and maintained by RESNET.~~

~~**RESNET Training and Education Committee**—The accreditation committee that reviews and approves applications from Rater Training Providers for national accreditation.~~

~~**Senior Certified Rater**—A senior Rater is the first category of advanced Rater certification. Senior Certified Raters have demonstrated that they have the increased experience and knowledge base to interpret the findings of a rating and make recommendations on how the home can be improved.~~

203 TRAINING AND EDUCATION COMMITTEE

203.1 RESNET Training and Education Committee

203.1.1 Committee membership. The Training and Education Committee shall be chaired by a member of the RESNET Board of Directors. The Chair shall be approved by the RESNET Board. Nominations of Committee members shall be made by the Chair to the RESNET Board for approval.

203.1.2 Responsibilities. The RESNET Training and Education Committee shall review and approve the following:

~~203.1.2.1 Applications from prospective Rater Training Providers for accreditation in accordance with this Standard;~~

~~203.1.2.2 Accreditation Renewal Application. Annually review and modify, if necessary, the following:~~

203.1.2.2-1 Core competency examination questions;

203.1.2.2-2 Time limits for the core examination;

203.1.2.2-3 Passing scores for the core examination; and

203.1.2.2-4 Annual accreditation fee.

[No further changes are being made to Chapter 2]

Chapter Three

RESNET Standards

300 NATIONAL ENERGY RATING TECHNICAL STANDARDS

301 GENERAL PROVISIONS

301.1 Purpose

The provisions of this document are intended to establish national residential energy rating Standards, consistent with the provisions of the Energy Policy Act of 1992, which any provider of home energy ratings may follow to produce uniform energy ratings for residential buildings.

301.1.1 Relationship to Other Standards. This Chapter is a companion Chapter to the “National Accreditation Procedures for Home Energy Rating Systems”(Chapter 1 of this Standard) and “National Rater Training and Certifying Standard (Chapter 2 of this Standard), as promulgated and maintained by the Residential Energy Services Network (RESNET) and recognized by the mortgage industry.

301.1.2 Relationship to State Law. These Standards specifically recognize the authority of each state that has a state law or regulation requiring certification, or licensing of home energy rating systems. To the extent that such state laws or regulations differ from these Standards, state law or regulation shall govern.

301.2 Scope

301.2.1 Application of Standards

These Standards apply to existing or proposed, site-constructed or manufactured, single- and multi-family residential buildings three stories or less in height excepting hotels and motels.

302 DEFINITIONS AND ACRONYMS

[See Appendix B.](#)

~~**Accreditation Procedures**—The set of standards and procedures entitled “Mortgage Industry National Accreditation Procedures for Home Energy Rating Systems” as published and maintained by RESNET.~~

~~**Annual Fuel Utilization Efficiency or AFUE**—A standardized measure of heating system efficiency, based on the ratio of annual output energy to annual input energy that includes any non-heating season pilot input loss.~~

~~**Auxiliary Electric Consumption**—The annual auxiliary electrical energy consumption for a fossil fuel fired furnace or boiler in kilowatt-hours per year, derived from the Eae as follows:~~

Auxiliary Electric Consumption (kWh/yr) = $E_{ae} * (HLH) / 2080$

where: HLH = annual heating load hours seen by the furnace/boiler Note: If fan power is needed (kW), it is determined by $E_{ae} / 2080$.

Bedroom—A room or space 70 square feet or greater, with egress window and closet, used or intended to be used for sleeping. A "den," "library," "home office" with a closet, egress window, and 70 square feet or greater or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

Biomass Fuel—Non liquid and non gaseous combustible substance burned to create energy, such as chunk wood, wood chips, corn husks, etc.

Biomass System—A biomass fuel combustion device and all associated mechanisms, controls, venting, and heat delivery components designed to provide space heating.

Climate zone—A geographical area defined as having similar long term climate conditions.

COP—Coefficient of Performance, which is the ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system under designated operating conditions.

Conditioned Floor Area (CFA)—The finished floor area in square feet of a home that is conditioned by heating or cooling systems, measured in accordance with ANSI Standard Z765-2003 with exceptions as specified in Appendix A of this Standard.

Conditioned space boundary—The continuous planes of the building envelope that comprise the primary thermal and air flow barrier between the directly or indirectly conditioned space and either the outdoors or an adjacent unconditioned space.

Confirmed Rating—An energy rating accomplished using data gathered from an on-site audit inspection and, if required, performance testing of the physical building and its installed systems and equipment.

Detached One- and Two-Family Dwelling—A building with one or two independent dwelling units with an individual or central HVAC system.

Directly Conditioned Space—An enclosed space having heating equipment with a capacity exceeding 10 Btu/hr ft², or cooling equipment with a capacity exceeding to 10 Btu/hr ft². An exception is if the heating and cooling equipment is designed and thermostatically controlled to maintain a process environment temperature less than 65 degrees Fahrenheit or greater than 85 degrees Fahrenheit for the whole space the equipment serves.

Distribution System Efficiency—A system efficiency factor, not included in manufacturer's performance ratings for heating and cooling equipment, that adjusts for the energy losses associated with the delivery of energy from the equipment to the source of the load, such energy losses associated with heat transfer across duct or piping walls and air leakage to or from forced air distribution systems.

~~**EAE**—The average annual auxiliary electrical energy consumption for a gas furnace or boiler in kilowatt-hours per year as published in the GAMA Consumer's Directory of Certified Efficiency Ratings.~~

~~**Energy Analysis Tool**—A computerized calculation procedure for determining a home's energy efficiency rating and estimating annual purchased energy consumption and cost.~~

~~**Energy Efficiency Ratio or EER**—the ratio of net equipment cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions.~~

~~**Energy Efficiency Rating or Energy Rating**—An unbiased indication of a home's relative energy performance based on consistent inspection procedures, operating assumptions, climate data and calculation methods.~~

~~**Energy Factor or EF**—A standardized measure of water heater energy efficiency as determined under Department of Energy Regulations, 10 CFR 430.23(e)(2)(ii).~~

~~**Energy Saving Measure or Feature**—Any material, component, device, system, construction method, process or combination thereof that will result in a reduction of energy use.~~

~~**EPA Act**—The U.S. Energy Policy Act of 1992~~

~~**Equivalent Electric Power**—The amount of electricity that would be produced from site fossil fuel uses when converted to electrical power using the Reference Electricity Production Efficiency.~~

~~**Estimated Annual Energy Cost Savings**—Positive dollar difference between estimated annual energy costs for an improved existing home as compared with the same home in its original condition or for a new home, as compared with the HERS Reference Home, local code or, for the purposes of Fannie Mae mortgages, the RESNET representation of the 1993 Model Energy Code, whichever is applicable.~~

~~**Exposed Wall**—Walls subjected to heat loss or gain.~~

~~**Fenestration**—A glazed opening and its associated sash and framing that is installed into a building.~~

~~**Standards (HERS Standards)**—Minimum criteria that a HERS Provider must meet in order to receive accreditation~~

~~**HERS**—Home Energy Rating System~~

~~**HERS-BESTEST**—The Home Energy Ratings System Building Energy Simulation Test published as NREL Report No. NREL/TP-472-7332~~

HERS Index—A numerical integer value that represents the relative energy use of a Rated Home as compared with the energy use of the HERS Reference Home and where an Index value of 100 represents the energy use of the HERS Reference Home and an Index value of 0 (zero) represents a home that uses zero net purchased energy.

HERS Provider—A person or organization that develops, manages, and operates a home energy rating system.

Home—A building with one or more dwelling units that has three or fewer stories above grade, or a single dwelling unit within a building of three or fewer stories above grade.

Home Energy Rater or Rater—The person trained and certified by a Rating Provider to perform the functions of inspecting and analyzing a home to evaluate the minimum rated features and prepare an energy efficiency rating.

Home Energy Rating System or HERS—The materials and procedures needed to operate a home energy rating program including but not limited to: marketing materials, training materials, publications, rating tool, quality control, data collection and maintenance, agreements, data collection sheets, home owner reports, and other related materials and services.

Heating Seasonal Performance Factor or HSPF—A standardized measure of heat pump efficiency, based on the total heating output of a heat pump, in Btu, divided by the total electric energy input, in watt hours, under test conditions specified by the Air Conditioning and Refrigeration Institute Standard 210/240.

HVAC—Heating, Ventilating and Air Conditioning.

Indirectly Conditioned Space—Enclosed space that is not directly conditioned:
(a) With area weighted heat transfer coefficient (U value) to directly conditioned space exceeding that to the outdoors or to unconditioned spaces; or
(b) Through which air to or from directly conditioned spaces is transferred at a rate exceeding three air changes per hour.

Internal Gains—The heat gains within a home attributable to lights, people, and miscellaneous equipment.

International Energy Conservation Code (IECC)—The model code for building energy conservation as promulgated by the International Code Council.

Labeled Ceiling Fan—A ceiling fan that has been labeled for efficiency in accordance with EPA guidelines such that the label shows the cfm, cfm/watt and watts of the fan at low, medium and high speeds

Labeled Ceiling Fan Standardized Watts (LCFSW)—The power consumption in watts of a Labeled Ceiling Fan “standardized” to a medium speed air delivery of 3000 cfm.

Light Fixture—A complete lighting unit consisting of a lamp or lamps, and ballasting (when applicable) together with the parts designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply. For built-in valence lighting, strings of low-voltage halogens, and track lights, each individual bulb shall count as a fixture.

Model Energy Code: 1993 (MEC '93)—The building energy code as promulgated by the Council of American Building Officials (CABO) in 1992 as amended in 1993. The RESNET representation of MEC '93 is the HERS Reference home as defined in the "Mortgage Industry National Home Energy Rating Standards" dated 1999.

Mechanical Ventilation System—A fan designed to exchange the air in the house with outside air, sized to provide whole-house service per ASHRAE 62.2, and controlled automatically (i.e. not requiring human intervention to turn on and off). The presence of a remote-mounted on-off switch or dedicated circuit breaker labeled "whole-house ventilation" (or equivalent) shall not disqualify a system from meeting the requirement of automatic control.

NREL—National Renewable Energy Laboratory.

On-site Power Production (OPP)—Electric power produced at the site of a Rated Home. OPP shall be the net electrical power production, such that it equals the gross electrical power production minus any purchased fossil fuel energy, converted to its Equivalent Electric Power, used to produce the on-site power.

Projected Rating—A rating performed prior to the construction of a new building or prior to implementation of energy efficiency improvements to an existing building.

Purchased Energy—The portion of the total energy requirement of a home purchased from a utility or other energy supplier.

Purchased Energy Fraction (PEfrac)—The fraction of the total energy consumption of the Rated Home that is purchased energy, wherein all site fossil energy uses are converted to their Equivalent Electric Power using the Reference Electricity Production Efficiency of 40%.

Qualifying Light Fixture—A light fixture located in a Qualified Light Fixture location and comprised of any of the following components: a) fluorescent hard-wired (i.e. pin-based) lamps with ballast; b) screw-in compact fluorescent bulb(s); or c) light fixture controlled by a photocell and motion sensor.

Qualifying Light Fixture Locations—For the purposes of rating, those light fixtures located in kitchens, dining rooms, living rooms, family rooms/dens, bathrooms, hallways, stairways, entrances, bedrooms, garage, utility rooms, home offices, and all outdoor fixtures mounted on a building or pole. This excludes plug-in lamps, closets, unfinished basements, and landscape lighting.

Rated Home—The specific home being evaluated using the rating procedures and Standards contained in this document.

Rating Index—See HERS Index.

Rating Tool—A computerized procedure for calculating a home's energy efficiency rating, annual energy consumption, and annual energy costs.

Reference Electricity Production Efficiency—Electric power production efficiency, including all production and distribution losses, of 40%, approximating the efficiency of a modern, high efficiency, central power plant. The Reference Electricity Production Efficiency is to be used only to convert site fossil fuel energy uses to an Equivalent Electric Power for the sole purposes of providing home energy rating system credit for On-site Power Production.

Reference Home—A hypothetical home configured in accordance with the specifications set forth in Section 303.4 of these Standards.

RESNET—Residential Energy Services Network

R-Value—thermal resistance value measured in $\text{h}\cdot\text{ft}^2\cdot\text{F}/\text{Btu}$.

Seasonal Energy Efficiency Ratio or SEER—A standardized measure of air conditioner efficiency based on the total cooling output of an air conditioner in Btu/h, divided by the total electric energy input, in watt-hours, under test conditions specified by the Air Conditioning and Refrigeration Institute Standard 210/240.

Standard Ceiling Fan—The ceiling fan against which Labeled Ceiling Fans are measured for efficiency. At medium fan speed, the Standard Ceiling Fan produces 3000 cfm of air flow and consumes uses 42.6 watts of power.

Thermal Boundary Wall—Any wall that separates directly or indirectly conditioned space from unconditioned space or ambient conditions.

Above-Grade Thermal Boundary Wall is any thermal boundary wall, or portion of such wall, not in contact with soil.

Thermal Storage Mass—Materials or equipment incorporated into a home that will store heat, produced by renewable or non-renewable energy, for release at a later time.

Typical Meteorological Year or TMY Data—Hourly climate data published by the National Climatic Center, Asheville, NC, based on historical climate data in 216 locations.

U-Value—Thermal transmittance value measured in $\text{Btu}/\text{h}\cdot\text{ft}^2\cdot\text{F}$.

[No further changes are being made to Chapter 3]

Chapter Four

RESNET Standards

400 RESNET NATIONAL STANDARD FOR BUILDER OPTION PACKAGES

401 BACKGROUND

The following procedures for accrediting Building Option Package (BOP) Providers have been developed and adopted by the Residential Energy Services Network (RESNET). BOPs were developed by the U.S. Environmental Protection Agency (EPA), and can be used by builders to demonstrate compliance to the ENERGY STAR[®] Homes Program standard. The BOPs have been demonstrated to meet the Home Energy Rating score threshold adopted by the Environmental Protection Agency under “worse case” scenarios and involve the same building performance inspection as a home energy rating.

401.1 Purpose

The purpose of this procedure is to ensure that accurate and consistent BOPs are implemented by accredited BOP Providers nationwide to increase the credibility of BOPs and the ENERGY STAR Homes program.

401.2 Scope

401.2.1 This document sets out the procedures for the accreditation of BOP Providers so their results will be acceptable to the housing industry and consumers.

401.2.2 There may be instances in which state laws or regulations will have additional requirements to those specified in this document.

402 DEFINITIONS

[See Appendix B.](#)

~~**Building Option Package (BOP)** – Developed by EPA, a prescriptive option that builders can use to demonstrate compliance to the ENERGY STAR[®] Homes Program standard. The BOPs have been demonstrated to meet the ENERGY STAR Homes performance guidelines under “worse case” scenarios and involve the same building performance inspection as a home energy rating.~~

~~**BOP Inspector** – A person trained to inspect and evaluate the energy features of a home and conduct necessary diagnostic testing and collect all of the data necessary to confirm that the home complies with the BOP. The training shall be conducted by a RESNET accredited Rater training Provider.~~

~~**BOP Provider** – An entity accredited by RESNET that oversees the BOP inspectors and issues the BOP certification that the home meets the ENERGY STAR[®] guidelines.~~

404 SUNSET PROVISION

Chapter 4 of these Standards, and any references to the provisions in Chapter 4 made elsewhere in these Standards, shall sunset on January 1, 2012.

[No further changes are being made to Chapter 4]

Chapter Six

RESNET Standards

600 RESNET NATIONAL STANDARD FOR SAMPLED RATINGS

601 GENERAL PROVISIONS

601.1 Purpose

Sampling is intended to provide certification that a group of new homes meets a particular threshold such as ENERGY STAR, energy code compliance, or qualification for an energy efficiency lending program. It is based on pre-analysis of building plans meeting the intended qualification (e.g. a HERS Index threshold), and subsequent random testing and inspections of a sample set of the homes as-built. Certifying a group of homes by sampling entitles the customer to documentation certifying that the homes meet the desired threshold; it does not constitute a confirmed HERS rating on any home.

601.2 Scope

This chapter sets out the procedures for the accreditation of Sampling Providers. Accredited Sampling Providers shall assume all warranties and liabilities associated with the sampling of homes. RESNET does not provide any warranty, either explicit or implied, that sampled homes will meet or exceed the threshold specifications for the sample set. There may be instances in which state laws or regulations differ from these Standards. In such instances, state law or regulation shall take precedence over this standard.

602 DEFINITIONS AND ACRONYMS

[See Appendix B.](#)

~~**Additional Failure**—When additional instances of initial failure(s) are identified in one or more of the other homes in the sample set being tested or inspected.~~

~~**Failed Item**—A “failed item” constitutes a category of failure, such as insulation installation, duct leakage, prescriptive air sealing requirements, insulation enclosure, eave baffles, mechanical system efficiency, window specifications, etc. For the purpose of follow-up inspections, a “failed item” is not limited to the specific instance in a home but to that category of the minimum-rated features as it applies to that home design.~~

~~**Failure**—When one or more of the threshold specifications is not met during the testing and inspection process.~~

~~**Initial Failure**—When one or more failure(s) are first identified in a home during the sampling process.~~

~~**Metropolitan Area**—Metropolitan and micropolitan statistical areas as defined by the United States Office of Management and Budget (OMB) and published by the United States Census~~

~~Bureau at (the most current edition). In areas not included in any defined Metropolitan Area, individual counties may be substituted for the purpose of applying the sampling process.~~

~~**Sample Set**—A specific group of homes from which one or more individual homes are randomly selected for sampling controls.~~

~~**Sampling**—An application of the Home Energy Rating process whereby fewer than 100% of a builder's new homes are randomly inspected and tested in order to evaluate compliance with a set of threshold specifications.~~

~~**Sampling Controls**—A collection or set of required tests and inspections performed for a sample set of homes in order to confirm that the threshold specifications have been met. "Sampling controls" may refer to the entire set of tests and inspections, or to a particular phase that constitutes a defined subset of those tests and inspections (e.g. pre-drywall, final, HVAC, windows and orientation, etc).~~

~~**Sampling Provider**—An entity, accredited through these standards, that oversees the sampling process and issues the sampling certifications that homes meet a particular set of threshold specifications such as the ENERGY STAR[®] specifications adopted by the U.S. Environmental Protection Agency.~~

~~**Threshold Specifications**—A set of qualification criteria which are established for a sample set based on worst-case Projected Ratings with consideration of all options, and in worst-case orientation, or a set of prescriptive specifications such as the ENERGY STAR[®] prescriptive path adopted by the U.S. Environmental Protection Agency.~~

[No further changes are being made to Chapter 6]

Chapter Seven

RESNET Standards

700 RESNET NATIONAL STANDARD FOR HOME ENERGY AUDITS

701 GENERAL PROVISIONS

701.1 Purpose

The provisions of this Standard are intended to define a framework for a home energy audit process. An accredited Provider or a program may apply this Standard to improve the energy performance of existing homes through uniform, comprehensive home energy audits for existing residential buildings. This Standard is intended to result in investments by building owners that produce the following outcomes:

- Increase the energy efficiency of homes;
- Increase the comfort of homes;
- Increase the durability of homes;
- Ensure that energy improvement recommendations are portrayed with reasonable and consistent projections of energy savings;
- Reduce the risk that energy improvement recommendations will contribute to health, safety, or building durability problems; and
- Reduce waste and pollution, protecting the environment.

| 701.2. National Standard for Home Energy Assessment Levels. There are two categories of assessment defined in this standard:

1. Home Energy Survey
 - a. On-Line Home Energy Survey
 - b. In-Home Home Energy Survey
 - c. Diagnostic Home Energy Survey
2. Comprehensive Home Energy Audit

| 701.3 Relationship to Other Standards. This Chapter is a companion Chapter to the “National Accreditation Procedures for Home Energy Rating Systems” (Chapter 1 of this Standard), “National Rater Training and Certifying Standard” (Chapter 2 of this Standard), and “National Energy Rating Technical Standards” (Chapter 3 of this Standard) as promulgated and maintained by the Residential Energy Services Network (RESNET) and recognized by the mortgage industry and programs promoting the improved energy performance of buildings.

| 701.4 Relationship to State Law. This Standard specifically recognizes that some state laws or regulations have additional requirements to those specified in this document. To the extent that such state laws or regulations differ from these Standards, state law or regulation shall govern.

701.5 Scope

701.5.1 Application of Standards

This Standard applies to existing site-constructed or manufactured, single- and multi-family residential buildings three stories or less in height, with the exception of hotels and motels.

702 DEFINITIONS AND ACRONYMS

[See Appendix B.](#)

BPI—Building Performance Institute

Certified Building Analyst (BA)—An individual who successfully passes the BPI written and field examination requirements for certification in order to evaluate the performance of a home, taking into account systems, physical conditions and other energy and non-energy characteristics of the home.

Certified Contractor—A contractor accredited by the Building Performance Institute (BPI) or an equivalent certification organization recognized by the Home Performance with ENERGY STAR[®] Program to complete specific home performance improvement work.

Certified Home Energy Rater—An individual who is certified by an accredited home energy Rating Provider to inspect and test a home in order to evaluate the minimum rated features established by RESNET and prepare a home energy rating according to Chapters One and Three of the RESNET Mortgage Industry National Home Energy Rating Standards.

Comprehensive Home Energy Audit—A level of the RESNET Home Energy Audit process defined by this Standard to include the evaluation, diagnosis and proposed treatment of an existing home. The Comprehensive Home Energy Audit may be based on a Home Performance Assessment or Home Energy Rating in accordance with the criteria established by this Standard. A homeowner may elect to go through this process with or without a prior Home Energy Survey.

Auditor—An individual who is certified by a RESNET accredited Home Energy Survey Provider to conduct comprehensive home energy audits. Auditors shall be certified as Home Energy Raters by a RESNET accredited Home Energy Rating Provider.

Data Collection—The gathering of information on building energy features, energy use history and other relevant building and building operation information.

Diagnostic Home Energy Survey—A level of the RESNET Home Energy Survey in accordance with this standard, consisting of an In-Home Home Energy Survey and additional diagnostic testing.

Diagnostic Testing—The use of building performance testing equipment (e.g. blower door, duct blaster, flow hood, infrared camera, CO monitor, etc.) to measure, assess and document specific performance characteristics of the building system.

Energy Efficiency Rating or Energy Rating—See Home Energy Rating

Energy Saving Measure or Feature—Any material, component, device, system, construction method, process or combination thereof that will result in a reduction of energy use.

Evaluation—An analysis of the data collected from any survey or audit, on-site data collection and performance testing, available energy usage records to determine energy use and potential savings from improvements.

HERS Index—A numerical integer value produced by a Home Energy Rating that represents the relative energy use of a Rated Home as compared to the energy use of the HERS Reference Home, and where an Index value of 100 represents the energy use of the HERS Reference Home and an Index value of 0 (zero) represents a home that uses zero net purchased energy.

HERS Provider—An organization accredited by RESNET in accordance with section 102 of the Mortgage Industry National Home Energy Rating Systems Standards to develop, manage, and operate a home energy rating program.

Home—A building with one or more dwelling units that has three or fewer stories above grade, or a single dwelling unit within a building of three or fewer stories above grade.

Home Energy Assessment—Defined by this standard as one of two levels of energy assessment of a home, including Home Energy Survey and Comprehensive Home Energy Audit.

Home Energy Rating—An unbiased indication of a home's relative energy performance based on consistent inspection procedures, operating assumptions, climate data and calculation methods in accordance with the "National Energy Rating Technical Standards" (Chapter 3 of this Standard).

Home Energy Rating System or HERS[®]—The materials and procedures needed to operate a home energy rating program including, but not limited to: marketing materials, training materials, publications, rating software, QUALITY control system, data collection and maintenance systems, agreements, data collection sheets, home owner reports, and other related materials and services.

Home Performance Assessment—A detailed evaluation of the condition of a home as a building system, including evaluation of all materials, components, features, systems and subsystems that affect the energy use of the home.

Home Performance with ENERGY STAR[®] (HPwES)—A national program developed by the Environmental Protection Agency (EPA) and the Department of Energy (DOE), that offers a comprehensive, whole-house approach to improving energy efficiency and comfort of homes, while maintaining or improving safety.

Home Energy Survey—A level of the RESNET Home Energy Audit process defined by this standard to include one of the following, as defined further in this Standard: On-Line Home Energy Survey, In-Home Home Energy Survey, Diagnostic Home Energy Survey

~~**Home Energy Survey Provider** – An organization accredited by RESNET in accordance with Section 703 of the Mortgage Industry National Home Energy Rating Systems Standards to certify Home Energy Survey Professionals to perform Home Energy Surveys and Auditors to perform Comprehensive Home Energy Audits in accordance with this Standard, and to maintain QUALITY assurance of the Home Energy Survey process.~~

~~**Home Energy Survey Professional** – An individual certified by an accredited Home Energy Survey Provider to conduct Home Energy Surveys.~~

~~**In-Home Home Energy Survey** – A level of the RESNET Home Energy Assessment process defined by this standard intended to assess both the general energy performance of the home and the level of the commitment to action on the part of the homeowner. The survey may include data be collected and reported on-line by the homeowner or by a home energy survey professional for the purpose of further analysis and general identification of home performance problems. The intent of the energy survey is to refer homeowners to the next level if it is determined that the home needs further analysis, and the homeowner is motivated to invest in improvements. The On-Line or In-Home Home Energy Survey is not required if the homeowner wishes to directly pursue a Diagnostic Home Energy Survey or Comprehensive Home Energy Audit.~~

~~**On-Line Home Energy Survey** – A level of the RESNET Home Energy Survey in accordance with this Standard that is a basic energy review of a home using an internet-based tool or software.~~

~~**Performance Testing** – Testing conducted to evaluate the performance of a system or component using specified performance metrics.~~

~~**Rating Software** – A computerized procedure that is accredited by RESNET for the purpose of conducting home energy ratings and calculating the annual energy consumption, annual energy costs and a HERS Index for a home.~~

~~**RESNET** – Residential Energy Services Network~~

[No further changes are being made to Chapter 7]

Chapter Nine

RESNET Standards

900 RESNET NATIONAL STANDARD FOR QUALITY ASSURANCE

901 GENERAL PROVISIONS

901.1 Purpose

Home energy ratings are increasingly being recognized as the national standard for the rating of a building's energy performance. A critical function and responsibility of RESNET is to ensure the integrity of the home energy rating system as specified in these Standards. Additionally, RESNET has the responsibility of accrediting Providers (Rating Providers, BOP Providers, Sampling Providers, [and Home Energy Survey Providers](#), [and Quality Assurance Providers](#)) who are the primary delivery and oversight mechanism for home energy ratings and the home energy rating system. This chapter outlines the responsibilities of RESNET and Providers for quality assurance, the role [and responsibility](#) of the Quality Assurance and Ethics Committee, [the role and responsibility of the Accreditation Committee](#), [the accreditation criteria for QA Providers](#), the RESNET Accreditation Process for all Providers, the RESNET policies and procedures for Probation, Suspension and Revocation of Provider Accreditation, and the Appeals process for each of these disciplinary actions.

902 DEFINITIONS AND ACRONYMS

[See Appendix B.](#)

~~**Accreditation Identification Number (AIN)**—A unique accreditation number assigned to each Provider for each Provider category accreditation.~~

~~**Quality Assurance (QA)**—The planned and systematic processes intended to ensure compliance with current applicable standards in a systematic, reliable fashion.~~

~~**Quality Assurance Plan**—A Provider's written quality assurance processes and procedures as specifically required in Section 904 of this Chapter.~~

~~**Quality Assurance Designee (QA Designee)**—An officer, employee, or contractor responsible for quality assurance within a Provider organization, who has met the requirements of section 904.7 of this Chapter and has signed an agreement with the Provider to be the Provider's QA Designee.~~

~~**Quality Assurance Designee Delegate (QA Delegate)**—An individual certified as a Home Energy Rater, appointed by a Quality Assurance Designee to complete a portion of the Quality Assurance process, who has met the requirements of section 904.7.4 of this Chapter.~~

~~**Quality Assurance & Ethics Committee (QA Committee)**—A Standing Committee of the RESNET organization that is responsible for the oversight of RESNET's rating quality~~

~~assurance program, the review and approval of all Applications for Provider accreditation, and review and ruling on the merits of formal Ethics and Consumer Complaints received by RESNET.~~

~~*Ethics & Appeals Subcommittee*—A subcommittee of the QA Committee that is responsible for investigating ethics and consumer complaints and hearing a Provider’s appeal of its non-approval or renewal of an application, probation, suspension, or revocation.~~

~~*Low-Volume Raters*—Raters which complete less than twenty five (25) ratings per year or less than fifty (50) ratings over a two-year period.~~

903 RESNET QUALITY ASSURANCE REVIEW OF ACCREDITED PROVIDERS

903.1 RESNET shall randomly select a limited number of accredited Providers and conduct an annual review of their Quality Assurance records. This QA review may be a review of electronic files submitted to RESNET upon request, an onsite field review, or both. The RESNET Board of Directors shall determine the number of Providers that shall be reviewed on an annual basis and who will provide the quality assurance review. ~~An accredited Rating Provider may have the right to challenge the quality assurance reviewer for cause.~~

903.2 Records that may be reviewed may include, but are not limited to:

~~903.2.1~~ Rating electronic files;

~~903.2.2~~ Rating quality assurance records;

~~903.2.3~~ Complaint files;

~~903.2.4~~ Rater agreements;

~~903.2.5~~ Rater registry;

~~903.2.6~~ Disclosure files;

~~903.2.7~~ Rating databases;

~~903.2.8~~ Interviews with a Provider’s QA Designee, Delegates, Raters or Rating Field Inspectors;

~~903.2.9~~ “Shadowing” a Provider’s Raters or Rating Field Inspectors in the field as they complete data collection, testing and inspections.

903.3 An accredited Rating Provider may have the right to challenge the findings of a RESNET Quality Assurance reviewer for cause by submitting, in writing to the RESNET Executive Director, the details of their challenge.

~~903.2-4~~ Significant inconsistencies or errors in ~~the electronic~~ files reviewed may result in an on-site review by RESNET.

904 QUALITY ASSURANCE REQUIREMENTS FOR PROVIDERS

904.1 No step in the QA process may be performed by the same individual that performed any part of the testing, inspection or rating of the home being subject to the QA review. In other words, if an individual performed any part of the inspection or rating process on a home, that individual cannot be the QA Designee or Delegate performing any part of the QA process specific to that home. Any ratings performed by a QA Designee that are submitted as part of a Provider's QA Submission to RESNET shall be reviewed for quality assurance by an individual who meets the QA Designee requirements established by RESNET.

904.2 Providers are responsible for completing an annual submission of QA results to RESNET. RESNET shall designate the date submissions are due, the content of each submission, and the time frame for which data shall be provided, e.g. January 1st through December 31st. **Providers will have at least thirty (30) days from notification until the submission is due.**

904.3 Quality Assurance of Providers

904.3.1 RESNET shall develop a Quality Assurance Checklist that is to be used by QA Designees for the purpose of verifying a Provider's compliance with the individual requirements for Providers set forth in the RESNET Standards. The checklist shall consist of items that are to be reviewed during an initial, first-time QA review by a QA Designee new to a Provider as well as items that RESNET has identified as requiring annual verification.

904.3.2 For the initial, first-time QA review completed by a QA Designee new to a Provider, including in the event that a Provider changes QA Designees, every item on the checklist should be checked for compliance, accuracy and completeness. In subsequent years, the list of items to be checked may be shortened to include only those items that RESNET has identified as requiring annual verification.

904.4 Quality Assurance of Raters and Ratings

904.4.1~~3~~ Review of rating data files-

904.4.1.1 ~~For each Rater, the Provider's QA Designee shall annually evaluate a minimum of 10% of each Rater's rating data files. The Provider's QA Designee shall be responsible for an annual rating data file review of the greater of one (1) home or ten percent (10%) of each Rater's annual total of homes for which confirmed or sampled ratings were provided.~~

904.4.1.2 A review of rating data files shall be conducted on an ongoing basis as appropriate for the volume of ratings being completed, and at a minimum quarterly.

904.4.1.3 The rating data file review completed by a QA Designee shall consist of, at a minimum, the following:

904.4.1.3.1 Rating data files shall be selected using a nonbiased selection process from the entire pool of files available at the time of the review for each Rater. Special effort should be taken to make certain that the selected files are as representative as possible of the homes being rated which, in some instances, may require more than the minimum (1) home or ten percent (10%).

904.4.1.3.2 For projected ratings in new homes created from architectural drawings or plans for Sampled Ratings, review any data collection, a.k.a. take-off forms, and confirm against the plan that data were accurately collected and entered into the rating software;

904.4.1.3.3 For ratings created for new homes from architectural drawings or plans, confirm that the Minimum Rated Features and threshold specifications for each plan are being properly calculated and made available for verification in the field (i.e. geometric characteristics, duct leakage and envelope leakage thresholds). In the case of confirmed ratings, verify that actual testing data and specification findings from the field are accurately input into the rating software after construction is completed;

904.4.1.3.4 For confirmed ratings for new and existing homes, review any field data collection forms and confirm that data were accurately entered into the rating software. Confirm that the inputs used in the improvement analysis, if one was completed for the home, were accurately entered into the rating software;

904.4.1.3.5 Confirm that files, paper and/or electronic, are being maintained and archived for each rating and/or unique floor plan, including a set of architectural drawings for projected ratings from plan. These files shall be maintained a minimum of three years;

904.4.1.3.6 Confirm that HERS Index scores for each file/home reviewed be no more than two (2) HERS Index points (+/-) variation from what the QA Designee finds to be the accurate or true HERS Index.

904.4.2 On-site ~~inspections-verification~~ of ratings-

904.4.2.1 For each Rater, the Provider's QA Designee shall be responsible for an annual on-site field evaluation of the greater of one (1) home or one percent (1%) of the Rater's annual total of homes for which confirmed or sampled ratings and diagnostic testing services were provided.

904.4.2.2 Onsite inspections shall be conducted on an ongoing basis as appropriate for the volume of ratings being completed, and at a minimum of annually.

904.4.2.3 Where feasible, each home selected for onsite inspections for each Rater shall be randomly selected and/or selected from as many different builders, communities and floor plans as possible.

904.4.2.—4 As part of the on-site inspection of ratings, the QA Designee shall ensure that the minimum rated features of a rating are independently repeated-confirmed (i.e. confirmation of geometric characteristics, inspection of minimum rated features, and completion of any necessary performance testing) to determine whether the rating and/or diagnostic testing ~~was~~were accurately completed by the Rater, and determine whether information was completely collected and reported as required in 303.1 of Chapter 3 of these Standards.

904.4.2.5 If a QA Designee is required to complete an onsite QA inspection on at least two (2) homes for a given Rater, the QA Designee may use one centralized – proctored rating QA event, and only one, for review of the Rater in lieu of an independent confirmation of the rating for the home as required for the balance of homes evaluated for the onsite inspection process.

A centralized proctored rating QA event is defined as a rating that occurs at a house assigned by the QA Designee at which the QA Designee, or their Delegate, must be onsite to ensure that the Rater being reviewed is working completely independently to gather all aspects of the minimum rated features of a home. The Rater being reviewed will not be allowed to communicate by any means with others while gathering information in the home or creating their rating software file and report. The review shall include, but is not limited to, the following:

904.4.2.5.1: Diagnostic equipment set-up and testing measurements

904.4.2.5.2: Insulation evaluation and R-value determination

904.4.2.5.3: Calculations of gross areas, volumes, and square footage of the home

904.4.2.5.4: Input and creation of the software rating file and reports

~~904.5 The QA Designee shall work with the Provider to resolve any problems detected during data file reviews and on-site inspections of ratings. Excessive problems will trigger field monitoring of the Rater by the QA Designee.~~

~~904.6 QA of Low Volume Raters~~

~~904.6.1 A Rating Provider may petition the QA Committee to waive the QA on-site inspection procedure for Raters that complete less than twenty five (25) ratings per year or less than fifty (50) ratings over a two year period (Low Volume Raters). Said petition must provide full justification for the requested exemption.~~

~~904.6.2 The Provider shall provide a set of alternative QA procedures (e.g. increased percentage review of rating data files, digital photo documentation) that ensure that the Provider meets the intent of the on-site inspection requirement.~~

~~904.6.3 In no case shall the Provider's alternative procedures allow less than one percent (1%) or one (1) on-site inspection, whichever is greater, based on the sum total of all ratings performed by all Low Volume Raters who are certified by said Provider.~~

~~904.6.4 In no case shall the Provider's alternative procedures allow a Low Volume Rater to go more than two (2) years without a QA on-site inspection of their work.~~

904.6.5 If there are consistent or substantial errors discovered in the review of rating data files, an on-site inspection shall be conducted.

904.5 Significant non-compliance issues:

904.5.1 Raters and ratings

904.5.1.1 Significant non-compliance of ratings shall include, but are not limited to, the discovery of multiple instances of discrepancies (greater than two (2)) between rating data files and actual conditions that exist in the field that alter the HERS Index for a home by three (3) HERS Index points (+/-) or more.

904.5.1.2 The QA Designee shall work with the Provider and the Provider's Raters to resolve any significant non-compliance issues detected during data file reviews and onsite inspections of ratings.

904.5.1.3 Significant non-compliance shall trigger an increased number of file reviews or onsite inspections of homes to successfully resolve discrepancies.

904.5.2 Providers:

904.5.2.1 Significant non-compliance by Providers shall include, but not be limited to, the following:

904.5.2.1.1 Failure to comply with 35% or more of the individual requirements for Providers set forth in the RESNET Standards and enumerated in a RESNET Quality Assurance Checklist;

904.5.2.1.2 Failure to complete a minimum of 50% of the required Quality Assurance file and field reviews for one or more Raters certified by a Provider in any given year;

904.5.2.1.3 Failure of a Provider to comply with the RESNET Standards of Practice, Code of Ethics, or Conflict of Interest Disclosure;

904.5.2.1.4 Failure to discipline Raters overseen by a Provider for known or obvious non-compliance with the RESNET Standards, Standards of Practice, Code of Ethics, or Conflict of Interest Disclosure;

904.5.2.1.5 Actions by a Provider, or known or obvious actions by a Rater overseen by a Provider, that may be deemed by the Quality Assurance Designee to have or could have a negative impact on RESNET or the rating industry.

904.5.3 Reporting of significant non-compliance issues to RESNET.

904.5.3.1 QA Designees must report all significant non-compliance issues for ratings and their resolution to RESNET as part of the annual submission of QA results.

904.5.3.2 QA Designees must report all significant non-compliance issues related to Providers to RESNET when they become known to the QA Designee so that RESNET may assist with the immediate resolution of the issues.

904.5.3.3 Failure of a QA Designee to report significant non-compliance issues may result in actions taken by RESNET as stipulated in Section 905.9.

905 QUALITY ASSURANCE DESIGNEE (QA Designee)

~~904.7 Quality Assurance Designee (QA Designee)~~

905.1 A Home Energy Rating Provider and BOP Provider shall designate one and only one officer, employee, or contractor to be the Primary Quality Assurance Designee for the organization, responsible for quality assurance within the organization. This does not preclude a Provider from having more than one QA Designee on staff or as a contractor. All QA Designees shall meet each of the minimum requirements to be a QA Designee as stipulated in this Section. The Primary QA Designee shall have ultimate responsibility, on behalf of the Provider, for fulfilling the requirements listed in Section 905.8 and who shall be the single point of contact to RESNET regarding all Quality Assurance matters.

~~9045.7.12~~ The designated officer, employee, or contractor responsible for quality assurance shall meet the following minimum requirements:

~~9045.7.12.1~~ Previous certification as a Home Energy Rater;

~~9045.7.12.2~~ As a certified Home Energy Rater, Complete accurate confirmed ratings on a minimum of twenty-five (25) homes prior to becoming a QA Designee;

~~904.7.1.3 Demonstrate sufficient experience with the Home Energy Rating System knowledge base and skills given in Section 205.1 of Chapter Two of these Standards to review the work of Rater candidates and certified Raters;~~

905.2.3 To be eligible to QA a particular rating type (e.g. sampled, BOP, survey/audit, EEP), a QA Designee must have completed a minimum of five (5) of each rating type;

~~9045.7.12.4~~ Passing the RESNET Quality Assurance Designee Test.

905.3 Verification of QA Designee and Delegate requirements

905.3.1 A QA Designee must confirm that the minimum requirements to be a QA Designee and Delegate, as set forth in this Section 905, have been met.

905.3.2 Five (5) of the twenty-five (25) required confirmed ratings for a QA Designee must be individually reviewed by a QA Designee in accordance with section 904.4.2, three (3) of which may have been included in the annual QA process for a Provider in the previous twenty-four (24) months.

~~904.7.2—Additionally, QA Designee’s shall, at a minimum, demonstrate their experience as follows for the individual Provider categories:~~

~~904.7.2.1—QA Designee for BOP Providers~~

~~904.7.2.1.1—Knowledge of Chapter 4 of these Standards pertaining to BOP Ratings;~~

~~904.7.2.1.2—Sufficient experience with BOP inspections in general~~

~~904.7.2.1.3—Sufficient experience and knowledge of the EPA’s BOP packages and minimum testing and inspection requirements;~~

~~904.7.2.2—QA Designee for Sampling Providers~~

~~904.7.2.2.1—Knowledge of Chapter 6 of these Standards pertaining to Sample Ratings;~~

~~904.7.2.2.2—Sufficient experience with sampling inspections.~~

~~904.7.2.3—QA Designee for Home Energy Survey Providers~~

~~904.7.2.3.1—Knowledge of Chapter 7 of these Standards pertaining to Home Energy Surveys;~~

~~904.7.2.3.2—Sufficient experience with Home Energy Surveys;~~

9045.7.34 Professional Development for QA Designees

9045.7.34.1 QA Designees annually shall complete a two hour RESNET QA Roundtable on current information AND complete one (1) of the following activities:

9045.7.34.1.1 Document 12 hours of attendance at the RESNET Conference; or

9045.7.34.1.2 Complete 12 hours of RESNET approved CEU’s; or

9045.7.34.1.3 Documented field QA reviews on a minimum of 25 homes.

9045.7.34.2 A person that is both a Rater Trainer and Quality Assurance Designee shall have to complete both the two hour RESNET roundtable for a Rater Trainer (see Section 209) and the two hour roundtable for Quality Assurance Designees. Rater Trainers and QA Designees selecting the conference or CEU option need only comply with the 12 hour requirement one time, i.e. 12 hours is not required for each position.

9045.7.45 Proof of QA Designee qualification shall be submitted by Providers with an application for accreditation, or with a notification to RESNET of the appointment of a newly designated officer, employee, or contractor as a Provider’s QA Designee.

9045.7.56 The QA Designee shall have a signed agreement with the Provider to be the Provider's QA Designee and which shall include the minimum provisions:-

905.6.1 That the quality assurance designee shall remain in good standing with RESNET.

905.6.2 That the quality assurance designee shall formally agree to comply with all of the quality assurance oversight activities defined in the RESNET Standards.

9045.7.67 Changes to a Provider's QA Designee

905.7.1 If a Provider changes QA Designees or a Provider's the QA Designee leaves the organization, is terminated as an outside QA Designee contractor, or is no longer eligible to be the QA Designee, the following steps shall be taken:home energy rating Provider;

905.7.1.1 Within five (5) business days of the QA Designee change, departure, termination, or knowledge of ineligibility, the Provider shall inform RESNET of the change, departure, termination, or ineligibility;

905.7.1.2 In the case of a change in QA Designee as a result of departure, termination, or ineligibility, the Provider shall have ~~fortysixty (6040) calendar~~business days from the date of departure, termination, or knowledge of ineligibility to appoint a replacement QA Designee and notify RESNET of the newly designated officer, employee, or contractor, including proof of qualifications in accordance with 905.2.

~~-or be subject to suspension of the accreditation under the provisions of Section 908 of this Chapter, Suspension and Revocation of Accreditation.~~

9045.7.78 Quality Assurance Designee Delegate (QA Delegate)

QA Designee's may have the file review and on-site inspection responsibilities performed by a Quality Assurance Designee Delegate. The QA Designee, however, remains responsible for the accuracy and compliance of the Provider's quality assurance program, including reviews and inspections completed by a QA Delegate.

9045.7.78.1 A QA Delegate must be a certified Home Energy Rater and have ~~successfully and accurately~~ completed, on a minimum of twenty five (25) homes, the portion of the inspection or rating process for which the individual is performing quality assurance tasks. In other words, if the QA Delegate is repeating on-site testing and inspections as part of the QA process, that individual must have at least performed these tasks on a minimum of twenty-five (25) homes.

9045.7.78.2 ~~With the annual QA submissions to RESNET, the QA Designee shall provide a listing of the certified Rater(s) it has delegated to undertake QA reviews on behalf of the Designee.~~The QA Designee is responsible for ensuring that the QA Delegate maintains their qualifications to be a QA Delegate, i.e. certification as a Rater.

9045.7.89 The responsibilities of a QA Designee shall include:

9045.7.89.1 Maintenance of quality assurance files;

9045.7.89.2 Review of ratings conducted during a new Rater's² probationary period. Prior to certifying a Rater candidate, a Provider's QA Designee shall confirm that the candidate has satisfactorily completed Rater training from a RESNET Certified Training Provider and satisfactorily completed a minimum of three (3) probationary confirmed ratings within twelve (12) months of a Rater completing their Rater training. It is a recommended best practice that when a certified Rater changes Providers, the new Rater's new Provider should consider conducting three (3) additional probationary confirmed ratings with that Rater.

9045.7.89.3 Monitor the accuracy of the QA Delegate's performance of QA tasks by reviewing the results of the QA process for each QA Delegate (i.e. 1% field verification/10% file verification) with ~~a maximum allowable variance of +/- 5% on annual loads (i.e. heating, cooling and water heater loads as impacted by insulation assessment, blower door tests, duct leakage to outside, sq. ft. of windows, weather station selection, etc.) no more than two (2) HERS Index points (+/-) variation from what the QA Designee finds to be the accurate or true HERS Index.~~

905.9.4 Complete annual submission of QA results to RESNET in accordance with Section 904.2;

905.9.5 With the annual QA submissions to RESNET, provide a listing of the QA Designees performing QA tasks on behalf of the Provider and a listing of the QA Delegates who have undertaken QA reviews on behalf of a QA Designee;

905.9.6 In accordance with Section 904.3, annually complete the RESNET QA Checklist for Providers;

~~9045.7.89.4-7~~ In accordance with Sections ~~904.43 through 904.6~~, monitor ratings ~~(BOP, Sampled, Home Energy Survey)~~ of all types conducted by certified Raters;

~~904.7.8.5 Complete annual submission of QA results to RESNET in accordance with Section 904.2;~~

9045.7.89.6-8 Maintenance of records for all ratings and tax credit verifications.

9045.7.89.68.1 The QA record for each home shall contain at a minimum the information required by Section 904.4.1.3.

9045.7.89.68.2 The record for each rating/tax credit verification shall be maintained for a minimum of three (3) years.

9045.7.89.68.3 Upon RESNET's request, a Provider shall submit to RESNET the number of homes for which ratings/tax credit verifications were provided since the last data submittal. The ratings/tax credit verification shall be identified by type (to include

projected and confirmed ratings for new and existing homes and the number of homes verified for tax credits). To the extent RESNET makes this information public; it will do so only in an aggregated form.

~~9045.8–10 The potential penalty for non-compliance with Section 904 is the individual losing QA Designee status and the Provider being subject to probation, suspension or revocation in accordance with Section 908. Failure of a QA Designee to properly fulfill their responsibilities as specified in these Standards may include one or more of the following actions by RESNET:~~

~~905.10.1 The QA Designee being placed on probation;~~

~~905.10.2 Removal of the QA Designee from the RESNET Directory of qualified QA Designees;~~

~~905.10.3 Removal of the QA Designee’s credential as a QA Designee;~~

~~905.10.4 RESNET no longer recognizing the QA Designee as a Home Energy Rater;~~

~~905.10.5 At the Provider’s expense, further oversight by RESNET of the QA Designee and the Provider’s processes and procedures;~~

~~905.10.6 To the extent that the Provider is at fault for the QA Designee’s failure to fulfill their responsibilities, the Provider may be subject to probation, suspension or revocation in accordance with Section 911;~~

~~905.10.7 The QA Designee may appeal an Action taken by RESNET under this Section using the Appeals procedures stipulated in Section 912 of these Standards.~~

906 QUALITY ASSURANCE REQUIREMENTS FOR THIRD-PARTY ENERGY EFFICIENCY PROGRAMS

906.1 See Appendix B for definition of Third Party Energy Efficiency Program (EEP).

906.2 The rating data file for each home shall contain at a minimum an electronic copy of the rating software file as it pertains to the EEP and other pertinent required documentation (e.g. checklists, certificates, etc.). The rating data file will clearly identify **under** which EEP the home qualifies ~~under~~.

906.3 The QA record will be made available by Providers for quality assurance initiatives implemented by EEP’s.

906.4 Upon request of the EEP, a Provider shall furnish a copy of the QA file to the EEP, or their authorized agents, for review and further quality assurance;

906.5 EEP files will be inspected pursuant to section 904.4 and in the event that random onsite inspection selection results in an EEP home being evaluated, the EEP shall be informed of negative results of the QA review.

9075 QUALITY ASSURANCE AND ETHICS COMMITTEE

9075.1 Committee membership. The Quality Assurance and Ethics Committee (QA Committee) shall be chaired by a member of the RESNET Board of Directors. The Chair shall be approved by the RESNET Board. Nominations of Committee members shall be made by the Chair to the RESNET Board for approval.

9075.2 Committee responsibilities. The QA Committee shall have the following responsibilities:

9075.2.1 Oversight of RESNET's rating quality assurance program as defined in this chapter;

9075.2.2 ~~Authority to review and approve all Applications for Provider accreditation~~ Review and rule on the merits of appeals from the Ethics and Appeals Committee;

9075.2.3 Through the Ethics and Appeals ~~Subcommittee~~Committee, review and rule on the merits of formal Ethics Complaints received by RESNET;

9075.2.4 Through the Ethics and Appeals ~~Subcommittee~~Committee, review and rule on the merits of Consumer Complaints received by RESNET;

9075.2.5 Through the Ethics and Appeals ~~Subcommittee~~Committee, review and rule on the merits of all appeals of non-approval or renewal of an application, probation, suspension, or revocation.

9075.3 Ethics and Appeals ~~Sub~~Committee. The Ethics and Appeals ~~Subcommittee~~Committee shall have the responsibility of investigating ethics and consumer complaints and hearing appeals of an Application or Renewal Application that has been denied, or if a Provider has been placed on probation, or if a Provider's accreditation has been suspended or revoked. The Committee shall report to the QA Committee.

9075.3.1 Committee membership. The Ethics and Appeals ~~Sub~~Committee shall be ~~Chaired by the Chair of the QA Committee. The Chair of the QA Committee may appoint another member of the Ethics and Appeals Subcommittee to Chair the Committee. The Committee shall be~~ composed of ~~a minimum of four~~five (45) additional members, ~~none of whom shall also be a member of the Quality Assurance and Ethics Committee, appointed by the Chair of the QA Committee, from the QA Committee.~~ Nomination of the Committee Chair shall be made by the Quality Assurance and Ethics Committee to the RESNET Board for approval. The Chair of the Ethics and Appeals Committee shall nominate the other members of the Committee to the RESNET Board for approval, two (2) being Home Energy Raters and two (2) being representatives of Provider organizations.

9086 ETHICS AND CONSUMER COMPLAINTS

9086.1 Filing of ethics complaints

9086.1.1 Ethics complaints may be filed against an accredited Provider for violating the RESNET Code of Ethics, failing to enforce the Code of Ethics with their certified Raters, or failure to comply with the specific requirements set forth in the RESNET Standards.

9086.1.2 An ethics complaint shall document the alleged violation(s). The complaint shall also be specific about which section(s) of the Code of Ethics or the RESNET Standards have been violated. To be considered, the full and complete complaint shall be sent by registered mail, [or other method which provides evidence of delivery](#), to the Executive Director of RESNET and contain the following information:

9086.1.2.1 The name of the complainant and contact information;

9086.1.2.2 The accredited Provider that is the subject of the complaint;

9086.1.2.3 A complete description of the alleged violation(s);

9086.1.2.4 A recitation of all the facts documenting the complaint including contact information;

9086.1.2.5 Copies of any relevant documents.

9086.2 Investigation of ethics complaints

9086.2.1 The RESNET Executive Director shall assign a case number and forward the ethics complaint to the Ethics and Appeals [SubcommitteeCommittee](#). The [SubcommitteeCommittee](#) shall consider the documentation contained in ~~906908~~.1.2 in making a decision whether to proceed or dismiss the complaint.

9086.2.2 In cases where the Ethics and Appeals [SubcommitteeCommittee](#) finds the documentation submitted does not meet the minimum standards for an ethics complaint, the complaint may be dismissed. Both parties shall be notified by registered mail, [or other method which provides evidence of delivery](#), of the Ethics and Appeals [SubcommitteeCommittee](#)'s finding.

9086.2.3 Upon a decision by the Ethics and Appeals [SubcommitteeCommittee](#) that the ethics complaint should proceed to the next step, the RESNET Executive Director shall send a copy of the complaint by registered mail, [or other method which provides evidence of delivery](#), to the subject of the complaint immediately. The respondent has ~~30-20~~ [business](#) days to submit a full and complete response to the complaint. All relevant information and documentation shall be included in the response. The response shall be in writing and sent to RESNET by registered mail, [or other method which provides evidence of delivery](#).

9086.2.4 Upon receipt of the response, the RESNET Executive Director shall immediately forward the response to the RESNET Ethics and Appeals [SubcommitteeCommittee](#) for consideration and action. Within thirty (30) [business](#) days

of receiving the ethics complaint, the Ethics and Appeals ~~Subcommittee~~Committee shall take action on the complaint. The action may include, but is not limited to:

9086.2.4.1 Dismissal of complaint;

9086.2.4.2 Requirement that the rating Provider take steps to correct the problem;

9086.2.4.3 Recommendation to the QA Committee of sanctions under Section ~~908~~912 (Suspension and Revocation of Accreditation) of this chapter.

9086.2.5 All parties to the complaint shall be informed by registered mail, or other method which provides evidence of delivery, of the Ethics and Appeals ~~Subcommittee~~Committee's action.

9086.3 Filing of Consumer Complaints

9086.3.1 Consumer Complaints may be filed by consumers who have grievances against RESNET, a Provider accredited by RESNET, or a Rater certified by an accredited Provider.

9086.3.2 RESNET shall implement a Consumer Complaint Response Process to address and investigate consumer complaints.

908.4 Complainants shall have the right to appeal the decision of the Ethics and Appeals Committee to the QA Committee and RESNET Board of Directors. The Appeals process shall follow the same process and procedures stated in Section 912.2.2 and 912.2.3 respectively.

9086.54 All complaints, responses, and supporting documentation received by RESNET shall be handled in strict confidence by the RESNET staff, the Ethics and Appeals ~~Subcommittee~~Committee, the QA Committee and the Board of Directors.

909 ACCREDITATION COMMITTEE

909.1 Committee membership. The Accreditation Committee shall be chaired by a member of the RESNET Board of Directors. The Chair shall be approved by the RESNET Board. Nominations of Committee members shall be made by the Chair to the RESNET Board for approval.

909.2 Committee responsibilities. The Accreditation Committee shall be responsible for the review and approval of all Applications for Provider accreditation.

9107 PROVIDER ACCREDITATION AND RENEWAL PROCESS

9107.1 National Registry of Accredited Providers
RESNET shall maintain a national registry of accredited Providers and will post the registry on its web site. The following Provider categories shall have individual registries.

9107.1.1 Home Energy Rating Provider

9107.1.2 Home Energy Rating Software Provider

9107.1.3 Training Provider

9107.1.4 Builder Option Package (BOP) Provider

9107.1.5 Sampling Provider

9107.1.6 Home Energy Survey Provider

9107.2 Provider Accreditation Process

~~907.2.1 Approval of accreditation applications shall be handled by the following RESNET Committees:~~

~~907.2.1.1 The QA Committee shall be responsible for the approval of accreditation applications for the following Provider categories:~~

~~907.2.1.1.1 Home Energy Rating Provider~~

~~907.2.1.1.2 Builder Option Package (BOP) Provider~~

~~907.2.1.1.3 Sampling Provider~~

~~907.2.1.1.4 Home Energy Survey Provider~~

~~907.2.1.2 The Training and Education Committee shall be responsible for the approval of accreditation applications for Rater Training Providers.~~

9107.2.12 An entity seeking accreditation must file with RESNET an application for the specific Provider category for which they seek accreditation. RESNET shall create the applications for each accreditation category.

9107.2.23 Confidentiality of Information. Any applicant for a Providership who wishes to have certain information in their application treated as confidential in order to limit disclosure shall, at the time of submission, attach a statement specifying the proprietary information and requesting confidentiality.

9107.2.34 Review and Notification.

9107.2.34.1 RESNET staff action. Within twenty-one (21) calendar business days of receipt of an application, RESNET staff will review the application to determine whether the applicant and its Raters are eligible for accreditation in accordance with the specific requirements for each Provider category. Upon completion of the review, RESNET staff shall do one of the following:

9107.2.34.1.1 Request ~~for~~ additional information. If additional information is required in order to complete the review of the application, the application shall be returned to the applicant along with a written request for additional information. Upon receipt of additional information, RESNET staff shall have ~~fourteen-twenty~~ (1420) ~~calendar~~business days to take action in accordance with ~~907910.2.43.1.2~~ or ~~907910.2.43.1.3~~

9107.2.34.1.2 Recommendation for approval. If RESNET staff is satisfied that an application is complete and meets all the requirements for accreditation, they shall make a recommendation to the ~~QA or Training and Education Committee~~ Accreditation Committee that the application be approved.

9107.2.34.1.3 Recommendation for denial. If RESNET staff is not satisfied that an application is worthy of approval for accreditation, they shall make a recommendation to the ~~QA or Training and Education Committee~~ Accreditation Committee that the application be denied and provide an explanation of the reasons for the recommendation (i.e. incompleteness, failure to meet/comply with a specific accreditation requirement, etc.).

9107.2.34.2 ~~QA or Training and Education Committee~~ Accreditation Committee action. Within ~~fourteen-fifteen~~ (1415) ~~calendar~~business days of receipt of a recommendation for approval or denial from RESNET staff, the Committee shall do one of the following:

9107.2.34.2.1 Request ~~for~~ additional information. If the Committee requires additional information, the application shall be returned to the applicant along with a written request for additional information. Upon receipt of additional information, the Committee shall have ~~fourteen-twenty~~ (1420) ~~calendar~~business days to render a decision in accordance with ~~907910.2.43.2.2~~ or ~~907910.2.43.2.3~~.

9107.2.34.2.2 Approve the application.

9107.2.34.2.3 Deny the application. If an application is denied, RESNET staff shall inform the applicant in writing of the reasons for denial. Additionally, the applicant shall be informed of their right of appeal under Section 91209 of this Chapter.

9107.2.34.3 Within ~~seven-ten~~ (710) ~~calendar~~business days of a decision by the Committee, RESNET staff shall inform the applicant in writing of the status of their application.

9107.2.54 For each approved application, RESNET shall issue a unique Accreditation Identification Number (AIN) to the Provider for the Provider category approved and, in accordance with 91007.1, the accreditation will be incorporated into the respective national registry of accredited Providers.

9107.2.65 Term of accreditation.

9107.2.65.1 All Provider accreditations shall be valid for a term of one calendar year and shall be renewed annually on January 1st upon successful completion and approval by RESNET of an application for renewal in accordance with [Section 907910.3](#).

9107.2.65.2 For first time applicants approved after September 1st, for any Provider category, initial accreditation is valid through the end of the calendar year, i.e. renewal of the accreditation shall not be required for the calendar year in which the application was approved.

9107.3 Accreditation Renewal Process

9107.3.1 Accredited Providers must submit an “application for renewal” (renewal application) with RESNET no later than October 1st of each calendar year. By September 1st, RESNET shall send to each Provider a renewal application and reminder of the deadline for submission.

9107.3.2 Program element changes. At the time of submitting a renewal application, it is the accredited Provider’s responsibility to inform RESNET of any substantive changes in the Provider’s operating policies and procedures or other information that affects meeting the minimum accreditation criteria for each Provider category for which it is seeking renewal. Changes will be evaluated by RESNET in the same manner as the original application for accreditation.

9107.3.3 Successful renewals. Successful renewals will be posted on the national registry and communicated to the applicant by RESNET.

9107.3.4 Late applications.

9107.3.4.1 Renewal applications received after the deadline for submission are not guaranteed to be approved prior to the end of the calendar year. Should an accreditation with a late renewal application expire prior to approval, the RESNET [QA or Training and Education Accreditation](#) Committee, at its sole discretion, may grant an extension with a grace period not to exceed ~~thirty-two~~ (3020) [business](#) days.

9107.3.4.2 Renewal applications not given an extension or not approved prior to the end of the grace period shall be noted as “pending” on the national registry and the applicant will be advised to cease representing themselves as accredited until the application receives approval.

9107.3.5 Accreditation not renewed. Accredited Providers that elect not to renew or fail to meet renewal requirements will be removed from the national registry and be so advised in writing. Providers have the right to appeal a non-renewal decision in accordance with [Section 91209](#) of this Chapter.

9107.3.6 Accreditations in appeal. Provider accreditations that have not been renewed and are under appeal will be noted as “pending” on the national registry until the appeal is resolved. Providers will be advised to cease representing themselves as accredited.

908-911 PROBATION, SUSPENSION, AND REVOCATION OF ACCREDITATION

91108.1 Notification. RESNET shall provide written notification to Providers of any decisions under this section. All notices shall be sent by certified mail, or other method which provides evidence of delivery~~return receipt requested, to the last known address of the Provider~~. All notices shall clarify the procedures being followed, as stipulated in this ~~standard~~Standard, and include, where applicable, a statement of the Provider's rights to appeal under Section 91209 of this Chapter.

911.2 Probation. If RESNET determines at any time that a Provider has failed to adhere to the accreditation requirements set forth in these Standards, RESNET shall notify the Provider of the specified deficiencies and shall require that specific corrective action, set forth in the notification, be taken within a specified time after the date set forth in such notification. A notice of probation may be appealed under Section 912 of this Chapter.

91108.32 ~~Reasons for s~~Suspension/ R~~evocation~~. Any Provider accredited by RESNET may have their accreditation suspended or revoked in any of the following circumstances:

91108.32.1 Failure to correct deficiencies. If RESNET determines at any time that an accredited Provider has failed to adhere to the accreditation requirements as established by these ~~standards~~Standards and approved as part of the Provider's accreditation, RESNET shall notify the Provider of the specified deficiencies and shall require that specific corrective action, set forth in the notification, be taken not later than ~~thirty-two~~(3020) calendarbusiness days after the date set forth in such notification.

91108.32.1.1 In the event that the deficiencies have not been remedied as stipulated in 908911.32.1, RESNET shall have the authority to immediately begin the process of suspension by issuance of a Notice of Suspension Proceedings. Such Suspension Proceedings shall follow the due process procedures contained in 908911.3.

91108.32.1.2 In the event that the deficiencies have not been remedied within the period set forth in a Notice of Suspension, RESNET shall have the authority to immediately begin the process of revocation by issuance of a Notice of Revocation Proceedings. Such Revocation Proceedings shall follow the due process procedures contained in 91108.43.

91108.32.2 Acting in such a manner as to impair the objectivity or integrity of the Provider or harm the reputation of RESNET ~~including~~;

91108.32.3 Submission of false information to RESNET, or failure to submit to RESNET any material information required to be submitted by the Provider, in accordance with obtaining or maintaining accreditation;

91108.32.4 Knowingly or negligently issuing ratings or reports required to be or purported to be completed in accordance with the RESNET Standards which are not;

91108.32.5 Misrepresentation by the Provider in advertising or promotional materials of its accreditation status in general or with respect to any service provided by the Provider;

91108.32.6 Pursuant to any of the express provisions of sections ~~907910.3.5~~, non-renewal;

91108.32.7 Provider goes out of business;

91108.32.8 Provider does not re-apply at the end of accreditation period;

91108.32.9 Investigated and validated ethics or consumer complaints;

91108.32.10 Upon expiration of a Provider's right to appeal a suspension of accreditation pursuant to Section ~~909-912~~ of this Chapter;

91108.32.11 Willful misconduct;

91108.32.12 Failure to disclose a self-serving interest to clients via the RESNET Home Energy Rating Standard Disclosure form.

91108.43 Suspension/revocation due process. RESNET shall comply with the following due process procedures in considering any suspension or revocation actions against an accredited Provider.

91108.43.1 RESNET may, at its discretion, initiate a suspension or revocation action against an accredited Provider by providing the Provider written notice of the action. Such notice shall inform the subject Provider of the entire basis and justification for the action.

~~91108.43.2 Contest of proposed suspension/revocation. A Provider may contest a suspension/revocation by requesting a hearing with RESNET within thirty (30) calendar days of receipt of a notice of suspension/revocation. Providers have the right to appeal a suspension or revocation action in accordance with Section 912 of this Chapter.~~

911.4.3 Notifications. Upon the expiration of the notice to appeal period or failure to submit appeal documentation, as stipulated in 912.2.1.1, or the conclusion of the appeals process in which a Provider's appeals are unsuccessful, Providers and their Raters who are not allowed to perform ratings, must inform their clients and Raters of their suspended status in writing with a copy of this correspondence sent to RESNET. RESNET will remove the Provider's name from the RESNET website, post their suspended or revoked status on the RESNET website with other Providers and Raters who are under suspension/ revocation, and will, at a minimum, inform the EEP of their suspended/revoked status.

~~908.3.3 Hearing. If the Provider files a timely response contesting the suspension/revocation and requests a hearing, RESNET will appoint an independent, unbiased, and qualified hearing officer to issue a decision on the suspension/revocation. The hearing officer will review the notice of suspension/revocation and the Provider's~~

~~contest. If the hearing officer finds that the Provider's contest has raised substantiated and valid factual arguments to the contrary of the proposed suspension/revocation, the Provider shall be afforded an opportunity to participate in an open and public telephonic hearing and to submit additional documentary evidence and a rebuttal argument to any material contained in the original notice of suspension/revocation developed during the course of the hearing officer's investigation. Notice of the Hearing shall be provided to the Provider a minimum of 120 days before the scheduled hearing.~~

~~908.3.4 Hearing Officer's Decision. Within thirty (30) days after the hearing, the hearing officer shall issue a written decision on the proposed suspension/revocation that is based on all the information contained in the hearing record including statements of the factual and legal basis of the decision. If the hearing officer decides to impose suspension or revocation, the decision must include findings regarding all disputed materials, and justification for all findings. A suspension/revocation decision by the hearing officer shall take effect upon the issuance of the hearing officer's decision and the date written notification of such decision is sent to the Provider.~~

~~908.3.5 How does RESNET handle notifications to Raters if suspension or revocation occurs (what about probation)?~~

~~908.3.5 Appeal of Hearing Officer's Decision on Suspension/Revocation. A Provider may appeal a Hearing Officer's decision on suspension/revocation by filing an appeal to the QA Committee's Ethics and Appeals Subcommittee in accordance with section 909.~~

~~908.3.6 No ex parte communication. No ex parte communication between the parties and the hearing officer shall be allowed.~~

91209 APPEALS PROCEDURES FOR NON-APPROVAL OR RENEWAL OF APPLICATIONS, PROBATION, SUSPENSIONS, OR REVOCATIONS

91209.1 Notification. RESNET shall provide written notification to the Appellant of any decisions under this section. All notices shall be sent by certified mail, or other method which provides evidence of delivery/return receipt requested, to the last known address of the Provider. All notices shall clarify the procedures being followed, as stipulated in this standard, and include, where applicable, a statement of the Provider's rights to remedy.

91209.2 Appeal

91209.2.1 Appeals to the RESNET QA Committee's Ethics and Appeals Subcommittee.

91209.2.1.1 In the event that an Application or Renewal Application has been denied, or if a Provider has been placed on probation, or if a Provider's accreditation has been suspended or revoked, the Provider shall have the right, for a period of thirty-twenty (30/20) calendar/business days after the date of notice, to appeal to the RESNET Ethics and Appeals Subcommittee. If a Provider's accreditation has been suspended or revoked, the Provider shall notify RESNET with five (5) business days after the date of notice of their intent to appeal. The Provider shall then have twenty (20) business days

after the date of notice, to submit their appeal documentation, in accordance with 912.2.1.2 and 912.2.1.3, to the RESNET Ethics and Appeals Committee.

91209.2.1.2 Appeals shall be in writing and sent by certified mail, or other method which provides evidence of delivery, to RESNET, attention Chairman of the RESNET QA Committee.

91209.2.1.3 Appeals shall contain all pertinent and substantive information and arguments that are in contradiction to the proposed non-approval or renewal of an application, probation, suspension, or revocation, including identification of all disputed materials and facts.

91209.2.1.4 The appellant Provider may, at the time of noticing its appeal, request a telephonic hearing by the RESNET QA Committee's Ethics and Appeals ~~Subcommittee~~Committee which gives the appellant the opportunity to provide oral arguments in favor of their appeal. In such an event, the ~~Subcommittee~~Committee shall, not later than ~~seven-ten (710)~~ calendarbusiness days after the filing of the notice of appeal, notify the appellant Provider of the date of the hearing, which shall be held as expeditiously as possible, but not later than thirty (30) calendarbusiness days after the receipt of the notice of appeal.

91209.2.2 Appeals to the RESNET Quality Assurance and Ethics Committee.

91209.2.2.1 In the event that a Provider's appeal of its non-approval or renewal of an application, probation, suspension, or revocation is rejected by the Ethics and Appeals ~~Subcommittee~~Committee, the Provider shall have the right, for a period of ~~thirty-twenty (3020)~~ calendarbusiness days after the date of the notification of the denial of the appeal, to appeal to the RESNET QA Committee.

91209.2.2.2 Appeals shall be in writing and sent by certified mail, or other method which provides evidence of delivery, to RESNET, attention Chairman of the RESNET QA Committee.

91209.2.2.3 The appellant Provider may, at the time of noticing its appeal, request a telephonic hearing by the QA Committee which gives the appellant the opportunity to provide oral arguments in favor of their appeal. In such an event, the Committee shall, not later than ~~seven-ten (710)~~ calendarbusiness days after the filing of the notice of appeal, notify the appellant Provider of the date of the hearing, which shall be held as expeditiously as possible, but not later than thirty (30) calendarbusiness days after the receipt of the notice of appeal.

91209.2.3 Appeals to the RESNET Board of Directors

91209.2.3.1 In the event that a Provider's appeal of its non-approval or renewal of an application, probation, suspension, or revocation is rejected by the ~~Ethics and Appeals Subcommittee or probation, suspension, or revocation is rejected by the~~ QA Committee, the Provider shall have the right, for a period of ~~thirty-twenty (3020)~~ calendarbusiness

days after the date of the notification of the denial of the appeal, to appeal to the RESNET Board of Directors.

~~91209~~.2.3.2 Appeals shall be in writing and sent by certified mail, or other method which provides evidence of delivery, to RESNET, attention President of the RESNET Board of Directors.

~~91209~~.2.3.3 The appellant Provider may, at the time of noticing its appeal, request a telephonic hearing by the RESNET Board which gives the appellant the opportunity to provide oral arguments in favor of their appeal. Within thirty (30) business days, the Board ~~must shall~~ render a decision as to whether it chooses to hear the appeal and whether or not ~~the hearing there~~ shall be a telephonic or closed hearing for oral arguments. If the Board chooses to hear the appeal, the Board shall, not later than ~~seven-ten (710) calendar business~~ days after the decision to hear the appeal, notify the appellant Provider of the date of the hearing and whether or not the hearing will include oral arguments. The hearing, which shall be held as expeditiously as possible, but not later than ~~thirty forty (3040) calendar business~~ days after notification that the appeal will be heard.

~~9130~~ EFFECTIVE DATES

~~9130~~.1 The effective date of these changes to the RESNET Standards shall be ~~January August~~ 1, 2010.

~~913.2~~ Changes to the following Sections of Chapter 9 shall not be effective until January 1, 2011:

Section 904.4.1.2 - Quarterly reviews of rating data files.

Section 904.6 – The QA of Low-Volume Raters in accordance with the original provisions of Section 904.6, effective January 1, 2010, shall be allowed until December 31, 2010.

Section 905.1 – Provider’s are not required to have a Primary QA Designee until January 1, 2011.

~~913.3~~ As of the effective date of these changes to the RESNET Standards, as stipulated in Section 913.1, all individuals who have been qualified as QA Designees or Delegates under the current version of the RESNET Standards shall not be required to meet any new requirements to become a QA Designee as stipulated in Section 905.2.

~~913.4~~ As of the effective date of these changes to the RESNET Standards, as stipulated in Section 913.1, any consumer complaints, ethics complaints, and appeals pending before RESNET shall follow the provisions of the RESNET Standards that were in effect as of the date of the filing of the complaint or appeal.

Appendix B

Glossary of Terms

Abnormal - Some defect exists in the construction and operation of the building enclosure.

ACCA - Air Conditioning Contractors of America.

Accreditation Committee – A Standing Committee of the RESNET organization that is responsible for the review and approval of all Applications for Provider accreditation submitted to RESNET.

Accreditation Identification Number (AIN) – A unique accreditation number assigned to each Provider for each Provider category accreditation.

~~*Accreditation Committee*—A Standing Committee of the RESNET organization that is responsible for the review and approval of all Applications for Provider accreditation submitted to RESNET.~~

~~*Accredited Rating System Provider*—A home energy rating Provider accredited through the Mortgage Industry National Home Energy Rating System Standards.~~

Accreditation Procedures – The set of standards and procedures entitled “Mortgage Industry National Home Energy Rating System Standards” as published and maintained by RESNET.

Accredited Rater Training Provider or Training Provider - A home energy Rater training organization accredited by RESNET.

Accredited Rating System Provider - A home energy rating Provider accredited through the Mortgage Industry National Home Energy Rating System Standards.

Acrylic Adhesive Tape - Any tape composed of an acrylic nature used as a sealing material primarily for moisture intrusion for house wraps, around windows, and to seal sheets of polyethylene covering the dirt on the floor of a crawl space or a basement.

Additional Failure – When additional instances of initial failure(s) are identified in one or more of the other homes in the sample set being tested or inspected.

Air Barrier - Any solid material installed to control air leakage either into or out of the building envelope. The material used shall have an air permeability not to exceed 0.004 cubic feet per minute per square foot under a pressure differential of 0.3 in. water (1.57 psf) (0.02 L/s.m² @ 75 Pa.) when tested in accordance with ASTM E 2178-01.

Air Exfiltration - Air from the conditioned space leaking outside of the thermal boundary of a structure.

Air-free Carbon Monoxide - A unit of measurement designed to compensate for the excess air to the burner and is only used to express CO levels in a flue gas sample as opposed to ambient air testing. The measurement represents the CO levels with no excess air in the sample or with “perfect” combustion (an unrealistic situation). The measurement incorporates an adjustment to the as-measured CO ppm (parts per million) value to simulate oxygen-free conditions in the sample. (See “as-measured carbon monoxide.”).

Air Infiltration - Air from outside the thermal boundary of a structure, which enters the conditioned space.

Air Leakage Site - A specific location in a structure where the air barrier has irregularities in it allowing both air infiltration and exfiltration depending on the interior pressures of the building.

Air Pressure Boundary - Any part of the building shell that offers resistance to air leakage. The most effective Air Pressure Boundary consists of a series of air barriers of interior and/or exterior sheeting material that resists airflow through it. An effective air pressure boundary is nearly airtight.

Air Wash - The movement of air through insulation.

Annual Fuel Utilization Efficiency or AFUE – A standardized measure of heating system efficiency, based on the ratio of annual output energy to annual input energy that includes any non-heating season pilot input loss.

Anomaly (defect)- An area of a building where the temperature distribution seen with an infrared imaging system differs by more than 4°F from the temperature distribution expected for the type of construction being viewed, denoting a possible problem area; an inconsistency.

ANSI - American National Standards Institute

As-measured Carbon Monoxide - A direct measurement of carbon monoxide CO in a sample of air or flue gas, usually measured in ppm (parts per million) units (See “air-free carbon monoxide.”).
of air or flue gas, usually measured in ppm (parts per million) units. (See “air free carbon monoxide.”)

ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASNT - American Society for Nondestructive Testing

ASTM - ASTM International, originally known as the American Society for Testing and Materials (ASTM)

Atmospherically-Vented - An appliance using a natural draft venting system.

Atmospheric Pressure - The weight of air and its contained water vapor on the surface of the earth; at sea level, this pressure is 14.7 pounds per square inch.

Auditor An individual who is certified by a RESNET accredited Home Energy Survey Provider to conduct comprehensive home energy audits. Auditors shall be certified as Home Energy Raters by a RESNET accredited Home Energy Rating Provider.

Auxiliary Electric Consumption – The annual auxiliary electrical energy consumption for a fossil fuel fired furnace or boiler in kilowatt-hours per year, derived from the Eae as follows:

Auxiliary Electric Consumption (kWh/yr) = Eae * (HLH) / 2080 – where: HLH = annual heating load hours seen by the furnace/boiler. Note: If fan power is needed (kW), it is determined by Eae / 2080.

Back Draft - Sustained downdraft during burner operation.

Base Load - An estimate of fuel consumption that does not include cooling or heating fuel consumption.

Bedroom – A room or space 70 square feet or greater, with egress window and closet, used or intended to be used for sleeping. A "den," "library," "home office" with a closet, egress window, and 70 square feet or greater or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

Biomass Fuel – Non-liquid and non-gaseous combustible substance burned to create energy, such as chunk wood, wood chips, corn husks, etc.

Biomass System – A biomass fuel combustion device and all associated mechanisms, controls, venting, and heat delivery components designed to provide space heating.

Blackbody - An object or surface which absorbs all radiant energy, within a specific spectral band, coming into contact with the surface and does not reflect or transmit any **radiant energy**. Thus, the surface has an emissivity of 1.

Boiler - A space heating appliance that heats water with hot combustion gases that pass through a heat exchanger.

BPI - Building Performance Institute

Building Analyst (BA), Certified - An individual who successfully passes the BPI written and field examination requirements for certification in order to evaluate the performance of a home, taking into account systems, physical conditions and other energy and non-energy characteristics of the home.

Building Envelope - The components of a building (walls, ceilings, windows, doors, floors, and foundations) that separate the conditioned space from the unconditioned spaces or conditioned space from outside.:

CAZ – See “Combustion appliance zone”

Carbon Monoxide (CO) - An odorless, colorless gas that can cause illness or death.

Carbon Monoxide Emissions - Carbon monoxide (CO) resulting from combustion as measured in ppm (parts per million). The measurement of CO emissions in flue gas requires a sample to be taken before dilution air enters the venting system. (See “air-free carbon monoxide” and “as-measured carbon monoxide.”)

CAZ - See “Combustion appliance zone.”

Certified Rater Trainer – See Rater Trainer, Certified.

Climate Zone – A geographical area defined as having similar long-term climate **conditions**.

Code Approved HVAC Tape - Any tape that is approved by current International Codes (UL181 A or 181 B) used for the air sealing of a heat and air duct system.

Combustion Appliance Zone (CAZ) - A contiguous air volume within a building that contains a combustion appliance; the zone may include, but is not limited to, a mechanical closet, mechanical room, or the main body of a house, as applicable.

Comprehensive Home Energy Audit - A level of the RESNET Home Energy Audit process defined by this standard to include the evaluation, diagnosis and proposed treatment of an existing home. The Comprehensive Home Energy Audit may be based on a Home Performance Assessment (“Comprehensive Home Performance Energy Audit”) or Home Energy Rating (“Comprehensive HERS Audit”), in accordance with the criteria established by this Standard. A homeowner may elect to go through this process with or without a prior Home Energy Survey or Diagnostic Home Energy Survey.

Compression (I**nsulation)** - This condition includes but is not limited to batt insulation compressed behind plumbing, heat and air, electrical, and other in cavity obstructions that results in the loss of R-value of the installed insulation. This condition can also occur within a wall cavity without obstructions. See also “Misalignment.”;

Conditioned Floor Area (CFA) – The finished floor area in square feet of a home that is conditioned by heating or cooling systems, measured in accordance with ANSI Standard Z765-2003 with exceptions as specified in Appendix A of this Standard.

Conditioned Space - Any directly conditioned space or indirectly conditioned space, as defined in this standard.

Conditioned Space Boundary – The continuous planes of the building envelope that comprise the primary thermal and air flow barrier between the directly or indirectly conditioned space and either the outdoors or an adjacent unconditioned space.

Confirmed Rating – An energy rating accomplished using data gathered from an on-site audit

Inspector and, if required, performance testing of the physical building and its installed systems and equipment.

Contractor, Certified - A contractor accredited by the Building Performance Institute (BPI) or an equivalent certification organization recognized by the Home Performance with ENERGY STAR[®] Program to complete specific home performance improvement work.

COP – Coefficient of Performance, which is the ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system under designated operating conditions.

Crawl Space - A shallow unfinished space, beneath the first floor or under the roof of a building allowing access to wiring or plumbing.

Data Collection - The gathering of information on building energy features, energy use history and other relevant building and building operation information.

Defect - See Anomaly

Design Temperature - A high or low outdoor temperature equaled or exceeded 97.5% of the time, used for designing heating and cooling systems.

Detached One- and Two-Family Dwelling – A building with one or two independent dwelling units with an individual or central HVAC system.

Diagnostic Home Energy Survey – A level of the RESNET Home Energy Survey in accordance with this standard, consisting of an In-Home Energy Survey and additional diagnostic testing.

Diagnostic Testing - The use of building performance-testing equipment (e.g. blower door, duct blaster, flow hood, infrared camera, CO monitor, etc.) to measure, assess and document specific performance characteristics of the building system.

Dilution Air - Air that enters a draft diverter or draft regulator from the room in which the appliance is located.

Direct Vent Appliance - A combustion appliance for which all combustion gases are vented to the outdoors through an exhaust vent pipe and all combustion supply air is vented to the combustion chamber from the outdoors through a separate, dedicated supply-air vent.

Directly Conditioned Space – An enclosed space having heating equipment with a capacity exceeding 10 Btu/hr-ft², or cooling equipment with a capacity exceeding to 10 Btu/hr-ft². An exception is if the heating and cooling equipment is designed and thermostatically controlled to maintain a process environment temperature less than 65 degrees Fahrenheit or greater than 85 degrees Fahrenheit for the whole space the equipment serves.

~~***Direct Vent Appliance*** – A combustion appliance for which all combustion gases are vented to the outdoors through an exhaust vent pipe and all combustion supply air is vented to the combustion chamber from the outdoors through a separate, dedicated supply air vent.~~

Distribution System Efficiency – A system efficiency factor, not included in manufacturer's performance ratings for heating and cooling equipment, that adjusts for the energy losses associated with the delivery of energy from the equipment to the source of the load, such as energy losses associated with heat transfer across duct or piping walls and air leakage to or from forced air distribution systems.

Downdraft - Air flow from a chimney or venting system into an enclosed building space.

Draft - A pressure difference that causes combustion gases or air to move through a vent connector, flue, chimney, or combustion chamber.

Draft Diverter - A nonadjustable device built into an appliance or a part of a vent connector that is intended to (1) permit the escape of flue gases in the event of a blockage or backdraft; (2) prevent a downdraft of outdoor air from entering the combustion chamber of an appliance; (3) reduce the effect of the chimney's stack action; and (4) lower the dew point temperature of the flue gas by the infusion of room air.

Draft Regulator - A self-regulating damper attached to a chimney or vent connector for the purpose of controlling draft: A draft regulator can reduce draft; it cannot increase draft.

Drainage Plane – A seamless or overlapping membrane designed to redirect water away from vulnerable building materials.

EAE – The average annual auxiliary electrical energy consumption for a gas furnace or boiler in kilowatt-hours per year as published in the GAMA Consumer's Directory of Certified Efficiency Ratings.

Emissivity - The ability of a surface to emit radiation, measured as the ratio of the energy radiated within a specific spectral band by a surface to that radiated within that same specific spectral band by a blackbody at the same temperature.

~~***Energy Analysis Tool*** – A computerized calculation procedure for determining a home's energy efficiency rating and estimating annual purchased energy consumption and cost.~~

~~***Energy Efficiency Rating, or Energy Rating*** – See Home Energy Rating.~~

~~***Energy Efficiency Rating***—An unbiased indication of a home's relative energy efficiency based on consistent inspection procedures, operating assumptions, climate data and calculation methods.~~

~~***Energy Analysis Tool***—A computerized calculation procedure for determining a home's energy efficiency rating and estimating annual purchased energy consumption and cost.~~

Energy Efficiency Ratio, or EER – the ratio of net equipment cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions.

Energy Efficiency Rating, or Energy Rating – See Home Energy Rating.

Energy Factor, or EF – A standardized measure of water heater energy efficiency as determined under Department of Energy Regulations, 10 CFR 430.23(e)(2)(ii).

Energy Saving Measure, or Feature - Any material, component, device, system, construction method, process, or combination thereof that will result in a reduction of energy use.

EPAct - The U.S. Energy Policy Act of 1992.

Equivalent Electric Power – The amount of electricity that would be produced from site fossil fuel uses when converted to electrical power using the Reference Electricity Production Efficiency.

Estimated Annual Energy Cost Savings – Positive dollar difference between estimated annual energy costs for an improved existing home as compared with the same home in its original condition or for a new home, as compared with the HERS Reference Home, local code or, for the purposes of Fannie Mae mortgages, the RESNET representation of the 1993 Model Energy Code, whichever is applicable.

Ethics & Appeals Committee – A Committee that is responsible for investigating ethics and consumer complaints and hearing a Provider’s appeal of its non-approval or renewal of an application, probation, suspension, or revocation.

Evaluation - An analysis of the data collected from any survey or audit, on-site data collection and performance testing, available energy usage records to determine energy use and potential savings from improvements.

Examination - Test administered by an accredited Rater Training Provider from questions developed by Training and Education Committee.

Excess Air - Air supplied to a burner in excess of the amount needed for complete combustion.

Exposed Wall – Walls subjected to heat loss or gain.

Failed Item – A “failed item” constitutes a category of failure, such as insulation installation, duct leakage, prescriptive air sealing requirements, insulation enclosure, eave baffles, mechanical system efficiency, window specifications, etc. For the purpose of follow-up inspections, a “failed item” is not limited to the specific instance in a home but to that category of the minimum rated features as it applies to that home design.

Failure - When one or more of the threshold specifications is not met during the testing and inspection process.

Fenestration – A glazed opening and its associated sash and framing that is installed into a building.

Fan-assisted Combustion - A combustion appliance with an integral fan that draws combustion supply air through the combustion chamber.

Field-of-View (FOV) - The total area of height by width, normally expressed in either degrees or radians, in which an infrared imaging system is capable of displaying, imaging, and recording objects.

Flame Rollout - A condition in which burner flames discharge from the cabinet of a combustion appliance.

Flashing - sheet material used to cover building joints to prevent bulk water entry.

Framing Spacing - The distance from center to center of wall studs, ceiling joists, floor joists and roof rafters.

Furnace - A space heating appliance that heats indoor air with hot combustion gases that pass through a heat exchanger.

Gaps (insulation) - An insulation defect where installed insulation does not completely fill areas of the building enclosure, which allows for conductive and convective heat loss and a reduced R-value of the overall building enclosure.

Heat Exchanger - A device built for heat transfer from one medium to another. The medium may be separated by a solid wall, so that they never mix, or they may be in direct contact. Furnaces contain heat exchangers, often referred to as combustion chambers, made from stamped steel. Air is directed around the exchanger while the combustion process is occurring inside the heat exchanger, allowing the exchange of heat into the air medium, which is then transferred into the home.

Heat Pump - A vapor-compression refrigeration device that includes a reversing valve and optimized heat exchangers so that the direction of heat flow may be reversed in order to transfer heat from one location to another using the physical properties of an evaporating and condensing fluid known as a refrigerant. Most commonly, heat pumps draw heat from the air or from the ground moving the heat from a low temperature heat source to a higher temperature heat sink.

Heating Seasonal Performance Factor, or HSPF - A standardized measure of heat pump efficiency, based on the total heating output of a heat pump, in Btu, divided by the total electric energy input, in watt-hours, under test conditions specified by the Air Conditioning and Refrigeration Institute Standard 210/240.

HERS – Home Energy Rating System.

HERS-BESTEST – The Home Energy Ratings System Building Energy Simulation Test published as NREL Report No. NREL/TP-472-7332.

HERS Index – A numerical integer value that represents the relative energy use of a Rated Home as compared with the energy use of the HERS Reference Home and where an Index value of 100 represents the energy use of the HERS Reference Home and an Index value of 0 (zero) represents a home that uses zero net purchased energy.

HERS Provider – A firm or organization that develops, manages, and operates a home energy rating program.

HERS Standards – Minimum criteria that a HERS Provider must meet in order to receive accreditation.

Home – A building with one or more dwelling units that has three or fewer stories above grade, or a single dwelling unit within a building of three or fewer stories above grade.

Home Energy Assessment - Defined by this standard as one of two levels of energy assessment of a home, including Home Energy Survey and Comprehensive Home Energy Audit.

Home Energy Rater, or HERS Rater – An individual trained by an Accredited Training Provider and certified by an Accredited Home Energy Rating Provider to inspect a home to evaluate the minimum rated features and prepare an energy efficiency rating (see also Rating Field Inspector and Senior Certified Rater).

Home Energy Rating, or Rating - An unbiased indication of a home's relative energy performance based on consistent inspection procedures, operating assumptions, climate data and calculation methods in accordance with the “National Energy Rating Technical Standards” (Chapter 3 of this Standard). See also “Rating, Confirmed” and “Rating, Projected”.

Home Energy Rating Provider, or HERS Provider, or Rating Provider- An organization accredited by RESNET in accordance with section 102 of these Standards that develops, manages, and operates a home energy rating program.

Home Energy Rating System, or HERS[®] - ~~The materials and procedures needed to operate a home energy rating program including, but not limited to: marketing materials, training materials, publications, rating software, QUALITY control system, data collection and maintenance systems, agreements, data collection sheets, home owner reports, and other related materials and services.~~ The procedures, rules and guidelines by which Home Energy Ratings are conducted by accredited Providers (Home Energy Rating, Software, Training, BOP, Sampling, Home Energy Survey), as specified in these Standards.

Home Energy Survey - A level of the RESNET Home Energy Audit process defined by this standard to include one of the following: Diagnostic Home Energy Survey, In-Home Home Energy Survey, , On-Line Home Energy Survey

Home Energy Survey, Diagnostic - A level of the RESNET Home Energy Survey in accordance with this standard, consisting of an In-Home Home Energy Survey and additional diagnostic testing.

Home Energy Survey, In-Home - A level of the RESNET Home Energy Assessment process defined by this standard intended to assess both the general energy performance of the home and the level of the commitment to action on the part of the homeowner. The survey may include data be collected and reported on-line by the homeowner or by a home energy survey professional for the purpose of further analysis and general identification of home performance problems. The intent of the energy survey is to refer homeowners to the next level if it is determined that the home needs further analysis, and the homeowner is motivated to invest in improvements. The On-Line or In-Home Home Energy Survey is not required if the homeowner wishes to directly pursue a Diagnostic Home Energy Survey or Comprehensive Home Energy Audit.

Home Energy Survey, On-Line - A basic energy review of a home using an internet-based tool or software.

Home Energy Survey Professional - An individual certified by an accredited Home Energy Survey Provider to conduct Home Energy Surveys.

Home Energy Survey Provider - An organization accredited by RESNET in accordance with Section 703 of the Mortgage Industry National Home Energy Rating Systems Standards to certify Home Energy Survey Professionals to perform Home Energy Surveys and Auditors to perform Comprehensive Home Energy Audits in accordance with this Standard, and to maintain QUALITY assurance of the Home Energy Survey.

~~*Home Energy Survey Professional* - An individual certified by an accredited Home Energy Survey Provider to conduct Home Energy Surveys.~~

Home Performance Assessment - A detailed evaluation of the condition of a home as a building system, including evaluation of all materials, components, features, systems and subsystems that affect the energy use of the home.

Home Performance with ENERGY STAR® , or HPwES - A national program developed by the Environmental Protection Agency (EPA) and the Department of Energy (DOE), that offers a comprehensive, whole-house approach to improving energy efficiency and comfort of homes, while maintaining or improving safety.

~~*RESNET Recognized Home Performance Standard* - Technical standard developed to offer a comprehensive, whole-house approach to improving energy efficiency and comfort of existing homes, while maintaining or improving and durability safety.~~

House Wrap - A weather-resistant material, intended to serve as an air/moisture barrier if sealed carefully at seams.

HVAC - Heating, Ventilating and Air Conditioning.

IECC - International Energy Conservation Code.

Inches of Water Column (IWC) - A unit of pressure difference; 1 IWC = 250 Pascals (see “Pascal.”)

Indirectly Conditioned Space - A space within a building that is not directly conditioned, but meets one of the following criteria: (1) the area-weighted U-factor of the boundary between it and directly conditioned space exceeds that of the boundary between it and the outdoors or the ground, where $U = \text{sum}(UA)/\text{sum}(A)$; (2) air to or from directly conditioned spaces is mechanically transferred at a rate exceeding 3 air changes per hour; or (3) any unvented basement or crawl space that contains heating equipment or distribution systems, and for which 50% or more of the floor separating it from conditioned space has no thermal insulation installed.

Induced Combustion - See “fan-assisted combustion.”

Infrared Imaging System - An instrument that converts radiation differences associated with surface temperature variations into a two dimensional image by assigning specific colors or tones to the differing temperatures.

Infrared Thermography - The process of using an infrared imaging system to generate thermal images of the surfaces of objects, which can be viewed electronically or printed.

In-Home Home Energy Survey - A level of the RESNET Home Energy Assessment process defined by this standard intended to assess both the general energy performance of the home and the level of the commitment to action on the part of the homeowner. The survey may include data be collected and reported on-line by the homeowner or by a home energy survey professional for the purpose of further analysis and general identification of home performance problems. The intent of the energy survey is to refer homeowners to the next level if it is determined that the home needs further analysis, and the homeowner is motivated to invest in improvements. The On-Line or In-Home Home Energy Survey is not required if the homeowner wishes to directly pursue a Diagnostic Home Energy Survey or Comprehensive Home Energy Audit.

Initial Failure - When one or more failure(s) are first identified in a home during the sampling process.

Instantaneous Field of View (IFOV) - The instantaneous spatial resolutions characteristics of infrared imagers (expressed in angular degrees or radians per side if rectangular and if round, in angular degrees or radians), or the smallest object able to be viewed by the imaging system at a given distance.

Internal Gains – The heat gains within a home attributable to lights, people, and miscellaneous equipment.

International Energy Conservation Code (IECC) – The model code for building energy conservation as promulgated by the International Code Council.

Isolated Combustion Appliance Zone - A combustion appliance zone that is not a part of, nor directly connected to, habitable space. It is either outdoors, or is a mechanical room or attached garage that is supplied with outdoor combustion air and separated from habitable space, and which complies with the criteria in Section B.3.2 of this standard.

Knob and Tube Wiring - An early method of electrical wiring in buildings, used from about 1880 to the 1930s. It consisted of single insulated copper conductors run within wall or ceiling cavities, passing through joist and stud drill-holes via protective porcelain insulating tubes, and supported on nailed-down porcelain knob insulators.

Labeled Ceiling Fan – A ceiling fan that has been labeled for efficiency in accordance with EPA guidelines such that the label shows the cfm, cfm/watt and watts of the fan at low, medium and high speeds

Labeled Ceiling Fan Standardized Watts (LCFSW) – The power consumption in watts of a Labeled Ceiling Fan “standardized” to a medium speed air delivery of 3000 cfm.

Lead Based Paint - Paint containing the heavy metal lead, that was used as pigment, to speed drying, increase durability, retain a fresh appearance, and resist moisture that causes corrosion. Although the United States has regulation that prohibits the manufacture or use of lead based paints in residential or applications with direct human exposure, lead paint may still be found in older properties painted prior to the introduction of such regulation introduced in 1978. Paint with significant lead content is still used in industry and by the military.

Light Fixture – A complete lighting unit consisting of a lamp or lamps, and ballasting (when applicable) together with the parts designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply. For built-in valence lighting, strings of low-voltage halogens, and track lights, each individual bulb shall count as a fixture.

Low-Volume Raters – Raters which complete less than twenty five (25) ratings per year or less than fifty (50) ratings over a two year period.

Mechanical Ventilation - The active process of supplying or removing air to or from an indoor space by powered equipment such as motor-driven fans and blowers but not by devices such as wind-driven turbine ventilators and mechanically operated windows.

Mechanical Ventilation System – A fan designed to exchange the air in the house with outside air, sized to provide whole-house service per ASHRAE 62.2, and controlled automatically (i.e. not requiring human intervention to turn on and off). The presence of a remote-mounted on-off switch or dedicated circuit breaker labeled "whole house ventilation" (or equivalent) shall not disqualify a system from meeting the requirement of automatic control. The following are three types of mechanical ventilation:

- **Balanced** - One or more fans that supply outdoor air and exhaust building air at substantially equal rates from the space. This makes heat recovery possible via an air to air heat exchanger.

- *Exhaust-Only* - One or more fans that remove air from the building, causing outdoor air to enter by ventilation inlets or normal leakage paths through the building envelope.
- *Supply-Only* - one or more fans that supply outdoor air to the building, causing indoor air to leave by normal leakage paths through the building envelope

Metropolitan Area - Metropolitan and micropolitan statistical areas as defined by the United States Office of Management and Budget (OMB) and published by the United States Census Bureau at www.census.gov (the most current edition). In areas not included in any defined Metropolitan Area, individual counties may be substituted for the purpose of applying the sampling process.

Minimum Rated Features – The characteristics of the building elements which are the basis for the calculation of end use loads and energy consumption for the purpose of a home energy rating, and which are evaluated by Home Energy Raters in to order collect the data necessary to create a home energy rating using accredited simulation tools.

Misalignment (Insulation) – A defect which occurs when installed insulation is not in contact with the air barrier, and air intrusion between the insulation and the air barrier seriously compromises the effectiveness of the insulation in framed buildings.

Model Energy Code: 1993 (MEC '93) – The building energy code as promulgated by the Council of American Building Officials (CABO) in 1992 as amended in 1993. The RESNET representation of MEC '93 is the HERS Reference home as defined in the “Mortgage Industry National Home Energy Rating Standards” dated 1999.

Mechanical Ventilation - The active process of supplying or removing air to or from an indoor space by powered equipment such as motor driven fans and blowers but not by devices such as wind driven turbine ventilators and mechanically operated windows.

Mechanical Ventilation System— A fan designed to exchange the air in the house with outside air, sized to provide whole house service per ASHRAE 62.2, and controlled automatically (i.e. not requiring human intervention to turn on and off). The presence of a remote-mounted on-off switch or dedicated circuit breaker labeled "whole house ventilation" (or equivalent) shall not disqualify a system from meeting the requirement of automatic control. The following are three types of mechanical ventilation:

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~~**Minimum Rated Features**—The characteristics of the building elements which are the basis for the calculation of end use loads and energy consumption for the purpose of a home energy rating, and which are evaluated by Home Energy Raters in to order collect the data necessary to create a home energy rating using accredited simulation tools.~~

~~**NASEO** - National Association of State Energy Officials~~

NFPA - National Fire Protection Association

~~**NASEO**—National Association of State Energy Officials~~

National Core Rater Test - Computer-based examination developed by the Residential Energy Services Network's (RESNET) Training and Education Committee and administered by RESNET.

~~**National Accreditation Body** - The Residential Energy Services Network (RESNET) is the National Accreditation Body for all Providers designated in this Standard.~~

National Home Energy Rating Technical Guidelines - Voluntary home energy rating system technical guidelines adopted by the National Association of State Energy Officials (NASEO).

~~**National Accreditation Body**—The Residential Energy Services Network (RESNET) is the National Accreditation Body for all Providers designated in this Standard.~~

Natural Draft Venting System - A venting system that relies on buoyancy to move combustion gases to the outdoors.

NIOSH - National Institute for Occupational Safety and Health.

Normal -The building shell is functioning as designed.

NREL – National Renewable Energy Laboratory.

On-Line Home Energy Survey - A level of the RESNET Home Energy Survey in accordance with this Standard that is a basic energy review of a home using an internet-based tool or software.

On-site Power Production (OPP) – Electric power produced at the site of a Rated Home. OPP shall be the net electrical power production, such that it equals the gross electrical power production minus any purchased fossil fuel energy, converted to its Equivalent Electric Power, used to produce the on-site power.

OSHA - Occupational Safety and Health Administration.

Pascal (Pa) - The metric unit of pressure equaling 1 Newton per square meter, or 0.004 inch W.G..

Performance Testing - Testing conducted to evaluate the performance of a system or component using specified performance metrics.

Polyethylene Sheeting - Any sheet material made of polyethylene, often called Visqueen™, used as a moisture barrier either on the walls of a structure built in an extreme northern climate or as a barrier covering the dirt on the floor of a basement or crawl space.

Power Burner - A burner for which air is supplied at a pressure greater than atmospheric pressure; includes most oil-fired burners and gas burners used as replacements for oil burners.

Power-Vented - An appliance that operates with positive static pressure in the vent, and is constructed and installed with a fan or blower to push all the products of combustion directly to the outdoors through independent sealed vents connected directly to the appliance.

Predicted Depressurization - Calculated house depressurization after improvements, accounting for estimated change in house tightness and exhaust fan flow.

Projected Energy Rating (Projected Rating) – A rating performed prior to the construction of a new building or prior to implementation of energy efficiency improvements to an existing building.

Purchased Energy – The portion of the total energy requirement of a home purchased from a utility or other energy supplier.

Purchased Energy Fraction (PEfrac) – The fraction of the total energy consumption of the Rated Home that is purchased energy, wherein all site fossil energy uses are converted to their Equivalent Electric Power using the Reference Electricity Production Efficiency of 40%.

RESNET Recognized Home Performance Standard - Technical standard developed to offer a comprehensive, whole-house approach to improving energy efficiency and comfort of existing homes, while maintaining or improving and durability safety.

~~**Qualitative (insulation)** - In relation to insulation inspections, determining general areas of anomalies without assigning temperature values to the patterns.~~

Qualifying Light Fixture – A light fixture located in a Qualified Light Fixture location and comprised of any of the following components: a) fluorescent hard-wired (i.e. pin-based) lamps with ballast; b) screw-in compact fluorescent bulb(s); or c) light fixture controlled by a photocell and motion sensor.

Qualifying Light Fixture Locations – For the purposes of rating, those light fixtures located in kitchens, dining rooms, living rooms, family rooms/dens, bathrooms, hallways, stairways, entrances, bedrooms, garage, utility rooms, home offices, and all outdoor fixtures mounted

on a building or pole. This excludes plug-in lamps, closets, unfinished basements, and landscape lighting.

Qualitative (Insulation) - In relation to insulation inspections, determining general areas of anomalies without assigning temperature values to the patterns.

Quality Assurance (QA) – The planned and systematic processes intended to ensure compliance with current applicable standards in a systematic, reliable fashion.

~~*Quality Assurance Plan – A Provider’s written quality assurance processes and procedures as specifically required in Section 904 of these Standards.*~~

~~*Quality Assurance & Ethics Committee (QA Committee) – A Standing Committee of the RESNET organization that is responsible for the oversight of RESNET’s rating quality assurance program, review and ruling on the merits of formal Ethics and Consumer Complaints received by RESNET, and review and rule on the merits of all appeals of non-approval or renewal of an application, probation, suspension, or revocation.*~~

Quality Assurance Designee (QA Designee) – An officer, employee, or contractor responsible for quality assurance within a Provider organization, who has met the requirements of section 904.7 of this Chapter and has signed an agreement with the Provider to be the Provider’s QA Designee.

Quality Assurance Designee Delegate (QA Delegate) – An individual certified as a Home Energy Rater , appointed by a Quality Assurance Designee to complete a portion of the Quality Assurance process, who has met the requirements of section 904.7.4 of ~~this~~ Chapter 9.

Quality Assurance Designee, Primary (Primary QA Designee) – The one QA Designee for a Provider who shall have ultimate responsibility, on behalf of the Provider, for fulfilling the Provider’s QA requirements/responsibilities and who shall be the single point of contact to RESNET regarding all Quality Assurance matters.

~~*Quality Assurance & Ethics Committee (QA Committee) – A Standing Committee of the RESNET organization that is responsible for the oversight of RESNET’s rating quality assurance program, review and ruling on the merits of formal Ethics and Consumer Complaints received by RESNET, and review and rule on the merits of all appeals of non-approval or renewal of an application, probation, suspension, or revocation.*~~

~~*Quality Assurance Plan – A Provider’s written quality assurance processes and procedures as specifically required in Section 904 of these Standards.*~~

Quantitative - In relation to insulation inspections, determining the total square footage of anomalies of a structure as a percentage of the total surface area of the structure in square feet.

Radon Mitigation - The method(s) for reducing radon entry into attached and detached residential buildings. This practice is intended for use by trained, certified or licensed, or

both, or otherwise qualified individuals, following ASTM E 2121-09, Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings.

Radon Testing - Typically one of two approaches is used: 1) Approved radon test kit is purchased and used by the person responsible for the building, 2) Certified and/or licensed independent radon tester to perform the required radon test. A short-term test remains in the home for 2 to 90 days, whereas a long-term test remains in ~~your~~the home for more than 90 days.

There are two types of radon testing devices. **Passive** radon testing devices do not need power to function and include; charcoal canisters, alpha-track detectors, charcoal liquid scintillation devices, and electret ion chamber detectors. Both short- and long-term passive devices are generally inexpensive. **Active** radon testing devices require power to function and usually provide hourly readings and an average result for the test period. These include continuous radon monitors and continuous working level monitors, and these tests may cost more. All radon tests should be taken for a minimum of 48 hours. A short term test will yield faster results, but a long-term test will give a better understanding of the home's year round average radon level. Regardless of the approach used if the radon level is confirmed to be 4 picocuries per liter (pCi/L) or higher, the mitigation should occur.

Rated Home - The specific home being evaluated using the rating procedures contained in the National Home Energy Rating Technical Guidelines.

Rater Specialty Certification – Professional building performance certification recognized by RESNET as part of a Home Energy Rater's advanced certification.

Rater Trainer, Certified - An individual designated by an Accredited Rater Training Provider to provide instruction and assistance to trainees. A class instructor who has demonstrated, by means of passing the RESNET National Rater Trainer Competency Test, mastery of the building science and rating system and competency necessary to effectively teach Rater training courses.

Rating Data File – The collection of information that makes up a file for Home Energy Ratings projected from plans or confirmed, including take-off forms, field data collection forms, energy simulation software files, RESNET Standard Disclosure Forms, rating certificates, rating reports, QA records (including findings and the resolution of any issues) as well as any documentation required by Third-Party Energy Efficiency Programs (EEP's) such as checklists, copies of labels or third-party certificates.

Rating, Confirmed – An energy rating accomplished using data gathered from an on-site audit inspection and, if required, performance testing of the physical building and its installed systems and equipment.

Rating Field Inspector – A Field Inspector is the entry level of Rater certification. A Field Inspector under the direct supervision of a certified home energy Rater may conduct the inspections and necessary basic performance tests (blower door& duct blaster) to produce a home energy rating. This category requires the ability to identify and quantify building components and systems.

Rating Index – See HERS Index.

Rating, Projected - A rating performed prior to the construction of a new building or prior to implementation of energy-efficiency improvements to an existing building.

Rating Software - A computerized procedure that is accredited by RESNET for the purpose of conducting home energy ratings and calculating the annual energy consumption, annual energy costs and a HERS Index for a home.

Rater Specialty Certification—Professional building performance certification recognized by RESNET as part of a Home Energy Rater's advanced certification.

Rater Trainer, Certified—An individual designated by an Accredited Rater Training Provider to provide instruction and assistance to trainees. A class instructor who has demonstrated, by means of passing the RESNET National Rater Trainer Competency Test, mastery of the building science and rating system and competency necessary to effectively teach Rater training courses.

Rating Field Inspector—A Field Inspector is the entry level of Rater certification. A Field Inspector under the direct supervision of a certified home energy Rater may conduct the inspections and necessary basic performance tests (blower door & duct blaster) to produce a home energy rating. This category requires the ability to identify and quantify building components and systems.

Rating Index—See HERS Index.

Rating Tool – A computerized procedure for calculating a home's energy efficiency rating, annual energy consumption, and annual energy costs.

Reference Electricity Production Efficiency – Electric power production efficiency, including all production and distribution losses, of 40%, approximating the efficiency of a modern, high-efficiency, central power plant. The Reference Electricity Production Efficiency is to be used only to convert site fossil fuel energy uses to an Equivalent Electric Power for the sole purposes of providing home energy rating system credit for On-site Power Production.

Reference Home - A hypothetical home configured in accordance with the specifications set forth in the National Home Energy Rating Technical Guidelines for the purpose of calculating rating scores.

Refrigerant - A compound that absorbs heat when it under-goes a phase change, e.g. gas to a liquid. Traditionally, the chlorofluorocarbon (CFC) R-22 was used as a refrigerant for residential air conditioners and heat pumps. Since 1992, time frames have been established for replacing chlorofluorocarbon refrigerants, with non chlorofluorocarbon refrigerants often referred to as R-410A. The ideal refrigerant has a boiling point somewhat below the target temperature, a high heat of vaporization, a moderate density in liquid form, a relatively high density in gaseous form, and a high critical temperature. Since boiling point and gas density

are affected by pressure, refrigerants may be made more suitable for a particular application by choice of operating pressure.

Refrigerant Charge - Quantity of refrigerant in a vapor compression refrigeration/heating system, determined by measuring the discharge and suction pressures/temperatures in the system.

RESNET - Residential Energy Services Network

RESNET National Rater Trainer Competency Test – Certification test developed and administered by RESNET to ensure that accredited Rater training Provider’ trainers have the requisite knowledge and competence to serve as trainers for prospective certified Rater. The test is based on the national core competency exam developed and maintained by RESNET.

Return Duct - Duct carrying air back (return) to the heating and cooling equipment.

Room Pressure Differential - In many parts of the country, supply air is delivered to individual rooms, but return air is located only or primarily in the central body of the home. The absence of return air in closeable spaces causes positive pressure in the closed rooms and negative pressure in the central zone. These positive and negative pressure differentials create a number of unwanted impacts, which may include; contaminants in the soil (e.g., radon), sewer gases in poorly trapped drain lines, and air contaminants (e.g., pesticides, mold odors, chemicals, auto exhaust, dust) in unconditioned zones such as crawl spaces and garages being drawn into the conditioned living space. Negative pressure can also produce combustion venting problems such as; very high levels of Carbon Monoxide or push the flame out of the combustion chamber in a process referred to as flame rollout. These combustion system impacts can create serious dangers for both home and occupants. In order to alleviate the differentials, "jumper ducts", "transfer grills" or individual returns are installed to alleviate or balance the pressures differential between zones.

R-Value – Thermal resistance value measured in h-ft²-F/Btu.

Sample Set - A specific group of homes from which one or more individual homes are randomly selected for sampling controls.

Sampling - An application of the Home Energy Rating process whereby fewer than 100% of a builder’s new homes are randomly inspected and tested in order to evaluate compliance with a set of threshold specifications.

Sampling Controls - A collection or set of required tests and inspections performed for a sample set of homes in order to confirm that the threshold specifications have been met. “Sampling controls” may refer to the entire set of tests and inspections, or to a particular phase that constitutes a defined subset of those tests and inspections (e.g. pre-drywall, final, HVAC, windows and orientation, etc).

Sampling Provider - An entity, accredited through these standards, that oversees the sampling process and issues the sampling certifications that homes meet a particular set of

threshold specifications such as the ENERGY STAR[®] specifications adopted by the U.S. Environmental Protection Agency.

Seasonal Energy Efficiency Ratio, or SEER - A standardized measure of air conditioner efficiency based on the total cooling output of an air conditioner in Btu/h, divided by the total electric energy input, in watt-hours, under test conditions specified by the Air Conditioning and Refrigeration Institute Standard 210/240.

Senior Certified Rater – A senior Rater is the first category of advanced Rater certification. Senior Certified Raters have demonstrated that they have the increased experience and knowledge base to interpret the findings of a rating and make recommendations on how the home can be improved.

Spectral Wavelength - The electromagnetic wavelength interval or equivalent over which observations are made when using an infrared imaging system.

Spillage, Spill - Combustion gases emerging from an appliance or venting system into the combustion appliance zone during burner operation.

Standard Ceiling Fan – The ceiling fan against which Labeled Ceiling Fans are measured for efficiency. At medium fan speed, the Standard Ceiling Fan produces 3000 cfm of air flow and consumes uses 42.6 watts of power.

Standards (HERS Standards) – The “Mortgage Industry National Home Energy Rating System Standards”, as maintained by the Residential Energy Services Network (RESNET).

Standards Committee - A Standing Committee of the RESNET organization that is responsible overseeing the Standards Amendment process.

Technical Committee - A Standing Committee of the RESNET organization that is responsible for review and oversight of the RESNET Technical Standards (Chapter 3).

Thermal Boundary - The line or boundary where the air barrier and insulation are installed in a building assembly. The air barrier and insulation should be adjacent to one another in a building assembly to prevent airflow from circumventing insulation.

Thermal Boundary Wall - Any wall that separates directly or indirectly conditioned space from unconditioned space or ambient conditions.

Thermal Boundary Wall (Above-Grade) - Any thermal boundary wall, or portion of such wall, not in contact with soil.

Thermal Bridging - Heat conduction through building components, typically framing, that are more conductive than the insulated envelope.

Thermal Expansion Valve - A component of a vapor compression refrigeration system that controls the amount of refrigerant flow into the evaporator coil, thereby controlling the superheat at the outlet of the evaporator coil.

Thermal Storage Mass— Materials or equipment incorporated into a home that will store heat, produced by renewable or non-renewable energy, for release at a later time.

Thermal bridging— Heat conduction through building components, typically framing, that are more conductive than the insulated envelope.

Thermal Bypass - Air movement, air leakage or convection “cell,” that circumvents the thermal barrier, is usually hidden and is the result of an incomplete or compromised air barrier.

Thermal Image - A recorded electronic or printed image provided by an infrared imaging system of the thermal surface variations of an object or a surface.

Thermal Resolution, or Noise Equivalent Temperature Difference (NETD) - The minimum temperature difference, typically specified in degrees Centigrade at 30 degrees Centigrade, an infrared imaging system is able to distinguish between two blackbody points on a thermal image.

Thermal Storage Mass – Materials or equipment incorporated into a home that will store heat, produced by renewable or non-renewable energy, for release at a later time.

Thermogram - An infrared picture obtained through the use of an infrared imaging system or other means of recording such images.

Thermographer, Level I - A person who is qualified by training, experience and testing to gather high-quality data and, where pass/fail guidance is provided, to interpret that data. The American Society for Nondestructive Testing (ASNT) defines a Level I as one who can, 1) Perform calibrations, tests, and evaluations for determining the acceptance or rejection of tested items in accordance with specific written instructions, 2) Record test results but have no authority to sign reports for the purpose of signifying satisfactory completion of NDT operations, and 3) Receive instructions or supervision from a Level III or designee.

Thermography - The process of generating and interpreting thermal images.

Third-Party Energy Efficiency Program, or EEP - A national or local program that has set a standard for energy efficiency in building performance and requires a HERS analysis for verification (e.g. ENERGY STAR Qualified Homes, Building America’s Builders Challenge, building code, International Code Council, utility companies, etc.).

Threshold Specifications - A set of qualification criteria which are established for a sample set based on worst-case Projected Ratings with consideration of all options, and in worst-case orientation, or a set of prescriptive specifications such as the ENERGY STAR® prescriptive path adopted by the U.S. Environmental Protection Agency.

Training and Education Committee - A Standing Committee of the RESNET organization that is responsible for overseeing RESNET training, RESNET tests, and education and professional development for RESNET Providers and Raters.

Transfer Duct - Properly sized ducting and register grills installed in the wall or door between the central body of a home and an isolated area, in order to reduce room pressure differentials.

Transfer Grill - Properly sized grills installed in the wall or door between the central body of a home and an isolated area, in order to reduce room pressure differentials.

Typical Meteorological Year, or TMY Data – Hourly climate data published by the National Climatic Center, Asheville, NC, based on historical climate data in 216 locations.

U-factor - Coefficient of thermal transmittance (expressed as Btu/h-ft²-oF (W/m²-oC)) of a building envelope component or system, including indoor and outdoor air film transmission coefficients.

Unconditioned Space - Any enclosed space within a building that is neither directly nor indirectly conditioned.

Unvented Combustion Appliance - Any appliances not used with a duct, chimney, pipe, or other device that carry the combustion pollutants outside the home. These appliances can release large amounts of pollutants directly into a home.

U-Value – Thermal transmittance value measured in Btu/h-ft²-F.

Vapor Bbarrier/Rretarder - A material used in the construction process to either slow or stop the movement of moisture, whether in liquid or vapor form, into or out of the building envelope or the wall structure.

Vapor-Cycle Refrigerant-Based Equipment - The most widely used method for air-conditioning of private residences in the United States. System uses a circulating liquid refrigerant as the medium which absorbs and removes heat from the space to be cooled and subsequently rejects that heat elsewhere, typically includes four components: a compressor, a condensing coil, an expansion valve (also called a thermal expansion valve), and an evaporator coil.

Vent Connector - The pipe that connects a combustion appliance to a vent or chimney.

Venting System - A passageway or passageways from a combustion appliance to the outdoors through which combustion gases pass.

VOIDS (insulation) - Areas where no insulation has been installed.

Wind Wash(ing) - Air intrusion between the insulation and the air barrier seriously compromises the effectiveness of the insulation in framed buildings. The long path exfiltration on the cold side of insulation allows moisture from the air to be deposited in the building assembly.

Weather Resistant Barrier (WRB) - Is designed to keep water from entering the building through the walls and is made up of several individual materials: house wrap or building paper (with weather resistive coating), flashings, sealants and tapes. When installed properly, these materials combine to protect the building from rain-induced moisture damage. If the WRB is sealed to block air flow it also contributes to the air barrier system of a home.

Work Scope - A set of written recommendations, including specifications detailing repairs and improvements to be made to a home; a work scope may include pre- and post-work performance testing and acceptance criteria.