

RESNET[®]
RESIDENTIAL ENERGY SERVICES NETWORK

Setting the **Standards** for
Home Energy Efficiency

RESNET[®]

**HERS
Associate**

Frank O'Brien-Bernini: VP and Chief Sustainability Officer, Owens Corning (founding Chair of the RESNET Suppliers Advisory Board)

Steve Byers: CEO of EnergyLogic (RESNET Board Member)

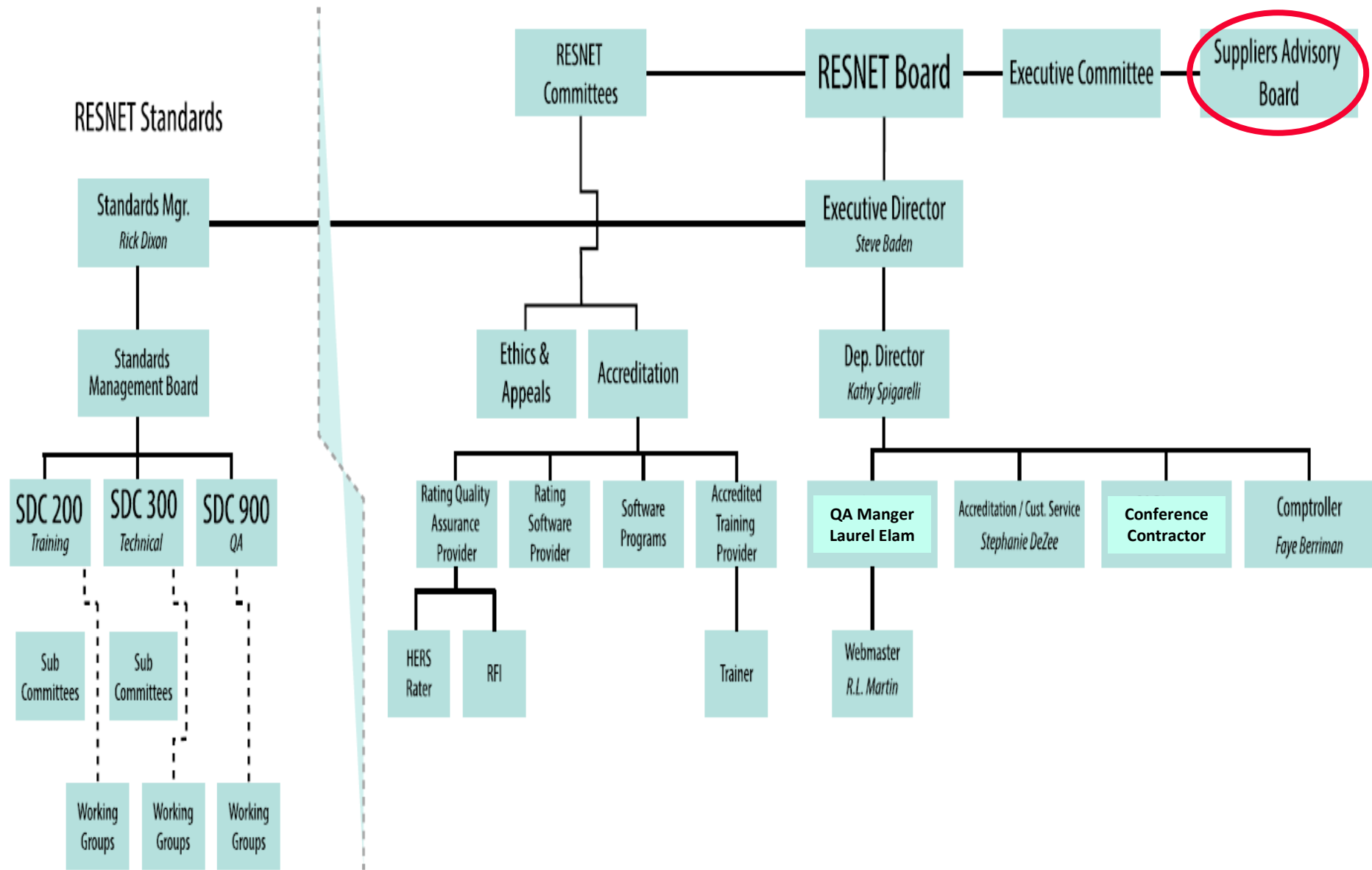
RESNET Suppliers Advisory Board

Purpose: Opportunity for suppliers to better understand RESNET; network with other suppliers, customers and HERS raters; and provide supplier input to the RESNET Board of Directors.

Members: Energy efficient product and solution suppliers that play a critical role in improving the energy performance of homes. Key strategic partners to the RESNET Board, bringing the industry's perspective.



RESNET Organizational Chart



2017 Members

- Air King
- APA
- Bonded Builders Warranty
- Cardinal Glass Industries
- CertainTeed Insulation
- Covestro, LLC
- DuPont Building Innovations
- Ingersoll Rand
- Johns Manville
- Knauf
- Lockton Affinity
- LP Building Products
- NAIMA
- Owens Corning
- Panasonic Eco Solutions
- Retrotec, Inc.

Nice member mix: small/large; focused/diverse; products and installed services; and associations: covering most HERS-impact product/solution categories

Four Sub-Committees

- 1) Public Policy
- 2) Training/Certification for Supplier Employees
- 3) Social/Marketing Outreach
- 4) Tools, Techniques and Installation Methods

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RESNET Suppliers Advisory Board: Training/Certification for Supplier Employees Committee

- Committee Focus Area:
 - Make HERS 'light' training available for suppliers
 - Create 'HERS Associate' Designation
- Committee Members:
 - Laura Dwyer, DuPont Building Innovations, Committee Chair
 - Ted Cater, Panasonic
 - Shawn Mullins, Owens Corning
 - Dale Stroud, Uponor
 - Tom Calzavara, Johns Manville
 - Gerald Van Decker, RenewABILITY Energy

The Making of the *HERS Associate*

- February 2016, RESNET Board of Directors approved the RESNET designation “*HERS Associate*”. This new RESNET certification level is intended for anyone needing/wanting a working understanding of RESNET and HERS for uses other than conducting ratings.
- The *HERS Associate* was originally targeted for supplier employees, but is broadly applicable, but not limited to, architects, engineers, builders, trade sub-contractors, appraisers, advocacy groups and code officials.
- The Training and Certification Committee of the Suppliers Advisory Board developed learning objectives that must be met for an individual to earn the RESNET *HERS Associate* Certificate.
- To become a *HERS Associate*, an individual must pass a RESNET approved course that is designed to meet the established learning objectives.

HERS Associate Learning Objectives

- Introduction of course, RESNET and the HERS Index
- Guiding principles used by HERS Raters to rate a home and produce a HERS Index Score
- Relate the principles of building science as they apply to HERS
- Inspection and testing protocols used in rating a home
- Computer modeling and the methodology to produce a HERS Index
- HERS Scores and the IECC

Creating/Taking a HERS Associate Course

- Training is open to any partner, stakeholder organization or RESNET Training Provider
- Those interested in offering this course need to submit a course description and curriculum to RESNET for approval
- Curriculum must meet the Learning Objectives
- Must include a final test
- Format can be self-paced, webinar or workshop
- Contact RESNET for an application to provide a HERS Associate training course
- Contact RESNET for available courses

Next Steps for Creating a HERS Associate Course

To submit a HERS Associate course for approval go to:

https://www1.resnet.us/pd/hers_associate.aspx

- What to Submit:
 - A completed application form
 - Course application fee: \$100
 - A detailed course description that demonstrates how the Learning Objectives will be achieved
 - Allow 10 working days for review

Official Logo

RESNET®

**HERS
Associate**

Official Certificate



RESNET HERS Associate

Candidate Name

Company Name

June 24, 2015

<INSERT CANDIDATE NAME> has successfully completed the RESNET <INSERT TITLE> program and is designated as a RESNET HERS Associate.

A handwritten signature in black ink that reads "Steve Baden".

Steve Baden
RESNET, Executive Director

RESNET®

**HERS
Associate**

RESNET®

**Suppliers
Advisory Board**



Why?

- A void in the ecosystem
- Need for knowledge
- Certification not designation

Who?

- Suppliers (R&D, Sales, Marketing, Product Managers, Technical Service...)
- Architects
- Engineers
- Builders
- Trade Sub-contractors
- Estimators
- Code Officials
- Consultancy
- Advocacy Groups
- Who are we missing?

Deeper dive into Learning Objectives

- Module 1 – Introduction & RESNET
- Module 2 – HERS Rater Guiding Principles (Building Science Basics)
- Module 3 – Inspections & Diagnostic Testing
- Module 4 – Modeling & The HERS Index
- Module 5 – HERS and The International Energy Conservation Code (IECC)
- Module 6 – Final Exam



Even deeper!

- Recognize the roles of RESNET.
- List the standards development committees of RESNET.
- Know the structure of the HERS Industry.
- Explain the roles of HERS Raters.
- Compare and contrast the roles of the building official with the HERS Rater.
- Distinguish between RESNET, HERS Providers, and HERS Raters.
- Discuss heat flow through buildings.
- Theorize causes of energy loss in buildings.
- Distinguish between different modes of air flow through buildings.
- Illustrate air flow impacts on buildings from stack, wind, and system effects.
- Distinguish between different moisture flows in buildings.
- Interpret the principles of the house as a system concept.
- Explain the methodology of calculating the HERS Index.
- Distinguish between different types of HERS Ratings.
- Distinguish the difference between energy code compliance pathways.
- Explain the role of Quality Assurance in the RESNET HERS Industry.
- Relate the principles of building science to codes and HERS.
- Recognize the purpose of energy modeling software for code compliance.
- Describe the inputs used to generate an energy model.
- Describe additional compliance checks performed by energy modeling software.

Course Structure

2. Building Science Basics

Building science is the collection of scientific knowledge and experience that focuses on the analysis and control of the physical phenomena affecting buildings and architecture. These are the guiding principles used by HERS Raters to help design and evaluate buildings.

Learning Resources

Home / RESNET Pro / Associate

HERS Associate

CONTENTS

- 1. Introduction Progress
- 2. Building Science Basics Progress
- 3. HERS Rating Progress

Quiz

QUIZ

Building Science Basics Quiz



Feedback available

Attempted 7 April 2016



SCORM PACKAGE

Moisture Flow in Buildings

This narrated learning resource covers the different mechanisms that move moisture through buildings.



Module 1 – Introduction & RESNET

Table Of Contents

Slide Title	Duration	✓
Welcome	00:20	✓
Learning Objectives	00:18	✓
HERS Structure	00:44	✓
About RESNET	00:26	✓
Organization Struct...	00:24	✓
RESNET Board	00:49	✓
Ethics & Appeals	00:22	✓
Accreditation	00:26	✓
HERS Rating Provider	00:26	✓
Software	00:32	✓
Training Provider	00:19	✓
ANSI	00:39	✓
RESNET Standards	00:43	✓

Learning Objectives

RESNET → HERS Structure → Rater Role → Quality Assurance

- ◆ Recognize the roles of RESNET.
- ◆ Know the structure of the HERS Industry.
- ◆ Explain the roles of HERS Raters.
- ◆ Distinguish between RESNET, HERS Providers, and HERS Raters.
- ◆ Distinguish between different types of HERS Ratings.
- ◆ Explain the role of Quality Assurance in the RESNET HERS Industry

00:22 / 15:50 Minutes

Module 2 – HERS Rater Guiding Principles (Building Science Basics)

Table Of Contents

Slide Title	Duration
Heat Flow	00:42
Conduction	01:16
Conductive Heat Loss	00:41
Convection	00:25
Convection	00:25
Convective Heat Lo...	00:45
Convection in Walls	00:09
Stack Effect	00:22 <input checked="" type="checkbox"/>
Thermal Radiation	00:51
Two Instances of Th...	00:52
Radiant Heat Gain/...	00:36
Heat Flow in Buildings	00:39
Conclusion	00:36

Stack Effect – an example of Convection

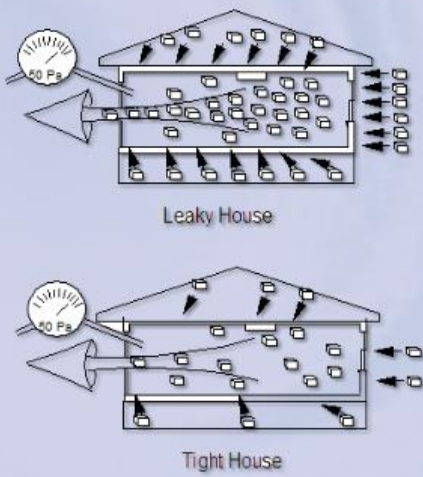
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11:25 / 15:20 Minutes

Module 3 – Inspections & Diagnostic Testing

Principles of Blower Door Testing

- Air measured in Cubic feet per minute CFM
- Air out = Air in
- We depressurize a house during a blower door test
- The time between air leaving a house and air coming back in creates a pressure difference (Instant)



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Slide Title	Duration	✓
Blower Door testing	00:08	✓
Purpose	00:18	✓
Three Methods	01:13	✓
Blower Door Compo...	00:40	✓
Principles	00:53	✓
Pascal	00:17	✓
Testing	01:43	✓
Performing Test	00:51	✓
Common Mistakes	00:46	✓
Manometer	00:17	✓
DG-700	00:51	✓
DG-700 Depressuriz...	00:43	✓
Baseline Pressure	00:16	✓
Baseline to Control	00:12	✓

02:41 / 21:05 Minutes

Module 4 – Modeling & The HERS Index

Reference Home and REM/Rate

Rated Home
Home as input

Modified Rated Home

- Copy of home as input
 - Same geometry
 - Same orientation
 - Same systems
- Analysis rules applied
 - Set point temperatures
 - Window shading
 - MV/Infiltration

Reference Home

- Copy of modified rated home
- Reference home rules applied
 - U-values
 - Infiltration rate
 - Window area/orientation/SHGC
 - Mechanical efficiencies
 - Distribution system efficiency
 - Etc.

Table Of Contents

Slide Title	Duration
Intro to REM/Rate	00:10
Simple REM/Rate O...	01:23
Reference Home	01:28
Reference Home an...	01:38
Reference Home an...	01:08
HERS Rater's Guide	01:27
Software	01:18
Library	02:26
Library Entries	00:52
Help Menu	00:34
Deconstruct the Ho...	02:42
Data Entry	02:10
REM/Rate Data Entr...	00:38

03:08 / 47:29 Minutes

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Module 5 – HERS and The International Energy Conservation Code (IECC)

Table Of Contents

Slide Title	Duration
Welcome	00:11
Home buyer	00:34
Integrity	00:19
IECC	01:11
Intent	00:42
Intent	00:47
Intent	00:50
2012 IECC	00:13
Consumption by Co...	01:40
Home Evolution	01:41
Old Homes	01:09
Applied Building Sci...	00:28
Systems Thinking	00:44
Questions	00:55

Energy Codes

No longer building the minimum house allowable!

Energy Use Index (1975 use = 100)

Year	Code	Savings (%)	Energy Use Index (1975 use = 100)
1975	Standard 90-75	0	100
1983/86	MEC 1983/86	10%	90
1992/93	MEC 1992/93	2%	85
1995	MEC 1995	2%	83
1998	IECC 1998	1%	82
2004/06	IECC 2004/06	2%	81
2009	IECC 2009	15%	68
2012	IECC 2012	15%	55

EECC Formed

04:52 / 17:09 Minutes

Module 6 – Final Exam

6. Final Exam

To receive a certificate of completion for this course you are required to complete the final exam with an 80% or higher. Once you have passed the exam click on the certificate link to receive your certificate.

QUIZ

Final Exam



Feedback available

Attempted 7 April 2016

CERTIFICATE

Certificate of Completion



HERS Associate



Thank you!

