Results of Electronic Ballot of RESNET Board of Directors on Authorization of Proposed Standard Amendments on Thermographic Inspection Standard (Attachment A) and Innovative Design Requests (Attachment B) to be Submitted to the RESNET Public Review and Comment Process

May 12, 2010

The following are the results of the electronic ballot of the RESNET Board:

1. Shall the RESNET Board of Directors authorize the proposed revision of the proposed RESNET Thermographic Inspections of Buildings Standards amendment to undergo the public review and comment process?

Yes (18)	No (0)	Abstain (0)	Not Voting (3)
Ben Adams			Rick Davenport
Steve Byers			David Goldstein
Dennis Creech			Greg Thomas
Lance DeLaura			
Brett Dillon			
Charles Eley			
Richard Faesy			
Philip Fairey			
Andy Gordon			
Mark Jansen			
Maci McDaniel			
Lee O'Neal			
Kelly Parker			
Bill Prindle			
Javier Ruiz			
Orlo Stitt			
Daran Wastchak			
Barb Yankie			

2. Shall the RESNET Board of Directors authorize the proposed revision of the proposed RESNET Innovative Design Request amendment to undergo the public review and comment process?

Yes (18)	No (0)	Abstain (0)	Not Voting (3)
Ben Adams			Rick Davenport

Steve Byers
Dennis Creech
Lance DeLaura
Brett Dillon
Charles Eley
Richard Faesy
Philip Fairey
Andy Gordon
Mark Jansen
Maci McDaniel
Lee O'Neal
Kelly Parker
Bill Prindle
Javier Ruiz
Orlo Stitt
Daran Wastchak
Barb Yankie
David Goldstein
Greg Thomas

Both proposed amendments are authorized to be submitted to RESNET's public review and comment process.

Attachment A

Chapter 8
RESNET Standards

800 RESNET Standard for Performance Testing

802 General Provisions for Thermographic Inspections of Buildings

Infrared Providers
The Infrared Provider will operate under the same Standards as any other provider in the RESNET system. The IR Provider will insure three months experience either before or after the training and will review the first three reports or examples of old reports to insure compliance with Section 802.8 of the RESNET Standards. The Provider will also insure compliance with all CEUs (18 hours in a three year period) necessary to remain a RESNET trained thermographer. RESNET will provide the certificates demonstrating compliance with all requirements for being a RESNET Building Science Thermographer.

Infrared Trainers
Those who wish to be trainers must be a RESNET Rater Trainer with a minimum of Level II infrared training. Each trainer will be required the same number of CEUs as determined by RESNET in addition to a yearly webinar or session at the RESNET conference concerning infrared. The IR trainer will provide all tests for the trainees. The test over the classroom material can be challenged without taking any of the proposed classes.

802.1 Certification for Infrared Inspections of Buildings

All individuals taking the course must have attained the RESNET certification of Building Performance Auditor (BPA) or higher. The person applying to RESNET for the Infrared Inspection of Buildings Certification will have two possible courses of action:

Method 2
Without the training as indicated in Method 1 above, four courses of action must be met to obtain a certification through RESNET:
1. The candidate must have a minimum of Home Energy Survey Professional certification and should be able to demonstrate sufficient building science knowledge and understanding of the effects of stored heat, stack and wind effect, solar heating, reflectivity, emissivity, material saturation and surface moisture.
2. A RESNET APPROVED training course with designated field and classroom course work equaling 24 hours, which will require all topics of study noted in Appendix F. The 24 required hours of thermography training will be as follows: a minimum of 16 hours will be in a classroom setting or as a webinar with a minimum of 4 hours using an imaging system in the field in the presence of a

Trainer and will include a RESNET standardized field test on the use of an infrared imaging system. The infield training must insure that each individual fulfill all the requirements of training specified in the curriculum for the course.

Each student must complete a thermography test of 50 questions administered by the IR Trainer. The final part of the training is the submission of three thermography reports that conform to currently accepted professional guidelines and demonstrate the use a blower door in conjunction with the infrared imaging system for review by the RESNET Infrared Certification Committee. The three reports may be from actual inspections or can be from the inspection of any available homes. Candidates will have a one year period to submit the thermography reports.

Once all requirements have been completed, the RESNET Building Science Thermographer will have the option to subscribe with RESNET for a three year period for $100. This cost will allow for the listing of the trainee's name on the RESNET website as a reference to anyone desiring to find someone with infrared training.

Appendix F
Required Topics of Training and Weighting per Section for 3-day RESNET IR certification training
3/10/10

Day One:

Overview of Section 802 of the RESNET Standards (10% weight)
Qualities of good data (6% weight)
Contents: Section 802.8
Accurate
Meaningful
Specific components
Specified conditions
Infrared camera basics (6% weight)
Basic Camera Parts
Controls
Menus
Storing Data
Range and Span
Thermal Level
Pixels
Color Palette
Hands-on practice
Heat transfer basics (8% weight)
Thermal capacitance
Conduction
Convection
Radiation
State change

Radiometric basics (6% weight)

Emissivity
Reflected background
Spatial and measurement resolution
Good measurement principles
Hands-on practice

Day Two:

Principles of building inspections (12% weight)
Defining the scope of service
Defining building type and components
Fundamentals (10% weight)
Conduction inspections (is this the same as an insulation inspection)
Seasonal differences
Interior vs. exterior
Patterns
Challenging situations
Air leakage inspections (8% weight)
Pressure dynamics
Using blower doors
Air leakage patterns
Windows (6% weight)
Reflectivity issues
Argon depletion
Industry standards relating to IR and building inspections (8% weight)
Report and analysis software (8% weight)
Managing data
Analysis functions
Creating reports: Section 802.8, 802 Appendix A
Course test

Day Three (field work) (12% weight)

The following will guide the inspection for *each* building. Buildings should, whenever possible, be representative of the student's customer:
Measuring and documenting conditions
Visualizing the building
Communicating with the occupants/owner
Modifying building conditions, as needed
Adjusting the imaging system for optimum results
Locating insulation
Exterior inspections
Interior inspections
Insulation types
Natural air leakage conditions
Using thermography with the blower door

Locating air leakage
Depressurization (recommended)
Pressurization (optional)
Documentation of findings
Imagery
Supplemental data
Review and discussion of work
Draft document prepared by John Snell, The Snell Group

Appendix G

The RESNET Infrared Committee will have the responsibility to oversee the entire process for the approval of trainers, the curriculum for the course, and the writing of the test questions. All results will be submitted either to the RESNET Technical or the RESNET Training and Certification Committees.

The Infrared Committee will be comprised of individuals who have Level II, Level III or the equivalent experience and infrared training and will oversee the following items:
1. The curriculum required for Method 2 of the RESNET Standard for Thermographic Inspection of Buildings (Chapter 8)
2. the weighting of the categories of the questions on the test
3. the writing of the test questions
4. applications and approval of trainers
5. applications and approval of Infrared Providers
6. IR committee will make these decisions and then submit to either the RESNET Technical Committee or the RESNET Training and Certification Committee for approval.

Attachment B

Amendment: Innovative Design Request

Proponent:
RESNET Technical Committee

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

Proposed Amendment:
Add Section 303.9 as follows.

303.9 Innovative Design Request
303.9.1 HERS providers can petition RESNET for adjustment to the HERS Index for a Rated Home with features or technologies not addressed by approved software tools and/or this Standard. Innovative Design Requests (IDRs) to RESNET shall include, at a minimum, the following:

303.9.1.1 A Rating generated from approved rating software tool for Rated Home without feature(s) that cannot be modeled in the software tool.

303.9.1.2 Written description of feature(s) not included in Rating generated from software.

303.9.1.3 Manufacturer's technical and/or performance specifications for feature(s) not included in the Rating generated from the approved software tool.

303.9.1.4 Estimated energy impact. Calculations or simulation results estimating the energy impact of feature(s) not included in the Rating generated from an approved software tool.

303.9.1.5 Estimated adjustment to HERS Index. Calculations shall follow procedures of Sections 303.1 and 303.2.

303.9.2 Upon review of an IDR, RESNET Standing Technical Committee shall make a recommendation to the Board as follows: a) is approved, b) is denied, c) is approved with modifications, or d) requires additional supporting documentation for further consideration.

303.9.3 IDRs shall be approved on a case by case basis. RESNET shall assign a unique identifier to each IDR and maintain a database of IDRs. If RESNET approves the IDR, the HERS provider may issue a supplemental report that adjusts the HERS Index as approved.

Background/Rationale:

The purpose of this amendment is to provide an alternative mechanism to rate and register homes with unique/advanced systems not currently addressed by RESNET Standards and/or HERS software. This alternative rating path encourages and recognizes innovation in design and construction of homes. A similar path exists within USGBC's LEED-H labeling program. Innovative Design Requests will be RESNET GSHP Aux Electric 2/4/2009 handled by the Technical Committee. It may be appropriate to create a form for submitting IDRs to RESNET.