



Setting the Standards for  
Home Energy Efficiency

## Results of RESNET Board Ballot on Authorizing the Submission of the Proposed Amendment of Chapter 2 of the RESNET Standards to the RESNET Amendment Public Review and Comment Process

May 23, 2012

***Shall the RESNET Board of Directors authorize the submission of the RESNET Training and Education Committee's proposed revision of Chapter 2 of the RESNET standards (Attachment A) to the RESNET standard amendment public review and comment process?***

Yes (12)

No (0)

Abstain (0)

Not Voting (5)

Dave Bell  
Dennis Creech  
Brett Dillon  
Charles Eley  
Philip Fairey  
David Goldstein  
Mark Jansen  
Lee O'Neal  
Jim Petersen  
Dennis Stroer  
Daran Wastchak  
Barb Yankie

Ben Adams  
Steve Byers  
Andy Gordon  
Eurihea Speciale  
Greg Thomas

The proposed amendment was authorized to be submitted to the RESNET public review and comment process.

# Attachment A

**Proposed Amendment: Chapter 2 “RESNET National Standard for Rater Training and Certification**

**Proponent: RESNET Training and Education Committee**

**Applies to: 2006 Mortgage Industry National Home Energy Rating Systems Standards**

**Proposed Amendment:**

**Delete Current Chapter 2 in entirety and replace with:**

## **National Standard for Training and Certification**

### **200 Purpose and Scope**

These standards define the requirements of Accredited Training Providers, Certified Rater Trainers, and Certification Candidates. RESNET must confirm that the requirements defined in this standard have been met when accrediting training providers and certifying rater trainers. Accredited Rating Providers must confirm that the requirements defined in this standard have been met when certifying individuals. This enhances the goal of producing a nationally recognized and uniform program.

### **201 General Provisions**

201.1 Definitions and Acronyms  
See Appendix B.

201.2 Training and Education Committee

201.2.1 Committee Responsibilities

The Training and Education Committee considers, reviews, and approves the following items.

- Core-competency examination questions, categories, time limits, and passing scores.
- Annual accreditation fees for Training Providers.
- Professional Development (PD) requirements for RESNET certified individuals.

#### 201.2.2 Committee Chair

A member of the Board of Directors chairs the Training and Education Committee. RESNET Staff and the Board Chairperson nominate individuals to be the committee chair. Appointment of the committee chair requires majority approval of the Board.

#### 201.2.3 Committee Members

The Committee Chair nominates individuals for committee membership. Appointment of the committee member requires majority approval of the Board.

#### 201.2.4 Sub-Committees

Sub-committees may be formed to complete specific tasks. The chair of the Training and Education Committee appoints the sub-committee chairs. Sub-committee chairs and members need not be members of the Committee.

## **202 Accredited Training Providers**

### 202.1 Achieving Accreditation

Training Providers are accredited in accordance with the Accreditation Process specified in *Section 910.2 - Provider Accreditation Process*. Training Providers must demonstrate through the following documentation that their training meets the criteria established through this Standard.

- Training curriculum, materials, and manuals.
- Examination materials.
- Facilities description.
- Organization description.
- Principals and staff qualifications (detailed resumes).
- The names of certified Rater Trainers it intends teach classes.

### 202.2 Maintaining Accreditation

In order to maintain their accreditation in good standing, all Training Providers must fully discharge the following duties and responsibilities. Failure to properly discharge any of these duties and responsibilities constitutes grounds for disciplinary action in accordance with *Section 911 - Probation, Suspension, and Revocation of Accreditation*.

- Renew their accreditation in accordance with the renewal process found in *Section 910.3 - Accreditation Renewal Process*.
- Maintain certified rater trainers.
- Hold the exam questions administered by RESNET in strictest confidence.
- Maintain records for three years of all training materials and trainee data, training schedules, curricula, attendance records, examinations and individual examination results.
- Maintain curricula that aligns with the most up-to-date RESNET standards.

- Provide for training facilities and equipment appropriate to the training being delivered.

#### 202.3 Privileges and rights

Accredited Training Providers in good standing have the following privileges and rights.

- The privilege to make and use any materials trademarked, copyrighted, or otherwise restricted by RESNET (other than the tests developed by RESNET) for marketing Training Courses or Training Providers or for recruiting Rater trainees, instructors or trainers.
- The right to present evidence, arguments and a vigorous defense in any action brought under these standards by any party against a Training Provider.

#### 202.4 Revocation of Accreditation

See *Chapter 9 – RESNET National Standard for Quality Assurance*.

### **203 Certificated Trainers**

#### 203.1 Achieving Certification

Individuals must meet the following requirements to be certified as trainer.

- Demonstrate ability to effectively communicate with adults in a training environment. Demonstrated through completion of a minimum sixteen hour RESNET approved adult education program.
- Demonstrate mastery of the Home Energy Rating System knowledge and ability sets provided in *Section 207 - Knowledge and Abilities*. Mastery is demonstrated by passing the RESNET National Rater Training Competency Test with a minimum score of 90%.
- Have an understanding of the purposes and benefits of home energy surveys, home energy ratings, and the ability to communicate these benefits to students.
- Have a basic understanding of energy efficient mortgages, energy improvement mortgages and related products, and the ability to communicate these to students.
- As a certified Home Energy Rater, complete certified ratings on a minimum of twenty-five (25) homes.

#### 203.2 Professional Development (PD)

Certified Trainers must complete a two-hour annual RESNET roundtable on current information and also complete at least one of the following items:

- Document 12 hours of attendance at RESNET conferences, or RESNET approved Professional Development courses delivered by accredited RESNET Training Providers, or RESNET sessions at Affordable Comfort

conferences, EEBA conferences, or other events and venues as approved by RESNET.

- Instruct a minimum of ten (10) classes, documented by an Accredited Training Provider in accordance with section 202.2 – *Maintaining Accreditation*.

An individual that is both a Certified Trainer and Quality Assurance Designee must complete both the two-hour RESNET roundtable for Rater Trainers and the two-hour roundtable for Quality Assurance Designees. Individuals selecting the additional PD option need only comply with the requirement one time. i.e. 24 hours is not required.

### 203.3 Revocation

The following items are ground for revocation of certified trainer designation.

- Compromising the security or integrity of any RESNET certification exam.
- Intentionally misrepresent their training provider by training to curricula that differ from that submitted on the provider's training provider application.

## **204 Certification Candidates**

### 204.1 General Provisions

#### 204.1.1 Training

Though not required training is strongly encouraged. Training provides certification candidates with the knowledge and ability sets appropriate to their desired certification.

#### 204.1.2 Examinations

Examinations allow a candidate to demonstrate the knowledge required appropriate to their desired certification. RESNET online examinations are time-limited and open-book allowing any reference materials but excluding any form of communication with other individuals during the examination session. Written examinations are administered by RESNET and overseen by a RESNET certified trainer or their designated proctor. Approved proctors include BPI exam proctors, faculty and staff of libraries, trade schools, colleges, independent testing institutions, or others as approved by RESNET. Approved proctors must agree to and sign a statement they will maintain security of the exam and its questions.

#### 204.1.3 Mentored Field Evaluations

Field evaluations allow a candidate to demonstrate their ability to perform certain tasks appropriate to their desired certification. Field evaluations are not graded but are performed under the mentorship of a certified trainer who verifies the candidate's competency at performing certain tasks as defined in this standard.

### 204.2 Certification

Prior to being certified by a RESNET Rating Provider, certification candidates must complete at a minimum the following tasks appropriate to their desired

certification within a 12-month period. Rating Providers may require additional training as needed to address their specific program, climate, software, or administrative requirements prior to issuing the candidates certification.

#### 204.2.1 Home Energy Survey Professional (HESP)

- Pass the national HESP Exam with a score of at least 75%.

#### 204.2.2 Rating Field Inspector (RFI)

- Pass the national Field Inspector exam with a score of at least 80%.
- Complete at least five probationary Rating Field Inspections observed by a certified HERS rater or a quality assurance designee. The certified HERS Rater or QAD may chose for these tasks to be performed in a hands-on environment, or through RESNET approved computer simulations. The probationary Rating Field Inspections must comprise at a minimum the following tasks.
  - Use pressure differential diagnostics to identify intermediate buffer zones including (but not limited to) attics, garages, or crawlspaces.
  - Identify insulation defects and account for them in energy analysis tool inputs.
  - Identify insulation types, thickness, and alignment with air barriers.
  - Measure operational air leakage imposed by the home and its equipment.
  - Perform single-point or multi-point building envelope leakage testing in accordance with the airtightness testing protocols contained in *Chapter 8 – Performance Testing and Work Scope*.
  - Perform duct leakage testing in accordance with the duct testing protocols contained in *Chapter 8 – Performance Testing and Work Scope* and interpret results.
  - Identify room and zone pressure imbalances caused by lack of ducted return air or pressure relief mechanisms such as transfer grilles or jumper ducts.
  - Use combustion gas sensing equipment and recommend methods of fixing leaks.
  - Perform CAZ, spillage, and CO testing in accordance with Worst-Case Depressurization and Combustion Appliance Testing protocols contained in the RESNET interim guidelines.

#### 204.2.3 Home Energy Rater (HERS Rater)

- Pass the national HERS Rater test with a score of at least 80%.
- Demonstrate competency at certain tasks mentored by a Certified Trainer by completing two training ratings. These ratings must not contain any errors identified by RESNET approved rating software. Both ratings must have a reasonably acceptable level of accuracy when compared to the trainer's independent ratings of the same houses or building plans. The Trainer may chose for these tasks to be performed in a hands-on environment, from house plans, or through RESNET approved computer simulations. However at least

one of the two training ratings must be a confirmed rating conducted in-person with a certified trainer on a real house, a RESNET approved training facility, or using RESNET approved computer simulations. The candidate must perform the following procedures during the confirmed training rating.

- Use pressure differential diagnostics to identify intermediate buffer zones including (but not limited to) attics, garages, or crawlspaces.
  - Identify insulation defects and account for them in energy analysis tool inputs.
  - Identify insulation types, thickness, and alignment with air barriers.
  - Measure operational air leakage imposed by the home and its equipment.
  - Perform single-point and multi-point building envelope leakage testing in accordance with the airtightness testing protocols contained in *Chapter 8 – Performance Testing and Work Scope*.
  - Perform duct leakage testing in accordance with the duct testing protocols contained in *Chapter 8 – Performance Testing and Work Scope* and interpret results.
  - Identify room and zone pressure imbalances caused by lack of ducted return air or pressure relief mechanisms such as transfer grilles or jumper ducts.
  - Use combustion gas sensing equipment and recommend methods of fixing leaks.
  - Perform CAZ, spillage, and CO testing in accordance with Worst-Case Depressurization and Combustion Appliance Testing protocols contained in the RESNET interim guidelines.
- After passing the exam and completing the two training ratings, but prior to being certified, the candidate must complete three probationary ratings with a Rating Provider. At least two of the three probationary ratings must be confirmed ratings.

## **205 Recertification**

To renew certification Home Energy Survey Professionals, Rater Field Inspectors, and HERS Raters, must complete at least one of the following requirements every three years.

- Pass the national RESNET test appropriate to their certification.
- Document 18 hours of attendance at RESNET conferences, or RESNET approved Professional Development courses delivered by accredited RESNET Training Providers, or RESNET sessions at Affordable Comfort conferences, EEBA conferences, or other events and venues as approved by RESNET. PD completed by RESNET certified individuals prior to achieving a higher certification will be applied toward the PD requirements of their new certification.

## **206 Capabilities**

Certified individuals must have certain capabilities to perform the work required under their certification. The categories listed in this section are in rough

alignment with the procedures contained in *Chapter 3 – National Energy Ratings Technical Standards*, *Chapter 8 -Performance Testing and Work Scope*, and *Appendix A On-Site Inspection Procedures*. Certification candidates must demonstrate proficiency at these capabilities through successful completion of certification requirements specified in *Section 204 - Certification Candidates*. Training providers should ensure that their curricula effectively cover these items.

#### 206.1 Home Energy Survey Professional (HESP)

Home Energy Surveys are primarily conducted on existing homes. HESPs do not perform any performance, diagnostic, or destructive testing. All capabilities listed here are limited to visually accessible items in the home unless otherwise noted.

##### 206.1.1 General

- Have a basic understanding of building performance evaluation.
- Complete a RESNET approved Home Energy Survey form.
- Demonstrate customer communication skills, ethics, and privacy.

##### 206.1.2 Basics of specifications

- Have a basic understanding of energy improvement measure interactions, expected life, and bundling for optimal performance considering the house-as-a-system and the emerging need for deep energy savings.

##### 206.1.3 Health and Safety

- Identify moisture issues such as condensation, leaks through building components, signs of mold or mildew, insect damage, efflorescence and stains.
- Identify potential combustion appliance safety hazards related to previous retrofit work.
- Identify evidence in combustion equipment of flame rollout, blocked chimneys, rust and corrosion, and missing or damaged vent connectors.

##### 206.1.4 Building Science Concepts

- Use appropriate energy terminology and definitions in home energy survey reports.
- Identify areas of potential envelope leakage, thermal bypasses, and thermal bridging.

##### 206.1.5 Determining Conditioned Space

- Identify spaces as directly conditioned, indirectly conditioned, or unconditioned.
- Define the home's thermal boundary and make appropriate recommendations for changing the thermal boundary.

##### 206.1.6 Building Components

- Identify exterior building components.

- Determine building orientation and shading characteristics.
- Measure building dimensions and use them to calculate gross and net areas.
- Estimate approximate age of building.

#### 206.1.7 Insulation

- Identify the presence or absence of insulation and the quality of its installation when visually accessible.
- Determine thickness, R-value, and location of insulation.
- Recommend levels of insulation by climate zone.

#### 206.1.8 Building Foundations

- Identify foundation type as crawl space, basement, or slab-on-grade.
- Identify foundation ventilation system types if present.
- Identify location, type, and approximate R-value of foundation insulation systems.

#### 206.1.9 Framed Floors

- Identify location and type of floor system, its insulation type, thickness, and approximate R-value.

#### 206.1.10 Above Grade Walls

- Determine wall types, insulation thickness, and approximate R-value.
- Identify signs of building additions.

#### 206.1.11 Windows, doors, and skylights

- Identify window and skylight types, frame materials, and permanently installed shading devices.
- Determine window, door, and skylight efficiencies and performance factors.

#### 206.1.12 Rim or Band Joist

- Determine insulation type, thickness, and approximate R-value.

#### 206.1.13 Ceilings

- Determine ceiling type, insulation thickness, and approximate R-value.

#### 206.1.14 Attic

- Identify type of attic and location of attic venting.

#### 206.1.15 Roof

- Identify approximate age, type, and color of roofing materials.
- Determine approximate R-value if insulated.

#### 206.1.16 HVAC Systems

- Identify type, model numbers, and location of systems.

- Determine equipment efficiencies from equipment labels, model numbers or default tables.
- Identify HVAC pros/cons, drivers and sensitivities for major system types.
- Identify basic combustion appliance concerns.

#### 206.1.17 Domestic Hot Water Systems

- Identify system types and efficiency factors from equipment labels, model numbers, or default tables.

#### 206.1.18 Air Leakage

- Identify common air-leakage sites and indicate likely opportunities for leakage reduction.
- Identify mechanical systems likely to cause air-leakage or pressure imbalances.

#### 206.1.19 Duct Leakage

- Determine duct type, location, and R-value.
- Identify obvious leakage locations and indications of previous sealing.

#### 206.1.20 Ventilation Systems

- Identify presence and type of exhaust fans and determine whether they vent to outdoors.

#### 206.1.21 Appliances and Lighting

- Estimate efficiency from model numbers or vintage.
- Identify potential lighting upgrades.

### 206.2 Rating Field Inspector (RFI)

A Rating Field Inspector is permitted to conduct all tasks contained within Appendix A. A Certified Rating Field Inspector must have proficiency at the capabilities of a HESP in addition to the following items.

#### 206.2.1 General

- Use field inspection forms to identify and document the minimum rated features of the Reference Home and Rated Home in accordance with the requirements of *Section 303.4 – HERS Reference Home and Rated Home Configuration* and *Appendix A – On-Site Inspection Procedures*.
- Identify potential problems with the building such as health and safety concerns, building durability issues, potential comfort problems, and possible elevated energy use.
- Identify basic home construction types and the ramifications of these for energy usage.

#### 206.2.2 Determining Conditioned Space

- Use pressure differential diagnostics to identify intermediate buffer zones including (but not limited to) attics, garages, or crawlspaces.
- Determine conditioned space as defined in Appendix A.

#### 206.2.3 Health and Safety

- Identify problems related to poor indoor air quality (IAQ), building durability, and human comfort.
- Identify potential presence of mold and potential causes.

#### 206.2.4 Moisture Principles and Properties

- Identify potential or existing moisture issues (bulk water intrusion, capillary action, air transport, vapor diffusion).

#### 206.2.5 Measuring Building Components

- Use construction documents such as building drawings and specification sheets, or actual measured building dimensions to produce a scaled and dimensioned sketch of a home.

#### 206.2.6 Collecting field data (including photo documentation)

- Determine building orientation.
- Measure window overhang lengths, heights, and distances from top and bottom of windows.
- Determine roof slopes, gable heights, etc.
- Calculate gross and net areas and volumes.

#### 206.2.7 Insulation

- Identify insulation types, thickness measurements, common usage locations, and alignment with air barriers.
- Identify insulation defects, and grading (I, II, III).

#### 206.2.8 Building Foundations

- Identify type as crawl space, basement, or slab.
- Identify ventilation system types.
- Identify location, type, and R-value of insulation systems.

#### 206.2.9 Framed Floors

- Determine if framed floors are exposed to unconditioned, interstitial, or the outdoors.
- Determine floor system type and frequency of framing members.
- Determine insulation thickness, type, and grade (I, II, or III).

#### 206.2.10 Slab-on-Grade

- Identify slab as covered or exposed.

#### 206.2.11 Above Grade Walls

- Determine if walls are exposed to interstitial, unconditioned, or the outdoors.
- Determine construction type, thickness, and exterior color.

#### 206.2.12 Windows and Doors

- Identify window labels, framing types and materials, U-factors, reflective and low-e films and coatings, shading and overhangs, and orientation.
- Identify exterior door types, insulation, and orientation.
- Identify glass-area of exterior doors as windows.

#### 206.2.13 Heating and Cooling Systems

- Determine equipment efficiencies using equipment data (make, model, nameplate data), AHRI or other current accepted guides, or age-based defaults.
- Identify space conditioning systems as active or passive.
- Identify combustion heating system types (gas fueled, open combustion, condensing)
- Ground-source and air-source heat pumps and air conditioning systems.
- Identify ductless systems (hydronic, steam, electric).
- Identify combo systems.
- Identify solar thermal systems.
- Identify control types (standard thermostats, programmable thermostats, multi-zone controls).
- Identify sizing & design issues, control types, and their impacts on energy use and humidity control.
- Identify summer and winter design temperatures.
- Identify cooling and heating system design trade-offs.

#### 206.2.14 Gas Leakage Testing

- Identify gas leaks using combustion gas sensing equipment.

#### 206.2.15 CAZ Testing

- Perform worst-case CAZ, spillage, and CO testing.
- Identify CAZ depressurization issues caused by duct return leaks in the CAZ zone, supply leaks outside the house pressure boundary, zonal pressure imbalances, and/or exhaust appliances including other combustion equipment.

#### 206.2.16 Air Leakage

- Identify air leakage mechanisms and drivers, energy and comfort implications, and health & safety issues.
- Perform single-point and multi-point building envelope leakage testing in accordance with the airtightness testing protocols contained in *Chapter 8 – Performance Testing and Work Scope*.

- Identify potential air sealing using zonal pressure differentials and measurement techniques
- Measure operational air leakage imposed by the home and its equipment.

#### 206.2.17 Conditioned Air Distribution Systems

- Identify impacts of designed and imposed flaws (closed interior doors, blocked registers and grilles, air handler filters).
- Identify duct supply and return types (flexible, rigid metal, building chase, insulated panels) and locations with respect to thermal and air barriers.
- Identify room and zone pressure imbalances caused by lack of ducted return air or pressure relief mechanisms such as transfer grilles or jumper ducts.
- Perform duct leakage testing in accordance with the duct testing protocols contained in *Chapter 8 – Performance Testing and Work Scope* and recommend sealing as needed based on test results.
- Determine need for duct insulation in unconditioned spaces and specify thickness of retrofit insulation if needed.

#### 206.2.18 Ventilation

- Identify fresh air ventilation from supply, exhaust and balanced flow systems.
- Identify heat-recovery ventilation (HRV) and energy-recovery ventilation (ERV) systems.
- Determine HRV or ERV efficiency, fan power and duty cycle characteristics.

### 206.3 Home Energy Rating System Rater (HERS Rater)

A Certified Home Energy Rater must have proficiency at the knowledge and abilities of a HESP and a Field Inspector in addition to the following.

#### 206.3.1 General

- Understand and be familiar with local climate conditions, housing stock, and climate specific practices.
- Understand local utility pricing structures (flat vs. tiered rates, net-metering regulations) and sources for reliable utility information.
- Prepare a detailed work scope.
- Develop field inspection forms.
- Identify major U.S. climate zones and energy consumption impacts of local climate zone.

#### 206.3.2 RESNET Rating System

- Communicate the business aspects of being a RESNET HERS Rater.
- Maintain current knowledge of the HERS Rating method using the Reference Home as defined in 304.3 of the National Home Energy Rating Technical Guidelines.
- Conduct both projected and confirmed building simulation and performance analysis to provide HERS Ratings in accordance with the requirements in

*Chapter 3 – National Energy Rating Technical Standards and Chapter 8 – Performance Testing and Work Scope.*

- Use RESNET approved energy analysis software capable of producing a HERS Index, data entry procedures, reporting, and analysis of results.
- Calculate HERS Score computation using the Normalized Modified Loads Rating Method.
- Communicate the benefits of the Home Energy Rating System to homeowners, builders, finance and real estate agents and to cultivate partnerships between those individuals.
- Assist and educate customers and builders with:
  - Home Energy Surveys and Home Energy Ratings.
  - Cost effectiveness of energy efficient building design.
  - Quality assurance.
  - Marketing of HERS Rated Homes.
  - Qualifications for programs such as ENERGY STAR®.
  - Real estate financing, economic terminology, and energy code compliance.
  - Financing advantages of Energy Efficient Mortgages (EEM) and Energy Improvement Mortgages (EIM).
  - Adding appraisal value through energy improvements.
- Provide excellent customer service in an ethical and fully disclosed manner.
- Produce reports which meet minimum reporting requirements and improvement analysis.
- Maintain standard operating procedures and office administration.
- Maintain knowledge of current technical guidelines.

**Effective date:** January 1, 2013

**Background/Rationale:**

Despite the fact that RESNET has made a number of changes to its technical standards and adopted Chapter 7 “RESNET National Standard for Home Energy Audits” RESNET has not updated its National Standard for Rater Training and Certification. RESNET’s national rater test has not been modified since 2008 and does not take into account the changes in RESNET rating standards. Before revising the rater test Chapter 2 needed to be brought up-to-date.

For two years the RESNET Training and Education Committee has worked to revise the RESNET National Standard for Home Energy Audits.

The following are the main changes to the proposed revised standard:

- Combine the Comprehensive Home Energy Rater, Home Performance Auditor certifications and requirements into the certified Home Energy Rater.

- Define the capabilities of the Home Energy Survey Professional, the Rating Field Inspector and the HERS Rater
- Revised the HERS Rater Professional Development requirements