

Draft Minutes
RESNET Board of Directors Meeting
February 11, 2008

Members Attending

Ben Adams
Steve Byers
Dennis Creech
Richard Faesy
Philip Fairey
David Goldstein
Andy Gordon
Tom Hamilton
Bruce Harley
Mark Jansen
C.T. Loyd
Greg Nahn
Lee O'Neal
Kelly Parker
Bill Prindle
Robert Scott
Daran Wastchak
Erin Wiggins
Barb Yankie

Members Absent

Michael Holtz
David Wilson

Staff Attending

Steve Baden
Claudia Brovick

The teleconference meeting was called to order by Board President Kelly Parker at 3:06 p.m. Eastern Time.

Approval of Agenda

Lee O'Neal moved that the proposed agenda be approved. Richard Faesy seconded the motion. The motion passed. Philip Fairey requested that agenda item 2. "Approve RESNET National Home Energy Audit Standard" be considered after items 3 and 4. Kelly Parker granted his request.

Approval of the January 15, 2008 Board Meeting Minutes

Philip Fairey made a motion to approve the minutes of the January 15, 2008 meeting. Tom Hamilton seconded the motion. The motion passed. Dennis Creech abstained because he had not attended the meeting.

Approve Revision to Roof Reflectivity Amendment

Philip Fairey moved to approve the revision to the roof reflectivity amendment proposed by the RESNET Technical Committee. Lee O'Neal seconded the motion. The motion passed. Bill Prindle abstained stating he had not been involved in the discussions.

Approve Revision to Lighting Definition

Lee O'Neal moved to approve the revision to the lighting definition proposed by the RESNET Technical Committee. Philip Fairey seconded the motion. The motion passed.

Approve RESNET National Home Energy Audit Standard

Lee O'Neal moved to approve the RESNET National Home Energy Audit Standard version sent by Steve Baden on February 1, 2008, "Standard on Comprehensive Energy Audit sb edits 2-1-08" (Attachment A). Philip Fairey seconded the motion.

Bruce Harley proposed a friendly amendment to replace the proposed version with a version edited by Ben Adams and himself and sent to the Board members earlier. The edited version was named, "Comprehensive Energy Audit BA 021008". Lee O'Neal and Philip Fairey accepted the friendly amendment. Bruce Harley proceeded to propose four additional friendly amendments, three of which were accepted by Lee O'Neal and Philip Fairey. This version of the proposed standard is included as Attachment B in these minutes. The Board voted unanimously to accept this final proposed version.

Adjournment

Philip Fairey moved the meeting adjourn. Lee O'Neal seconded the motion. The meeting adjourned at 4:16 p.m. Eastern Time.

Respectfully submitted,

Bruce Harley
Secretary

Appendix A

Chapter Seven

RESNET Standards

700 RESNET NATIONAL STANDARD FOR HOME ENERGY AUDITS

701 GENERAL PROVISIONS

701.1 Purpose

The provisions of this Standard are intended to define a framework for a home energy audit process, consisting of four modules: On line Home Energy Audit (“on line survey”), In Home Energy Audit (“clipboard” survey), Rated Home Energy Audit (Home Energy Rating), and Diagnostic Home Energy Audit (comprehensive assessment). An accredited provider or a program to improve the energy performance for existing homes may follow this standard to produce uniform, comprehensive energy audits for existing residential buildings. This Standard is intended to facilitate investments by homeowners to produce the following outcomes:

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

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

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

701.2 Scope

701.2.1 Application of Standards

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

702 DEFINITIONS AND ACRONYMS

Accreditation Procedures – The set of standards and procedures entitled “Mortgage Industry National Accreditation Procedures for Home Energy Rating Systems” as published and maintained by RESNET (Chapter 1 of this Standard).

BPI: Building Performance Institute

Certified Building Analyst (BA): An individual who successfully passes the BPI written and field examination requirements for certification

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

Data Collection: The gathering of energy use history and other relevant building data and occupant-supplied information.

Diagnosis: Professional judgment and analysis that is applied with the intent of identifying one or more causes of energy loss, comfort complaints, unsafe combustion equipment operation, or other problems.

Diagnostic Home Energy Audit (“comprehensive home performance assessment”): A thorough audit process consistent with this standard. The Diagnostic Home Energy Audit includes the evaluation, diagnosis and proposed treatment of an existing home. A homeowner may elect to go through this process with or without a prior On Line energy audit, or In Home Energy Audit.

Energy Efficiency Rating or Energy Rating – See Home Energy Rating

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

Evaluation: A review of the data collected from any preceding survey or audit, on-site data collection and/or performance testing, and analysis of the home’s existing condition, to determine energy savings and potential improvements.

HERS – Home Energy Rating System

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

HERS Provider – An organization accredited by RESNET to develop, manage, and operate a home energy rating system.

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

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

Home Performance Analyst: The person qualified to conduct a Diagnostic Home Energy Audit . (At the time of this publication this classification is in the process of being defined and adopted by RESET and BPI).

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

In-Home Energy Audit ("clip board energy survey") – A module of the RESNET home energy audit process defined by this standard intended to assess both the general energy performance of the home and the level of the commitment by the homeowner. May include data collection contributing to further analysis, or generally identify symptoms of home performance problems. The intent of the audit is to refer homeowners to the next level if it is determined that the home needs further analysis, and the homeowner is motivated enough to invest in further analysis and making recommended improvements. The auditor would educate the homeowner regarding the benefits of a whole house approach to improving the home's energy performance. This phase is not required if the homeowner wishes to directly pursue a Rated [Home Energy Audit](#) or Diagnostic Home Energy Audit

In-Home Energy Audit Provider An organization accredited by RESNET as specified in Section 102 of the Mortgage Industry National Home Energy Rating Systems Standards

In-Home Energy Auditor An individual who is certified by an In-Home Energy Audit Provider. Certified by a RESNET accredited Rating Provider as a Home Energy Rater, and trained to prepare a detailed work scope, provide combustion testing in accordance to BPI *Building Analyst Standards*, and Rater health and safety requirements

On-line Home Energy Audit ("on-line survey") - A basic energy review of a home performed by a homeowner. The survey produces a report that shows a general range of a home's energy efficiency and a look up matrix based on regional zones and climate

Performance Testing: testing conducted to evaluate the performance of a system or component, compared to specified performance metrics.

Prioritization: The process in which potential measures for a home are ranked by priority regarding energy savings potential, energy efficiency retrofit opportunity, durability, and motivation of the homeowner.

Qualified Contractor: A contractor trained and certified by a RESNET recognized organization to complete home performance work.

Rated [Home Energy Audit \(Home Energy Rating\)](#): An unbiased indication of a home's relative energy performance based on consistent inspection procedures, operating assumptions, climate data and calculation methods. This audit will present recommended improvements that will include estimated costs of the improvements and calculated energy and environmental savings that will result from making the improvements.

Rating Software – A computerized procedure for calculating a home's energy efficiency rating, annual energy consumption, and annual energy costs, that is accredited by RESNET.

RESNET – Residential Energy Services Network

703 ACCREDITATION CRITERIA

703.1 Accreditation Criteria of an In Home Energy Audit Provider

703.1.1 An In Home Energy Audit Provider shall be accredited by RESNET as specified in Section 102 of the Mortgage Industry National Home Energy Rating Systems Standards

703.1.2 In Home Energy Auditor Certification Standard. Certification and recertification of in home energy auditors shall be made by accredited In Home Energy Audit Providers, which shall include the following provisions:

703.1.2.1 An In Home Energy Audit Provider shall provide documentation that their in home energy auditors meet the following in home energy auditor certification provisions:

703.1.2.2.1 Performance evaluation of ability to perform accurate energy audits. Each in home energy auditor shall complete a probationary period where close supervision is provided by the provider's QA designee. The probationary period covers a minimum of three inspections after which the QA Designee shall determine if additional training is needed.

703.1.2.2.2 Continuing Education. In home energy auditors shall have 12 hours of continuing education and training units approved by the rating provider in every three year period.

703.1.2.2.3 In Home Energy Auditor Testing. All certified in home energy auditors shall take the national home in-home energy auditor test administered by RESNET.

703.1.2.2.4 Recertification of in home energy auditors by the provider shall occur no less than every three years.

703.1.2.2.5 In Home Energy Auditor Agreements. As a condition of in home energy auditor certification, each provider shall ensure that each certified in home energy auditor enters into a written agreement with the provider to provide in home energy audit field verification services in compliance with these standards. An unexecuted copy of the in home energy auditor written agreement shall be provided to RESNET with the provider's accreditation application, and again within 60 days of making changes to the agreement. The written agreement shall, at a minimum require raters to:

703.1.2.2.5.1 Provide in home energy audit verification services in compliance with these standards;

703.1.3.2.5.2 Provide accurate and fair in home energy audits

703.1.3.2.5.3 Comply with the RESNET Code of Ethics. The

"RESNET Code of Ethics" is posted at

<http://www.natresnet.org/ethics.htm>.

The Code of Ethics shall be

attached to the written agreement.

703.1.3 Minimum Standards for In Home Energy Audit Program's Operation Policies and Procedures shall be submitted in written form to RESNET for approval, and shall at a minimum provide for the following:

703.1.3.1 Written conflict of interest provisions that prohibit undisclosed conflicts of interest, but may allow waiver with advanced disclosure. The "In Home Energy Audit Standard Disclosure" form adopted by the RESNET Board of Directors shall be completed for each home that receives a home

energy audit and shall be provided to the energy audit client and made available to the home owner/buyer. Each form shall accurately reflect the proper disclosure for the home that it represents. For the purpose of completing this disclosure, "Auditor's employer" includes any affiliate entities. Recognizing that a number of different relationships may exist between the in home energy auditor or the In-home energy auditor's employer, other contractors that may complete work on the home, and the audit client and/or homeowner, the audit 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.

703.1.3.2 Written In home energy auditor discipline procedures that include progressive discipline involving probation, suspension, and termination.

703.1.3.3 A written in home energy audit quality control process that includes at a minimum the following:

703.1.3.3.1 The provider's quality assurance designee shall be responsible for the internal review of energy audits submitted by its in-home energy auditors, including:

703.1.3.3.2 Review of energy audits conducted during the in-home energy auditor's probation period. Prior to certifying an in home energy auditor candidate, the provider shall review at least three probationary audits performed by the in home energy auditor within 12 months.

703.1.3.3.3 Review of energy audit reports. For each in home energy auditor, the provider's quality assurance designee shall annually evaluate a minimum of 10% of each in home energy auditor's energy audit reports. The provider shall resolve any problems detected during these reviews. .

703.1.3.4 In Home Energy Auditor Registry. The provider shall maintain a registry of all of its certified in home energy auditors. 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 in home energy auditors.

703.1.3.5 Complaint Response Process. Each provider shall have a system available for receiving complaints. The provider shall respond to and resolve complaints related to energy audits and reports. Providers shall ensure that in home energy auditors inform clients about the complaint process. Each provider shall retain records of complaints received and responses to complaints for a minimum of three years after the date of the complaint.

704 RESNET National Home Energy Audit Procedures

704.1 On-line Home Energy Audit (on-line survey): The survey shall produce a report that shows a general range of a home's energy efficiency based on specific criteria (insulation, equipment age, general condition, energy costs) and a lookup matrix based on regional norms and climate, as approved by RESNET. Examples include the U.S. Department of Energy's Home Energy Saver and the Environmental Protection Agency's Home Energy Yardstick. The survey is not required if the homeowner wishes to directly pursue an In-Home Energy Audit, Rated [Home Energy Audit](#) or a Diagnostic Home Energy Audit..

704.2 In-Home Energy Audit (“clip board survey”) The audit shall include a visual inspection of the dwelling unit, and is documentation of its general condition from a thermal, appliance and lighting perspective. The audit shall include a review of utility billing history. The audit is a visual inspection only and does not require the use of a blower door, duct leakage test, or an infrared camera. An audit does not require a previous On-Line Energy Audit, nor is it a prerequisite for the Rated [Home Energy Audit](#) or the Diagnostic Home Energy Audit.

704.2.1 The in-home energy auditor shall interview the homeowner regarding energy and comfort problems. The in-home energy auditor shall explain the limitations of the In-Home Energy Audit and provide an overview of the more comprehensive modules. The interview shall include, but is not limited to, the following subject areas:

704.2.1.1 Comfort complaints, including areas of the home that are too hot or too cold.

70.2.1.2 Energy billing concerns

704.2.1.3 The potential for the homeowner to move directly to a either a home energy rating or comprehensive home energy assessment.

704.2.1.4 Opportunities for energy performance improvements

704.2.2 The in-home energy auditor shall inform the homeowner of low cost/no cost improvements that the homeowner can implement.

704.2.3 The in-home energy auditor shall request copies of utility bills or written permission to obtain the energy use information from the utility company, and use them to produce an estimate of generalized end-uses (base, heating, and cooling).

704.2.4 The in-home energy auditor shall advise the homeowner on where to locate qualified individuals to conduct a more comprehensive home energy audit.

704.2.5 Minimum Features of the In-Home Energy Audit

704.2.5.1 The in-home energy auditor shall complete a standardized audit form developed by the Residential Energy Services Network. The audit form will require the auditor to visually review the home and to measure or estimate the following features:

704.2.5.1.1 R-values of wall/ceiling/floor insulation

704.2.5.1.2 Square footage and age of home

704.2.5.1.3 Type of windows: glazing type(s) and frame material(s)

704.2.5.1.4 Type, model number, and location of heating/cooling system(s),

704.2.5.1.5 Type of ductwork, location and R-value of duct

insulation

704.2.5.1.6 Type of foundation is crawl, basement, or slab

704.2.5.1.7 Checklist of common air-leakage sites indicating likely opportunities

as
dryers.

704.2.5.1.8 Estimated age and efficiency of major appliances such as dishwashers, refrigerators, freezers, washing machines and dryers.

in bulbs

704.2.5.1.9 Number and type of hardwired light fixtures and screw-portable lamps

704.2.5.1.10 Visual indications of condensation

determination of whether they are vented outdoors

704.2.5.1.11 Presence and location of exhaust fans, and

showerheads)

704.2.5.1.12 Number and type of water fixtures (faucets,

identification of visually identifiable problems including flame rollout, blocked chimney, and corroded or missing vent connector

704.2.5.2 The following elements are outside the scope of an In-House Energy Audit:

704.2.5.2.1 The use of blower doors, duct leakage test equipment or an infrared camera.

704.2.5.2.2 Any other diagnostic testing of the home

tightness, or ventilation.

704.2.5.2.3 Quantification of any levels of airtightness, duct

and presented with the qualification that a Performance Energy Audit or Diagnostic Energy Audit should be obtained in order to calculate the savings estimates.

704.2.5.2.4 Energy savings estimates may only be generalized

704.2.5.2.5 Combustion appliance testing

704.2.5.2.6 While outside the national minimum scope of this classification, sponsoring programs can add the above performance testing by qualified in-home energy auditors as part of their energy audit program.

704.2.5.2.7 While outside the scope of this classification, a qualified in-home energy auditor can conduct this performance testing if requested by the home owner.

704.2.6 Minimum In Home Energy Audit Report

704.2.6.1 At the completion of the in-home energy audit the in-home energy auditor shall provide the homeowner standardized report developed by RESNET or by a program provider with the approval of RESNET, and signed by the in-home energy auditor. The report would provide information to the homeowner about:

- 704.2.6.1.1** Whole-house solutions overview of how the home works as a system and how to prioritize actions
- 704.2.6.1.2** Promote quality installation of HVAC equipment including: proper sizing of equipment, duct sealing, and refrigerant charge and air flow.
- 704.2.6.1.3** Promote building envelope air sealing and proper levels of insulation.
- 704.2.6.1.4** Overview of ENERGY STAR or better products and appliances
- 704.2.6.1.5** Where to obtain a more comprehensive home energy audit.
- 704.2.6.1.6** Address non-energy benefits of improving the energy efficiency of the home including reduction of carbon emissions
- 704.2.6.1.7** General statement regarding opportunities to improve the thermal envelope, mechanical equipment, lighting and/or appliances in the home.
- 704.2.6.1.8** A safety notification form adopted by the Residential Energy Services Network that is filled out and presented only when obvious problems are observed in accordance with 704.2.5.1.13.

704.2.7 Limitations

704.2.7.1 Without certification as a Home Energy Rater, Building Analyst, Home Performance Analyst or from another program recognized by RESNET, the [in](#) home energy auditor shall not produce a detailed written work scope for improvements to a homeowner as part of an In-Home Energy Audit

704.3 Rated [Home Energy Audit](#) (Home Energy Rating)

The Rated [Home Energy Audit](#) includes an evaluation, performance testing and recommended improvements of an existing home. The evaluation shall include a review of the data collected from any previous energy audit, any further required

measurement and performance testing, combustion appliance testing, and an analysis of the home's energy performance. The performance analysis will determine the scope of work for the home. The Rated [Home Energy Audit](#) shall provide the homeowner with calculated energy and environmental savings that will result from making the recommended improvements. The performance analysis shall also provide the homeowner with a label that indicates the relative energy efficiency of the home. The Home Energy Rater shall guide the homeowner to a qualified contractor participating in a program such as Home Performance with ENERGY STAR or certified by the Building Performance Institute to complete the required treatment. A homeowner may elect to go through this process with or without a prior energy survey. An employee of a contractor who is properly certified can complete a Rated home energy audit as long as the financial interest disclosure is provided to the homeowner.

704.3.1 The Rated [Home Energy Audit](#) shall comply with the procedures adopted by the Residential Energy Services Network for the certified home energy rater classification.

704.4 Diagnostic Home Energy Audit (comprehensive home performance assessment) This is the most comprehensive of the energy audit modules. The **Diagnostic Home Energy Audit** includes an evaluation, diagnosis and proposed treatment of an existing home. The evaluation shall include a review of the data collected from any previous energy audit, any further required measurement and performance testing, combustion appliance testing, and an analysis of the home's energy performance. The diagnosis and proposed treatment determines the scope of work for the home. The Home Performance Analyst shall guide the homeowner to a qualified contractor certified by a program such as Home Performance with ENERGY STAR or the Building Performance Institute to complete the required treatment. A homeowner may elect to go through this process with or without a prior energy survey. An employee of a contractor who is properly certified can complete a Diagnostic Home Energy Audit as long as the financial interest disclosure is provided to the homeowner.

704.4.1 The Diagnostic Home Energy Audit shall consist of the following procedures:

704.4.1.1 The procedures adopted by the Building Performance Institute for the certified Building Analyst classification

704.4.1.2 The procedures adopted by the Building Performance Institute and the Residential Energy Services Network for the certified Home Performance Analyst classification, or

704.4.1.3 The specifications required by the U.S. Environmental Protection Agency and Department of Energy for the Home performance with ENERGY STAR Program.

705 Required Skills

705.1 Minimum skills and knowledge base required for an individual to conduct an In-Home Energy Audit

- 705.1.1 Basics of heat transfer concepts
- 705.1.2 Basics of building performance testing
- 705.1.3 Basics of air distribution leakage
- 705.1.4 Calculating gross and net areas
- 705.1.5 Definitions/energy terminology
- 705.1.6 Basic combustion appliance concerns
- 705.1.7 Basics of envelope leakage, thermal bypass, thermal bridging
- 705.1.8 Determining envelope insulation
 - 705.1.8.1 Presence/absence of insulation and when observable, the quality of its installation
 - 705.1.8.2 Recommended levels of insulation by climate zone
- 705.1.9 Determining equipment model numbers and efficiencies from default tables
- 705.1.10 Household appliances – determine efficiency of vintage from model numbers
- 705.1.11 Energy units
- 705.1.12 Measuring building dimensions
- 705.1.13 Identification and documentation of energy audit inspected features of the home
- 705.1.14 Basics of specifications
- 705.1.15 Determining window and door efficiency
- 705.1.16 Determining building orientation and shading characteristics
- 705.1.17 Defining the thermal boundaries
- 705.1.18 Basics of measure interaction, expected life, and bundling for optimal performance considering the house as a system and the emerging need for deep savings

705.2 Minimum certification required for an individual to conduct a [Rated Home](#) Energy Audit (Home Energy Rating)

705.2.1 Shall be a Home Energy Rater Certified by a RESNET accredited Rating Provider. The certified home energy rater shall be trained to complete the following additional functions:

- 705.2.1.1 Prepare a detailed work scope
- 705.2.1.2 Combustion testing in accordance to BPI *Building Analyst*

Standards

- 705.2.1.3 Rater health and safety requirements

705.3 Minimum certification required for an individual to conduct a Home Diagnostic Energy Audit (Comprehensive Home Performance Assessment)

705.3.1 Shall be either:

705.3.1.1 A Building Analyst certified by the Building Performance Institute. In addition the certified Building Analyst shall have been trained to complete the following functions:

705.3.1.1.1 Building simulation and performance modeling according to the requirements of the *Mortgage Industry National Home Energy Rating System Standards*.

705.3.1.1.2 HERS Index computations and reference home configuration

705.3.1.2 A Home Performance Analyst certified by either the Building Performance Institute or the Residential Energy Services Network.

705.3.1.3 A person certified by another home performance program recognized by the Residential Energy Services Network

706. GENERAL LIMITATIONS AND EXCLUSIONS

706.1 General limitations:

706.1.1 The energy use information contained in the report does not constitute any warranty of energy cost or savings.

706.1.2 Inspections that are performed in accordance with these standards:

- Are not technically exhaustive.
- Will not identify concealed conditions or latent defects.
- The home energy audit is not intended to be an inspection of the structural soundness of the home or any other attributes of the home other than the home's energy features.
- The home energy audit is not applicable to building design and construction features except those specified in the minimum required features listed in section 704.2.5.

Attachment B

Chapter Seven

RESNET Standards

700 RESNET NATIONAL STANDARD FOR HOME ENERGY AUDITS

701 GENERAL PROVISIONS

701.1 Purpose

The provisions of this Standard are intended to define a framework for a home energy audit process, consisting of two levels: a Checklist Home Energy Audit and a Comprehensive Home Energy Audit. The Checklist Home Energy Audit may take the form of an “On Line Survey” or an in-home “Clipboard Survey”. The Comprehensive Home Energy Audit may consist of a Home Energy Rating (“HERS Rating”) or a Comprehensive Home Energy Assessment as defined below. An accredited Provider or a program may apply the definitions contained in this Standard to improve the energy performance of existing homes through uniform, comprehensive energy audits for existing residential buildings. This Standard is intended to facilitate investments by homeowners to produce the following outcomes:

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

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

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

701.2 Scope

701.2.1 Application of Standards

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

Data Collection: The gathering of energy use history and other relevant building data and occupant-supplied information.

Diagnosis: Professional judgment and analysis that is applied with the intent of identifying one or more causes of energy loss, comfort complaints, unsafe combustion equipment operation, or other problems.

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 shall be based on the assessment procedures meeting the criteria established in this Standard. A homeowner may elect to go through this process with or without a prior Checklist Home Energy Audit.

Energy Efficiency Rating or Energy Rating – See Home Energy Rating

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

Evaluation: A review of the data collected from any preceding survey or audit, on-site data collection and/or performance testing, a review of available energy usage records and analysis of the home's existing condition, to determine energy savings and potential improvements.

HERS – Home Energy Rating System

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

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

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

Home Energy Rating: An unbiased indication of a home's relative energy performance based on consistent inspection procedures, operating assumptions, climate data and calculation methods.

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

Home Performance Analyst: The person qualified to conduct either type of Comprehensive Audit . At the time of this publication, this classification is in the process of being defined and adopted by RESET and BPI.

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

Checklist Home Energy Audit A level of the RESNET home energy audit process defined by this standard intended to assess both the general energy performance of the home and the level of the commitment by the homeowner. May include data collected on-line by the homeowner or in-home by an In-Home Energy Auditor for the purpose of further analysis, or generally to identify symptoms of home performance problems. The intent of the audit is to refer homeowners to the next level if it is determined that the home needs further

analysis, and the homeowner is motivated enough to invest in further analysis and recommended improvements. This level is not required if the homeowner wishes to directly pursue a Comprehensive [Home Energy Audit](#) .

In-Home Energy Audit Provider An organization accredited by RESNET in accordance with Section 703 of the Mortgage Industry National Home Energy Rating Systems Standards to oversee In-home Energy Auditors.

In-Home Energy Auditor An individual who is certified by an In-Home Energy Audit Provider to conduct in-home energy audits.

On-line Home Energy Audit ("on-line survey") - A basic energy review of a home

Performance Testing: testing conducted to evaluate the performance of a system or component, compared to specified performance metrics.

Prioritization: The process in which potential measures for a home are ranked by priority regarding energy savings potential, energy efficiency retrofit opportunity, durability, and motivation of the homeowner.

Qualified Contractor: A contractor trained and certified by a RESNET recognized organization to complete home performance work.

Rating Software – A computerized procedure for calculating a home’s energy efficiency rating, annual energy consumption, and annual energy costs, that is accredited by RESNET.

RESNET – Residential Energy Services Network

703 ACCREDITATION CRITERIA

703.1 Accreditation Criteria of an In Home Energy Audit Provider

703.1.1 An In Home Energy Audit Provider shall be accredited by RESNET as specified in Section 102 of the Mortgage Industry National Home Energy Rating Systems Standards

703.1.2 In Home Energy Auditor Certification Standard. Certification and recertification of in home energy auditors shall be made by accredited In Home Energy Audit Providers, which shall include the following provisions:

703.1.2.1 An In Home Energy Audit Provider shall provide documentation that their in home energy auditors meet the following in home energy auditor certification provisions:

703.1.2.2.1 Performance evaluation of ability to perform accurate energy audits. Each in home energy auditor shall complete a probationary period where close supervision is provided by the provider's QA designee. The probationary period covers a minimum of three in-home inspections after which the QA Designee shall determine if additional training is needed.

703.1.2.2.2 Continuing Education. In home energy auditors shall have 12 hours of continuing education and training units approved by the rating provider in every three year period.

703.1.2.2.3 In Home Energy Auditor Testing. All certified in home energy auditors shall take the national home in-home energy auditor test administered by RESNET.

703.1.2.2.4 Recertification of in home energy auditors by the provider shall occur no less than every three years.

703.1.2.2.5 In Home Energy Auditor Agreements. As a condition of in home energy auditor certification, each provider shall ensure that each certified in home energy auditor enters into a written agreement with the Provider to provide in home energy audit field verification services in compliance with these standards. An unexecuted copy of the in home energy auditor written agreement shall be provided to RESNET with the provider's accreditation application, and again within 60 days of making changes to the agreement. The written agreement shall, at a minimum require raters to:

703.1.2.2.5.1 Provide in home energy audit verification services in compliance with these standards;

703.1.3.2.5.2 Provide accurate and fair in home energy audits

703.1.3.2.5.3 Comply with the RESNET Code of Ethics. The "RESNET Code of Ethics" is posted at

<http://www.natresnet.org/ethics.htm>.

The Code of Ethics shall be attached to the written agreement.

703.1.3 Minimum Standards for In Home Energy Audit Program's Operation Policies and Procedures shall be submitted in written form to RESNET for approval, and shall at a minimum provide for the following:

703.1.3.1 Written conflict of interest provisions as approved by RESNET that prohibit undisclosed conflicts of interest, but may allow waiver with advanced disclosure. The "In Home Energy Audit Standard Disclosure" form adopted by the RESNET Board of Directors shall be completed for each home that receives a home energy audit and shall be provided to the energy audit client and made available to the home owner/buyer. Each form shall include, at a minimum, the address of the home. Each form shall accurately reflect the proper disclosure for the home that it represents. For the purpose of completing this disclosure, "Auditor's employer" includes any affiliate entities. Recognizing that a number of different relationships may exist between the in home energy auditor or

the In-home energy auditor's employer, other contractors that may complete work on the home, and the audit client and/or homeowner, the audit 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.

703.1.3.2 Written In home energy auditor discipline procedures that include progressive discipline involving probation, suspension, and termination.

703.1.3.3 A [written in home](#) energy audit quality control process that includes at a minimum the following:

703.1.3.3.1 The provider's quality assurance designee shall be responsible for the internal review of energy audits submitted by its in-home energy auditors, including:

703.1.3.3.2 Review of energy audits conducted during the in-home energy auditor's probation period. Prior to certifying an in home energy auditor candidate, the provider shall review at least three probationary audits performed by the in home energy auditor within 12 months.

703.1.3.3.3 Review of energy audit reports. For each in home energy auditor, the provider's quality assurance designee shall annually evaluate a minimum of 10% of each in home energy auditor's energy audit reports. The provider shall resolve any problems detected during these reviews. .

703.1.3.4 In Home Energy Auditor Registry. The provider shall maintain a registry of all of its certified in home energy auditors. 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 in home energy auditors.

703.1.3.5 Complaint Response Process. Each provider shall have a system available for receiving complaints. The provider shall respond to and resolve complaints related to energy audits and reports. Providers shall ensure that in home energy auditors inform clients about the complaint process. Each provider shall retain records of complaints received and responses to complaints for a minimum of three years after the date of the complaint.

704 RESNET National Home Energy Audit Procedures

704.1 On-line Checklist Home Energy Audit (on-line survey): The survey shall produce a report that shows a general range of a home's energy efficiency based on specific criteria (insulation, equipment age, general condition, energy

usage and costs) and a lookup matrix based on regional norms and climate, as approved by RESNET. Examples include the U.S. Department of Energy's Home Energy Saver and the Environmental Protection Agency's Home Energy Yardstick. The survey is not required if the homeowner wishes to directly pursue an In-Home Energy Audit or a Comprehensive [Audit](#) ..

704.2 In-Home Checklist Energy Audit (“clip board survey”) The audit shall include a visual inspection of the dwelling unit, and is documentation of its general condition from a thermal, appliance and lighting perspective. The audit shall include a review of utility usage and billing history. The audit is a visual inspection only and does not require the use of a blower door, duct leakage test, or an infrared camera. An audit does not require a previous On-Line Energy Audit, nor is it a prerequisite for the Comprehensive [Audit](#).

704.2.1 The in-home energy auditor shall interview the homeowner regarding energy and comfort problems. The in-home energy auditor shall explain the limitations of the In-Home Energy Audit and provide an overview of the more comprehensive modules. The interview shall include, but is not limited to, the following subject areas:

704.2.1.1 Comfort complaints, including areas of the home that are too hot or too cold.

704.2.1.2 Energy billing concerns

704.2.1.3 The potential for the homeowner to move directly to a comprehensive audit.

704.2.1.4 Opportunities for energy performance improvements

704.2.2 The in-home energy auditor shall inform the homeowner of low cost/no cost improvements that the homeowner can implement.

704.2.3 The in-home energy auditor shall request copies of utility bills or written permission to obtain the energy use information from the utility company, and use them to produce an estimate of generalized end-uses (base, heating, and cooling).

704.2.4 The in-home energy auditor shall advise the homeowner on where to locate qualified individuals to conduct a more comprehensive home energy audit.

704.2.5 Minimum Features of the In-Home Energy Audit

704.2.5.1 The in-home energy auditor shall complete a standardized audit form developed by the Residential Energy Services Network. The audit form will require the auditor to visually review the home and to measure or estimate the following features:

704.2.5.1.1 R-values of wall/ceiling/floor insulation

704.2.5.1.2 Square footage and age of home

704.2.5.1.3 Type of windows: glazing type(s) and frame material(s)

704.2.5.1.4 Type, model number, and location of heating/cooling system(s),

704.2.5.1.5 Type and condition of ductwork, location and R-value of duct insulation

704.2.5.1.6 Type of foundation is crawl, basement, or slab

704.2.5.1.7 Checklist of common air-leakage sites indicating likely opportunities

704.2.5.1.8 Estimated age and efficiency of major appliances such as dishwashers, refrigerators, freezers, washing machines and dryers.

704.2.5.1.9 Number and type of hardwired light fixtures and screw-portable lamps suitable for energy efficient relamping in bulbs

704.2.5.1.10 Visual indications of condensation

704.2.5.1.11 Presence and location of exhaust fans, and determination of whether they are vented outdoors

704.2.5.1.12 Number and type of water fixtures (faucets, showerheads)

704.2.5.1.13 Presence and type(s) of combustion equipment; identification of visually identifiable problems that may have been caused by conditions such as flame rollout, blocked chimney, and corroded or missing vent connector

704.2.5.2 The following elements are outside the scope of an In-House Energy Audit:

704.2.5.2.1 The use of blower doors, duct leakage test equipment or an infrared camera.

704.2.5.2.2 Any other diagnostic testing of the home

704.2.5.2.3 Quantification of any levels of airtightness, duct tightness, or ventilation.

704.2.5.2.4 Energy savings estimates may only be generalized and presented with the qualification that a Comprehensive Audit should be obtained in order to calculate the savings estimates.

704.2.5.2.5 Combustion appliance testing

704.2.5.2.6 While outside the national minimum scope of this classification, sponsoring programs can add the above performance testing by qualified in-home energy auditors as part of their energy audit program.

704.2.5.2.7 While outside the scope of this classification, a qualified in-home energy auditor can conduct this performance testing if requested by the home owner.

704.2.6 Minimum In Home Energy Audit Report

704.2.6.1 At the completion of the in-home energy audit the in-home energy auditor shall provide the homeowner standardized report developed by RESNET or by a program provider with the approval of

RESNET, and signed by the in-home energy auditor. The report would provide information to the homeowner about:

- 704.2.6.1.1** Whole-house solutions overview of how the home works as a system and how to prioritize actions
- 704.2.6.1.2** Promote quality installation of HVAC equipment including: proper sizing of equipment, duct sealing, and refrigerant charge and air flow.
- 704.2.6.1.3** Promote building envelope air sealing and proper levels of insulation.
- 704.2.6.1.4** Overview of ENERGY STAR or better products and appliances
- 704.2.6.1.5** Where to obtain a more comprehensive home energy audit.
- 704.2.6.1.6** Address non-energy benefits of improving the energy efficiency of the home including reduction of carbon emissions
- 704.2.6.1.7** General statement regarding opportunities to improve the thermal envelope, mechanical equipment, lighting and/or appliances in the home.
- 704.2.6.1.8** A safety notification form adopted by the Residential Energy Services Network that is filled out and presented when obvious problems are observed in accordance with 704.2.5.1.13.

704.2.7 Limitations

704.2.7.1 Unless certified as a Home Energy Rater, Building Analyst, Home Performance Analyst or by another program recognized by RESNET, the [in](#) home energy auditor shall not produce a detailed written work scope for improvements to a homeowner as part of an In-Home Energy Audit

704.3 Comprehensive [Energy Audit](#)

The Comprehensive [Audit](#) includes an evaluation, performance testing and proposed treatment of an existing home. The evaluation shall include a review of the data collected from any previous energy audit, any further required measurement and performance testing, combustion appliance testing, and an analysis of the home's energy performance. The performance analysis determines the scope of work for the home. . The qualified auditor shall guide the homeowner to a qualified contractor participating in a program such as Home Performance with ENERGY STAR or certified by the Building Performance Institute to complete the required treatment. A homeowner may elect to go through this process with or without a prior energy survey. An employee of a contractor who is properly certified can complete a comprehensive energy audit provided a financial interest disclosure is provided to the homeowner.

704.3.1 The Comprehensive HERS [Audit](#) shall consist of the following procedures:

704.3.1.1 The procedures adopted by the Residential Energy Services Network for the certified home energy rater classification. The Comprehensive HERS [Audit](#) shall provide the homeowner with calculated energy and environmental savings that will result from making the recommended improvements. The performance analysis shall also provide the homeowner with a label that indicates the relative energy efficiency of the home, or

704.3.1.2 The procedures adopted by the Building Performance Institute and the Residential Energy Services Network for the certified Home Performance Analyst classification

704.3.2 The Comprehensive Home Energy Audit shall consist of the following procedures:

704.3.2.1 The procedures adopted by the Building Performance Institute for the certified Building Analyst classification

704.3.3.2 The procedures adopted by the Building Performance Institute and the Residential Energy Services Network for the certified Home Performance Analyst classification, or

704.3.2.3 The specifications required by the U.S. Environmental Protection Agency and Department of Energy for the Home performance with ENERGY STAR Program.

705 Required Skills

705.1 Minimum skills and knowledge base required for an individual to conduct an In-Home Energy Audit

705.1.1 Basics of heat transfer concepts

705.1.2 Basics of building performance testing

705.1.3 Basics of air distribution leakage

705.1.4 Calculating gross and net areas

705.1.5 Definitions/energy terminology

705.1.6 Basic combustion appliance concerns

705.1.7 Basics of envelope leakage, thermal bypass, thermal bridging

705.1.8 Determining envelope insulation

705.1.8.1 Presence/absence of insulation and when observable, the quality of its installation

705.1.8.2 Recommended levels of insulation by climate zone

705.1.9 Determining equipment model numbers and efficiencies from default tables

705.1.10 Household appliances – determine efficiency of vintage from model numbers

705.1.11 Energy units

705.1.12 Measuring building dimensions

- 705.1.13 Identification and documentation of energy audit inspected features of the home
- 705.1.14 Basics of specifications
- 705.1.15 Determining window and door efficiency
- 705.1.16 Determining building orientation and shading characteristics
- 705.1.17 Defining the thermal boundaries
- 705.1.18 Basics of measure interaction, expected life, and bundling for optimal performance considering the house as a system and the emerging need for deep savings

705.2 Minimum certification required for an individual to conduct a Comprehensive HERS Audit

705.2.1 Shall be either:

705.2.1.1 a Home Energy Rater Certified by a RESNET accredited Rating Provider. The certified home energy rater shall be trained to complete the following additional functions:

705.2.1.1.1 Prepare a detailed work scope in accordance with the BPI *Building Analyst Standards*

705.2.1.1.2 Combustion testing in accordance with the BPI *Building Analyst Standards*, or

705.2.1.2 A Home Performance Analyst certified by either the Building Performance Institute or the Residential Energy Services Network.:

705.3 Minimum certification required for an individual to conduct a Comprehensive Home Energy Audit (Comprehensive Home Performance Assessment)

705.3.1 Shall be either:

705.3.1.1 A Building Analyst certified by the Building Performance Institute. In addition the certified Building Analyst shall have been trained to complete the following functions:

705.3.1.1.1 Building simulation and performance modeling according to the requirements of the *Mortgage Industry National Home Energy Rating System Standards*.

705.3.1.1.2 HERS Index computations and reference home configuration

705.3.1.2 A Home Performance Analyst certified by either the Building Performance Institute or the Residential Energy Services Network.

705.3.1.3 A person certified by another home performance program recognized by the Residential Energy Services Network

706. GENERAL LIMITATIONS AND EXCLUSIONS

706.1 General limitations:

706.1.1 The energy use information contained in the report does not constitute any warranty of energy cost or savings.

706.1.2 Inspections that are performed in accordance with these standards:

- Are not technically exhaustive.
- Will not identify concealed conditions or latent defects.
- The home energy audit is not intended to be an inspection of the structural soundness of the home or any other attributes of the home other than the home's energy features.
- The home energy audit is not applicable to building design and construction features except those specified in the minimum required features listed in section 704.2.5.