

Proposed Standard Revision

Date Approved: ????, 2019

MINHERS Addendum 36

Date Effective: ????, 2019

Proponent: Standard Development Committee 200

Organization: RESNET

Justification:

Implementation of RESNET Board of Directors policy regarding home energy audit standards and home energy rating standards. Amend Chapters 2 and 7 and Appendix B of the MINHERS to remove the Home Energy Survey Professional from RESNET standards and add certification requirements for Rating Field Inspectors.

Rater recertification requirements in chapters 1 and 2 need to be consistent and they are currently in conflict.

The option for the graded field evaluation for rater recertification is no longer a valid form of professional development since the graded field evaluation form has been amended to address specific skills needed for RFI certification.

Modifications to the chapter are given below in underline/strikeout format

Chapter One RESNET National Standard for Quality Assurance Providers

102.1.2 Rater and Rating Field Inspector Certification Standards. Certification and recertification of Home Energy Raters and Rating Field Inspectors shall be made by QA Providers, which shall include the following provisions:

102.1.2.1 A QA Provider shall maintain documentation that their Raters and Rating Field Inspectors meet the certification provisions contained in [Chapter 2](#) 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 the requirements set forth in Section 205.2.3.

102.1.2.2.2 In order for a Rater Field Inspector “Candidate” to be certified as a Rating Field Inspector, they must meet the requirements set forth in Section [206.2.2](#).

102.1.2.3 For previously certified Home Energy Raters and Rating Field Inspectors who are new to a QA Provider, as part of the 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.

102.1.2.4 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:

102.1.2.4.1 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.~~

~~102.1.2.4.1.1 Course(s) shall be approved by the RESNET Training and Education Committee annually;~~

~~102.1.2.4.1.2 The Training and Education Committee shall identify areas of importance;~~

~~102.1.2.4.1.3 Raters shall be required to pass an exam upon completion of the professional development training.~~

OR

102.1.2.4.2 ~~Documentation of 18 hours of attendance at~~ Attend a RESNET approved conference ~~in once every three (3) years would fulfill this requirement.~~

OR

~~102.1.2.4.3 Every three (3) years, Raters must pass the RESNET National Rater Test and Rating Field Inspectors must pass the RESNET National Rating Field Inspector Test.~~

102.1.2.4.3 Certified Home Energy Raters who have not completed any Confirmed, Sampled, or Threshold ratings within the three-year certification period shall successfully complete one RESNET graded-field evaluation, in addition to satisfying either 102.1.2.4.1 or 102.1.2.4.2 .

102.1.2.5 Recertification for Rating Field Inspectors.

102.1.2.5.1 Pass the RESNET graded field evaluation overseen by a RESNET certified Candidate Field Assessor once in a three-year period.

OR

102.1.2.5.2 Attend a RESNET approved conference once every three years.

102.1.2.5.3 Rating Field Inspectors who have not completed field work on any Confirmed, Sampled, or Threshold ratings within the three-year certification period shall be required to successfully complete one RESNET graded-field evaluation.

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, Achieving Certification](#), 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 accurate and fair ratings, field verification and testing in compliance with these standards and RESNET Board of Directors-approved interpretations;

102.1.2.6.2 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 un-executed copy of the written agreement shall be provided to RESNET with a 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 type of ratings conducted as requested by the QA Provider, including but not limited to Rating Field Inspectors (RFI's) utilized to complete submitted ratings.

Chapter Two

RESNET National Standard for Instruction, Assessment and Certification

206 Certification Candidates

206.1 General Provisions

206.1.1 Examinations

Examinations allow a candidate to demonstrate the knowledge required appropriate to their desired certification. RESNET online examinations are time-limited and open-book allowing any reference materials but excluding any form of communication with other individuals during the examination session. Examinations are administered by RESNET, set up by a RESNET Accredited Training Provider and overseen by a RESNET approved proctor. Approved proctors include BPI exam proctors, faculty and staff of libraries, trade schools, colleges, independent testing institutions, or others as approved by RESNET. Approved proctors shall adhere to RESNET's defined test proctoring procedures.

206.1.2 Simulated Practical Examinations

Simulated practical examinations allow a candidate to demonstrate their ability to perform certain tasks appropriate to their desired certification. Rater practical examinations shall be administered by RESNET and will include:

206.1.2.1 Rater Simulation Practical Test.

~~206.1.2.2 For new Candidates the effective date for RESNET Rater Simulation Practical Test is July 1, 2016.~~

206.1.2.32 RESNET Combustion Appliance Simulation Test

206.2 Certification

Prior to issuing a candidate's certification, a RESNET Accredited Rating Quality Assurance Provider shall confirm that the candidate has completed at a minimum, all of the following tasks appropriate to their desired certification within a 12-month period (unless otherwise indicated). Only RESNET Accredited Rating Quality Assurance Providers may certify candidates. Rating Providers may require candidates have successfully completed additional instruction beyond these requirements as needed to address their specific program, climate, software, or administrative requirements.

~~206.2.1 Home Energy Survey Professional (HESP)~~

~~206.2.1.1 Complete the national HESP Exam with a minimum (passing) score to be determined by RESNET.~~

206.2.2 Rating Field Inspector (RFI)

206.2.2.1 Pass the following RESNET Tests:

206.2.2.1.1 The RESNET Combustion Appliance Simulation Test

206.2.2.1.2 RESNET approved graded field evaluation

206.2.2.1.2.1 The graded field evaluation shall be performed under the observation of a Candidate Field Assessor.

206.2.2.2 Complete at least three mentored rating field inspections observed by a certified HERS rater or a RESNET Candidate Field Assessor. The certified HERS Rater or RESNET Candidate Field Assessor shall use the RESNET graded field evaluation to document the results of mentored inspections. The mentored Rating Field Inspections shall comprise at a minimum the following tasks.

206.2.2.2.1 Use pressure differential diagnostics to identify intermediate buffer zones including (but not limited to) attics, garages, or crawlspaces.

206.2.2.2.2 Identify insulation defects and account for them in energy analysis tool inputs.

206.2.2.2.3 Identify insulation types, thickness, and alignment with air barriers.

206.2.2.2.4 Measure pressure differences across the building envelope imposed by the operation of the home's equipment.

206.2.2.2.5 Perform envelope leakage testing in accordance with the airtightness testing protocols contained in [ANSI/RESNET/ICC 380-2016](#) .

206.2.2.2.6 Perform duct leakage testing in accordance with the duct testing protocols contained in [ANSI/RESNET/ICC 380-2016](#) and interpret results.

206.2.2.2.7 Identify room and zone pressure imbalances caused by lack of ducted return air or pressure relief mechanisms such as transfer grilles or jumper ducts.

206.2.2.2.8 Perform CAZ, spillage, and CO testing in accordance with Carbon Monoxide (CO) Test and Depressurization Test for the Combustion Appliance Zone (CAZ) protocols contained in ANSI/ACCA 12 QH, Appendix A, Sections A4 and A5.

206.2.2.3 RFI's shall not complete independent field testing and inspections until they have satisfactorily completed the requisite three mentored rating field inspections per 206.2.2.2 and pass the RESNET graded field evaluation.

206.2.2.4 After successfully completing the mentored rating field inspections and passing the RESNET graded field evaluation, RFI's may be permitted to conduct all rating tasks contained under Appendix A- On-Site Inspection Procedures for Minimum Rated Features without having a certified Rater on site."

206.2.3 Home Energy Rater (HERS Rater)

206.2.3.1 Successfully complete a Rater training course provided through a RESNET Accredited Training Provider that meets the minimum standards as defined in Section 202 - Accredited Training Providers.

206.2.3.2 Complete the following National RESNET HERS series of tests with the minimum (passing) scores to be determined by RESNET:

206.2.3.2.1 Pass the national HERS Rater Test(s)

206.2.3.2.2 The RESNET Combustion Appliance Simulation Tests

206.2.3.2.3 RESNET Rater Simulation Practical Test

206.2.3.3 After passing the all of the RESNET tests, but prior to being certified, the candidate shall complete five probationary ratings with a Rating Quality Assurance Provider overseen by a RESNET certified Candidate Field Assessor. At least three of the five probationary ratings shall be accomplished using field verification of all rated features of the home in accordance with [ANSI/RESNET/ICC 380-2016](#) and shall be completed in the presence of a RESNET Certified Field Assessor, at least one of which shall be completed one-on-one. Probationary ratings shall not be considered Confirmed Ratings.

206.2.3.4 A HERS Rater Candidate ~~who that~~ does not complete, to the satisfaction of a Quality Assurance Provider, a minimum of three (3) of the five (5) required probationary ratings within fifteen (15) months of passing the National RESNET HERS series of tests as defined in 205.2.3.1, or otherwise does not achieve certification within the allowed fifteen month timeframe, must at a minimum, complete the original requirements and do the following in order to maintain eligibility for certification:

206.2.3.4.1 Pass the RESNET National Rater Test again; and

206.2.3.4.2 Complete three (3) additional probationary ratings. One of the three (3) additional probationary ratings shall be accomplished using field verification of all rated features of the home in accordance with Section 303.8 and Chapter 8, with the exception that the work is not being performed by a currently Certified Rater and shall be completed in the presence of a RESNET certified Candidate Field Assessor. Probationary ratings shall not be considered Confirmed Ratings.

207 Recertification

207.1 Certification Renewal:

RESNET certified ~~Home Energy Survey Professionals~~, Rating Field Inspectors and HERS Raters, shall renew their certification every three years. They shall complete the following:

~~207.1.1 Home Energy Survey Professionals~~

~~Pass the national RESNET test appropriate to their certification.~~

207.1.2 Rating Field Inspectors

Pass the RESNET graded field evaluation overseen by a RESNET certified Candidate Field Assessor once in a three year period.

207.1.3 Certified Home Energy Raters

207.1.3.1 Attend a RESNET approved conference once every three years OR

207.1.3.2 Complete 18 hours of RESNET approved professional development from a RESNET Accredited Training Provider every three years, ~~OR~~

~~207.1.3.3 Successfully complete one RESNET graded field evaluation every three years.~~

207.1.3.3 Certified Home Energy Raters who have not completed any Confirmed, Sampled, or Threshold ratings within the three-year certification period shall successfully complete one RESNET graded-field evaluation, in addition to satisfying either 207.1.3.1 or 207.1.3.2

207.2 Failure to Achieve Recertification Criteria

207.2.1 RESNET certified Rating Field Inspectors and HERS Raters that fail to meet the requirements for recertification shall be placed on “Suspension – Administrative” status in the RESNET Registry by their affiliated RESNET QA Provider on the date of the expiration of their certification, and shall be barred from conducting rating inspection or certification activities until they have successfully met the criteria for recertification.

207.2.2 RESNET certified Rating Field Inspectors and HERS Raters that fail to successfully meet the criteria for recertification by 180 days past the date of expiration of their certification shall be revoked by their affiliated RESNET QA Provider per Section 102.1.4.7.3.

208 Capabilities

Certified individuals shall have certain capabilities to perform the work required under their certification. The categories listed in this section are contained in [Chapter 3 - , ANSI/RESNET/ICC 380-2016](#), and [Appendix 1 - On-Site Inspection Procedures for Minimum Rated Features](#). Certification candidates shall demonstrate proficiency at these capabilities through successful completion of certification requirements specified in [See Section 206 Certification Candidates](#). Training providers should ensure that their curricula effectively cover these items.

~~208.1 Home Energy Survey Professional (HESP)~~

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

~~208.1.1 General~~

~~208.1.1.1 Have a basic understanding of building performance evaluation.~~

~~208.1.1.2 Complete a RESNET approved Home Energy Survey form.~~

~~208.1.1.3 Demonstrate customer communication skills, ethics, and privacy.~~

~~208.1.2 Basics of specifications~~

~~208.1.2.1 Have a basic understanding of energy improvement measure interactions, expected life, and bundling for optimal performance considering the house as a system and the emerging need for deep energy savings.~~

~~208.1.3 Health and Safety~~

~~208.1.3.1 Identify moisture issues such as condensation, leaks through building components, signs of mold or mildew, insect damage, efflorescence and stains.~~

~~208.1.3.2 Identify potential combustion appliance safety hazards.~~

~~208.1.3.3 Identify evidence in combustion equipment of flame rollout, blocked chimneys, rust and corrosion, and missing or damaged vent connectors.~~

~~208.1.4 Building Science Concepts~~

~~208.1.4.1 Use appropriate energy terminology and definitions in home energy survey reports.~~

~~208.1.4.2 Identify areas of potential envelope leakage, thermal bypasses, and thermal bridging.~~

~~208.1.5 Determining Conditioned Space Volume~~

~~208.1.5.1 Determine the Conditioned Space Volume of a dwelling unit as defined in Appendix B.~~

~~208.1.6 Building Components~~

~~208.1.6.1 Identify exterior building components.~~

~~208.1.6.2 Determine building orientation and shading characteristics.~~

~~208.1.6.3 Measure building dimensions and use them to calculate gross and net areas.~~

~~208.1.6.4 Estimate the approximate age of a building.~~

~~208.1.7 Insulation~~

~~208.1.7.1 Identify the presence or absence of insulation and the quality of its installation when visually accessible.~~

~~208.1.7.2 Determine thickness, R-value, and location of insulation.~~

~~208.1.7.3 Recommend levels of insulation by climate zone.~~

~~208.1.8 Building Foundations~~

~~208.1.8.1 Identify foundation type as crawl space, basement, or slab-on-grade.~~

~~208.1.8.2 Identify foundation ventilation system types if present.~~

~~208.1.8.3 Identify location, type, and approximate R-value of foundation insulation systems.~~

~~208.1.9 Framed Floors~~

~~208.1.9.1 Identify location and type of floor system, its insulation type, thickness, and approximate R-value.~~

~~208.1.10 Above Grade Walls~~

~~208.1.10.1 Determine wall types, insulation thickness, and approximate R-value.~~

~~208.1.10.2 Identify signs of building additions.~~

~~208.1.11 Windows, doors, and skylights~~

~~208.1.11.1 Identify window and skylight types, frame materials, and permanently installed shading devices.~~

~~208.1.11.2 Determine window, door, and skylight efficiencies and performance factors.~~

~~208.1.12 Rim or Band Joist~~

~~208.1.12.1 Determine insulation type, thickness, and approximate R-value.~~

~~208.1.13 Ceilings~~

~~208.1.13.1 Determine ceiling type, insulation thickness, and approximate R-value.~~

~~208.1.14 Attic~~

~~208.1.14.1 Identify type of attic and location of attic venting.~~

~~208.1.15 Roof~~

~~208.1.15.1 Identify approximate age, type, and color of roofing materials.~~

~~208.1.15.2 Determine approximate R-value if insulated.~~

~~208.1.16 HVAC Systems~~

~~208.1.16.1 Identify types, model numbers, and location of systems.~~

~~208.1.16.2 Determine equipment efficiencies from equipment labels, model numbers or default tables.~~

~~208.1.16.3 Identify HVAC pros/cons, drivers and sensitivities for major system types.~~

~~208.1.16.4 Identify basic combustion appliance concerns.~~

~~208.1.17 Domestic Hot Water Systems~~

~~208.1.17.1 Identify system types and efficiency factors from equipment labels, model numbers, or default tables.~~

~~208.1.18 Air Leakage~~

~~208.1.18.1 Identify common air leakage sites and indicate likely opportunities for leakage reduction.~~

~~208.1.18.2 Identify mechanical systems likely to cause air leakage or pressure imbalances.~~

~~208.1.19 Duct Leakage~~

~~208.1.19.1 Determine duct type, location, and R-value.~~

~~208.1.19.2 Identify obvious leakage locations and indications of previous sealing.~~

~~208.1.20 Ventilation Systems~~

~~208.1.20.1 Identify presence and type of exhaust fans and determine whether they vent to outdoors.~~

~~208.1.20.2 Appliances and Lighting~~

~~208.1.20.3 Estimate efficiency from model numbers or vintage.~~

~~208.1.20.4 Identify potential lighting upgrades.~~

208.2.1 Rating Field Inspector (RFI)

A Rating Field Inspector is permitted to conduct all tasks contained within [Appendix A- On-Site Inspection Procedures for Minimum Rated Features](#). A Certified Rating Field Inspector shall have proficiency at the capabilities listed below of a HESP in addition to the following items.

208.21.1 General

208.1.1.1 Have a basic understanding of building performance evaluation.

208.1.1.2 Demonstrate customer communication skills, ethics, and privacy.

208.21.1.13 Use field inspection forms to identify and document the minimum rated features of the Reference Home and Rated Home in accordance with the requirements of [ANSI/RESNET/ICC 301-2014](#) – Energy Rating Reference Home

and Rated Home Configuration and MINHERS [Appendix A- On-Site Inspection Procedures for Minimum Rated Features](#).

208.21.1.24 Identify potential problems with the building such as health and safety concerns, building durability issues, potential comfort problems, and possible elevated energy use.

208.21.1.35 Identify basic home construction types and the ramifications of these for energy usage.

208.21.2 Basics of specifications

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

208.21.23 Determining Conditioned Space Volume

208.21.23.1 Determine the Conditioned Space Volume of a dwelling unit as defined in Appendix B.

208.21.34 Health and Safety

208.1.34.1 Identify moisture issues such as condensation, leaks through building components, signs of mold or mildew, insect damage, efflorescence and stains.

208.1.34.2 Identify potential combustion appliance safety hazards.

208.1.34.3 Identify evidence in combustion equipment of flame rollout, blocked chimneys, rust and corrosion, and missing or damaged vent connectors.

208.21.34.44 Identify problems related to poor indoor air quality (IAQ), building durability, and human comfort.

208.21.34.25 Identify potential presence of mold and potential causes.

208.1.45 Building Science Concepts

208.1.45.1 Identify areas of potential envelope leakage, thermal bypasses, and thermal bridging.

208.21.46 Moisture Principles and Properties

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

208.1.7 Building Components

208.1.7.1 Identify exterior building components.

208.1.7.2 Determine building orientation and shading characteristics.

208.1.7.3 Measure building dimensions and use them to calculate gross and net areas.

208.1.7.4 Estimate the approximate age of a building.

208.21.58 Measuring Building Components

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

208.21.69 Collecting Field Data (including photo documentation)

208.21.69.1 Determine building orientation.

208.21.69.2 Measure window overhang lengths, heights, and distances from top and bottom of windows.

208.21.69.3 Determine roof slopes, gable heights, etc.

208.21.69.4 Calculate gross and net areas and volumes.

208.21.710 Insulation

208.1.10.1 Identify the presence or absence of insulation and the quality of its installation when visually accessible.

208.1.10.2 Determine thickness, R-value, and location of insulation.

208.1.10.3 Recommend levels of insulation by climate zone

208.21.710.44 Identify insulation types, thickness measurements, common usage locations, and alignment with air barriers.

208.21.710.25 Identify insulation defects, and grading (I, II, III).

208.21.811 Building Foundations

208.21.811.1 Identify type as crawl space, basement, or slab.

208.21.811.2 Identify ventilation system types.

208.21.811.3 Identify location, type, and R-value of insulation systems.

208.21.912 Framed Floors

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

208.21.912.42 Determine if framed floors are exposed to Conditioned Space Volume, Unconditioned Space Volume, or the outdoors.

208.21.912.23 Determine floor system type and frequency of framing members.

208.21.912.34 Determine insulation thickness, type, and grade (I, II, or III).

208.21.4013 Slab-on-Grade

208.21.4013.1 Identify slab as covered or exposed.

208.21.4114 Above Grade Walls

208.1.14.1 Determine wall types, insulation thickness, and approximate R-value.

208.1.14.2 Identify signs of building additions.

208.21.4114.43 Determine if walls are exposed to Conditioned Space Volume, Unconditioned Space Volume, or outdoors.

208.21.4114.24 Determine construction type, thickness, and exterior color.

208.21.4215 Windows, ~~and~~ Doors and Skylights

208.1.15.1 Identify window and skylight types, frame materials, and permanently installed shading devices.

208.1.15.2 Determine window, door, and skylight efficiencies and performance factors.

208.21.4215.43 Identify window labels, framing types and materials, U-factors, reflective and low-e films and coatings, shading and overhangs, and orientation.

208.21.4215.24 Identify exterior door types, insulation, and orientation.

208.21.4215.35 Identify glass-area of exterior doors and windows.

208.1.16 Rim or Band Joist

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

208.1.17 Ceilings

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

208.1.18 Attic

208.1.18.1 Identify type of attic and location of attic venting.

208.1.19 Roof

208.1.19.1 Identify approximate age, type, and color of roofing materials.

208.1.19.2 Determine approximate R-value if insulated.

208.21.4320 Heating and Cooling Systems

208.1.20.1 Identify types, model numbers, and location of systems.

208.1.20.2 Identify HVAC pros/cons, drivers and sensitivities for major system types.

208.1.20.3 Identify basic combustion appliance concerns

208.21.4320.14 Determine equipment efficiencies using equipment data (make, model, nameplate data), AHRI or other current accepted guides, or age-based defaults.

208.21.4320.25 Identify space-conditioning systems as active or passive.

208.21.4320.36 Identify heating system properties: fuel type, burner type, venting type, distribution type, and efficiency.

208.21.4320.47 Identify Ground-source heat pumps, air-source heat pumps, and air conditioning systems.

208.21.4320.58 Identify ductless systems (hydronic, steam, electric).

208.21.4320.69 Identify combo systems.

208.21.4320.710 Identify solar thermal systems.

208.21.1320.811 Identify control types (standard thermostats, programmable thermostats, multi-zone controls).

208.21.1320.912 Identify sizing and design issues, control types, and their impacts on energy use and humidity control.

208.21.1320.1013 Identify summer and winter design temperatures.

208.21.1320.1114 Identify cooling and heating system design trade-offs.

208.1.21 Domestic Hot Water Systems

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

208.21.1422 Gas Leakage Testing

208.21.1422.1 Identify gas leaks using combustible gas sensing equipment.

208.21.1523 CAZ Testing

208.21.1523.1 Perform CAZ depressurization, spillage, and CO testing in accordance with Carbon Monoxide (CO) Test and Depressurization Test for the Combustion Appliance Zone (CAZ) protocols contained in ANSI/ACCA 12 QH, Appendix A, Sections A4 and A5.

208.21.1523.2 Identify room and zone pressure imbalances caused by lack of ducted return air or pressure relief mechanisms such as transfer grilles or jumper ducts.

208.21.1523.3 Identify gas leaks using combustible gas sensing equipment. If a leak is found, recommend that a certified technician repair the leak.

208.21.1624 Air Leakage

208.1.24.1 Identify common air-leakage sites and indicate likely opportunities for leakage reduction.

208.21.1624.12 Identify air leakage mechanisms and drivers, energy and comfort implications, and health and safety issues.

208.21.1624.23 Perform single-point and multi-point building envelope leakage testing in accordance with the airtightness testing protocols contained in [ANSI/RESNET/ICC 380-2016](#).

~~208.21.1624.34~~ Identify potential air sealing using zonal pressure differentials and measurement techniques.

~~208.21.1624.45~~ Measure pressure differences across the building envelope imposed by the operation of the home's equipment.

208.21.1725 Conditioned Air Distribution Systems

208.1.25.1 Determine duct type, location, and R-value.

208.1.26.2 Identify obvious leakage locations and indications of previous sealing.

~~208.21.1725.13~~ Identify impacts of designed and imposed flaws (closed interior doors, blocked registers and grilles, air handler filters, etc).

~~208.21.1725.24~~ Identify duct supply and return types (flexible, rigid metal, building chase, insulated panels) and locations with respect to thermal and air barriers.

~~208.21.1725.35~~ Identify room and zone pressure imbalances caused by lack of ducted return air or pressure relief mechanisms such as transfer grilles or jumper ducts.

~~208.21.1725.46~~ Perform duct leakage testing in accordance with the duct testing protocols contained in [ANSI/RESNET/ICC 380-2016](#) and recommend sealing as needed based on test results.

~~208.21.1725.57~~ Determine need for duct insulation in Unconditioned Space Volumes and specify thickness of retrofit insulation if needed.

208.21.1826 Ventilation

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

~~208.21.1826.42~~ Identify fresh air ventilation from supply, exhaust and balanced flow systems.

~~208.21.1826.23~~ Identify heat-recovery ventilation (HRV) and energy-recovery ventilation (ERV) systems.

~~208.21.1826.34~~ Determine HRV or ERV efficiency, fan power and duty cycle characteristics.

208.1.27 Appliances and Lighting

208.1.27.1 Estimate efficiency from model numbers or vintage.

208.1.27.2 Identify potential lighting upgrades.

208.3 Home Energy Rating System Rater (HERS Rater)

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

Chapter Seven

RESNET National Standards 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. A certified auditor, an accredited Provider and/or a program will apply this standard to improve the energy performance of existing homes through uniform, comprehensive home energy surveys, audits and ratings for existing residential buildings. This standard is intended to encourage investments by building owners that produce the following outcomes:~~

~~Increase the energy efficiency of homes;~~

~~Increase the comfort of homes;~~

~~Increase the durability of homes;~~

~~Reduce the risk that energy improvement recommendations will contribute to health, safety, or building durability problems;~~

~~Reduce waste and pollution, protecting the environment; and~~

~~Ensure that the recommendations are within the community standards (e.g. historic districts, flood zones, subdivision covenants).~~

~~And to ensure that throughout the process, energy improvement recommendations are portrayed with reasonable and consistent projections of energy savings.~~

~~701.2 Scope~~

~~This Home Energy Audit Standard will address RESNET Providers for each area of home inspection, applicable procedures, types of home inspections, certifications of the inspectors, summary of requirements for each type of inspection, and the reports to accompany each type of inspection.~~

~~701.2.1 Application of Standards~~

~~This standard applies to existing site-constructed or manufactured, single or multi-family, residential buildings three stories or less in height.~~

~~701.2.2 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.~~

~~701.3 Relationship to Other Standards~~

~~This Chapter is a companion Chapter to the RESNET Mortgage Industry National Home Energy Rating System Standard as promulgated and maintained by the Residential Energy Services Network (RESNET) and recognized by the mortgage industry and programs promoting the improved energy performance of buildings.~~

~~701.4 Definitions and Acronyms~~

~~See Appendix B Glossary of Terms.~~

~~701.5 National Standard for Home Energy Audits.~~

~~There are 3 categories of home performance assessments defined in this standard, listed in order of increasing accuracy and completeness:~~

- ~~1. Home Energy Survey (HES)
 - ~~a. On-Line Home Energy Survey~~
 - ~~b. Professional Home Energy Survey~~~~

~~702 Home Energy Survey Professional Provider Accreditation Criteria~~

~~702.1 Minimum Standards for Home Energy Survey Professional (HESP) Provider Accreditation~~

~~Home Energy Survey Professional Providers shall be accredited in accordance with the Accreditation Process specified in Chapter 9 of these Standards. An HESP Provider shall specifically meet the following minimum standards for Accreditation.~~

~~702.1.1 Home Energy Survey Professional Standard. Home Energy Survey Professionals (HESPs) shall be certified (and re-certified) by RESNET-accredited HESP Providers, who shall abide by the following provisions:~~

~~702.1.1.1 HESP Providers shall provide documentation that the HESPs under their Providership meet the following certification requirements:~~

~~702.1.1.1.1 Performance Evaluation. HESPs shall pass a performance evaluation of their ability to perform accurate Home Energy Surveys and/or Building Performance Audits in accordance with sections 703 and 704. Each HESP shall complete a probationary period where close supervision is provided by the HESP Provider's QA Designee (as defined in Chapter 9 of these Standards). The probationary period covers a minimum of three Home Energy Surveys (as applicable) after which the QA Designee shall determine if additional training is needed.~~

~~702.1.1.1.2 Professional Development for HESPs. HESPs shall complete one of the below three options:~~

~~702.1.1.1.2.1 Complete 18 hours of professional development every three years. The 18 hours shall include completion of 18 hours of refresher course(s) offered by a RESNET Accredited HESP Training Provider; or~~

~~702.1.1.1.2.2 Documentation of 18 hours of attendance at a RESNET Conference every three (3) years; or~~

~~702.1.1.1.2.3 Pass the HESP online test every three years.~~

~~702.1.1.1.3 Testing. All certified HESPs shall pass the national Home Energy Survey Professional (HESP) online test administered by RESNET with a score of at least 75 percent.~~

~~702.1.1.1.4 Recertification of individuals by the HESP Provider shall occur every three (3) years.~~

~~702.1.1.1.5 Agreements. As a condition of certification, each HESP Provider shall ensure that each certified individual enters into a written agreement with the Provider to provide the applicable field verification services in compliance with these Standards. An un-executed copy of the 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 Auditors to:~~

~~702.1.1.1.5.1 Provide audit verification services in compliance with these Standards;~~

~~702.1.1.1.5.2 Provide accurate and fair Professional Surveys ; and~~

~~702.1.1.1.5.3 Comply with the RESNET Code of Ethics. The RESNET Code of Ethics shall be attached to the written agreement.~~

~~702.1.2 Minimum Standards for HEA Provider Operation Policies and Procedures shall be submitted in written form to RESNET for approval, and shall at a minimum provide for the following:~~

~~702.1.2.1 Written conflict of interest provisions that prohibit undisclosed conflicts of interest, but may allow waiver with advanced disclosure. The “Standard Disclosure” form adopted by the RESNET Board of Directors shall be completed for each home that receives a Home Energy Survey or Building Performance Audit and shall be provided to the client and made available to the homeowner. 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 among the auditor or the auditor’s employer, other contractors that may complete work on the home, and the survey client and/or homeowner, the HESP 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 these Standards.~~

~~702.1.2.2 Written Auditor discipline procedures that include progressive discipline for probation, suspension, and decertification.~~

~~702.1.2.3 In accordance with the minimum requirements set forth in Chapter 9 for quality assurance, a written audit Quality Assurance Plan and designation of a Quality Assurance Designee.~~

~~702.1.2.4 Auditor Registry. The HESP Provider shall maintain a registry of all of its certified Auditors. The specified Provider shall also keep on file the names and contact information for all certified Auditors, including company name, mailing address, voice phone number, fax number, and email address. Upon request, the HESP Provider shall provide to RESNET its registry of certified HESPs.~~

~~702.1.2.5 Complaint Response Process. Each HESP Provider shall have a publicly accessible system for receiving complaints. HEA Providers shall ensure that Auditors inform clients about the complaint process by publicizing the web address of the complaint resolution process. Each HESP Provider shall retain records of complaints received and responses to complaints for a minimum of three (3) years after the date of the complaint.~~

~~703 National Home Energy Audit Procedures~~

~~703.1 Home Energy Survey~~

~~The purpose of the Home Energy Survey is to assess the general condition of the home with respect to energy performance. The Home Energy Survey shall include a report that shows a general range of a home's energy efficiency based on minimum specific criteria (e.g. insulation, equipment age, general condition, energy usage and costs) and a lookup matrix based on regional norms and climate, as approved by RESNET. The Home Energy Survey is not required if the homeowner wishes to directly pursue a HERS Rating. The Home Energy Survey will take one of two forms: a DOE or RESNET approved computerized On-Line Home Energy Survey performed by the owner or occupant, or a Professional Home Energy Survey conducted by a certified Home Energy Survey Professional.~~

~~703.1.1 On-Line Home Energy Survey~~

~~The On-Line Home Energy Survey shall collect substantially the same data and information and shall be subject to the same limitations as the Professional Home Energy Survey. On-line Home Energy Survey software shall be hosted by a RESNET accredited HEA Provider or another organization approved by RESNET and the on-line program report shall be approved by RESNET.~~

~~703.1.2 Professional Home Energy Survey~~

~~The Professional Home Energy Survey shall include on-site visual inspection of the energy features of the dwelling unit, and documentation of its general condition, including envelope features and ages; equipment types, characteristics and ages; appliance and lighting characteristics; and likely anticipated remediation issues such as moisture or combustion appliance problems. Where available, the Professional Home Energy Survey shall include a review of utility use and billing history. The Home Energy Survey is a visual inspection only and does not include diagnostic testing. Home Energy Survey Professionals may also use home energy survey and labeling software programs approved by RESNET or the U.S. Department of Energy. A homeowner is not required to have a Professional Home Energy Survey prior to having a Building Performance Audit or Comprehensive HERS Rating.~~

~~703.1.2.1 The Home Energy Survey Professional (HESP) shall interview the homeowner regarding energy, comfort problems and related durability issues. The HESP shall review the goals listed in 701.1 of these Standard, and provide an explanation of the home energy audit process and potential availability of incentive programs that maybe accessed by the homeowner. The interview shall include, but is not limited to, the following subject areas:~~

~~703.1.2.1.1 Comfort complaints, including areas of the home that are too hot or too cold.~~

~~703.1.2.1.2 Energy billing concerns.~~

~~703.1.2.1.3 Durability issues, including water intrusion, ice damming, etc.~~

~~703.1.2.1.4 The potential for the homeowner to follow up with a Building Performance Audit or Comprehensive HERS Rating.~~

~~703.1.2.1.5 Interest in potential home energy performance improvements.~~

~~703.1.2.2 The HESP shall inform the homeowner of low cost/no cost improvements that can be implemented by the homeowner.~~

~~703.1.2.3 The HESP shall request copies of utility bills and/or written permission to obtain past energy use information from the utility supplier(s), for the purpose of estimating generalized end-use consumption (base, heating, and cooling). If the customer declines, the HESP shall explain the reason for the request and the potential effect on the home energy survey.~~

~~703.1.2.4 The HESP shall advise the homeowner on where to locate qualified individuals (including the RESNET website) to conduct a Building Performance Audit, a Comprehensive HERS Rating, and/or RESNET Qualified Contractors to complete the work on the home.~~

~~703.1.2.5 Minimum Procedures for a Professional Home Energy Survey:~~

~~703.1.2.5.1 The Home Energy Survey Professional (HESP) shall complete a RESNET-approved survey form. The survey form will require the HESP to visually review the home to determine, measure or estimate the following features:~~

~~703.1.2.5.1.1 R-values and location of wall/ceiling/floor insulation;~~

~~703.1.2.5.1.2 Square footage and approximate age of home;~~

~~703.1.2.5.1.3 Glazing type(s), frame material(s), and permanently installed shading devices such as screens or applied films;~~

~~703.1.2.5.1.4 Type, model number, efficiency (if available), and location of heating/cooling system(s);~~

~~703.1.2.5.1.5 Type of ductwork, location and R-value of duct insulation, visual assessment of obvious duct leakage, and any indications of previous duct sealing;~~

~~703.1.2.5.1.6 Type of foundation is crawl space, basement, or slab, along with venting and insulation locations;~~

~~703.1.2.5.1.7 Type of attic, approximate age, type and color of roofing material and presence and type of venting.~~

~~703.1.2.5.1.8 Checklist of common air leakage sites; indicating likely opportunities for leakage reduction;~~

~~703.1.2.5.1.9 Estimated age and efficiency (if available), condition, number and location of major appliances such as dishwashers, refrigerators, freezers and washing machines;~~

~~703.1.2.5.1.10 Number, type, and controls of indoor and outdoor light fixtures and portable lamps that are suitable for energy efficient re-lamping;~~

~~703.1.2.5.1.11 Durability issues such as visual indications of common moisture problems, including condensation, roof leaks, foundation leaks, ground water intrusion, ice damming, and plumbing leaks, as well as signs of mold, mildew, insect damage, efflorescence, and stains;~~

~~703.1.2.5.1.12 Presence, size, and location of exhaust fans, and determination of whether they are vented to the outdoors;~~

~~703.1.2.5.1.13 Number, type, and flow rate of water fixtures (e.g. faucets, showerheads), presence and control of hot water recirculation loop/pump;~~

~~703.1.2.5.1.14 Presence and type(s) of combustion equipment; visually identifiable evidence of flame roll-out, blocked chimney, rust and corrosion; missing or damaged vent connectors;~~

~~703.1.2.5.1.15 Mechanical systems that are likely to cause or contribute to excess infiltration or pressure imbalances, such as attic fans or bedrooms with no return air or transfer grilles.~~

~~703.1.2.5.1.16 Any identified potential combustion appliance safety hazards related to energy retrofit work.~~

~~703.1.2.5.2 The following elements are outside the scope of a Professional Home Energy Survey:~~

~~703.1.2.5.2.1 The use of blower doors, duct leakage test equipment or an infrared camera.~~

~~703.1.2.5.2.2 Any other diagnostic testing of the home~~

~~703.1.2.5.2.3 Quantification of any levels of air tightness, duct tightness, or ventilation amounts.~~

~~703.1.2.5.2.4 Combustion Appliance Zone (CAZ) testing~~

~~703.1.2.5.3 Energy savings estimates will only be generalized and presented along with the qualification that a Building Performance Audit or Comprehensive HERS Rating shall be obtained to calculate more detailed energy savings estimates.~~

~~703.1.2.6 Minimum Professional Home Energy Survey Report Documentation~~

~~703.1.2.6.1 At the completion of the Professional Home Energy Survey the Home Energy Survey Professional shall provide the homeowner a standardized report using a format approved by RESNET, signed and dated by the HESP. The report at a minimum shall provide information to the homeowner that addresses:~~

~~703.1.2.6.1.1 All data collected in accordance with Section 703.1.2.5, above;~~

~~703.1.2.6.1.2 Whole house solutions overview of how the home works as a system and how to prioritize actions;~~

~~703.1.2.6.1.3 The quality of installation of HVAC equipment including general information on proper sizing of equipment, duct sealing, insulation and general condition of the ductwork, and the importance of proper refrigerant charge and air flow;~~

~~703.1.2.6.1.4 The quality of the building envelope air sealing and proper levels of insulation;~~

~~703.1.2.6.1.5 An overview of potentially appropriate ENERGY STAR or better products and appliances;~~

~~703.1.2.6.1.6 Information regarding access to a Building Performance Audit or HERS Rating;~~

~~703.1.2.6.1.7 Potential non-energy benefits of improving the energy efficiency of the home including reduction of carbon emissions, improved comfort and air quality;~~

~~703.1.2.6.1.8 General statement regarding opportunities to improve the thermal envelope, mechanical equipment, lighting and appliances in the home;~~

~~703.1.2.6.1.9 General discussion of observations and concerns regarding combustion appliance operation;~~

~~703.1.2.6.1.10 A safety notification form adopted by RESNET that is filled out and presented to the homeowner identifying potential hazards such as lead paint, asbestos, mold, and radon that are outside the scope of the Home Energy Survey;~~

~~703.1.2.6.1.11 Information on available rebate, financing, and/or tax incentive programs that will help the homeowner~~

~~703.1.2.7 Limitations~~

~~Unless certified by RESNET as a Building Performance Auditor or Comprehensive HERS Rater, (or another certification that is recognized by RESNET as equivalent), the Home Energy Survey Professional shall not produce a detailed written work scope for improvements as part of a Professional Home Energy Survey.~~

~~703.2 HERS Rating on an Existing Home~~

~~The purpose of the HERS Rating on an existing home is to identify building performance deficiencies and provide a work scope sufficient for improvements to be made to the audited home. The HERS Rating Performance Audit includes an evaluation, performance testing, computer software analysis using software that is accredited by RESNET for this purpose, and reporting of proposed treatments for improvement of an existing home. The evaluation shall include a review of the data collected from any previous energy audit or survey, any further required measurement and performance testing, and combustion appliance testing. The Rater shall determine the appropriate work scope for the home. A homeowner may elect to go through this process with or without a prior Professional Home Energy Survey. A HERS Rating on existing home includes all of the provisions of the Professional Home Energy Survey (Section 703.1.2.5), plus the performance of diagnostic testing and reporting requirements as follows:~~

~~703.2.1 Evaluate building shell air leakage in CFM₅₀~~

~~At a minimum, a single point (50 Pa) blower door depressurization test shall be performed in accordance with the envelope testing protocols contained in ANSI/RESNET/ICC 380-2016 and the results thereof shall be included in the audit report.~~

~~703.2.2 Evaluate duct leakage.~~

~~703.2.2.1 The Auditor shall perform a duct leakage test in accordance with the protocols contained in ANSI/RESNET/ICC 380-2016 and/or specify a duct leakage test in accordance with RESNET standards prior to beginning any duct sealing work.~~

~~703.2.3 Conduct GAZ Depressurization, Spillage and CO testing~~

~~703.2.3.1 The auditor must perform a worst case depressurization, spillage, and CO test in accordance with the RESNET interim guidelines.~~

~~703.2.4 Prepare a Detailed Retrofit Work Scope~~

~~A BPA Report shall include a retrofit work scope in accordance with the RESNET interim guidelines.~~

~~703.2.4.1 The work scopes for recommended improvements shall be determined by the Auditor based upon the findings of the assessment and the client's budget and objectives. The recommendations shall be presented to the homeowner in order of priority based on cost effectiveness and priorities for remediation of combustion appliance deficiencies. At a minimum, five (5) of the most cost-effective measures must be recommended regardless of the client's budget.~~

~~703.3 HERS Rating~~

~~The HERS Rating is the most in-depth performance audit. It includes evaluation, performance testing, reporting of the proposed work scope for improvement of an existing home in accordance with Section 703.2, and a HERS Rating in accordance with Chapter 3 of these Standards. A homeowner is not required to have a Professional Home Energy Survey prior to having a Comprehensive HERS Rating.~~

~~704 Required Skills for Certification~~

~~704.1 Minimum skills and knowledge base required to conduct a Professional Home Energy Survey~~

~~704.1.1 Basics of heat transfer concepts~~

~~704.1.2 Basics of building performance testing~~

~~704.1.3 Basics of air distribution leakage~~

~~704.1.4 Calculating gross and net areas~~

~~704.1.5 Definitions/energy terminology~~

~~704.1.6 Basic combustion appliance concerns~~

~~704.1.7 Basics of envelope leakage, thermal bypass, thermal bridging~~

~~704.1.8 Determining envelope insulation~~

~~704.1.8.1 Presence/absence of insulation and when observable, the quality of its installation~~

~~704.1.8.2 Recommended levels of insulation by climate zone~~

~~704.1.9 HVAC — determining equipment efficiencies from model numbers or default tables~~

~~704.1.9.1 HVAC pros/cons, drivers and sensitivities of major system types~~

~~704.1.9.2 Household appliances—estimate efficiency from model numbers or vintage~~

~~704.1.9.3 Energy, power, moisture, heat conductivity/resistance, and temperature units and key conversion factors~~

~~704.1.9.4 Measuring building dimensions~~

~~704.1.9.5 Identification and documentation of energy survey inspected features of the home~~

~~704.1.9.6 Basics of specifications~~

~~704.1.9.7 Determining window and door efficiency~~

~~704.1.9.8 Determining building orientation and shading characteristics~~

~~704.1.9.9 Defining the thermal boundary, and appropriate recommendations for changing the thermal boundary~~

~~704.1.9.10 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 General Limitations and Exclusions~~

~~705.1 Limitations~~

~~705.1.1 The energy use information contained in reports resulting from Professional Home Energy Survey HERS Ratings do not constitute any warranty of energy cost or savings.~~

~~705.1.2 Surveys Ratings that are performed in accordance with these standards:~~

~~705.1.2.1 Are not technically exhaustive.~~

~~705.1.2.2 Will not identify concealed conditions or latent defects.~~

~~705.1.3 The Building Performance Audit Comprehensive HERS Rating is 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 and safety issues related directly to proposed work scopes.~~

~~705.1.4 The Home Energy Survey is not applicable to building design and construction features except those listed in Section 703.1.2.5.~~

Appendix B

~~*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, 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.~~