



Proposed Standards Revision

Date: 11/19/13

Amendment #2012-XX

Proponent: Quality Assurance and Ethics Committee

Organization: RESNET

Justification:

Beginning in June of 2011, the RESNET Quality Assurance Committee undertook a new round of changes to the RESNET Standards based on feedback from the membership, QA Designees and RESNET staff. The attached Proposed Standards Revisions address miscellaneous editorial changes throughout, as well as the following changes to Chapters 1 and 9:

Chapter 1

1. Change in the name of “Rating Providers” to “QA Providers”
2. Clarification of Rater Candidate requirements
3. Updated recertification requirements for Rating Field Inspectors
4. Creation of a Rater ID card to be issued by QA Providers
5. Minimum requirements for written rater discipline procedures
6. Added language for the new RESNET National Buildings Registry
7. Removed chapter because BOP’s are no longer in Standards

Chapter 9

8. Clarify RESNET’s QA responsibilities of QA Providers
9. Updated quality assurance file and field review requirements for sampled ratings
10. Updated quality assurance field review requirements for Rating Field Inspectors
11. Clarified corrective action requirements for non-compliant QA reviewed ratings
12. Clarification of QA Designee requirements
13. Updated language and formatting to clarify Ethics and Appeals Committee status as a standalone Committee
14. Clarification of RESNET recognition requirements for Energy Efficiency Programs
15. Moved QA Requirements for CEQ Providers from Chapter 10 to Chapter 9

The attached changes have been through the RESNET Public Review and Comment Period and include final changes to language which address the public comments received.

Chapter One

RESNET Standards

100 RESNET NATIONAL STANDARD FOR ~~HOME ENERGY RATINGS~~ QUALITY ASSURANCE PROVIDERS

101 GENERAL PROVISIONS

101.1 Purpose

The purpose of these ~~S~~standards is to ensure that accurate and consistent home energy ratings are ~~performed~~ assured by ~~RESNET~~-accredited ~~home energy rating~~Rating Quality Assurance Providers through their certified Home Energy Raters nationwide; to increase the credibility of the ~~rating~~Rating Quality Assurance Providers with consumers, the housing and 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 ~~home energy rating~~Rating Quality Assurance 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 estimated 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 ~~home energy rating~~Rating Quality Assurance 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 ~~home energy rating~~Rating Quality Assurance 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 Quality Assurance (QA) Provider Accreditation

A ~~n~~ ~~RESNET~~-accredited ~~Home Energy~~Rating Quality Assurance Provider (QA Provider) is responsible for ensuring that all of the ratings issued by the Provider comply with all of the criteria by which the Provider was accredited. ~~Home Energy Rating QA~~ Providers shall be

accredited in accordance with the Accreditation Process specified in Chapter 9 of these Standards. A ~~Home Energy Rating QA~~ 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 Employee or contract with~~ a Quality Assurance Designee (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 and Rating Field Inspector Certification Standards. Certification and recertification of ~~Home eEnergy~~ Raters and Rating Field Inspectors shall be made by ~~Home Energy Rating QA~~ Providers, which shall include the following provisions:

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

102.1.2.2 Performance evaluation of ability to perform accurate ratings and field inspections.

102.1.2.2.1 In order for a Rater Candidate to be certified as a Home Energy Rater, they must satisfactorily complete two (2) supervised ratings as part of Rater training and a minimum of three (3) probationary ratings within twelve (12) months of successfully passing the National Core Rater Test. A maximum of one (1) of the three probationary ratings may be completed as a Projected Rating from plans, with the remaining two (2) being Confirmed Ratings. At least one (1) of the two (2) confirmed ratings shall be field supervised, one-on-one, in person, by the Rating QA Provider's QA Designee or Delegate.

102.1.2.2.1.1 A Rater Candidate that does not complete a minimum of three (3) probationary ratings to the satisfaction of a QA Provider within twelve (12) months of passing the National Core Rater Test or otherwise does not achieve certification within the allowed twelve month timeframe must at a minimum, meet the following in order to maintain eligibility for certification:

102.1.2.2.1.1.1 Pass the National Core Rater Test again;

102.1.2.2.1.1.2 Complete three (3) additional probationary ratings in accordance with 102.1.2.2.1;

102.1.2.2.1.1.3 Complete at least (1) one of the three (3) additional probationary ratings as one of the required two (2) Confirmed Ratings in the presence of a QA Designee or a Rater Trainer in lieu of repeating the Rater Training requirement.

102.1.2.2.2 In order for a Rater Field Inspector “Candidate” to be certified as a Home Energy Rater Rating Field Inspector, they must meet the requirements set forth in Section 205.2.1. ~~five~~ inspections, including basic performance tests under direct supervision of a certified Rater who has accurately completed twenty five (25) confirmed ratings.

102.1.2.2.3.1 A Rater Field Inspector Candidate that does not complete the five (5) probationary inspections to the satisfaction of a certified Rater within twelve (12) months of passing the National Core Rating Field Inspection Test must successfully retake the Test and complete five (5) new probationary inspections prior to certification.

102.1.2.3.2 For ~~previously~~ certified Home Energy Raters and Rating Field Inspectors who are new to a Rating-QA Provider, as part of the Rating-QA Provider’s due diligence process, it is a recommended best practice that QA Providers require a minimum of three (3) probationary ratings with the new Rater and three (3) probationary inspections with new Rating Field Inspectors to confirm their skills ~~as a Rater.~~

102.1.2.4.3 Professional Development and recertification for Raters and Rating Field Inspectors. Raters and Rating Field Inspectors shall complete one of the below three options for recertification:

102.1.2.4.3.1 Complete 18 hours of RESNET approved professional development every three years. The 18 hours shall include completion of 18 hours of refresher course(s) offered by a RESNET Accredited Training Provider.

102.1.2.4.3.1.1 Course(s) shall be approved by the RESNET Training and Education Committee annually;

102.1.2.4.3.1.2 The Training and Education Committee shall identify areas of Importance;

102.1.2.4.3.1.3 ~~Instructor-Raters~~ shall be required to pass an exam upon completion of the professional development training course.

OR

102.1.2.4.3.2 Documentation of 18 hours of attendance at a RESNET Conference in three (3) years would fulfill this requirement.

OR

102.1.2.4.3.3 Every three (3) years, Raters or Rating Field Inspector must Ppass the RESNET National Rater Test and Rating Field Inspectors must pass the RESNET National Rating Field Inspector Test every three (3) years.

~~102.1.2.4.4 Rating Field Inspector must pass the Rating Field Inspector Test every three (3) years.~~

~~102.1.2.4 Rater Testing. All certified Raters must take the national home energy rater test administered by RESNET by January 1, 2008.~~

~~102.1.2.5 Recertification of Raters and Rating Field Inspectors must be recertified at least no less than once every three (3) years.~~

102.1.2.6 Rater Agreements. As a condition of Rater certification, each QA Provider shall ensure that a certified Rater who has met the requirements of Chapter 2, Rater Training Requirements, has entered into a written agreement with the QA Provider to provide home energy rating, field verification, and diagnostic services in compliance with these standards. A copy of the Rater written agreement shall be provided to RESNET with the QA Provider's accreditation application and within 60 days of making changes to the agreement. The written agreement shall at a minimum require Raters to:

~~102.1.2.6.1 Provide home energy rating and field verification services accurate and fair ratings, field verification and diagnostic performance testing in compliance with these standards and RESNET Board of Directors-approved interpretations;~~

~~102.1.2.6.2 Provide accurate and fair ratings, field verification and diagnostic testing;~~

102.1.2.6.23 Comply with the RESNET Code of Ethics. The "RESNET Code of Ethics" is posted on the RESNET website. The Code of Ethics shall be attached to the written agreement. An unexecuted copy of the written agreement shall be provided to RESNET with a Home Energy Rating- QA Provider accreditation application and within 60 days of making changes to the agreement.

~~102.1.2.6.3 Provide specific statistical information about number and nature type of ratings conducted as requested by the QA Provider, including but not limited to: Rating Field Inspectors (RFI's) used utilized to complete on submitted ratings....~~

~~102.1.2.7 A QA Provider shall issue to ensure that each certified Rater is issued a water resistant photo identification card upon certification as a Rater. RESNET will create a template that shall be used by all Raters QA Providers;~~

~~102.1.2.7.1 The Rater ID card shall include at a minimum the following:~~

~~102.1.2.7.1.1 Headshot photo of the Rater of a minimum size of 1" tall by 1" wide;~~

~~102.1.2.7.1.2 Rater's full name;~~

~~102.1.2.7.1.3 Rater's legal business or company name;~~

~~102.1.2.7.1.4 Rater's business address;~~

~~102.1.2.7.1.5 The name of the issuing RESNET-accredited QA Provider;~~

~~102.1.2.7.1.6 The QA Provider's unique Accreditation Identification Number (AIN) as issued by RESNET;~~

~~102.1.2.7.1.7 Rater's unique Rater Test Identification Number (RTIN) as contained in the RESNET Buildings Registry;~~

~~102.1.2.7.1.8 Rater's current certification expiration date;~~

~~102.1.2.7.2 The QA Provider shall ensure that reissue a new Rater ID card is reissued with a new certification expiration date upon recertification of a Rater;~~

~~102.1.2.7.3 The QA Provider shall ensure that rescind a Rater ID card is rescinded upon Suspension or Termination Revocation of a Rater's certification;~~

~~102.1.2.7.4 A Rater is required to carry and to present the Rater ID card upon request to their issuing QA Provider, the Rater's rating clients, program sponsors for which the Rater performs ratings to demonstrate program compliance, and to RESNET Staff.~~

102.1.3 A **Home Energy Rating QA** Provider shall provide documentation with its accreditation application that the energy rating software used to produce energy ratings is properly licensed.

102.1.4 Minimum Standards for **Home Energy Rating Quality Assurance** Provider's Operation Policies and Procedures must be written and provide for the following:

102.1.4.1 Projected Ratings from plans. If the QA Provider's program provides for Projected Ratings from plans, the rating shall be labeled as "Projected Rating." Projected Rating reports shall stipulate at the top of the page as follows in 14 point type minimum: "Projected Rating Based on Plans – Field Confirmation Required."

102.1.4.2 Field inspection-verification of rated features of all homes in compliance with Chapter 3 and Appendix A of these Standards.

102.1.4.3 Blower Door Test completed on all homes claiming credit for reduced air infiltration.

102.1.4.4 Duct testing completed on all homes claiming credit for reduced air distribution system leakage.

102.1.4.5 When applicable, improvement analysis given to home owner.

102.1.4.5.1 Recommended improvements with the cost basis supplied for each recommendation by the home energy rating software program, ~~home energy rating QA~~ Provider or the Rater receiving quotes.

102.1.4.5.2 Estimated energy and cost savings of improvements based upon assumptions contained in the ~~home energy rating- QA~~ Provider program.

102.1.4.6 Written conflict of interest provisions that prohibits undisclosed conflicts of interest but allows waiver with advanced disclosure. The "Home Energy Rating Standard Disclosure" form adopted by the RESNET Board of Directors shall be completed for each home that receives a home energy rating and shall be provided to the rating client and made available to the home owner/buyer. Each form shall include, at a minimum, the name of the community/subdivision, city, and state where the home is located. Each form shall accurately reflect the proper disclosure for the home that it is rated (i.e. it should, reflect the Rater's involvement with the home at the time the final rating is issued. For the purpose of completing this disclosure, "Rater's employer" includes any affiliate entities. Recognizing that a number of different relationships may occur between the Rater or the Rater's employer and the rating client and/or homeowner and/or the marketplace in general, the ~~rating-QA~~ Provider shall ensure that all disclosures are adequately addressed by the Provider's ~~QUALITY~~ quality assurance plan, in accordance with the relevant ~~QUALITY-quality~~ assurance provisions of the standards.

102.1.4.7 Written Rater discipline procedures that include provisions for Probation, Suspension, and ~~Termination- Revocation~~ of Rater certification. These provisions at a minimum shall include defined thresholds for each category and be in compliance with 904.4.2.8 and 904.4.3. The Provider shall update the Rater's status in the RESNET Building Registry within ten (10) business days of any change.

The following represent minimum provisions for each Rater disciplinary category. A Provider's policies and procedures may be more stringent than the following requirements.

102.1.4.7.1 Probation – Violations of RESNET standards discovered ~~throughby~~ a Provider's QA ~~Designee~~ and or ~~through a QA Provider's~~ complaint resolution process, RESNET quality assurance monitoring or through the RESNET complaint resolution process. The Provider shall notify the Rater in writing of the specified deficiencies and shall require that specific corrective action, set forth in the notification, be agreed upon and, if possible implemented, not later than twenty (20) business days after the date set forth in such notification. ~~Violations include, but are not limited to, the following:~~

102.1.4.7.1.1 Non compliance with annual requirements for quality assurance;

102.1.4.7.1.2 Non compliance with Rater equipment calibration and or re-certification requirements;

102.1.4.7.1.3 Discovered violations of ~~one~~ or more provisions of the RESNET Standards that result in ~~a~~four or more non-compliant rating as defined in section 904.4.2.8;

102.1.4.7.1.4 Discovered violations of one or more provisions of the RESNET Standards involving Rater requirements for disclosure, professional conduct, record keeping and or reporting;

102.1.4.7.1.5 Misrepresentation of a certification status in marketing materials or services offered or actually provided, for which the rater does not possess the appropriate RESNET certification from the ~~p~~Provider.

102.1.4.7.2 Suspension – Any Rater certified by a Provider may have their certification suspended for circumstances including, but not limited to, any of the following

102.1.4.7.2.1 For non-compliance with the terms of probation;

102.1.4.7.2.2 Continued discovery of violations through increased quality assurance reviews in accordance with section 904.4.3;

102.1.4.7.2.3 ~~Two~~Multiple Probations within a twelve month period;

102.1.4.7.2.4 Willful misconduct;

102.1.4.7.2.5 Misrepresentation of a certification status in marketing materials, or services offered or actually provided, for which the Rater does not possess the appropriate RESNET certification from the Provider.

102.1.4.7.2.6 Provisions for Rater suspension shall include:

102.1.4.7.2.6.1 Written notification to the Rater including the cause, terms and restrictions including notification of the suspension of the Rater ability to complete, submit or acquire any new rating projects or new rating business recognized by the Provider as of the date of suspension;:

102.1.4.7.2.6.2 Notification of suspension to RESNET through the Buildings Registry, known Rater clients (i.e. builders or other organizations with repeat business with a Rater or Rating Company), RESNET, EPA or other known ~~regional or national~~EEPs;:

102.1.4.7.2.6.3 Removal of the Rater's name and in cases of a single Rater company, the company name from any promotional website or lists maintained by Provider;:

102.1.4.7.2.7 At the Provider's discretion, a Rater may be allowed to complete ratings identified as in progress at the time of the suspension provided the following conditions are met:

102.1.4.7.2.7.1 The Rater shall submit to the Provider copies of any previously completed site visit documentation for the home(s) in question;:-

102.1.4.7.2.7.32 The Rater agrees to complete the ratings within a defined minimum timeframe (maximum of 90 days) in compliance with RESNET standards;:-

102.1.4.7.2.7.43 The Provider shall complete, and Rater agrees to be subject to, file QA for each identified rating completed under this Section. Rater agrees to pay any associated Provider fees for the additional required QA file reviews;:-

102.1.4.7.2.7.54 The Provider shall complete, and Rater agrees to be subject to, field QA for 50% of the identified ratings completed under this Section;:-

102.1.4.7.2.7.65 The Rating client is informed and agrees to the terms of completion thereby acknowledging the terms and conditions of Rater suspension.

102.1.4.7.2.8 Successful compliance with the terms of suspension will result in the Rater being placed on probation. At a minimum the duration of a suspension is 90 days from notification, with the ability for a Rater's accreditation to be re-instated after 90 days under agreed upon terms of probation.

102.1.4.7.3 Revocation – Any Rater certified by a Provider shall have their certification revoked for circumstances including, but not limited to, any of the following:

102.1.4.7.3.1 A Rater chooses to not renew their certification;

102.1.4.7.3.2 For non-compliance with the progressive terms of probation or suspension;

102.1.4.7.3.3 Failure to reach an agreement on terms of probation or suspension;

102.1.4.7.3.4 The continued discovery of violations through the mandatory RESNET QA requirements.

102.1.4.7.3.5 Fraud

102.1.4.7.3.56 Provisions for revocation of Rater certification shall include:

102.1.4.7.3.56.1 Written notice of ~~termination~~ revocation of the Rater's certification and access to the Rating software being provided to the Rater, including a statement that the Rater is no longer recognized to complete ratings in affiliation with the Provider.

102.1.4.7.3.56.2 Notification of termination to known Rater clients (i.e. builders or other organizations with repeat business with a Rater or Rating Company), RESNET, EPA or other known EEP.

102.1.4.7.3.56.3 Removal of the Rater's name and in cases of a single Rating Company name from any promotional website or lists maintained by the Provider.

102.1.4.7.3.56.4 Indicate the rater's revocation in the RESNET Building Registry.

102.1.4.7.3.56.2 Rater's who have their ~~accreditation~~ certification revoked may at their initiative re-apply for certification to any QA Provider as a Rater candidate after a period of no less than 180 days from the date of revocation provided the following conditions are met:

102.1.4.7.3.56.2.1 The Rater completes a minimum of three (3) probationary ratings, deemed acceptable in demonstrating the Rater's technical and administrative skills in completing accurate ratings, under the supervision of a Provider's QA Designee;

102.1.4.7.3.56.2.2 The Rater agrees to ~~increased~~ file QA by the Provider's QA Designee of a minimum of 20% for twelve (12) months from the date of re-instatement on the Rater's next five (5) fifty (50) sequential ratings;

102.1.4.7.3.56.2.3 The Rater meets all other certification requirements.

102.1.4.8 RESNET may at its discretion review disputes between Providers and Raters regarding a Rater's probation, suspension or revocation status. Providers and/or Raters seeking RESNET's assistance shall provide pertinent and substantive information and arguments in support of the request.

~~102.1.4.8~~ RESNET may at its discretion ~~mediate~~ mediate disputes between Providers and Raters. Providers and/or Raters seeking RESNET's assistance shall provide pertinent and substantive information and arguments in support of the request.

~~102.1.4.7.29~~ Rating ~~and~~/Tax Credit Verification ~~Recordkeeping~~~~recordkeeping~~. QA Providers and/or their certified Raters shall maintain ~~records~~ the Quality Assurance Date File for each rating ~~and~~/tax credit verification for the time frame specified in Section 303.3.8 for a minimum of three (3) years.

~~102.1.4.7.2.1~~ The QUALITY assurance record for each home shall contain at a minimum the electronic copy of the building file.

~~102.1.4.7.2.29~~ The record for each rating/~~and~~ tax credit verification shall be maintained for a minimum of three (3) years.

~~102.1.4.810~~ ~~Rater~~Registries~~y~~. The QA Provider shall maintain a current and accurate registry of all of its ~~certified~~ Raters using the RESNET National Buildings Registry. The QA Provider will maintain this Registry in accordance with policies and procedures established by RESNET related to the RESNET Buildings Registry. The Provider will also keep on file the names and contact information for all, including company name, mailing address, voice phone number, fax number, and email address. Upon request, the Provider shall provide to RESNET its registry of certified Raters.

~~102.1.4.9011~~ Complaint Response System. Each QA Provider shall have a system for receiving complaints. The QA Provider shall respond to and resolve complaints related to ratings and field verification and diagnostic testing services and reports. QA Providers shall ensure that Raters inform purchasers and recipients of ratings and field verifications about the complaint system. Each QA Provider shall retain records of complaints received and responses to complaints for a minimum of three years after the date of the complaint.

~~102.1.4.1210~~ All ~~Home Energy Rating~~QA Providers shall collect and ~~upload~~ register the Energy Simulation File for each home rated (confirmed or sampled) by each Certified Rater ~~to~~ with RESNET using the RESNET Buildings Registry. The QA Provider will ~~upload~~ register ratings and maintain this Registry in accordance with policies and procedures established by RESNET related to the RESNET Buildings Registry.~~shall maintain an electronic database of information for each home rated or verified for the tax credit. The minimum content of the database is:~~

~~102.1.4.120.1~~ A unique file reference with ID number;

~~102.1.4.120.2~~ Date of on-site inspection;

~~102.1.4.120.3~~ Raters name;

~~102.1.4.120.4~~ Tool name and version;

~~102.1.4.120.5~~ Identification of climate data used for the rating;

~~102.1.4.120.6~~ Type of rating, either projected or confirmed;

~~102.1.4.120.7~~ Use of rating;

~~102.1.4.120.7.1~~ Time of sale rating;

~~102.1.4.120.7.2~~ Pre-home improvement rating;

~~102.1.4.120.7.3~~ Post home improvement rating; or

~~102.1.4.120.7.4~~ Information only rating;

~~102.1.4.120.8~~ Address of Rated Home;

~~102.1.4.120.9~~ Home type;

~~102.1.4.120.10~~ Floor area of conditioned space;

~~102.1.4.120.11~~ Fuel types used by building heating, cooling and water heating systems;

~~102.1.4.120.12~~ Minimum rated feature energy efficiency data used to determine the rating;

~~102.1.4.120.13~~ In the four categories of heating, cooling, water heating and all other uses, the:

~~102.1.4.120.13.1~~ Estimated annual purchased energy consumption in total;

~~102.1.4.120.13.2~~ Estimated annual purchased energy consumption by fuel;

~~102.1.4.120.13.3~~ Estimated annual energy costs in total; and

~~102.1.4.120.13.4~~ Estimated annual energy cost by fuel.

~~102.1.4.120.14~~ Estimated total annual energy cost for all uses;

~~102.1.4.120.15~~ Rating score of the Rated Home on 0-100 points scale and 1-5+ stars category;

~~102.1.4.10.16~~ To the extent allowed by state statute, all HERS QA Providers shall for 10% or for 500 of the homes rated annually, whichever is less, maintain a database of the following:

~~102.1.4.10.16.1~~ Homeowners authorization for the release of consumption information by utility companies;

~~102.1.4.10.16.2~~ Climate data site used for energy estimation;

~~102.1.4.10.16.3~~ ~~2~~ Any energy efficiency improvements made to the home and date of completion.

102.1.4.13 - Site data collection manual. All HERS-QA Providers shall provide Raters with a manual containing procedures for the on-site collection of data that ~~are~~ at a minimum shall include the on-site inspection procedures for minimum rated features for new and existing homes provided in appendix A.

102.1.4.14 Written Quality Assurance 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.

102.1.4.15 Rater training and certification requirements that conform to Chapter 1 and Chapter 2 of these Standards.

102.1.4.16 Rater Professional Development and recertification requirements that conform to Chapter 1 of these Standards.

103 RATING SOFTWARE

103.1 For the purposes of conducting Home Energy Ratings, as defined in these Standards, QA Providers shall be required to use the most current version of one of the RESNET approved rating software programs contained in the “National Registry of Accredited Rating Software Programs” posted on the RESNET website.

103.2 Rating Software Changes. Should changes that affect the calculated results of the home energy rating occur in the engineering algorithms of a RESNET approved home energy rating software program, QA Providers shall be required to do the following:

103.2.1 Transition period. On announcement of a new software version release, QA Providers have a maximum of 60 days to begin all new ratings with the new version.

103.2.2 This requirement only applies to changes mandated by the technical standard or otherwise affecting the calculations of the rating score or projected energy savings.

103.2.3 Persistence. Once a Projected Rating has been made on a property, the version of the rating software that was used initially may be used for the Confirmed Rating on that property. Providers, at their option, may update to the latest software version for in-process ratings.

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, verifications and reporting that require skills related to energy efficiency 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, verifications and reporting related to energy efficiency 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, verification 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~~-testing, inspection, verification or reporting 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.

Chapter Four

RESNET Standards

Chapter 4, pertaining to “Builder Option Packages”, or BOP’s,
was removed effective January 1, 2012.

~~400— 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), 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.~~

~~403— ACCREDITATION CRITERIA~~

~~403.1— Minimum Standards for BOP Provider Accreditation~~

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

~~403.1.1— Minimum BOP Inspector Training Standards:~~

~~403.1.1.1—A BOP Provider must provide for BOP inspector certification by requiring inspectors to successfully complete a RESNET accredited home energy Rater training courses and to demonstrate competence in completing BOP performance inspections in the field. The following elements must be included in its BOP inspector training:~~

~~403.1.1.1.1—Basics of building science~~

~~403.1.1.1.2—Thermal resistance of insulating materials~~

~~403.1.1.1.3—Space heating/cooling equipment efficiency~~

~~403.1.1.1.4—Blower door testing procedures~~

~~403.1.1.1.5—Duct leakage and testing procedures~~

~~403.1.1.1.6—Determining the efficiency of windows~~

~~403.1.1.1.7—Basic principles of BOPs~~

~~403.1.1.1.8—BOP Provider’s policies and procedures for inspectors~~

~~403.1.1.1.9—Quality assurance procedures~~

~~403.1.2—Certification Standards~~

~~403.1.2.1—Certification and recertification of BOP inspectors shall be through a RESNET accredited home energy Rater training Provider, which shall include the following provisions:~~

~~403.1.2.1.1—Initial classroom and/or field training.~~

~~403.1.2.1.2—Performance evaluation of ability to perform accurate BOP inspections including passing the national RESNET test.~~

~~403.1.2.1.3—Continuing Education—12 hours of education and training approved by the BOP Provider during the three years of certification. Ten hours of the training shall be training approved by RESNET.~~

~~403.1.2.1.4—Recertification of BOP inspectors no less than every three years~~

~~403.1.3—Minimum Standards For BOP Provider’s Operation Policies and Procedures must be written and provide for the following:~~

~~403.1.3.1—Field inspection of all homes for verifying technical specifications.~~

~~403.1.3.2—Blower Door Test completed on all homes claiming credit for reduced air infiltration lower than the default value.~~

~~403.1.3.3—Duct testing completed on all homes claiming credit for reduced air distribution system leakage lower than the default value.~~

~~403.1.3.4—Written BOP inspector discipline procedures that includes progressive discipline involving Probation—Suspension—Termination~~

~~403.1.3.5—Quality Assurance by BOP Providers~~

~~403.1.3.5.1—BOP Providers that are not already Rating Providers must have a written Quality Assurance Process that conforms to Chapter 9 of these Standards.~~

~~403.1.3.5.2—Have a Quality Assurance Designee that oversees the Provider’s compliance with the requirement of this Chapter and Chapter 9 of these Standards.~~

~~403.1.3.5.3—BOP Inspection Recordkeeping. Providers and/or their certified BOP inspectors shall maintain records for each BOP inspection.~~

~~403.1.3.5.3.1—The quality assurance record for each home shall contain at a minimum the electronic copy of the inspection file.~~

~~403.1.3.5.3.2—The record for each inspection shall be maintained for a minimum of three years.~~

~~403.1.3.5.4—BOP Inspector Registry~~

~~403.1.3.5.4.1—The Provider shall maintain a registry of all their certified BOP inspectors. The Provider will also keep on file the names and contact information for all, including company name, mailing address, voice phone number, fax number, and email address. Upon request the Provider shall provide to RESNET its registry of certified Raters.~~

~~403.1.3.5.5—Complaint Response System.~~

~~403.1.3.5.5.1—Each Provider shall have a system for receiving complaints. The Provider shall respond to and resolve complaints related to BOP inspections and field verification and diagnostic testing services and reports. Providers shall ensure that inspectors inform purchasers and recipients of ratings and field verifications about the complaint system. Each Provider shall retain records of complaints received and responses to complaints for a minimum of three years after the date of the complaint.~~

~~403.1.3.6—Knowledge of other EPA methods for labeling a home as ENERGY STAR®.~~

~~403.1.3.7—Written conflict of interest provisions that prohibit undisclosed conflicts of interest but allow waiver with advanced disclosure.—The “Home Energy Rating Standard Disclosure” form adopted by the RESNET Board of Directors shall be completed for each home that receives a BOP inspection and shall be provided to the rating client and made available to the home owner/buyer. Each form shall include, at a minimum, the name of the community/ subdivision and city and state where the home is located. Each form shall~~

accurately reflect the proper disclosure for the home that it is rated (i.e. it should reflect the BOP inspector's involvement with the home at the time the final ENERGY STAR® certificate is issued). For the purposes of completing this Disclosure, "Rater's employer" is defined as including any affiliate entities. Recognizing that a number of different relationships may occur between the inspector or the inspector's employer and the rating client and/or homeowner and/or the marketplace in general, the BOP Provider shall ensure that all disclosures are adequately addressed by the Provider's quality assurance plan, in accordance with the relevant Quality Assurance provisions of the Standards.

~~403.1.4~~ Technical Requirements for BOPs

~~403.1.4.1~~ The BOP Provider can only use BOPs approved by the EPA ENERGY STAR Homes Program.

~~403.1.4.2~~ Monthly Energy Savings. For a Fannie Mae energy efficient mortgage, the BOP Provider shall calculate the monthly energy savings that the BOP achieves over the HERS Reference Home in accordance with the provisions of ~~303.3.3.3.2.2~~ of Chapter 3 of this standard.

~~403.1.4.3~~ Energy Value. For a Fannie Mae energy efficient mortgage, the BOP Provider shall calculate the energy savings value of the BOP in accordance with the provisions of ~~303.3.3.2.1~~ of Chapter 3 of this standard.

~~403.1.4.4~~ Specialized requirements. Where specific BOPS approved by EPA have technical requirements that are outside the normal range of BOP inspector skills, specialized training shall be provided to inspectors by the BOP Provider to inspect for compliance with those BOPs.

~~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.

Chapter Five

RESNET Standards

500 Revision of Standards

501.4.1.1 On an on-going basis, RESNET will accept ~~on an on-going~~ proposals to change the sStandards. RESNET has formed the following standing committees to consider proposals submitted: Quality Assurance Committee, Technical Committee, and Training and Education Committee. After considering proposals, the appropriate committee can submit proposals to amend the sStandards.

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.

603 TECHNICAL REQUIREMENTS FOR SAMPLING

603.1 Compliance Requirements

The testing and inspection of homes for minimum rated features shall be conducted in compliance with the procedures for conducting home energy ratings ~~and Builder Option Packages (BOPs)~~ contained in this Standard.

603.2 Homes Eligible to be Sampled

The homes being sampled shall be of the same construction type using the same envelope systems.

603.3 Analysis of Homes

A Worst-Case Analysis shall be performed on each home plan in the sample set,. If an option or change in the design of the structure is made that differs from those used in the initial analysis in a way that would require more stringent threshold specifications, then that home must be individually rated. At a minimum, a certified Rater shall oversee this process.

603.4 Labeling of Homes

603.4.1 Every home ~~plan~~ within a given sample set shall be assigned the ~~same~~-HERS Index as determined by the worst-case analysis and threshold specification for the ~~eat~~ floor plan for that home.

603.4.2 Every home subjected to this sampling Standard shall be provided with a label in accordance with Section 303.3 of these standards, which contains the following statement: “This home has been certified using a sampling protocol in accordance with Chapter 6 of the RESNET Standards (see <http://resnet.us/standards/www.RESNET.us>)”. This label shall be located on the electrical panel and the font shall be a minimum of 10 points.

603.5 Sample Set of Homes

Sampling controls may be applied to any sample set of homes within the same subdivision, community or metropolitan area and climate zone (as specified in the most current edition of the IECC), provided the criteria in Item 603.2 are met and:

603.5.1 Each sample set is made up of homes at the same stage of construction (e.g. pre-drywall, final);

603.5.2 For each stage of construction, each sample set will be ~~comprised~~ composed of homes eligible for the applicable sampling controls within a 30 calendar day period. For example: a sample set that is defined for a pre-drywall inspection must include homes that are eligible for that pre-drywall inspection within a given 30-day period. If fewer than seven (7) homes are available for that phase of inspection, the sample set must be cut off at the number of homes that are available within that 30-day period. This sample set need not be carried through to final inspection; in fact, a whole new sample set may be defined for the final inspection phase based on the homes available for that phase within a new, 30-day period applied to that phase of tests and inspections.

603.5.3 Each home subject to sampling is required to be part of an identified set of sampling controls for each test or inspection that is sampled;

603.5.4 Each participating subdivision within a metropolitan area is subject to sampling controls on at least one home in any 90 calendar day period;

603.5.5 Each participating subdivision within a metropolitan area must start a minimum of one home in any 90 calendar day period.

603.6 Application of Sampling

The application of the sampling controls in this standard are only required for those tests and inspections that are not conducted on every home. Sampling controls shall be conducted for any tests and inspections not conducted on every home, according to the field testing and inspection requirements of 303.6.2.

603.7 Sampling Controls

603.7.1 A complete set of Sampling Controls shall be performed at a minimum ratio of one (1) test or inspection per seven (7) homes within a given sample set. At a minimum, a certified Rater shall oversee this process.

603.7.2 Sampling Providers may complete the sampling controls collectively on a single home or distribute the tests and inspections across several homes within a given sample set, provided the total number of individual tests and inspections meets or exceeds the minimum ratio set forth in 603.7.1.

603.7.3 To qualify for sampling in a metropolitan area, a builder shall first complete, without any incidence of failure, a complete set of sampling controls on at least seven (7) consecutive homes in that metropolitan area. For this initial phase of testing and inspections, the complete set of sampling controls shall be performed on each of the seven (7) homes.

~~**603.7.3.1** Exception: A builder who has been implementing a sampling process for certifying homes in a specific metropolitan area under the EPA's ENERGY STAR® for Homes program as of January 1, 2008, will be allowed a one time exception to 603.7.3 for that metropolitan area.~~

~~**603.7.3.12:** For each newly started subdivision, sampling may begin for each sampling control only after three (3) of a particular sampling control passes consecutively homes have been completed without any incidence of failure.~~

603.7.4 Having successfully met the requirements of 603.7.3, a Sampling Provider may complete sampling controls for a builder indefinitely until a “failure” occurs or any of the criteria set forth in 603.2 are no longer met.

603.7.5 A complete set of sampling controls, whether performed on a single home or spread across several homes, must be completed whether or not one or more failure(s) are found.

603.7.6 When an “initial failure” occurs, the failed item(s) shall be tested or inspected in two (2) additional homes selected from the same sample set. Testing and/or inspections for any item(s) that may become inaccessible during the construction process, (e.g. wall insulation) must be timed so additional testing and/or inspections can occur on other homes in the sample set before they become inaccessible for inspection or testing.

603.7.7 When an “additional failure” occurs, in one or more of the two (2) additional homes, the failed item(s) shall be tested or inspected in the remaining four (4) homes selected for the same sample set.

603.7.8 Until the failure is corrected in all identified (failed) homes in the sample set, none of the homes shall be deemed to meet the threshold or labeling criteria.

603.8 Multiple “Additional Failures”

Action is required if three (3) “additional failures” occur within a ninety (90) calendar day period. The required action depends on whether those “additional failures” apply to the same failed item or various failed items.

603.8.1 If the multiple “additional failures” all apply to the same failed item, the builder shall submit to 100% inspection of that failed item, for a minimum of seven (7) homes, before resuming sampling of that item. Remaining unrelated sampling controls may be conducted on a sampled basis throughout this process.

603.8.2 If the multiple “additional failures” apply to various failed items, or additional failed items are found during testing and inspection of additional homes, the builder must begin again and complete 603.7.3 at a minimum, before continuing with sampling.

603.8.3 Exception: If a builder conducts a “root cause analysis” on an item or items covered under 603.8.1 or 603.8.2, and submits it in writing to the sampling Provider, sampling may resume as soon as the Provider deems that the solution has been implemented. The “root cause analysis” report shall contain at a minimum:

603.8.3.1 A written description of the problem(s) covered by the analysis;

603.8.3.2 A written explanation of the underlying reason(s) that the problem(s) occurred (e.g. inadequate training of subcontractor(s) or site supervisors, insufficient information or inadequate detail in the plans or specifications, etc);

603.8.3.3 A written description of a clearly defined process to correct the underlying cause(s);

603.8.3.4 A written description of when and how that process has been carried out;

603.8.3.5 A copy of the root cause analysis report shall be kept by the sampling Provider as part of the QA file, for a period of time of three (3) years, consistent with the requirements of 102.1.4.8.2.

603.9 Quality Assurance by Sampling Providers

603.9.1 The Sampling Provider’s Rating Quality Assurance Provider QA Designee shall be responsible for monitoring compliance with the sampling process and maintaining records in accordance with the requirements of Chapter 9.

~~**603.9.2** In addition to the Quality Assurance requirements specified in Chapter 9 for Home Energy Rating Providers, a Sampling Provider’s QUALITY assurance process shall include, at a minimum, the following:~~

~~**603.9.2.1** All homes that are qualified by the use of sampling shall be considered to be rated homes. QA file review and field monitoring shall be conducted on a percentage of all the homes certified or qualified under sampling, rather than the percentage of tested and inspected homes.~~

~~**603.9.2.2** The field QA required in Chapter 9 may be conducted on any of the qualified or certified homes within the sample sets, and shall not be limited to the tested and inspected homes.~~

604 RATING SAMPLING PROVIDER ACCREDITATION CRITERIA

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

604.1.1 All Sampling Providers shall be accredited by RESNET as a ~~Home Energy Rating~~ QA Providers in good standing and must maintain their accreditation in good standing.

604.1.2 A Sampling Provider's accreditation must be renewed annually by RESNET.

604.1.3 In order to be eligible to be a Sampling Provider, the RESNET--accredited ~~rating~~ QA Provider shall complete a minimum of twenty-five (25) confirmed ratings as an accredited QA Provider that have been documented to be accurate by the ~~Rating QA~~ Provider's Quality Aassurance Designee.

604.1.4 The Sampling Provider shall demonstrate to RESNET a minimum insurance coverage of \$1,000,000 in general liability coverage and \$1,000,000 in professional liability coverage.

604.1.5 Builders cannot use the sampling standard to certify or qualify homes in which they have a financial interest.

604.2 Responsibilities of Accredited Sampling Providers

604.2.1 Sampling Providers are responsible for ensuring that all of the Sampling inspections conducted and issued by their sampling program are in compliance with all of the criteria by which the system was accredited.

604.2.2 Sampling Providers are responsible for ensuring that the specifications for the minimum rated features for the sampled homes be communicated to the personnel or trades responsible for completing the work.

604.2.3 Minimum Standards For Sampling Provider's Operation Policies and Procedures must be written and provide for the following:

604.2.3.1 Field inspections and tracking of all homes in the sample set for verifying threshold technical specifications and tracking failures and re-inspections;

604.2.3.2 Blower Door Testing completed for sample sets in which the threshold specifications include credit for reduced air infiltration lower than the default value;

604.2.3.3 Duct testing completed for sample sets in which the threshold specifications include credit for reduced air distribution system leakage lower than the default value;

604.2.3.4 Sampling Inspector discipline procedures that include progressive discipline involving Probation - Suspension – Termination.

~~605 EFFECTIVE DATES~~

~~605.1 Quality Assurance~~

~~July 1, 2007—Section 603.9 shall be implemented by all sampling Raters and Providers.~~

~~605.2 Effective Date of Standard~~

~~January 1, 2008—The remainder of Chapter 6 shall be implemented by all sampling Raters and Providers~~

Chapter Nine

RESNET Standards

900 RESNET NATIONAL STANDARD FOR QUALITY ASSURANCE

901 GENERAL PROVISIONS

901.1 Purpose

RESNET has the responsibility of accrediting Providers. This chapter outlines the quality assurance responsibilities of RESNET and Providers, the role and responsibility of the Quality Assurance ~~and Ethics~~ Committee, the role and responsibility of the Accreditation Committee, 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.

903 RESNET QUALITY ASSURANCE REVIEW OF ACCREDITED RATING QUALITY ASSURANCE PROVIDERS

903.1 RESNET shall review 100% of the annual reports submitted by Rating Quality Assurance Providers (QA Providers). In addition, RESNET shall randomly select a limited minimum of 25% number of accredited QA Providers and conduct an annual more detailed review of their Quality Assurance records. This QA review may be a review of electronic files submitted to RESNET upon request with the annual report, enhanced monitoring of QA Provider files done remotely, an onsite field review, or both any combination of the aforementioned. The RESNET Board of Directors Quality Assurance Manager shall determine the number of which QA Providers that shall will be reviewed on an annual basis and who will provide the quality assurance review.

903.2 Records that may be reviewed may shall include, but are not limited to a representative sample of the following:

903.2.1 Rating electronic files;

903.2.2 Rating quality assurance records including, but not limited to, the following:

903.2.2.1 Photo and/or video documentation from onsite field reviews;

903.2.2.2 The QA Provider's field review reports of findings submitted to Raters;

903.2.2.3 The QA Provider’s post-field review of rating results that show a comparison with original ratings selected for onsite QA review;

903.2.2.4 If remedial action is required, the QA Provider’s plan of action to correct for non-compliance with the RESNET Standards and results of any action taken

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 QA Provider’s QA Designee, Delegates, Raters or Rating Field Inspectors;

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

903.3 An accredited ~~Rating-QA~~ Provider has 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.

903.4 Significant inconsistencies or errors in electronic records reviewed may result in an onsite review by RESNET.

904 QUALITY ASSURANCE REQUIREMENTS FOR QA 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~~ 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 a separate individual who meets the QA Designee requirements established by RESNET.

904.2 QA 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. QA Providers will have at least thirty (30) days from notification until the submission is due.

904.3 Quality Assurance of QA Providers

904.3.1 RESNET shall develop a “RESNET 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 QA Designee shall review the QA Provider’s compliance with the items on the checklist annually. 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.

904.3.1.12 For the 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 Quality assurance file Rreview (QA file review) of rating data files

904.4.1.1 ~~For each Rater, the~~ Provider’s QA Designee shall be responsible for an annual rating-QA data file review of the greater of one (1) home or ten percent (10%) of ~~each the~~ Rater's annual total of homes for which eConfirmed or sSampled ratings were provided. When determining the number of rating data files homes to review for a Rater, round up to the next whole number when the percentage calculation yields a decimal point, e.g. 101 homes x 10% = 10.1 means that 11 rating data files homes shall be reviewed.

904.4.1.2 A QA file 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-QA file review completed by a QA Designee shall consist of, at a minimum, the following:

904.4.1.3.1 - ~~Rating data files~~ Homes shall be selected using a nonbiased selection process from the entire pool of files-homes available at the time of the review for each Rater. It may be necessary to first select homes that represent any particular area of concern in either of interest in the rating or construction process ~~for new and existing homes, geographic location, builder, etc.~~ Once it is ensured that homes from these areas of interest will be included in the QA process, a nonbiased selection process can then be applied such as random selection. Special effort should be taken to make certain that the selected files-homes are as representative as possible of the homes being rated, i.e. new and existing homes, geographic location, builder, trade contractor, variety of floor plans, etc., which, in some instances, may require more than the minimum (1) home or ten percent (10%).

904.4.1.3.2 While Section 102.1.4.110 and 303.3.7 require that Raters submit energy simulation files for every rated home to their Providers, the QA file

~~review of rating data files~~ does not require that Raters submit data quality assurance data files, as defined in Appendix B, to their Provider and/or QA Designee for every home that is rated. Only data quality assurance data files for the homes selected for QA shall be required to be submitted to the QA Designee.

~~904.4.1.3.3~~ For each Projected Rating created from architectural drawings, confirm that the values entered into the rating software for all Minimum Rated Features are either RESNET defined defaults or are supported by architectural plans, threshold specifications, or field data. The values entered into the rating software for a Projected Rating are permitted to represent a Worst Case Analysis.

~~904.4.1.3.43~~ For each Confirmed Rating, confirm that the values entered into the Rating Software for all Minimum Rated Features are either RESNET defined defaults or are supported by actual on-site field-confirmed-verified test data using threshold diagnostic values or actual diagnostic values. The values entered into the rating software for a Confirmed Rating are permitted to represent a Worst Case analysis.

~~904.4.1.3.35~~ QA file review for Sampled Ratings. For Sampled Ratings, annually review sample sets, the and sampling process, and the worst-case projected rating energy simulation files for all homes rated through sampling annually. For ~~p~~Projected ratings created from architectural drawings for Sampled Ratings, ~~,~~

~~QA review of sample sets and sampling process confirm that data were accurately entered into the rating software from data collection forms and/or plans, including worst case analysis;~~

~~904.4.1.43.5.1.1~~ The QA file review for ~~all~~ sampled ratings shall include an analysis and confirmation that the sampling process, as defined in Chapter 6, is being properly followed, including sample set creation and the application of testing and failure protocols for each sample set for which the rating process was completed in each year.

904.4.1.3.5.1.1 QA file review of the sampling process shall be completed on the greater of one (1) sample set or ten percent (10%) of the Rater's annual total of sample sets. When determining the number of sample sets to review for a Rater, round up to the next whole number when the percentage calculation yields a decimal point, e.g. 101 sample sets x 10% = 10.1 means that 11 sample sets shall be reviewed.

904.4.1.43.5.1.2 For each sample set QA file review, the quality assurance data file(s) shall be reviewed to confirm that data collected in the field (i.e. sample controls) are equal to or better than the minimum rated features ~~and/or~~ threshold specification inputs for the worst-case energy simulation file for the home(s) that received sample controls for the sample set.

904.4.1.43.5.1.3 If a discrepancy in minimum rated features is identified that requires more stringent threshold specifications for a floor plan, then the worst case projected rating energy simulation file for that plan and home, or for the entire set of homes (as appropriate), subject to sampling shall be reviewed in accordance with 904.4.1.43.5.2.

904.4.1.3.5.2 The QA file review for sampled ratings shall include an ~~annual~~initial review of the worst-case energy simulation file for each unique floor plan in order to confirm that minimum rated features and worst-case specifications have been entered into the rating software accurately. An energy simulation file for a particular floor plan is not subject to subsequent ~~annual~~review after the initial ~~first annual~~QA review provided the minimum rated features and threshold specifications do not change as determined by 904.4.1.4.5.1.2this Section.

~~904.4.1.3.4~~ For projected ratings created from architectural drawings, confirm that the Minimum Rated Features and threshold specifications, including worst-case analysis, for each plan are made available for verification in the field (i.e. geometric characteristics, duct leakage and envelope leakage thresholds). In the case of confirmed ratings for homes built from architectural drawings, verify that Minimum Rated Features data from testing and specification findings from the field are accurately entered into the rating software after construction is completed;

904.4.1.3.6 Confirm that paper and/or electronic files are being maintained and archived by Raters for each rating, including the Energy Simulation File and all supporting documentation required to validate the inputs into the rating software file (e.g., architectural drawings, threshold specifications, field data). These files shall be maintained a minimum of three (3) years.

904.4.2 Quality assurance field review (QA field review)~~On-site verification of ratings.~~

904.4.2.1 For each Rater, the Provider's QA Designee shall be responsible for an annual onsite QA field review 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. When determining the number of ~~onsite evaluations~~QA field reviews to complete for a Rater, round up to the next whole number when the percentage calculation yields a decimal point, e.g. 101 homes x 1% = 1.01 means that 2 ~~onsite evaluations~~QA field reviews shall be completed.

904.4.2.2 QA field reviews for Rating Field Inspectors (RFI's)

904.4.2.2.1 For Raters utilizing Rating Field Inspectors (RFI's), the QA Designee shall ensure that an ~~annual onsite~~QA field review is completed~~evaluation on~~ the greater of one (1) home or one percent (1%) of ~~the~~ each RFI's annual total of homes for which confirmed or sampled ratings and diagnostic testing services were provided by the RFI~~data was collected are~~

~~subject to evaluation. The RFI QA field reviews may fulfill all or a portion of the Rater's annual QA field review requirement.~~

~~904.4.2.2.2 The RFI evaluations may fulfill all or a portion of the Provider's annual onsite QA requirement.~~ When determining the number of ~~onsite evaluations~~QA field reviews to complete for an RFI, round up to the next whole number when the percentage calculation yields a decimal point, e.g. 101 homes x 1% = 1.01 means that 2 ~~onsite evaluations~~QA field reviews shall be completed.

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

904.4.2.54 ~~Where feasible, e~~Each home selected for ~~onsite inspections~~ a QA field review for each Rater shall be randomly selected ~~and/or selected~~ from as many different builders, ~~and~~ communities ~~and floor plans~~ as possible. ~~Special effort should be taken to make certain that the selected homes are as representative as possible of the homes being rated, i.e. new and existing homes, geographic location, builder, trade contractor, variety of floor plans, etc., which, in some instances, may require more than the minimum (1) home or one percent (1%). For multifamily projects, when selected, QA field review shall include at least one top floor end unit and one bottom floor end unit.~~

904.4.2.65 As part of the ~~onsite inspection~~QA field review of ~~confirmed~~ ratings, the QA Designee shall ensure that the minimum rated features of a rating are independently 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 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.

904.4.2.7 QA field review of Sampled Ratings. For the purposes of calculating the one (1) home or one percent (1%) QA field review requirement for Rater and RFI sampled ratings, all the homes rated by a Rater, or for which an RFI assisted, using sampling shall be considered and not just the number of homes tested and inspected. ~~If at least two (2) homes are required for QA field review, a maximum of one (1) of the homes shall be a non-tested, sampled home. To ensure that QA is being completed on Raters and Rating Field Inspectors rather than builders, only the balance of homes included in the field QA shall have received that include field testing and/or inspections data shall be amongst those included in the 1% considered for QA field review in accordance with 904.4.2.5. Additional homes for QA may be selected by the QAD, including those that did received any testing or inspections by Raters or Rating Field Inspectors. For example, if a Rater rating homes using Chapter 6 rates 950 homes in one year, the number of QA field reviews required shall be 10, i.e. 1% of 950 = 9.5, rounded up to the nearest whole number = 10. If of those 950 homes, 400 homes had any field testing and/or inspections completed during construction, then the 10 homes selected for QA field review shall be selected randomly, in accordance with~~

~~[Section 904.4.2.4, from the 400 tested/inspected homes and not the 550 that did not receive any testing or inspections.](#)~~

904.4.2.68 Confirm that HERS Index scores for each home reviewed [in accordance with 904.4.2.5](#) be no more than three percent (3%) (+/-) variation in the HERS Index from the HERS Index result as determined by the QA Designee. When calculating the HERS Index point variance allowed for a given Index, round down to the nearest whole Index point, with the allowable variance never less than two (2) HERS Index points.

~~**904.4.2.7** Non-compliance of a reviewed rating shall trigger corrective action.~~

~~**904.4.2.7.1** The rating shall be corrected in order to come into compliance with RESNET technical Standards under the supervision of the QA Designee.~~

~~**904.4.2.7.2** The QA Designee shall develop and implement a corrective action plan for the Rater of the rating that addresses any underlying problems that led to the non-compliant rating.~~

~~**904.4.2.7.3** The Provider shall initiate appropriate disciplinary action on the Rater in accordance with the Provider's written Rater disciplinary procedures.~~

~~**904.4.2.7.4** Multiple instances of non-compliance with 904.4.2.5 shall, at a minimum, trigger an increased rate of file reviews or onsite inspections of homes and additional appropriate disciplinary action in accordance with the Provider's written Rater disciplinary procedures.~~

904.4.2.98 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.

904.4.2.98.1 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:

1. Diagnostic equipment set-up and testing measurements
2. Insulation evaluation and R-value determination
3. Calculations of gross areas, volumes, and square footage of the home
4. Input and creation of the software rating file and reports

904.4.2.28.2 QA under this Section shall adhere to the same variance allowances provided for in Section 904.4.2.85.

904.4.3 Non-compliance of a reviewed rating shall trigger corrective action.

904.4.3.1 The rating shall be corrected in order to come into compliance with RESNET technical Standards under the supervision of the QA Designee.

904.4.3.2 The QA Designee shall develop and implement a corrective action plan for the Rater of the rating that addresses any underlying problems that led to the non-compliant rating.

904.4.3.3 The Provider shall initiate appropriate disciplinary action on the Rater in accordance with the Provider's written Rater disciplinary procedures.

904.4.3.4 Multiple instances of non-compliance with 904.4.2.5 shall, at a minimum, trigger an increased rate of file reviews or onsite inspections of homes and additional appropriate disciplinary action in accordance with the Provider's written Rater disciplinary procedures.

904.5 Significant Non-compliance by QA Providers.

It is the expectation of RESNET that Providers fully comply with all the requirements set forth in these Standards. Discovery of one or more areas of non-compliance via the RESNET QA process, reporting by a QA Designee as part of the Provider's QA process, or in the course of RESNET's research of an ethics or consumer complaint will result in the QA Designee working with a Provider to come back into compliance. However, on occasion, there may be instances where actions by a Provider are truly egregious and, as such, would be deemed to be "significant non-compliance". This Section seeks to define the thresholds when actions by a Provider are deemed to be significant non-compliance, thereby requiring that the QA Designee report the significant non-compliance to RESNET and additional action by RESNET may be taken.

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

904.5.2.1 Failure to comply with multiple individual requirements, or requirements impacting multiple Raters and/or ratings, for Providers set forth in the RESNET Standards and enumerated in a RESNET Quality Assurance Checklist;

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

904.5.2.3 Failure to follow a Provider's written Rater disciplinary procedures for known or obvious non-compliance with the RESNET Standards, Standards of Practice, Code of Ethics, or Conflict of Interest Disclosure.

904.5.2 Reporting of significant non-compliance to RESNET.

904.5.2.2 QA Designees must report all significant non-compliance by a Provider to RESNET when it becomes known to the QA Designee so that RESNET may assist the QA Designee in working with a Provider to come back into compliance.

904.5.2.3 Failure of a QA Designee to report significant non-compliance issues may result in actions taken by RESNET as stipulated in Section 905.10.

905 QUALITY ASSURANCE DESIGNEE (QA Designee)

905.1 A ~~Home Energy~~ Rating Quality Assurance 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, as may be necessary for business models where QA Designees do Ratings. The Primary QA Designee shall have ultimate responsibility, on behalf of the QA 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. All QA Designees shall meet each of the minimum requirements to be a QA Designee as stipulated in this Section.

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

905.2.1 Previous certification as a Home Energy Rater;

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

905.2.2.1 A QA Designee must confirm that the minimum requirements to be a QA Designee and Delegate, as set forth in this Section 905.2, have been met.

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

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 that rating or project type or alternate qualification criteria established by RESNET in consultation with the Quality Assurance Committee;

905.2.4 Passing the RESNET Quality Assurance Designee Test.

905.2.4.1 The requirements of 905.2.2 and 905.2.3 must be met within twelve (12) months of passing the RESNET Quality Assurance Designee Test, or the individual must pass the test again prior to being recognized as a QA Designee.

905.2.5 Submit an application to RESNET and be recognized as a qualified QA Designee.

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 QA Provider in the previous twenty-four (24) months.~~

905.34 Professional Development for QA Designees

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

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

905.34.1.2 Complete 12 hours of RESNET approved CEU's; or

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

905.34.2 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.

905.3.3 A QA Designee that does not complete the professional development requirements for a given calendar year must:

905.4.3.1 Attend a RESNET roundtable;

905.4.3.32 Have the QA Designee requirements verified in accordance with 905.3;

905.4.3.43 Submit an application to RESNET and be recognized as a qualified QA Designee prior to reinstatement as a QA Designee.

905.4.3.24 If two years have lapsed without a QA Designee completing professional development, the QA Designee must also Pass the RESNET Quality Assurance Designee Test again;

905.3.4 A QA Designee must renew annually with RESNET to be recognized as a qualified QA Designee.

905.45 Proof of QA Designee qualifications shall be submitted by QA Providers with an application for accreditation or with a notification to RESNET of a change to a Provider's QA Designee(s).

905.56 All QA Designees shall have a signed agreement with the QA Provider to be the Provider's QA Designee.

905.67 Changes to a QA Provider's QA Designee(s)

905.67.1 If a Provider changes Primary QA Designees or a Provider's Primary 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:

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

905.67.1.2 In the case of a change in Primary QA Designee as a result of departure, termination, or ineligibility, the Provider shall have forty (40) business days from the date of departure, termination, or knowledge of ineligibility to appoint a replacement Primary QA Designee and notify RESNET of the newly designated officer, employee, or contractor, including proof of qualifications in accordance with 905.2.

905.67.2 If a Provider with multiple QA Designees adds or removes a QA Designee, the Provider shall inform RESENT within five (5) business days of the change.

905.78 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.

905.78.1 A QA Delegate must be a certified Home Energy Rater and have 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.

905.78.2 The QA Designee is responsible for ensuring that the QA Delegate meets and maintains their qualifications to be a QA Delegate, i.e. certification as a Rater contained in 905.7.1.

905.89 Responsibilities of a QA Designee. Responsibilities of the QA Designee shall include:

905.89.1 Maintenance of quality assurance files;

905.89.2 Review of ratings conducted during a new Rater's 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-accredited~~ Training Provider and satisfactorily completed their probationary ratings in accordance with Section 102.1.2.2.

905.89.3 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).

905.89.4 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 undertake QA reviews on behalf of a QA Designee;

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

905.89.7 In accordance with Section 904.4, monitor ratings of all types conducted by certified Raters;

905.89.8 Maintenance of QA Rrecords for all ratings and tax credit verifications, ~~which shall include:~~

905.89.8.1 The Quality Assurance Data File record for each home that receives QA review, shall contain at a minimum containing the information required by Section 904.4.1.3.

~~905.9.8.2 The record for each rating/tax credit verification shall be maintained for a minimum of three (3) years.~~

905.9.8.2 A database of results of all QA reviews for each Rater, including, at a minimum, for each home reviewed;

905.8.8.2.1 Rater name;

905.8.8.2.2 Home address or ~~unique identifier~~ Registry ID;

905.8.8.2.3 Date rated;

905.8.8.2.4 Date QA reviewed;

905.8.8.2.5 Name of QA Designee or Delegate;

905.8.8.2.6 Whether the review was a file or field review as defined by these Standards;

905.8.8.2.7 The result, including HERS Index variance for field QA, and any action taken by the QA Designee.

905.8.8.3 The QA Record for each home shall be maintained for a minimum of three (3) years.

~~905.8.8.43~~ Upon RESNET's request, a QA Provider shall submit to RESNET the QA Records for the specified time period, and the number of homes for which ratings and /tax credit verifications were provided since the last data submittal for the specified time period. The ratings and/ tax credit verifications 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.

905.9 QA Designee and Certified Home Energy Rater Whistle Blower Protection

905.9.1 A Rating QA Provider shall not retaliate against a QA Designee or Certified Home Energy Rater in the terms and conditions of their status with the Provider for any of the following reasons because that QA Designee:

905.9.1.1 Reportings to a supervisor, to RESNET or to a federal, state or local agency what- the QA Designee or Rater believes in good faith to be a violation of the RESNET sStandards and/or a local, state or federal law; or

905.9.1.2 Pparticipationes in good faith in any resulting investigation or proceeding; or

905.9.1.3 Eexercisinges his or her rights under any state or federal law(s) or regulation(s) to pursue a claim or take legal action to protect the QA Designees' or Rater's rights.

905.9.2 RESNET may take disciplinary action (up to and including revocation) against a QA DesigneeProvider who in its assessment has engaged in retaliatory conduct in violation of this policy.

905.910 Failure of a QA Designee to Fulfill Their Responsibilities. 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:

905.910.1 The QA Designee being placed on probation;

905.910.2 Removal of the QA Designee from the RESNET Directory of qualified QA Designees;

905.910.3 Removal of the QA Designee's credential as a QA Designee;

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

905.910.5 At the QA Provider's expense, further oversight by RESNET of the QA Designee and the Provider's processes and procedures;

905.910.6 To the extent that the QA 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;

905.910.7 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 Quality Assurance, as specified in Section 904, shall- may be provided by QA Designees for EEP's as part of the RESNET QA process when RESNET and the EEP enter into a formal agreement. Where EEP QA requirements are greater than specified in Section 904, those QA requirements shall be specified in writing by an EEP and provided to RESNET for approval in order to be included in the RESNET QA process.

906.2.1 Unless formally authorized by RESNET, RESNET's oversight of a QA Designee shall only cover areas covered in these Standards and in the RESNET Home Energy Rating Standards of Practice.

~~**906.23** 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 which EEP the home qualifies under. QA of EEP documentation shall include, at a minimum, verification that EEP program documentation has been completed. Additional requirements for verification, i.e. accuracy of documentation, will be included in the approval process established under 906.2.~~

906.34 Rating Quality assurance data files and the results of onsite verification of ratings files will be made available by Providers to EEPs only for the EEP's quality assurance initiatives and, additionally, only implemented by EEP's if the EEP has agreements with rating clients in their program that allow for Raters to release rating information.

906.45 EEP files will be inspected for quality assurance pursuant to section 904.4 and shall include those items related to energy efficiency specific to the EEP that may be in addition to the Home Energy Rating. Significant non-compliance by Providers shall be reported to EEP's when they become known to RESNET.

907 QUALITY ASSURANCE REQUIREMENTS FOR CONTRACTOR EDUCATION AND QUALIFICATION (CEQ) PROVIDERS, ENERGYSMART CONTRACTORS AND ENERGYSMART TEAMS

907.1 RESNET Quality Assurance of CEQ Providers

907.1.1 RESNET shall select a limited number of CEQ Providers and conduct an annual review of their Quality Assurance records.

907.1.2 A CEQ Provider shall have the right to challenge the findings of RESNET's quality assurance review.

907.1.3 CEQ records that must be reviewed include the following:

907.1.3.1 The CEQ's EnergySmart Contractor Registry;

907.1.3.2 The CEQ's EnergySmart Contractor Agreements;

907.1.3.3 Documentation of CEQ Provider's initial training course and continuing education offerings for EnergySmart Contractors;

907.1.3.4 Documentation of EnergySmart Contractor's Designated Qualification Representative completing required training and testing;

907.1.3.5 Documentation of the Representative's continuing education;

907.1.3.6 The CEQ's EnergySmart Contractor complaint files;

907.1.3.7 Documentation of disciplinary actions.

907.1.4 In the case of an unresolved complaint brought to the RESNET Executive Director, it will be the responsibility of the CEQ to secure the EnergySmart Project files from the EnergySmart Project Manager and present them to RESNET. Failure of the EnergySmart Project Manager to provide adequate records shall result in sanctions up to and including a 60 day suspension of the EnergySmart Contractor designation.

907.1.5 An on-site review by RESNET may be conducted if there are significant inconsistencies or errors in the reviewed CEQ files.

907.1.6 Complaints against a CEQ Provider submitted by the Complaint Resolution Officer (CRO) to RESNET shall be addressed by the Executive Director. The RESNET Executive Director shall:

907.1.6.1 Resolve the complaint in forty-five (45) calendar days.

907.1.6.2 A complaint will be considered resolved once a Complaint Resolution Form has been submitted, signed by the party who filed the complaint and the CEQ Provider.

907.1.6.3 A log of unresolved complaints shall be maintained by the RESNET Executive Director.

907.1.7 CEQ Providers are subject to Probation, Suspension, and Revocation of Accreditation by RESNET in accordance with Section 912 of these Standards.

907.1.7.1 Suspension and Revocation of Accreditation of a CEQ Provider may result from the following:

907.1.71.1 The provisions described in 912.3;

907.1.71.2 Failure to ensure that the EnergySmart Contractor followed the complaint resolution process in the case of a complaint against the EnergySmart Contractor or failure to follow required disciplinary and corrective action with respect to a contractor;

907.1.7.2 RESNET shall comply with the due process and appeals procedures contained in Section 913 of these Standards with respect to disciplinary actions against an accredited CEQ Provider.

907.2 CEQ Provider Quality Assurance of EnergySmart Contractors

907.2.1 The CEQ Provider shall annually verify that the EnergySmart Contractor's representative is still with the company.

907.2.2 Respond to complaints against EnergySmart Contractors.

907.2.3 Follow written EnergySmart Contractor Disciplinary Procedures described in the CEQ Provider's written policies and procedure for EnergySmart Contractors.

907.3 CEQ Provider Complaint Resolution Procedures

907.3.1 The CEQ Provider must conduct non-compliance resolution when a complaint is received about the work performance of an EnergySmart Contractor from any of the following: the client, Rater/Auditor, other EnergySmart Contractors, Final Verifier.

907.3.2 Complaints shall be managed and resolved by the CEQ Provider's CRO following the CEQ Provider's Complaint Response Process.

907.3.3 Each CEQ Provider shall retain records of complaints received and responses to complaints for a minimum of three (3) years after the date of the complaint.

907.3.4 The Complaint Response Process shall include, at a minimum, the following:

907.3.4.1 Consumer Complaint Form, available for submittal via the RESNET website. The form will be forwarded to the CEQ Provider to the attention of the CRO.

907.3.4.2 It is the responsibility of the CEQ Provider to secure the documentation from the EnergySmart Project Manager or Final Verifier for review by the CRO.

907.3.4.3 The CRO shall evaluate the complaint to determine if the contractor shall be deemed to be in non-compliance. Complaints must:

907.3.4.3.1 Be related to either structural or major deficiencies (over \$500) and must impact the energy efficiency of the home.

907.3.4.3.2 Include the work contract(s) and copies of checklists denoting unresolved deficiencies.

907.3.4.3.3 In the event the CRO cannot make a fair evaluation of the complaint based on the information submitted, the consumer shall have the option of hiring an independent Rater/Auditor to visit the site and submit his or her report and findings.

907.3.4.4 The EnergySmart Contractor Complaint Resolution Process shall consist of the following:

907.3.4.4.1 The CRO will notify the contractor of the complaint and the contractor shall have forty five (45) calendar days to resolve the complaint.

907.3.4.4.2 A complaint will be considered resolved once a Complaint Resolution Form has been submitted, signed by both the client and the party against whom the complaint was filed, and the resolution verified by the CRO.

907.3.4.4.3 If the complaint is not resolved in the allotted time, it will be considered unresolved.

907.3.4.5 EnergySmart Contractors with three (3) unresolved complaints within a 90 day period or with five (5) or more unresolved complaints at any given time shall have their certification suspended in accordance with the provisions of 907.3.5.

907.3.4.6 A log of unresolved complaints shall be maintained by the CEQ Provider and must be made available to RESNET upon request.

907.3.5 The minimum requirements for suspension of certification procedures are the following:

907.3.5.1 First Offense: First time an EnergySmart Contractor has three (3) unresolved complaints within a 90 day period or has five (5) outstanding unresolved complaints, the CEQ Provider shall suspend the contractor's certification for a period of not less than 30 days, and:

907.3.5.1.1 Shall inform RESNET that the contractor's certification has been suspended, and shall request that RESNET remove the contractor from the Directory.

907.3.5.1.2 Shall require the contractor, prior to reinstatement, to complete two (2) hours of Continuing Education specific to conflict resolution or customer relations, or successfully resolve at least one of the 90 day old complaints and all of the complaints older than 90 days. CEQ Providers may provide exceptions for complaints that cannot be resolved.

907.3.5.1.3 Shall inform RESNET when the contractor's certification has been reinstated, clarify the resolution, or reasons for not being able to resolve the complaint, and shall request that RESNET reinstate the listing on the Directory.

907.3.5.2 Second Offense: Second time an EnergySmart Contractor has three (3) unresolved complaints within a 90 day period or has five (5) outstanding unresolved complaints, the CEQ Provider shall suspend the contractor's certification for a period of not less than 90 days, and:

907.3.5.2.1 Shall inform RESNET that the contractor's certification has been suspended, and shall request that RESNET remove the contractor from the directory.

907.3.5.2.2 Shall require the contractor prior to reinstatement to complete three (3) additional hours of Continuing Education and successfully resolve at least one of the 90 day old complaints and all of the complaints older than 90 days. CEQ Providers may provide exceptions for complaints that cannot be resolved.

907.3.5.2.3 Shall inform RESNET when the contractor's certification has been reinstated, clarify the resolution, or reasons for not being able to resolve the complaint, and shall request that RESNET reinstate the listing on the Directory.

907.3.5.3 Third Offense: Third time an EnergySmart Contractor has three (3) unresolved complaints within a 90 day period, or has five (5) outstanding unresolved complaints, the CEQ Provider shall suspend the contractor's certification for a period of not less than twelve (12) months, and:

907.3.5.3.1 Shall inform RESNET that the contractor's certification has been suspended, and shall request that RESNET remove the contractor from the Directory.

907.3.5.3.2 Shall require the contractor, prior to reinstatement, to complete three (3) additional hours of Continuing Education and successfully resolve all of the outstanding complaints. CEQ Providers may provide exceptions for complaints that cannot be resolved.

907.3.5.3.3 Shall inform RESNET when the contractor has met the requirements of 907.3.5.3.2, clarify the resolution, or reasons for not being able to resolve the complaint. RESNET approval shall be required for reinstatement of certification and RESNET shall reinstate the contractor's listing on the Directory if appropriate.

907.4 ~~Rating~~ Quality Assurance Provider Quality Assurance Review of Rater Final Verification of EnergySmart Projects

907.4.1 The ~~Rating~~ QA Provider will have a Quality Assurance (QA) Designee that shall perform QA review of a Raters' Final Verification of an EnergySmart Project.

907.4.2 Quality Assurance File Review (QA File Review)

907.4.2.1 For each Rater/Auditor that performs Final Verification for an EnergySmart Project, the ~~Rating~~ QA Provider's QA Designee shall annually conduct QA File Review of the Final Verification documentation file(s) for ~~10% of verified projects or one (1) verified project, whichever is greater.~~ the greater of one (1) projects or ten percent (10%) of the Contractor's annual total of projects completed. When determining the number of projects to review for a Contractor, round up to the next whole number when the percentage calculation yields a decimal point, e.g. 101 projects x 10% = 10.1 means that 11 projects shall be reviewed.

907.4.2.1.1 Project documentation file(s) shall include

907.4.2.1.1.1 A copy of the original work scope and signed proposal;

907.4.2.1.1.2 Rater/Auditor and Contractor names and contact information;

907.4.2.1.1.3 Program sponsor name, completed final verification checklist;

907.4.2.1.1.4 Energy simulation software file;

907.4.2.1.1.5 All test out results.

907.4.2.1.2 When the ~~Rating~~ QA Provider's QA Designee conducts the QA File Review, they shall review at least one (1) project documentation file for each EnergySmart Contractor and EnergySmart Team. The QA Designee shall equitably distribute the QA File Reviews of each individual EnergySmart Contractor's or Team's Projects.

907.4.2.2 The QA Designee will confirm that each EnergySmart Contractor for the project has been approved by a RESNET-approved CEQ Provider as demonstrated by listing on the RESNET EnergySmart Contractor Directory.

907.4.2.3 The QA Designee will verify the completion of the Rater Final Verification checklist.

907.4.2.3.1 There must be consistency between the Final Verification Checklist and final test out results, copy of work scope, and signed proposal.

907.4.2.3.2 Must include reported results of nonconformance by Final Verification.

907.4.2.4 The QA Designee will review 10% of the Rater/Auditor Final Verifier energy simulation software file and projected estimated energy savings.

907.4.3 Quality Assurance Field Review (QA Field Review)

907.4.3.1 For each Rater/Auditor that performs Final Verification for an EnergySmart Project the QA Designee shall annually conduct QA Field Reviews of EnergySmart Projects at a rate of 1% of verified projects or one project, whichever is greater. QA Field Review shall include ~~on~~ the greater of one (1) projects or ten percent (10%) of ~~the~~ each Contractor's annual total of projects completed. When determining the number of projects to review for a Rater and Contractor, round up to the next whole number when the percentage calculation yields a decimal point, e.g. 101 projects x 1% = 1.01 means that 2 projects shall be reviewed.

907.4.3.2 The QA Designee shall confirm the results of the Final Verifier's combustion appliance testing where applicable.

907.4.3.2.1 Where there are vented combustion appliances that use indoor air to vent combustion gasses, re-test Worst Case Depressurization in accordance with the QH Standard.

907.4.3.2.2 Where any spaces contain combustion appliances, re-test for Carbon Monoxide in accordance with the QH Standard.

907.4.3.3 The QA Designee shall review the work scope and signed proposal, and shall confirm installed measures are consistent with selected measures and work scope in accordance with the QH Standard.

907.4.3.4 The QA Designee shall confirm the Final Verifier's Estimate of Project Energy Savings as follows:

907.4.3.4.1 Calculate an independent estimate of projected energy savings for the EnergySmart Project using the same RESNET-approved software used by the Final Verifier.

907.4.3.4.1 Compare the Final Verifier's final estimated energy savings against the QA Designee's independent calculation of estimated energy savings.

907.4.3.4.2 The QA Designee's results must be ~~within 5% of the Final Verifier results~~ no more than three percent (3%) (+/-) variation in the HERS Index from the HERS Index result as determined by the QA Designee.

907.4.4 Non-Compliance and Resolution

907.4.4.1 Reporting: Non-compliance of an EnergySmart Project with respect to installed measures or estimate of projected energy savings shall be reported to the CEQ Provider's Compliant Resolution Officer (CRO).

907.4.4.2 Discipline: Non-compliance of the Final Verifier's Final Verification of an EnergySmart Project with respect to installed measures or estimate of projected energy savings shall result in additional action in accordance with the ~~Rating- QA~~ Provider's written Disciplinary Procedures.

907.4.4.3 Record-Keeping: Rating Providers shall maintain Quality Assurance records for every EnergySmart Project that has received Documentation or On-Site QA Review for a period of no less than three (3) years and that will include the following:

907.4.4.3.1 Copy of work scope and signed proposal;

907.4.4.3.2 Names and contact information of the Rater/Auditor, ES Contractors, and Final Verifier;

907.4.4.3.3 Program sponsor name;

907.4.4.3.4 Completed final verification checklist;

907.4.4.3.5 All test out results;

907.4.4.3.6 QA Review Results.

9078 QUALITY ASSURANCE ~~AND ETHICS~~ COMMITTEE; ETHICS AND APPEALS COMMITTEE

9078.1 Quality Assurance Committee

908.1.1 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.

9078.1.2 Committee Responsibilities. The QA Committee shall have ~~the following~~ responsibilities:

~~**9078.2.1**~~ Oversight of RESNET's rating quality assurance program as defined in this chapter; The Committee shall report to the RESNET Board of Directors.

~~**9078.2.2**~~ Review and rule on the merits of appeals from the Ethics and Appeals Committee;

~~**9078.2.3**~~ Through the Ethics and Appeals Committee, review and rule on the merits of formal Ethics Complaints received by RESNET;

~~9078.2.4~~ Through the Ethics and Appeals Committee, review and rule on the merits of Consumer Complaints received by RESNET;

~~9078.2.5~~ Through the Ethics and Appeals Committee, review and rule on the merits of all appeals of non-approval or renewal of an application, probation, suspension, or revocation.

9078.32 Ethics and Appeals Committee. The Ethics and Appeals 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~~ RESNET Board of Directors.

9078.32.1 Committee membership. The Ethics and Appeals 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. The Committee shall be composed of a minimum of five (5) members, but no more than seven (7) members including the Chair. ~~None of the Committee members~~ whom shall also be a member of the Quality Assurance and Ethics 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, consist of a minimum of two (2) being Home Energy Raters and a minimum of two (2) being~~ representatives of Provider organizations.

908.2.2 Committee Responsibilities. The Ethics and Appeals 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 RESNET Board of Directors.

9089 ETHICS AND CONSUMER-COMPLIANCE COMPLAINTS

9089.1 Filing of Ethics and Compliance Complaints

9089.1.1 Ethics complaints may be filed ~~against an accredited Provider for violating violations of 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.~~

909.1.2 Compliance Complaints may be filed for failures to comply with the RESNET Standards.

9089.12.2 ~~An ethics e~~Complaints shall document the alleged violation(s) or compliance issue(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 submitted sent by registered mail, or other method which provides

~~evidence of delivery, to the Executive Director of RESNET on RESNET's online ethics or compliance complaint form posted on the RESNET web-site~~ and contain the following information:

9089.1.2.1 The name of the complainant and contact information;

9089.1.2.2 The ~~name of the accredited Provider~~party that is the subject of the complaint;

9089.1.2.3 A complete description of the alleged violation(s);

9089.1.2.4 A recitation of all the facts documenting the complaint ~~including contact information~~;

9089.1.2.5 Copies of ~~any~~ all relevant documents.

9089.2 Investigation of ~~Ethics~~ Complaints

9089.2.1 ~~Upon receipt of an ethics complaint, t~~The RESNET Executive Director shall assign a case number and ~~forward the ethics complaint to the Ethics and Appeals Committee~~RESNET staff shall review the evidence submitted. ~~The Chair of the Ethics and Appeals Committee shall be informed.~~The CommitteeRESNET staff shall consider the documentation contained in 9089.1.2 in making a decision whether to proceed or dismiss the complaint.

9089.2.2 In cases where ~~the Ethics and Appeals Committee~~ RESNET staff finds the documentation submitted does not meet the minimum standards for an ethics or compliance complaint, the complaint may be dismissed. Both parties shall be notified ~~by registered mail, or other method which provides evidence of delivery, of RESNET staff's finding by electronic mail~~ans of the Ethics and Appeals Committee's RESNET staff's finding.

9089.2.3 Upon a decision by ~~the Ethics and Appeals Committee~~ RESNET staff that the ~~ethics~~ complaint should proceed to the next step, the RESNET Executive Director shall send a copy of the complaint by ~~registered electronic mail, or other method which provides evidence of delivery,~~ to the subject of the complaint immediately. The respondent has 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 electronic mail, ~~or other method which provides evidence of delivery~~.

9089.2.4 Upon receipt of the response, the RESNET Executive Director shall immediately forward the response to the RESNET Ethics and Appeals Committee for consideration and action. Within thirty (30) business days of receiving the ethics complaint, the Ethics and Appeals Committee shall take action on the complaint. The action may include, but is not limited to:

9089.2.4.1 Dismissal of complaint;

~~9089.2.4.2~~ Requirement that the rating QA Provider take that steps be taken by the subject of the complaint to correct the problem; and/or

~~9089.2.4.3~~ Recommendation to the QA Committee of sSpecify sanctions under Section 912 (Probation, Suspension and Revocation of Accreditation) of this chapter.

~~9089.2.5~~ All parties to the complaint shall be informed by registered-electronic mail, or other method which provides evidence of delivery, of the Ethics and Appeals Committee's action.

~~909.2.6~~ Complainants shall have the right to appeal the decision of RESNET Staff and the Ethics and Appeals Committee in accordance with Section 913 of these Standards.

~~909.2.7~~ All complaints, responses, and supporting documentation received by RESNET shall be handled in strict confidence by RESNET staff, the Ethics and Appeals Committee and the Board of Directors.

~~9089.3~~ Filing of Consumer Compliance Complaints

~~9089.3.1~~ Consumer Compliance Complaints may be filed by consumers any party who have grievances against RESNET, a Provider accredited by RESNET, or a Rater certified by an accredited QA Provider regarding compliance to the RESNET Standards. The complaint shall be filed on RESNET's online compliance complaint form posted on the RESNET web site and contain the following information:

~~909.3.1.1~~ The name of the complainant and contact information;

~~909.3.1.2~~ The accredited Provider that is the subject of the complaint;

~~909.3.1.3~~ A complete description of the alleged violation(s);

~~909.3.1.4~~ A recitation of all the facts documenting the complaint including contact information;

~~909.1.3.5~~ Copies of all relevant documents.

~~909.1.3.5.1~~ Investigation of Ethics Complaints

~~909.3.5.1.1~~ Upon receipt of a compliance complaint the RESNET Executive Director shall assign a case number and RESNET staff shall review the evidence submitted. RESNET staff shall consider the documentation contained in 909.1.2 in making a decision whether to proceed or dismiss the complaint.

~~909.3.5.1.2~~ In cases where RESNET staff 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 by electronic means of RESNET staff's finding.~~

~~909.3.5.1.3 Upon a decision by the RESNET staff that the ethics complaint should proceed to the next step, the RESNET Executive Director shall send a copy of the complaint by electronic mail to the subject of the complaint immediately. The respondent has 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 electronic mail.~~

~~909.3.5.1.4 Upon receipt of the response, the RESNET Executive Director shall immediately forward the response to the RESNET Ethics and Appeals Committee for consideration and action. Within thirty (30) business days of receiving the ethics complaint, the Ethics and Appeals Committee shall take action on the complaint. The action may include, but is not limited to:~~

~~909.3.5.1.4.1 Dismissal of complaint;~~

~~909.3.5.1.4.2 Requirement that the QA Provider take steps to correct the problem;~~

~~909.3.5.1.4.3 Recommendation to the QA Committee of sanctions under Section 912 (Suspension and Revocation of Accreditation) of this chapter.~~

~~909.3.5.1.5 All parties to the complaint shall be informed by electronic mail, of the Ethics and Appeals Committee's action.~~

~~909.3.5.1.6 Complainants shall have the right to appeal the decision of the Ethics and Appeals Committee to 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.~~

~~909.3.5.1.7 All complaints, responses, and supporting documentation received by RESNET shall be handled in strict confidence by the RESNET staff, the Ethics and Appeals Committee, the QA Committee and the Board of Directors.~~

90910 ACCREDITATION COMMITTEE

90910.1 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.

90910.2 Committee Responsibilities. The Accreditation Committee shall be responsible for the review and approval of all Applications for Provider accreditation.

9101 PROVIDER ACCREDITATION AND RENEWAL PROCESS

9101.1 National Registry of Accredited Providers

RESNET shall maintain a national registry of organizations accredited as Providers in each Provider accreditation category, and will post the registry on its web site. The registry for each Provider accreditation shall serve as the current and definitive list of RESNET-accredited Providers.~~The following Provider categories shall have individual registries.~~

~~9101.1.1 Home Energy Rating Provider~~

~~9101.1.2 Home Energy Rating Software Provider~~

~~9101.1.3 Training Provider~~

~~9101.1.4 Builder Option Package (BOP) Provider~~

~~9101.1.5 Sampling Provider~~

~~9101.1.6 Home Energy Survey Provider~~

9101.2 Provider Accreditation Process

9101.2.1 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.

9101.2.2 Confidentiality of Information. Any applicant for a Providerhip-Provider accreditation 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.

9101.2.3 Review and Notification.

9101.2.3.1 RESNET staff action. Within twenty (20) 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:

9101.2.3.1.1 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 twenty (20) business days to take action in accordance with 9101.2.3.1.2 or 9101.2.3.1.3

9101.2.3.1.2 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 Accreditation Committee that the application be approved.

9101.2.3.1.3 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 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.).

9101.2.3.2 Accreditation Committee action. Within fifteen (15) business days of receipt of a recommendation for approval or denial from RESNET staff, the Committee shall do one of the following:

9101.2.3.2.1 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 twenty (20) business days to render a decision in accordance with 9101.2.3.2.2 or 9101.2.3.2.3.

9101.2.3.2.2 Approve the application.

9101.2.3.2.3 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 [912-913](#) of this Chapter.

9101.2.3.3 Within ten (10) business days of a decision by the Committee, RESNET staff shall inform the applicant in writing of the status of their application.

9101.2.4 For each approved ~~application~~ QA Provider accreditation application, RESNET shall issue a unique Accreditation Identification Number (AIN) to the QA-Provider ~~for the Provider category approved and,~~ in accordance with 9101.1, the ~~accreditation-accredited Provider~~ will be incorporated into the respective national registry of accredited Providers.

9101.2.5 Term of accreditation.

9101.2.5.1 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 9101.3.

9101.2.5.2 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.

9101.3 Accreditation Renewal Process

9101.3.1 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.

9101.3.2 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.

9101.3.3 Successful renewals. Successful renewals will be posted on the national registry and communicated to the applicant by RESNET.

9101.3.4 Late applications.

9101.3.4.1 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 Accreditation Committee, at its sole discretion, may grant an extension with a grace period not to exceed twenty (20) business days.

9101.3.4.2 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.

9101.3.5 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 [912-913](#) of this Chapter.

9101.3.6 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.

912 PROBATION, SUSPENSION AND REVOCATION OF ACCREDITATION

912.1 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. 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 appeal under Section 913 of this Chapter.

912.2 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 913 of this Chapter.

912.2.1 Types of probation:

912.2.1.1 Administrative Probation. Results from violations found through a Provider's QA process, RESNET quality assurance monitoring or through the RESNET complaint resolution process. 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 twenty (20) business days after the date set forth in such notification. Probations resulting from these violations shall remain confidential. These violations may include but not limited to:

912.2.1.1.1 Failure to submit to RESNET any material information required to be submitted by the Provider, in accordance with obtaining or maintaining accreditation;

912.2.1.1.2 Failure to make changes/updates to a Provider's Policies and Procedures;

912.2.1.1.3 Failure to report a change in any QA Designee to RESNET;

912.2.1.1.4 Failure to adhere to requirements for quality assurance of Raters that causes a minor deficiency in the QA of one or more Raters;

912.2.1.1.5 Failure to adhere to requirements for Rater certification and re-certification;

912.2.1.1.6 Failure to enforce corrective action requirements for Raters having non-conforming QA results;

912.2.1.1.7 Failure to adhere to one or more provisions of the RESNET Standards.

912.2.1.2 Disciplinary Compliance Probation. More serious compliance violations found through a Provider's QA process, RESNET quality assurance monitoring or through the RESNET complaint resolution process. RESNET shall, at its discretion, make a final determination regarding the necessity of posting a probation resulting from these violations on the RESNET web site. These violations may include but are not limited to:

912.2.1.2.1 Failure to correct the terms of an administrative probation during the time period defined in the issuance of probation;

912.2.1.2.2 Failure to replace a Primary QA Designee within the time frame required by these Standards;

912.2.1.2.3 Investigated and validated ethics or compliance complaints against a Provider;

912.2.1.2.4 Failure to follow complaint resolution process regarding actions of the Provider or their Raters;

912.2.1.2.5 Failure to follow a Provider's Rater Disciplinary procedures.

912.3 Suspension.

912.3.1 At the discretion of RESNET, any Provider accredited by RESNET may have their accreditation suspended in any of the following circumstances but are not limited to:

912.3.1.1 A Provider has had more than one (1) Disciplinary Probation violation within a twelve month period;

912.3.1.2 Failure to correct the terms of a Disciplinary Probation during the time period defined in the notice of probation;

912.3.1.3 Submission of false information to RESNET in accordance with obtaining or maintaining accreditation;

912.3.1.4 Misrepresentation of any accreditation or certification status in marketing materials, or services offered or actually provided, for which the Provider organization does not possess the appropriate RESNET accreditation, or affiliated individuals do not possess the appropriate RESNET certification;

912.3.1.5 Knowingly registering fraudulent ratings to the RESNET Registry by Rating Providers;

912.3.1.6 Willful misconduct;

912.3.1.7 A Provider shall at a minimum be placed on suspension if they have any Disciplinary Probation violations within twelve months of reinstatement from a suspension.

912.3.2 RESNET shall notify the Provider that their accreditation has been suspended and, unless the Provider chooses to appeal, the Provider shall be removed from the RESNET Provider Directory.

912.3.3 RESNET shall post Providers whose accreditation has been suspended. The Provider's suspension listing shall be removed when the Provider successfully complies with the terms of the suspension.

912.3.4 RESNET shall electronically inform accredited QA Providers, Rating Software Providers, Rater Trainers and Home Energy Raters of a QA Provider's accreditation suspension.

912.3.5 Prior to reinstatement, the Provider shall:

912.3.5.1 Successfully resolve the issue(s) that resulted in the Provider being suspended;

912.3.5.2 Inform RESNET in writing as follows:

912.3.5.2.1 That 912.3.1.3.1 has been completed;

912.3.5.2.2 Stating the steps taken to resolve the issue(s);

912.3.5.2.3 Stating the steps that will be taken to prevent the issue(s) from occurring again in the future; and

912.3.5.2.4 Requesting that RESNET reinstate the Provider's listing on the Directory.

912.4 Revocation. At the discretion of RESNET, any Provider accredited by RESNET may have their accreditation revoked in any of but not limited to the following circumstances:

912.4.1 A Provider has had more than two (2) Disciplinary Probation violations within a twelve month period;

912.4.2 In the event that deficiencies stipulated in a notice of suspension have not been remedied within the period set forth in such notice;

912.4.3 Pursuant to any of the express provisions of sections 911.3.5, non-renewal;

912.4.4 Provider goes out of business;

912.4.5 Upon expiration of a Provider's right to appeal a suspension of accreditation pursuant to Section 912 of this Chapter;

912.4.6 Fraud.

912.4.7 RESNET shall notify the Provider that their accreditation has been revoked and, unless the Provider chooses to appeal, the Provider shall be removed from the RESNET Provider Directory.

912.4.8 RESNET shall post Providers whose accreditation has been revoked. The Provider's revocation listing shall be removed when the Provider successfully complies with the terms of the revocation.

912.4.9 RESNET shall electronically inform accredited QA Providers, Rating Software Providers, Rater Trainers and Home Energy Raters of a QA Provider's accreditation revocation.

912.5 Probation/Suspension/Revocation Due Process.

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

912.5.1 RESNET may, at its discretion, initiate a probation, 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.

912.5.2 Providers have the right to appeal a probation, suspension or revocation action in accordance with Section 912 of this Chapter.

912.5.3 Upon the expiration of the notice to appeal period, failure to submit appeal documentation, as stipulated in Section 912, or the conclusion of the appeals process in which a Provider's appeals are unsuccessful, RESNET will remove the Provider's name from any directory listing on the RESNET website and post their probation, suspension or revocation status on the RESNET website with other Providers and Raters who are under probation, suspension or revocation.

912.5.4 For any QA Providers who have their accreditation revoked or suspended in accordance with Section 912.3 or 912.4,

912.5.4.1 RESNET will inform the Provider's known clients, Raters, rating software suppliers and any known affected EEP's of the Provider's suspended/revoked status. To the extent practicable, the Provider shall assist RESNET with notifications.

913 APPEALS PROCEDURES

913.1 Appeals shall be made first to the RESNET Ethics and Appeals Committee, then to the RESNET Board of Directors.

913.2 Within five (5) business days after receipt of an appealable action by RESNET, the Appellant shall notify the RESNET Executive Director of their intent to appeal. The Appellant shall then have ten (10) business days after the date of notice to submit appeal documentation to the RESNET Executive Director.

913.3 Appeals shall include all relevant information and documentation and be sent in writing by electronic mail to the RESNET Executive Director.

913.4 During the appeals process, all parties to the appeal may petition the body hearing the appeal (i.e. the RESNET Ethics and Appeals Committee or RESNET Board of Directors) for a stay of action until the expiration of the appeals process. A decision on the petition shall be rendered by the hearing body not later than five (5) business days after receipt of the petition.

913.5 At the time of noticing its appeal to the RESNET Ethics and Appeals Committee, the Appellant may request a telephonic hearing, which gives the Appellant the opportunity to provide oral arguments in favor of their appeal. In such an event, RESNET shall, not later than ten (10) business days after the filing of the notice of appeal, notify all parties to the appeal of the date of the hearing, which shall be held as expeditiously as possible, but not later than twenty (20) business days after the receipt of the notice of appeal.

913.6 Within ten (10) business days of receiving the appeal, or the date of a hearing, the Ethics and Appeals Committee or Board of Directors shall render a decision on the appeal. In the event that additional information is requested, a one-time extension of ten (10) business days may be applied in order to allow the appellant sufficient time to respond.

913.7 All parties to the appeal shall be informed by electronic mail of the decision.

913.8 All appeals documentation received by RESNET shall be handled in strict confidence by RESNET staff, the Ethics and Appeals Committee and the Board of Directors.

9134 EFFECTIVE DATES

913914.1 The effective date of these changes to the RESNET Standards shall be January 1, ~~2013~~ 2014.

~~913.2 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.~~

~~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.~~

Chapter Ten

RESNET Standards

1000 RESNET STANDARD FOR ENERGYSMART PROJECTS AND ENERGYSMART CONTRACTORS

1001 PURPOSE

This standard defines a framework for designating contractors as RESNET EnergySmart Contractors, defines an EnergySmart Project, and establishes requirements for the final verification and quality assurance review of an EnergySmart Project.

1002 RELATIONSHIP TO STATE LAW

There may be instances in which state laws or regulations differ from these provisions. In such instances, state law or regulation shall take precedence over these provisions.

1003 SCOPE

This document details:

1003.1 Requirements for Contractor Education and Qualification Providers;

1003.2 The process by which a contractor shall receive and maintain designation as a RESNET EnergySmart Contractor;

1003.3 The process by which RESNET EnergySmart Contractors working in partnership with a certified RESNET Comprehensive Home Energy Rating System (CHERS) Rater or Building Performance Auditor (BPA) must complete an EnergySmart Project;

1003.4 The requirements of an EnergySmart Project.

1004 PARTICIPANTS' ROLES AND RESPONSIBILITIES

1004.1 RESNET

Residential Energy Services Network (RESNET) is responsible for the following:

1004.1.1 Accreditation of Contractor Education and Qualification (CEQ) Providers

1004.1.2 Quality Assurance Review of Accredited CEQ Providers

1004.1.3 Quality Assurance Review of Accredited ~~Rating~~ Quality Assurance Providers

1004.1.4 Develop a National EnergySmart Contractors test. The competency categories covered on the 50 question multiple-choice test and the percentage of questions devoted to each category are as follows:

- 1004.1.4.1 Air sealing (10%)
- 1004.1.4.2 Client communication (6%)
- 1004.1.4.3 Combustion safety (6%)
- 1004.1.4.4 Ducts/distribution (10%)
- 1004.1.4.5 Energy fundamentals (10%)
- 1004.1.4.6 Ethics (6%)
- 1004.1.4.7 Health/safety (6%)
- 1004.1.4.8 Insulation (10%)
- 1004.1.4.9 Lighting/appliances (4%)
- 1004.1.4.10 Moisture management (10%)
- 1004.1.4.11 Structure (6%)
- 1004.1.4.12 Ventilation (6%)
- 1004.1.4.13 Heating/AC (10%)

1004.2 Contractor Education and Qualification (CEQ) Provider

1004.2.1 The CEQ Provider must be an accredited RESNET Rating Provider or Home Energy Audit Provider in good standing.

1004.2.2 The CEQ Provider must have a staff member or representative with at least 10 years of residential construction or home improvement contractor experience.

1004.2.3 The CEQ Provider must provide its EnergySmart Contractor Registry to RESNET.

1004.2.4 The CEQ Provider is responsible for the Quality Assurance review of the EnergySmart Contractors.

1004.2.5 The CEQ Provider must have written policies and procedure for designating EnergySmart contractors in accordance with the following provisions:

1004.2.5.1 EnergySmart Contractor course: Develop and provide an initial eight (8) hour RESNET Accredited Qualified EnergySmart Contractor course that covers the following topics:

- a. The importance of EnergySmart Contractors
- b. The house as a system
- c. Building science basics/ building shell fundamentals
- d. Energy efficiency concepts
- e. Energy related consequences of inefficient construction design and application
- f. Introduction on how a Rater/Auditor utilizes air leakage testing, duct leakage testing, and IR technology during energy audits

- g. Understanding and completing scopes of work as defined in the RESNET combustion appliance testing and writing work scope contained in Chapter 8 of RESNET Standards
- h. Work order, sequences and priority of work, and respect for other contractors
- i. Introduction to RESNET Standards and RESNET Code of Ethics
- j. Quality Homes (QH) Standard

1004.2.5.2 Continuing Education: Provide at least four (4) hours of Continuing Education (CE) courses per year that are relevant to energy efficiency, home improvement contracting, standards updates, technology updates, new incentive programs, retrofit lessons learned and/or other topics deemed applicable and appropriate by the CEQ Provider.

1004.2.5.3 Delisting: Delist an EnergySmart Contractor that does not renew every three (3) years.

1004.2.5.4 EnergySmart Contractor Agreement: Enter into a written agreement with each EnergySmart Contractor, and send an unexecuted copy of the agreement to RESNET. The agreement shall contain, at a minimum, the following:

- a. A written commitment by the EnergySmart Contractor to comply with the guidelines in the RESNET EnergySmart Contractor Pledge and Code of Ethics.
- b. A requirement for the EnergySmart Contractor to inform clients about the CEQ Provider's complaint process.
- c. A requirement for the EnergySmart Contractor to provide the client with a disclosure statement for jobs not performed to industry standards.
- d. A requirement for the EnergySmart Contractor to inform the CEQ Provider within 60 days if EnergySmart Contractor's representative leaves the company or is replaced.

1004.2.5.5 Complaint Resolution Officer: Have signed agreement with a dedicated Complaint Resolution Officer (CRO) to conduct Non-Compliance Resolution in accordance with Section 1006.5.4. The CEQ Provider shall have sixty (60) days to notify RESNET if the CRO leaves the CEQ Provider, or be subject to suspension of accreditation under provisions of Section 908 of the Mortgage Industry National Home Energy Ratings Standard.

1004.2.5.6 Written EnergySmart Contractor discipline procedures, including:

- a. Probation and minimum requirements for duration and corrective action
- b. Suspension of certification and minimum requirements for duration and corrective action that at least meet 1006.4.5
- c. Termination of certification

1004.2.5.7 EnergySmart Contractor Registry: Maintain an EnergySmart Contractor Registry that contains EnergySmart Contractors' representative's name, company name, mailing address, voice phone number, fax number, and email address.

1004.2.6 Reciprocity with the Air Conditioning Contractors of America (ACCA): RESNET shall recognize contractors trained and designated by ACCA to be EnergySmart Contractors.

1004.3 Complaint Resolution Officer (CRO)

1004.3.1 Shall manage and resolve consumer and Rater/Auditor complaints about EnergySmart Contractors and EnergySmart Contractor or Rater/Auditor complaints about the CEQ Provider.

1004.3.2 Shall submit complaints against the CEQ Provider to RESNET to the attention of the Executive Director.

1004.4 EnergySmart Contractor

1004.4.1 EnergySmart Contractors must be designated as such by a CEQ Provider in accordance with Section 1004.2.5 of this standard¹.

1004.4.2 EnergySmart Contractors must be licensed in the state(s) in which they conduct business if that state requires a license.

1004.4.3 An EnergySmart Contractor company shall assign an employee as its representative. The EnergySmart Contractor's representative shall:

1004.4.3.1 Take an initial accredited eight (8) hour Qualified Contractor Course from a RESNET accredited CEQ Provider.

1004.4.3.2 Pass the RESNET National EnergySmart Contractors test administered by a CEQ Provider.

1004.4.3.3 Enter into a written agreement with the CEQ Provider in which the EnergySmart Contractor agrees to comply with the program requirements contained in the RESNET Standards and RESNET Code of Ethics.

1004.4.3.4 Complete a minimum of four hours of Continuing Education annually delivered by the CEQ Provider.

1004.4.3.5 Renew with the CEQ Provider not less than every three years. Failure to do so will result in the EnergySmart Contractor being deleted from the CEQ's Registry and from the RESNET Directory.

1004.4.4 Within 60 days of losing their previous representative, the EnergySmart Contractor must notify the CEQ Provider of their new representative.

1004.4.5 Only companies with the EnergySmart Contractor designation from an accredited CEQ Provider are eligible for posting and promotion on the RESNET Directory.

1004.4.6 A company with the EnergySmart Contractor designation must carry a minimum of \$1,000,000 in general liability insurance.

1004.4.7 EnergySmart Contractors will install the energy-saving measures from the final, homeowner approved work scope prepared by the Rater/Auditor.

¹ EnergySmart Contractors providing HVAC services must be recognized ACCA QA Program Participants within 90 days of the adoption of this standard.

1004.4.8 All EnergySmart Contractors shall have their clients signify that they understand a disclosure statement indicating that all work will or will not meet recognized industry standards.

1004.4.9 All EnergySmart Contractors shall have their clients signify on a disclosure statement that a whole-house audit is recommended.

1004.5 EnergySmart Home Performance Team (EnergySmart Team)

An EnergySmart Team is comprised of the following, as necessary:

1004.5.1 One Project Manager

1004.5.2 A certified CHERS Rater/BPA

1004.5.3 An HVAC contractor who is a recognized ACCA QA Program Participant²

1004.5.4 A RESNET EnergySmart Contractor that specializes in Air Sealing and Insulation who employs at least one senior technician who is an ICAA Certified Insulation Installer or another RESNET recognized quality installation training program.

1004.5.5 Any number of other EnergySmart contractor companies working under the oversight of the Project Manager according to work scope requirements of a certified Rater/Auditor and applicable RESNET Standards of Practice.

1004.5.6 A Final Verifier who is a 3rd party certified HERS Rater/BPA.

1004.6 EnergySmart Project Manager

The ES Team will be led by an EnergySmart Project Manager. The following are the requirements for being the Project Manager:

1004.6.1 Shall be certified as either an EnergySmart Contractor or a Rater/Auditor.

1004.6.2 The EnergySmart Project Manager, if not the Rater/Auditor, shall use a certified RESNET Rater/Auditor for the diagnosis and preparation of energy retrofit recommendation.

1004.6.3 Is an employee of or contractor to the company with whom the homeowner is under contract for the completion of the EnergySmart Project.

1004.6.4 Must ensure that the initial rating or audit is performed on each Project in accordance with the QH Standard.

1004.6.5 Must ensure that preliminary and post-installation combustion safety testing and inspection of all combustion appliances are completed in accordance with the QH Standard.

1004.6.6 Must provide general oversight of all contractors performing work on the EnergySmart Project to ensure proper sequence and compliance with the work scope prepared by the Rater/Auditor, along with ensuring that industry best practices are followed for all work performed.

² EnergySmart Contractors providing HVAC services must be recognized ACCA QA Program Participants within 90 days of the adoption of this standard.

1004.6.7 Must deliver the initial rating or audit report along with documentation of all work performed to the Final Verifier.

1004.6.8 Must verify that each project has final verification and calculation of estimated projected energy savings conducted by a Final Verifier.

1004.6.9 Must provide all results and EnergySmart Project documentation to the client.

1004.6.10 Must maintain the initial rating or audit report, documentation of all energy-saving retrofits and installations, and the final verification report with all test-out and estimated energy savings results for each individual EnergySmart Project for a period of no less than three years. This documentation must be made available to the HEA, Rating, or CEQ Provider upon request.

1004.6.11 Ensure that all EnergySmart Team participants are eligible to serve on the team.

1004.6.11.1 Eligible HVAC contractors must be listed on the ACCA QA Contractor Registry.

1004.6.11.2 EnergySmart Contractors must be listed on the RESNET Registry.

1004.7 Rating Provider

1004.7.1 The Rating [QA](#) Provider will be responsible for performing Quality Assurance (QA) Review of the Rater Final Verification of an EnergySmart Project [in accordance with Chapter 9 of these Standards](#).

1004.7.2 The Rating [QA](#) Provider must be RESNET-accredited and in good standing in accordance with RESNET Standards.

1004.7.3 The Rating [QA](#) Provider must be independent of the following:

1004.7.3.1 CHERS Rater or BPA that evaluated the home and prepared the recommendations and work scope.

1004.7.3.2 The EnergySmart Contractors that installed the approved recommended measures.

1004.7.3.3 The independent Rater/Auditor that performed the Final Verification of the EnergySmart Project (the Final Verifier).

1004.7.3.4 Any financial compensation for any of the retrofits performed on the project.

1004.8 Comprehensive Home Energy Rating System (CHERS) Building Performance Auditor (BPA)

The CHERS Rater or BPA is responsible for following the QH Standard procedures to complete the following:

1004.8.1 Conducting the initial, comprehensive evaluation of a home.

1004.8.2 Presenting prioritized energy saving measures recommendations to the homeowner.

1004.8.3 Developing a work scope to be approved by the homeowner.

1004.9 Final Verifier

1004.9.1 The Final Verifier must be an independent certified RESNET CHERS/BPA that does not have a financial interest in any of retrofit work done for the EnergySmart Project, or that is not employed by a company who performs any part of the retrofit work.

1004.9.2 The Final Verifier is responsible for the following:

1004.9.2.1 Must perform applicable combustion appliance testing.

- a. Where there are vented combustion appliances that use indoor air to vent combustion gasses, test Worst Case Depressurization in accordance with the QH Standard.
- b. Where any space contains combustion appliances, test for Carbon Monoxide in accordance with the QH Standard.

1004.9.2.2 Verification of installed measures. The Final Verifier will review the work scope and signed proposal, and confirm that the installed measures are consistent with selected measures and work scope in accordance with the QH Standard.

1004.9.2.3 Calculation of estimated project energy savings using a RESNET-approved software.

1004.9.2.4 Must report any non-conformance of an EnergySmart Project with respect to combustion safety testing, installed measures, or estimate of projected energy savings to the EnergySmart Contractors' CEQ Provider's Complaint Resolution Officer (CRO) and the Rating Provider's Quality Assurance (QA) designee.

1004.9.2.5 Must report non-conformance of HVAC QA Contractors to the QI Standard to ACCA.

1004.9.2.6 Must maintain Final Verification records, for a period of no less than three years, for every EnergySmart Project for which final verification was performed. These records include:

- a. Copy of the work scope and signed proposal,
- b. Name and contact information for the Rater/Auditor and EnergySmart Contractors,
- c. Completed final verification checklist,
- d. Energy simulation software file, and
- e. All test-out results.

1005 ENERGYSMART PROJECTS

1005.1 EnergySmart Project

An EnergySmart Project shall employ an EnergySmart Team and comply with the following:

1005.1.1 Follows accepted industry standards and OEM instructions.

1005.1.2 Includes disclosure statements for work performed that does not meet recognized industry standards.

1005.1.3 Verified and validated by a Final Verifier.

1005.1.4 Consists of work performed by either an EnergySmart Contractor or, for work done on HVAC systems or components, the contractor must be a participant in the ACCA QA Recognition Program.

1005.1.5 Is comprised of two or more trades.

1005.1.6 Has an EnergySmart Project Manager that complies with Section 1004.6.

1005.2 EnergySmart Home

A home designated as an EnergySmart Home shall be recognized by RESNET if:

1005.2.1 The project is in compliance with section 1005.1 except for the following:

1005.2.1.1 Must undergo an initial rating or audit that is performed in accordance with QH Standard.

1005.2.1.2 The homeowner is provided an estimate of percentage energy savings and a reduction in estimated energy usage of not less than 30% based upon actual installed measures.

1005.2.1.3 A Final Verifier conducts an independent verification of the project and a calculation of estimated energy savings.

1006 QUALITY ASSURANCE OVERSIGHT

1006.1 The CEQ Provider shall be responsible for providing quality assurance of EnergySmart Contractors and Teams in accordance with the requirements set forth in Chapter 9.

~~1006.1—RESNET Quality Assurance of CEQ Providers~~

~~1006.1.1—RESNET shall select a limited number of CEQ Providers and conduct an annual review of their Quality Assurance records.~~

~~1006.1.2—A CEQ Provider shall have the right to challenge the findings of RESNET's quality assurance review.~~

~~1006.1.3—CEQ records that must be reviewed include the following:~~

~~1006.1.3.1—The CEQ's EnergySmart Contractor Registry~~

~~1006.1.3.2—The CEQ's EnergySmart Contractor Agreements~~

~~1006.1.3.3—Documentation of CEQ Provider's initial training course and continuing education offerings for EnergySmart Contractors~~

~~1006.1.3.4—Documentation of EnergySmart Contractor's Designated Qualification Representative completing required training and testing~~

~~1006.1.3.5—Documentation of the Representative's continuing education~~

~~1006.1.3.6—The CEQ’s EnergySmart Contractor complaint files~~

~~1006.1.3.7—Documentation of disciplinary actions~~

~~1006.1.4—In the case of an unresolved complaint brought to the RESNET Executive Director, it will be the responsibility of the CEQ to secure the EnergySmart Project files from the EnergySmart Project Manager and present them to RESNET. Failure of the EnergySmart Project Manager to provide adequate records shall result in sanctions up to and including a 60 day suspension of the EnergySmart Contractor designation.~~

~~1006.1.5—An on-site review by RESNET may be conducted if there are significant inconsistencies or errors in the reviewed CEQ files.~~

~~1006.1.6—Complaints against a CEQ Provider submitted by the CRO to RESNET shall be addressed by the Executive Director. The RESNET Executive Director shall:~~

~~1006.1.6.1—Resolve the complaint in forty five (45) calendar days.~~

~~1006.1.6.2—A complaint will be considered resolved once a Complaint Resolution Form has been submitted, signed by the one who files the complaint and the CEQ Provider.~~

~~1006.1.6.3—A log of unresolved complaints shall be maintained by the RESNET Executive Director.~~

~~1006.1.7—CEQ Providers are subject to Probation, Suspension, and Revocation of Accreditation by RESNET in accordance with Section 911 of these RESNET Standards.~~

~~1006.1.7.1—Suspension, and Revocation of Accreditation of a CEQ Provider may result from the following:~~

~~a.—The provisions described in 911.3.~~

~~b.—Failure to ensure that the Energy Smart Contractor followed the complaint resolution process in the case of a complaint against the EnergySmart Contractor or failure to follow required disciplinary and corrective action with respect to a contractor.~~

~~1006.1.7.2—RESNET shall comply with the due process and appeals procedures contained in Section 912 of these Standards with respect to disciplinary actions against an accredited CEQ Provider.~~

1006.2—RESNET Quality Assurance of Rating Providers

~~1006.2.1—RESNET QA Review of Rating Providers shall be conducted in accordance with Chapter 9 of RESNET Standards and shall include Rating Provider review of EnergySmart Projects.~~

1006.3—CEQ Provider Quality Assurance of EnergySmart Contractors

~~1006.3.1—The CEQ Provider shall annually verify that the EnergySmart Contractor’s representative is still with the company.~~

~~1006.3.2—Respond to complaints against EnergySmart Contractors.~~

~~1006.3.3—Follow written EnergySmart Contractor Disciplinary Procedures described in~~

1006.4—CEQ Provider Complaint Resolution Procedures

1006.4.1—The CEQ Provider must conduct non-compliance resolution when a complaint is received about the work performance of an EnergySmart Contractor from any of the following:

1006.4.1.1—The client

1006.4.1.2—Rater/Auditor

1006.4.1.3—Other EnergySmart Contractor

1006.4.1.4—Final Verifier

1006.4.2—Complaints shall be managed and resolved by the CEQ Provider's Complaint Resolution Officer (CRO) following the CEQ Provider's Complaint Response Process.

1006.4.3—Each CEQ Provider shall retain records of complaints received and responses to complaints for a minimum of three years after the date of the complaint.

1006.4.4—The Complaint Response Process shall include, at a minimum, the following:

1006.4.4.1—Consumer Complaint Form, available for submittal via the RESNET website. (1004.2.3.1) The form will be forwarded to the CEQ Provider to the attention of the CRO.

1006.4.4.2—It is the responsibility of the CEQ Provider to secure the documentation from the EnergySmart Project Manager or Final Verifier for review by the CRO.

1006.4.4.3—The CRO shall evaluate the complaint to determine if the contractor shall be deemed to be in non-compliance. Complaints must:

a.—Be related to either structural or major deficiencies (over \$500) and must impact the energy efficiency of the home.

b.—Include the work contract(s) and copies of checklists denoting unresolved deficiencies.

c.—In the event the CRO cannot make a fair evaluation of the complaint based on the information submitted, the consumer shall have the option of hiring an independent Rater/Auditor to visit the site and submit his or her report and findings.

1006.4.4.4—The EnergySmart Contractor Complaint Resolution Process shall consist of the following:

a.—The CRO will notify the contractor of the complaint and the contractor shall have forty five (45) calendar days to resolve the complaint.

b.—A complaint will be considered resolved once a Complaint Resolution Form has been submitted, signed by both the client and the party against whom the complaint was filed, and the resolution verified by the CRO.

c.—If the complaint is not resolved in the allotted time, it will be considered unresolved.

~~1006.4.4.5 — EnergySmart Contractors with three (3) unresolved complaints within a 90 day period or with five or more unresolved complaints at any given time shall have their certification suspended in accordance with the provisions of 1006.4.5.~~

~~1006.4.4.6 — A log of unresolved complaints shall be maintained by the CEQ Provider and must be made available to RESNET upon request.~~

~~1006.4.5 — The minimum requirements for suspension of certification procedures are the following:~~

~~1006.4.5.1 — First Offense: First time an EnergySmart Contractor has three unresolved complaints within a 90 day period or has five outstanding unresolved complaints, the CEQ Provider shall suspend the contractor's certification for a period of not less than 30 days, and:~~

~~a. — Shall inform RESNET that the contractor's certification has been suspended, and shall request that RESNET remove the contractor from the directory.~~

~~b. — Shall require the contractor prior to reinstatement to complete two (2) hours of Continuing Education specific to conflict resolution or customer relations, or successfully resolve at least one of the complaints.~~

~~c. — Shall inform RESNET when the contractor's certification has been reinstated, and shall request that RESNET reinstate the listing on the directory.~~

~~1006.4.5.2 — Second Offense: Second time an EnergySmart Contractor has three unresolved complaints within a 90 day period or has five outstanding unresolved complaints, the CEQ Provider shall suspend the contractor's certification for a period of not less than 90 days, and:~~

~~a. — Shall inform RESNET that the contractor's certification has been suspended, and shall request that RESNET remove the contractor from the directory.~~

~~b. — Shall require the contractor prior to reinstatement to complete three (3) additional hours of Continuing Education and successfully resolve at least one of the complaints.~~

~~c. — Shall inform RESNET when the contractor's certification has been reinstated, and shall request that RESNET reinstate the listing on the directory.~~

~~1006.4.5.3 — Third Offense: Third time an EnergySmart Contractor has three unresolved complaints within a 90 day period, or has five (5) outstanding unresolved complaints, the CEQ Provider shall suspend the contractor's certification for a period of not less than twelve (12) months, and:~~

~~a. — Shall inform RESNET that the contractor's certification has been suspended, and shall request that RESNET remove the contractor from the directory.~~

~~b. — Shall require the contractor, prior to reinstatement, to complete three (3) additional hours of Continuing Education and successfully resolve at least three of the complaints.~~

~~c. — Shall inform RESNET when the contractor's certification has been reinstated, and shall request that RESNET reinstate the listing on the directory.~~

1006.5—Rating Provider Quality Assurance Review of Rater Final Verification of EnergySmart Projects

~~1006.5.1—The Rating Provider will have a Quality Assurance (QA) Designee that shall perform QA review of a Raters' Final Verification of an EnergySmart Project.~~

~~1006.5.2—Quality Assurance File Review (QA File Review)~~

~~1006.5.2.1—For each Rater/Auditor that performs Final Verification for an Energy Smart Project the Rating Provider's QA Designee shall annually conduct QA File Review of the Final Verification documentation file(s) for 10% of verified projects or one verified project, whichever is greater;~~

~~a.—Project documentation file(s) shall include copy of the original work scope and signed proposal, Rater/Auditor and Contractor names and contact information, program sponsor name, completed final verification checklist, energy simulation software file, and all test out results.~~

~~b.—When the Rating Provider's QA Designee conducts the QA File Review, they shall review at least one project documentation file for each EnergySmart Contractor and EnergySmart Team. The QA Designee shall equitably distribute the QA File Reviews of each individual EnergySmart Contractor's or Team's Projects.~~

~~1006.5.2.2—The QA Designee will confirm that each EnergySmart Contractor for the project has been approved by a RESNET approved CEQ Provider as demonstrated by listing on the RESNET EnergySmart Contractor Directory.~~

~~1006.5.2.3—The QA Designee will verify the completion of the Rater Final Verification checklist.~~

~~a.—There must be consistency between the Final Verification Checklist and final test out results, copy of work scope, and signed proposal.~~

~~b.—Must include reported results of nonconformance by Final Verification.~~

~~1006.5.2.4—The QA Designee will review 10% of the Rater/Auditor Final Verifier energy simulation software file and projected estimated energy savings.~~

~~1006.5.3—Quality Assurance Field Review (QA Field Review)~~

~~1006.5.3.1—For each Rater/Auditor that performs Final Verification for an EnergySmart Project the QA Designee shall annually conduct QA Field Reviews of EnergySmart Projects at a rate of 1% of verified projects or one project, whichever is greater.~~

~~1006.5.3.2—The QA Designee shall confirm the results of the Final Verifier's combustion appliance testing where applicable.~~

~~a.—Where there are vented combustion appliances that use indoor air to vent combustion gasses, test Worst Case Depressurization in accordance with the QH Standard.~~

~~b.—Where any spaces contain combustion appliances, test for Carbon Monoxide in accordance with the QH Standard.~~

~~1006.5.3.3—The QA Designee shall review the work scope and signed proposal, and shall confirm installed measures are consistent with selected measures and work scope in accordance with the QH Standard.~~

~~1006.5.3.4—The QA Designee shall confirm the Final Verifier's Estimate of Project Energy Savings as follows:~~

- ~~a.—Calculate an independent estimate of projected energy savings for the EnergySmart Project using the same RESNET approved software used by the Final Verifier.~~
- ~~b.—Compare the Final Verifier's final estimated energy savings against the QA Designee's independent calculation of estimated energy savings.~~
- ~~c.—The QA Designee's results must be within 5% of the Final Verifier results.~~

~~1006.5.4—Non-Compliance and Resolution~~

~~1006.5.4.1—Reporting: Non-compliance of an EnergySmart Project with respect to installed measures or estimate of projected energy savings shall be reported to the CEQ Provider's Compliant Resolution Officer (CRO).~~

~~1006.5.4.2—Discipline: Non-compliance of the Final Verifier's Final Verification of an EnergySmart Project with respect to installed measures or estimate of projected energy savings shall result in additional action in accordance with the Rating Provider's written Disciplinary Procedures.~~

~~1006.5.4.3—Record Keeping: Rating Providers shall maintain Quality Assurance records for every EnergySmart Project that has received Documentation or On-Site QA Review for a period of no less than three years and that will include the following:~~

- ~~a.—Copy of work scope and signed proposal~~
- ~~b.—Names and contact information of the Rater/Auditor, ES Contractors, and Final Verifier~~
- ~~c.—Program sponsor name~~
- ~~d.—Completed final verification checklist~~
- ~~e.—All test out results~~
- ~~f.—QA Review Results~~

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 Identification Number (AIN) – A unique accreditation number assigned to each Rating Quality Assurance 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~~ Quality Assurance Provider or QA Provider - A ~~home energy~~ Rating Quality Assurance Provider accredited ~~through the Mortgage Industry National Home Energy Rating System~~ by RESNET in accordance with Chapters 1 and 9 of RESNET Standards to certify and perform quality assurance of Raters.

Accredited Rater Training Provider or Training Provider - A ~~home energy~~ Rater ~~Training organization~~ Provider accredited by RESNET in accordance with Chapters 2 and 9 of RESNET Standards to train individuals to become Raters certified by Accredited Rating Quality Assurance Providers.

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.”)

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

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. 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 Performance Auditor \(BPA\) - An individual who is certified by a RESNET accredited Home Energy Survey Provider to conduct Building Performance Audits and, if also a certified Home Energy Rater, Comprehensive HERS Ratings.](#)

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.”)

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

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 (insulation) - 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 – A Rating accomplished using data gathered from verification of all rated features of the home in accordance with Section 303.8 and Chapter 8 of this Standard (e.g., on-site visual inspections, on-site diagnostic test results or default values for envelope air leakage rates and distribution system efficiencies).

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.

Dewpoint - The temperature at which a given air/water vapor mixture is saturated with water vapor (i.e. 100% relative humidity). Consequently, if air is in contact with a surface below this temperature, condensation (dew) will form on the surface.

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.

Directly Conditioned Space – An enclosed space having heating equipment with a capacity exceeding 10 Btu/hr-ft², or cooling equipment with a capacity exceeding 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 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 AHRI 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 Efficiency Program, or EEP](#) – see **[“Third-Party Energy Efficiency Program”](#)**

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 - An unbiased indication of a home's relative energy efficiency based on consistent inspection procedures, operating assumptions, climate data and calculation methods.

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.

[Energy Simulation File](#) – **[The complete set of input data used by an accredited rating software tool to determine the Home Energy Rating for the specified home as listed in Section 102.1.4.110 of these Standards.](#)**

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, or 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-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.

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 or Rater – An individual meeting the minimum training requirements for Raters set forth in Chapter 2 of these Standards, documented by an Accredited RESNET Training Provider, and certified by an Accredited [Home Energy Rating Quality Assurance](#) Provider to inspect a home to evaluate the minimum rated features and complete Home Energy Ratings (see also Rating Field Inspector and Senior Certified Rater).

Home Energy Rater Candidate, or Rater Candidate – An individual who has completed two (2) supervised ratings with a RESNET Accredited Training Provider, passed the National Core Rater Test and is in the process of completing three (3) additional probationary ratings necessary for certification by an Accredited ~~Home Energy~~-Rating Quality Assurance Provider as a Home Energy 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~~ See Accredited Rating Quality Assurance Provider.

Home Energy Rating (HERS) Software Provider - An organization that develops software accredited by RESNET for use in home energy ratings.

Home Energy Rating System, or HERS[®] - The procedures, rules and guidelines by which Home Energy Ratings are conducted by accredited Providers (~~Home Energy~~-Rating Quality Assurance, Software, Training, ~~BOP~~, Sampling, Home Energy SurveyAudit), 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 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 (HESP) - 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.

KBtu – 1,000 British Thermal Units (Btu)

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.

MBtu – One million British thermal units (Btu)

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.

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:

- **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

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 order collect the data necessary to create a home energy rating using accredited simulation tools.

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 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 Rating - A Rating accomplished using minimum rated feature data derived from home plans and specifications or based on a site audit for a to-be-improved home which have not yet been implemented in the field. Projected Ratings are commonly generated prior to the construction of a new building or prior to the 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%.

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.

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

Quality Assurance Data File (QA Data File) – The collection of data that comprises the complete quality assurance information for a specific Home Energy Rating, including take-off forms, field data collection forms, energy simulation files, building plans, RESNET Standard Disclosure Forms, rating certificates, rating reports, QA records (including findings and the resolution of any issues), photo documentation, as well as any documentation required by Third-Party Energy Efficiency Programs (EEP's) such as checklists, copies of labels or third-party certificates, and the names of each certified individual (i.e. Raters and/or Rating Field Inspectors) who worked on the rating (field inspections, modeling, etc.);

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

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 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 QA Provider’s written quality assurance processes and procedures as specifically required in Section 904 Chapter 9 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 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 – See Home Energy Rater.

Rater Candidate – See Home Energy Rater Candidate.

Rater Test Identification Number (RTIN) – The unique numerical identifier for each individual who has passed the RESNET National Home Energy Rater Exam as assigned by RESNET through the RESNET Buildings Registry. This number also serves as the Rater's ID number once they have been certified by a Rating QA Provider.

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.

Rater Training Provider or Training Provider – See Accredited Rater Training Provider

~~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 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 – See Home Energy Rating.

Rating Field Inspector (RFI) – 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 Quality Assurance Provider or QA Provider – See Accredited Rating Quality Assurance Provider.](#)

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 Sampling Provider – See Sampling Provider.](#)

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.

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 undergoes 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.

Relative Humidity (RH) - The water vapor pressure in the air expressed as a proportion of the saturated water vapor pressure (ie the highest possible value) at the current air temperature.

RESNET - Residential Energy Services Network

[RESNET National Buildings Registry - The national online registry of all rated homes and Certified Home Energy Raters which is maintained by RESNET.](#)

RESNET National Rater Trainer Competency Test – Certification test developed and administered by RESNET to ensure that accredited Rater Training Providers’ trainers have the requisite knowledge and

competence to serve as trainers for prospective certified Raters. The test is based on the national core competency exam developed and maintained by RESNET.

RESNET Quality Assurance Checklist – Checklist developed by RESNET for use by a Quality Assurance Designee in evaluating a Rating Quality Assurance Provider’s compliance with the requirements of accreditation and quality assurance as stipulated by Section 904.3 of these Standards, and which enumerates the individual requirements that must be verified annually.

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.

Sensible Heat Ratio (SHR) - The sensible heat or cooling load divided by the total heat or cooling load.

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 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.

Super Heat – Heat added to a vapor under pressure, raising the temperature of the vapor above the temperature pressure reference point

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 Expansion Valve (TXV) - A component of a vapor compression refrigeration system that varies the amount of refrigerant flow into the evaporator coil based on temperature and pressure, 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.

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 a Worst-Case Analysis 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 barrier/retarder - 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.

Worst-Case Analysis – A home energy rating from a specified home plan for which the minimum rated features of the home are configured to provide the poorest energy performance of the home (i.e. the largest HERS Index) when four ordinal home orientations and the least energy efficient minimum rated features for the specified home plan are considered by the Rating. A Worst-Case analysis may use threshold diagnostic values to determine the least efficient minimum rated features for the specified home plan.