RESNET
RESIDENTIAL ENERGY SERVICES NETWORK

Setting the Standards for Home Energy Efficiency

Where RESNET Is Heading and Why

Steve Baden, RESNET Executive Director

www.resnet.us

Demand for HERS Ratings Growing

218,000 homes rated in US in 2013 (128,000 in 2012)

Average US HERS Index Score – 64 (66% more efficient than average existing home)

To date over 1.5 million homes rated in US

Mega Trends for High Performance Homes

- **National Builders Marketing the Energy Performance of Homes**
- **Incorporation of HERS Index Scores as Compliance Option to Building Energy Codes**
  - 2015 IECC, Arkansas, Colorado, Idaho, Kansas, Massachusetts, New Mexico and New York
- **Incorporation of HERS Index Scores in MLS**
  - Colorado, Florida, Illinois, Maine, Minnesota, Nebraska. New Hampshire, Oklahoma, Texas, Vermont, Wisconsin

Mega Trends for High Performance Homes

- **Evidence that Low HERS Index Scores Reduces Risk in Mortgage Loan**

- **Large Home Owner Insurance Carrier Offers Energy Bill Guarantee Based on Home Energy Rating**

Code Jurisdictions Recognizing HERS Index in Energy Codes

- Over 150 state and local code jurisdictions adopt HERS Index Score compliance option
- 2015 IECC to Include Energy Rating Option

HERS & Codes – What is the Right Number?

Climates	2006	2009	2012
Zone 1	97	79	74
Zone 2	96	79	73
Zone 3	94	78	71
Zone 4	92	82	76
Zone 5	91	82	80
Zone 6	92	83	79
Zone 7	93	85	78
Zone 8	96	86	79
U.S. Average	94	82	76

2015 IECC Incorporates Rating Score

The rating scores that were adopted by the IECC are:

Regions 1 and 2	52
Region 3	51
Region 4	54
Region 5	55
Region 6	54
Region 7 and 8	53

The HERS path also requires that a builder must meet the mandatory envelope requirements of the 2009 IECC

Incorporation of HERS Index Scores as Compliance Option to Energy Codes

Why?

- The inspection and testing protocols are established in RESNET's national home energy rating standards

- The professionals that undertake the inspection and performance testing are certified following RESNET's standards stringent training and testing procedures.

- The HERS Index is a trusted measurement of the energy performance of a home. Over 1.5 million homes have been issued a HERS Index Score in the US.

Potential Game Change to HERS Raters

Why?

Only viable performance option in energy codes.

Gives builders more flexibility by setting a performance target and not dictating building practice

Raters Need to be Proactive on Local/State Code Hearings and Involve Builder Clients

Tools Available to HERS Raters Web Site

RESNET® CERTIFIED ENERGY AUDITORS/RATERS AND QUALIFIED CONTRACTORS/BUILDERS
Residential Energy Services Network

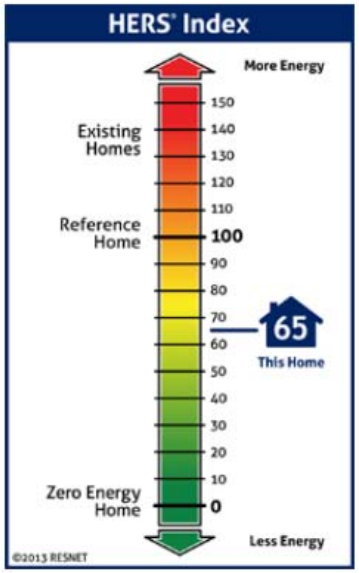
» ARE YOU A HOMEOWNER?
Visit our Homeowner site

Home | Rater/Auditor Information | Contractor Information | Builder Information | Provider Information | RESNET Standards | RESNET Conference | Partners | Resources | RESBlog

| Home » HERS Index and Energy Codes

THE HERS INDEX AS A PERFORMANCE PATH TO BUILDING ENERGY CODES

The RESNET HERS Index is the industry standard by which a home's energy efficiency is measured. The HERS or Home Energy Rating System was developed by RESNET and is the nationally recognized system for inspecting and calculating a home's energy performance. Certified RESNET Home Energy Raters conduct inspections to verify a home's energy performance and determine what improvements can be made to increase it. For more information click on RESNET HERS Index



Across the nation state and local governments are adding a HERS Index Score target as a performance compliance option to their building energy code.

The reasons why a HERS Index Score is being tied into energy codes include:

- The inspection and testing protocols are established in RESNET's national home energy rating standards. RESNET is a national not-for-profit membership standard setting organization. It is accredited by the American National Energy Standards Institute (ANSI) as a Standard Development Organization.
- The professionals that undertake the inspection and performance testing are certified following RESNET's standards stringent training and testing procedures.
- All certified RESNET home energy raters are subject to RESNET's quality assurance oversight procedures.
- The RESNET national home energy rating standards are recognized by the federal government (U.S. Department of Energy, Environmental Protection Agency, Internal Revenue Service) and the mortgage industry.
- The HERS Index is a trusted measurement of the energy performance of a home. Over one million homes have been issued a HERS Index Score in the US.

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- Certification Requirements
- Business Opportunities

READ MORE

Tools Available to HERS Raters
Factsheets & Presentations

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Energy Rating Index Performance Path

Overview of the ERI Performance Path in the 2015 IECC

The Energy Rating Index (ERI) performance path gives builders yet another option for complying with the International Energy Conservation Code (IECC). In addition to the prescriptive and performance paths of previous versions of the IECC, builders now have the option of meeting a target ERI score through a wide range of performance options to demonstrate compliance. The ERI performance path also requires builders to meet the mandatory code requirements of the IECC, including water heating piping provisions, and comply with the minimum insulation and window envelope prescriptive requirements of the 2009 IECC.

The ERI performance path allows a state or jurisdiction adopting the IECC to specify which qualifying Energy Rating Index method it will use. RESNET's Home Energy Rating System (HERS) index, based on ANSI RESNET Standard 301-2014, is the existing compliant ERI method and is nationally recognized for inspecting and calculating a home's energy performance. To date, over 1.5 million homes have been rated in the U.S. under the RESNET standards and in 2013, half of all new homes were rated and issued a HERS Index Score.

Energy ratings are based on a number of variables, including equipment and appliance upgrades, as well as the type and efficiency of each of the following:

- Exterior walls (both above and below grade)
- Floors over unconditioned spaces (such as garages or crawlspaces)
- Ceilings and roofs
- Attics, foundations and crawlspaces
- Windows and doors, vents and ductwork
- HVAC and water heating systems
- Air leakage of the home
- Leakage in the heating and cooling distribution system.

HOW THE 2015 IECC ERI REQUIRED RATINGS WERE DETERMINED

The ERI score is defined as a numerical score where 100 is equivalent to the 2006 IECC and 0 is equivalent to a net-zero home. Each integer value on the scale represents a one percent change in the total energy use of the rated design relative to the total energy use of the ERI reference design. The ERI scores required in the 2015 IECC for each climate zone are included in Table 1.

The ERI scores required for the 2015 IECC are based on analysis performed by the Florida Solar Energy Center of HERS index scores for homes in 16 cities distributed across each climate zone.[1] The homes used in the analysis were one-story 2000 ft² and two-story 2400 ft² homes built using the 2012 IECC envelope and air leakage requirements and widely-available high-efficiency HVAC and water heating equipment.[2] Additionally, best-case orientation and architecture of prototype homes was assumed and an additional 10% savings was included in the calculation. The homes were modeled for various versions of the IECC which provided a range of HERS Index scores by climate zone.

ALTERNATIVE SCORES

The Leading Builders of America (LBA), Institute for Market Transformation (IMT), Britt/Makela Group, Inc. (BMG) and Natural Resources Defense Council (NRDC) established a set of scores that they jointly believed to reflect the highest levels of cost-effective efficiency.[3] The scores are based on two equivalent concepts: first, that energy use is reduced by an additional 10% compared to a home with the 2012 IECC envelope and duct systems, recognizing that minimum equipment efficiencies will be higher in 2015 than they are today, and also assuming best-case orientation and architecture of prototype homes. Alternately, the numbers are obtainable by combining the 2012 envelope with widely-available HVAC (Heating, Ventilation and Air Conditioning systems) and water heating equipment. The ERI scores proposed by LBA, IMT, BMG and NRDC for each climate zone are also included in Table 1.

Table 1: 2015 IECC Adopted and Proposed Scores by Climate Zone

Climates	2015 IECC Adopted Scores	IMT, LBA, NRDC, BMG Proposed Scores
Zone 1	52	59
Zone 2	52	59
Zone 3	51	59
Zone 4	54	63
Zone 5	55	63
Zone 6	54	62
Zone 7	53	60
Zone 8	53	60

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Energy Rating Index Performance Path

ERI Performance Path Score Alternatives

The Energy Rating Index (ERI) performance path gives builders yet another option for complying with the International Energy Conservation Code (IECC). In addition to the prescriptive and performance paths of previous versions of the IECC, builders now have the option of meeting a target ERI score through a wide range of performance options to demonstrate compliance. The ERI performance path also requires builders to achieve the mandatory code requirements of the IECC, follow hot water piping provisions and comply with the minimum insulation and window envelope performance requirements of the 2009 IECC.

The ERI score is defined as a numerical score where 100 is equivalent to the 2006 IECC and 0 is equivalent to a net-zero home. Each integer value on the scale represents a one percent change in the total energy use of the rated design relative to the total energy use of the ERI reference design.

The ERI performance path allows a state or jurisdiction adopting the IECC to specify which qualifying Energy Rating Index method it will use. RESNET's Home Energy Rating System (HERS) index, based on ANSI RESNET Standard 301-2014, is the existing compliant ERI method and is nationally recognized for inspecting and calculating a home's energy performance. To date, over 1.5 million homes have been rated in the U.S. under the RESNET standards and in 2013, half of all new homes were rated and issued a HERS Index Score.

In viewing the relation of the IECC and ERI Scores, it is important for states and jurisdictions to remember that lower ERI Scores equate to less energy consumption and greater energy savings.

2009 IECC ERI SCORES

According to the U.S. Department of Energy, a home built to the 2009 IECC is expected to use 15 to 20 percent less energy than a home following the 2006 IECC. As a result, a home built to comply with the minimum prescriptive requirements of the 2009 IECC would achieve the following HERS Index Scores:

Climates	2009 IECC HERS Index Scores
Zone 1 — 2	79
Zone 3	78
Zone 4 — 5	82
Zone 6	83
Zone 7	85
Zone 8	86
U.S. Average	82

2012 IECC ERI SCORES

The 2012 IECC is expected to decrease energy consumption in homes by 30 percent when compared to the 2006 IECC. As a result, a home built to comply with the minimum prescriptive requirements of the 2012 IECC would achieve the following HERS Index Scores:

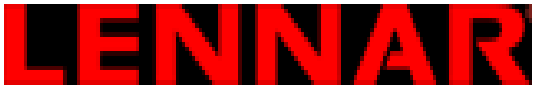
Climates	2012 IECC HERS Index Scores
Zone 1	74
Zone 2	73
Zone 3	71
Zone 4	76
Zone 5	80
Zone 6	79
Zone 7	78
Zone 8	79
U.S. Average	76

Potential Game Change to HERS Raters Becoming ICC Certified

International Code Council (ICC)/RESNET Partnership

- Special packages of certification examinations, and related study and training materials for HERS raters to provide inspections that would be accepted as third party inspections of homes to meet provisions of the IECC and IRC.
- Customized ICC Membership for Certified RESNET HERS raters, which may also include discounted code books, training courses and certification examinations in relevant areas.

National Builders Committing to Marketing HERS Index of Homes



AI Reports®

Form 820.04*

Client File #:		Appraisal File #:	

Residential Green and Energy Efficient Addendum

Client:			
Subject Property:			
City:		State:	Zip:

Additional resources to aid in the valuation of green properties and the completion of this form can be found at
http://www.appraisalinstitute.org/education/green_energy_addendum.aspx

The appraiser hereby certifies that the information provided within this addendum:

- has been considered in the appraiser's development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report.
- is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report.
- is the result of the appraiser's routine inspection of and inquiries about the subject property's green and energy efficient features. Extraordinary assumption: Data provided herein is assumed to be accurate and if found to be in error could alter the appraiser's opinions or conclusions.
- is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments.

Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort.[1] High Performance building and green building are often used interchangeably.

Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor air quality, and (6) maintenance and operation. A Green Building will be energy efficient but an energy efficient building is not synonymous with Green Building.

Incorporation of HERS Index in MLS

CONCERNING THE PROPERTY AT: _____

AUSTIN/CENTRAL TEXAS REALTY INFORMATION SERVICE

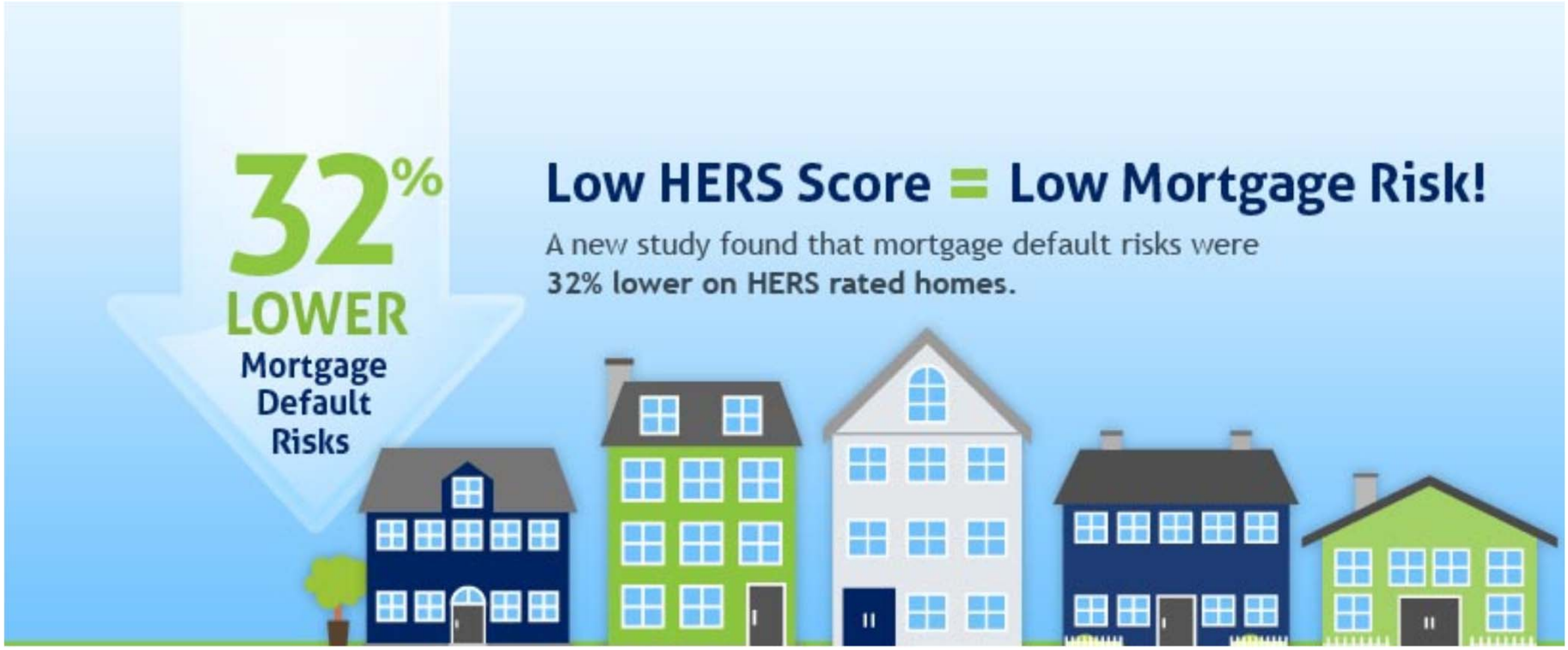
ENERGY, ENVIRONMENT AND SUSTAINABILITY ATTACHMENT

AUSTIN BOARD of REALTORS®

This information is intended to provide a potential Purchaser(s) with information directly from the Seller(s). The following are representations made by the Seller(s) and are not the representations of ACTRIS or the REALTOR®(s). ACTRIS and the REALTOR(s) play no role in completing this form and disclaim any responsibility for the data, analysis, or any other documentation provided by the Seller(s). It is not a warranty of any kind by the Seller(s) and should not substitute for any inspection or test(s) the Purchaser(s) may wish to obtain. Sellers are encouraged to provide all available documentation.

ENERGY EFFICIENCY RATINGS *Copy of certification(s) required*			
☐ Building America	Rating:	Version:	Year:
☐ Energy Efficient Mortgage Qualified	Rating:	Version:	Year:
☐ Home Performance w/ ENERGY STAR®	Rating:	Version:	Year:
☐ HERS Index	Rating:	Version:	Year:
☐ Other:	Rating:	Version:	Year:

Home Energy Efficiency and Mortgage Risks



Bonded Builders Warranty Group Energy Guarantee Program

Bonded Builders Warranty Group Energy Guarantee Program

- Third largest home warranty carrier in U.S.
- Offering policy that guarantees home energy bills based on the homes HERS rating

With Opportunities Comes Challenges Need to Enhance QA of Raters

- Tools for QADs to be more effective - 2015
  - Standardized File and Field Review Checklists
  - Rating QA Process Document
  - Video Series on QA
  - Rater Practical Simulation Test & Rating Field Mentoring Tablet Tool
- Revise Way QA is Delivered - 2017
- Increased Rater QA Review When Errors Found - 2016
- Auto Checks and Flags in Rating Software Tools - 2015

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New HERS Index Web Site
www.hersindex.com

Oh Yea, RESNET CAZ Requirement for Raters

Existing HERS Raters Need to Complete RESNET Training and Certification by December 31, 2014

RESNET CAZ Requirement for Raters Why?

Recession of 2008 Demonstrated That New Homes Market is Volatile – Need to be Proficient in Existing as Well as New Homes

Industry and Candidate Confusion & Frustration Over Too Many RESNET Certifications:

- Rating Field Inspector
- HERS Rater
- Comprehensive HERS Rater
- Home Energy Survey Professional
- Building Performance Auditor

California Here We Come