2016 RESNET Building Performance Conference
Breakout Session

Enhancing the National Consistency of HERS Index Scores

Calibration - When & Where
This session will explain the manufacturer calibration process, requirements and how it relates to Chapter 8 of the RESNET Standards.

Ever wonder what the manufacturer does before you receive your equipment or when you send it back to be calibrated? We'll take you behind the scenes to see the process.

We will differentiate between a manufacturer calibration and a field calibration check. We'll explain what a field calibration check is, how often should it be completed and by who. How do you document the field check process, or do you? We will cover different procedures by each manufacturer to make sure you understand what must be completed vs just good QA procedures.

This session will cover more than the actual requirements of the gauge and fans but explain pressure calibration vs flow calibration. We will show why flow calibration is a more difficult process. Do you know which will cause a greater error - a gauge off by 10% or a fan off by 10%? Find out the reality of accuracy and repeatability in this session.

This session will cover what every Rater and QA must know and document.

Presenters: Joe Medosch, Energy & Environmental Consulting L.L.C. and Frank Spevak, The Energy Conservatory

Toward a Uniform HERS Index Score-
Enhancing Consistency of Calculating HERS Index Scores by HERS Software Tools
A key pillar of RESNET's commitment to enhancing the consistency of HERS Index Scores is the consistent calculation of the HERS Index Score by accredited HERS Software Tools. At the RESNET Board 2015 Fall Meeting the board adopted the following policies to meet this commitment:

- Development of timeline that HERS software tools must incorporate new technologies adopted by RESNET into their programs.
- All RESNET accredited HERS software programs must calculate loads through hourly simulation.
- New HERS software reference test boundaries for ASHRAE 140 loads test.
- RESNET develop an open source interpretation layer for RESNET accredited HERS Software Tools.

RESNET has contracted with Rob Salcido of to oversee these efforts. The RESNET Calculations Subcommittee, chaired by Dave Roberts of NREL, will be responsible for developing the standard amendment.

This session will explain why this effort is being undertaken, what is being considered and the implications to the HERS and building industries.

Presenters: Dave Roberts, NREL and Rob Salcido, SALCIDO Solutions

Enhancing the Quality Assurance Oversight of HERS Ratings
For the past two years RESNET has been embarked on an effort to enhance the national consistency of HERS Index Scores. The RESNET Board of Directors adopted a series of policies to enhance the quality assurance oversight of ratings. RESNET recently submitted a set of quality assurance amendments to the consensus based RESNET standard amendment public review and comment process. This session will explain the changes and present a timeline of the implementation of the new quality assurance oversight procedures.

Presenters: Andy Gordon, Washington State University Energy Program and Laurel Elam, RESNET

Pilot Project Discussions on Projected HERS New Construction Rating Variability Assessments

Variability assessments (VA) identify discrepancies in results from multiple raters on a single home, for either projected or confirmed ratings. The assessments can be used as a training tool to identify areas of concern, or for quality assurance to assess areas where raters may be consistently missing key components of a rating. The quality assurance element can be conducted at the provider level, or as part of RESNET's overall quality assurance efforts. Guidelines for conducting VA also referred to as "round robins" were developed under a grant from the National Institute of Standards and Technology. These guidelines have been employed in a pilot research effort by WSU researchers working with a RESNET VA task group. The VA goal is to assess the variability of the HERS index, and improve the consistency of information to builders, efficiency program providers and code officials using the HERS index. The objectives included; 1) developing and implementing a variability assessment research pilot project, focused on proposed HERS ratings (for new construction), and 2) identify the key factors that impact variability in IECC level and high performance homes voluntary energy efficiency programs. The pilot project is "proof of concept" demonstration where VA procedures can be used by RESNET on a broader scale to focus on the following research questions:
What is the variability in HER score when all raters are given the same info?
What are the reasons found that help explain the HERS score variability?
What feedback can RESNET and the pilot provide to USDOE who is interested in soliciting RESNET in support of DOE VA research?

The session will provide a forum for members of the task group and stakeholders to share the results and discuss perspectives for on-going RESNET potential efforts in this area.

Presenters: Michael Lubliner, WSU Ext. Energy Program; David Hales, WSU Ext. Energy Program and David Cohan, USDOE

Shedding Light on Blind QA

There are multiple ways to go about doing site QA as a QAD (Quality Assurance Designee). Sometimes blind QA can help a QAD gain trust in their raters. Other times this blind QA leaves the QAD "in the dark" as to "why" the rater's results were different. So long as the QAD has the rater's results ahead of time, a QAD is allowed to ask the rater to replicate his or her results. This method allows for the QAD to mentor the rater with direct and immediate feedback, but also allows the QAD to get independent results for comparison in accordance with the RESNET Standard. Along the same lines, EnergyLogic has implemented the Proctored QA Event into our annual QA process with great success in providing effective QA. Not only is this event cost effective for raters and providers, it is very effective in shedding light on inconsistencies in a rater's process compared to their peers. This is allowable only once a year per rater and can't be the only site QA for a rater. EnergyLogic will discuss the pros and cons of using these methods of site QA along with lessons learned in the process.

Presenters: Glenn Pease, Tom Flanagan and Scott Doyle, EnergyLogic

Virtual QA- Timely Feedback in a Long Distance Partnership

Access to homes is an issue that impedes on meeting the intent of the RESNET QA Standards. Limited accessibility requires careful planning and often means there is less room for random selection and "credible discovery" in the QA process. Changes to the RESNET Quality Assurance Standards, which require that QA be carried out by a third-party external to the Rating Quality Assurance Provider, may compound the issue of accessibility. Some Providers potentially will need to hire outside their market for QA services. In this case, the Provider often times has to schedule QA with the QAD weeks in advance in order to accommodate travel schedules and access to homes. While site QA will still be required in the proposed model, using video conferencing in virtual QA can help strengthen a quality assurance program by making it more efficient, cost effective, easier to accommodate geographic distances, and provide more regular feedback to Raters and their Providers. Come see what we learned from developing and testing out this new protocol for RESNET QA.

Presenters: Daran Wastchak, D.R. Wastchak, LLC; Glenn Pease, EnergyLogic; Aaron Gary, US-EcoLogic and Paul Gay, US-EcoLogic

Mainstreaming the HERS Index in the Housing Market

A Highly Successful State Level Collaboration around the RESNET HERS Index
The Colorado Energy Office (COE) is leading a statewide collaborative effort to improve the energy efficiency of homes that is based on the RESNET HERS Index. The COE's program relies on HERS data from the RESNET Registry to justify incentives, hands-on sales and marketing assistance for builders, and the use of HERS Rater professionals to drive average HERS Scores in Colorado from the mid-60's to mid-50's over the past 3 years, with plans to go all the way to zero as the program continues. Hear directly from representatives that make up the key players in this statewide success story for HERS Index implementation including the Colorado Energy Office, their energy efficiency sales and marketing consultant, a savvy HERS Provider/Rater, and a RESNET EnergySmart Builder who is reaping significant benefits from all this assistance.

Presenters: Lenka Martin, Covington Homes, Todd Gamboa, Building Trust, LLC
Robby Schwarz, EnergyLogic

Appraisal Bootcamp
Learn how real estate appraisers determine a home's value and how they can assign value to energy efficient improvements. Energy professionals can play an integral role in identifying and quantifying the energy saving performance of a home and help builders and home buyers with appraisal challenges and potentially increase borrowing power based on the value of the energy efficiency improvements. Using real data from a high-performance home case study, participants will calculate a home's net present value.

Presenters: Michael Hobbs, PahRoo Appraisal & Consultancy and Jason LaFleur, Eco Achievers

Better Buildings, Better Sales, Better Business
Education is the key to change, but sales drive the decisions. Learn how to convert your builder and Realtor clients to high performance leveraging the EnergySmart® Builder designation. Historically, HERS Raters and performance contractors have been coming through the back door when working with builders. In today's market, working through a builder's superintendent or purchasing manager isn't enough. The key to becoming part of the builder's process and product is educating the people who sell the homes … the Sales Team. Converting the Sales and Marketing Team, the Realtor network, and the appraisers is the best way to demonstrate real value in your services. Demonstrating how to SELL the EnergySmart ® Builder program and high performance homes throughout your market gives you access through the front door!

Key Objectives:
1. Increase value and relevancy in your products and services
2. Show value in the EnergySmart® Builder Program
3. Create and demonstrate additional value in your services (HERS Rater and/or Contractor)
4. Create relationships throughout the client's organization (Builders, Realtors, Appraisers)
5. Become the resource for information for your clients and generate additional consulting opportunities
6. Generate additional revenue streams for your business

Presenter: Todd Gamboa, Building Trust LLC / New Home Solutions USA

Communicating HERS to Appraisers and Real Estate Sales Agents
The key to educating the public on HERS is through investing in appraiser and real estate sales professionals. This session will reveal some tips to more efficiently communicate with the real estate sales agents and appraisers. Sales agents that can articulate the importance of a HERS report are agents who will educate buyers. The definition of market value includes a knowledgeable buyer and seller. If they have the knowledge of HERS, they have the power to make more informed decisions. More informed decisions usually results in higher prices for better products. Come to this session for power tips to increase the importance of your product.

Presenters: Scott Robinson, MAI, SRA, AI-GRS, Appraisal Institute and Sandra K. Adomatis, SRA, LEED Green Associate, Adomatis Appraisal Service

Expand Your Business - Making the Realtor your NEW BEST FRIEND
Understand how to form relationships with realtors to expand the use of the HERS Index in the existing home market. The use of the HERS Index in qualifying for Energy Efficient Mortgages is a path to selling additional services. Creating a

team with a realtor and loan officer creates a win-win-win. You can become their expert on identifying and creating value in the existing home sales market.

Presenters: Sharon Bonesteel AIA, CBO, HERS, Salt River Project; Jan Green, REALTOR, GREEN, SFR, EcoBroker, RE/MAX Excalibur; Brian Andrews, Education & Marketing Director-Ar, Arizona Going Green and Matthew Thorne, Nova Home Loans - Senior Home Loan Officer

High-Performance Lending meets High-Performance Building – ***Market Update: Green Energy Mortgages & Green Appraisal Valuations***

It's time to mobilize builders, raters and other key stakeholders with incentivized financing products that aligns with clean energy, triple-bottom-line investment portfolios. Allocating net-positive funding for Near-to-Net-Zero projects that include renewable-energy technologies such as PV, geothermal and rainwater harvesting is possible now. Proper channeling of funding into high-performance loan portfolios allows builders to offer a "true" green financing product that adds value to their customers and increases their return on investment. In addition, these properties can now be quantified and assigned a "recognized" green premium value due to the HERS Index and building science methodology available today.

<u>Incentivizing High-Performance Building-Financing</u>

This session examines how the high-performance building economic story (Net-Zero) can be consistently translated and incentivized to drive consumer market demand.

We will review new Green Initiative financing program advances offered through new private banking – Clean Energy Bonds, Fannie Mae, HUD and private portfolio investors; and appraisal industry progress that continue to unlock the barriers to advance high-performance building in mainstream markets. The session will cover certain industry stakeholder development:

- Real estate market –increased green listing-resale-building demand in early adapter markets;
- How HERS provides Quantified data – what appraisers and lenders need to support value and underwrite loans;
- Monetizing HERS – providing new incentivized green financing instruments-True GEM-Green Energy Mortgages for high-performance homes;
- Utilizing conventional lending programs to fund green initiative projects: Fannie Mae, HUD and private capital programs;
- New appraisal valuation guidance being implemented through the Appraisal Foundation and other regulatory authorities; Market value trends-Brown valuation discounts vs. green premiums;
- Re-development - existing neighborhood retrofit – new market traction;
- Coalescing stakeholders - Education-as-Marketing platforms-consistent, transparent cost benefit market messaging; How Raters and lenders can work together-referral based business models;
- Leading-edge case studies – regional Net-Zero projects that achieved "recognized" value for high-performance measures- 78%-100% Costs absorbed in values – HERS 39- minus 0

The session concludes with plans to scale and mobilize energy raters, builders and other industry stakeholders seeking to demonstrate investment value of high-performance building; and the importance of allocating projects with green loan portfolios with all key financial stakeholders.

Presenter: Teresa Lopez, Green Energy Money

Mainstreaming the HERS Index in the Housing Market - The RESNET - Appraisal Institute Partnership

Appraisers are the key to having high energy performance homes receive market value. To provide appraisers with the tools to consider the value of energy efficient homes, RESNET and the Appraisal Institute have entered into a partnership. The partnership provides:

The ability of appraisers to access targeted data on a home's HERS Rating in real time

The performing of an analysis to determine if there is a correlation between HERS Index Scores and market appraised value.

The conducting of a joint education effort by the Appraisal Institute and RESNET aimed at appraisers, builders and HERS Raters on the HERS Index, its benefits and how they need to work together.

This session will explore the exciting opportunities this presents to the rating industry and builders.

Presenters: Steve Baden, RESNET and Lance Coyle, Appraisal Institute

New Tools for Builders to Market Their Homes with HERS Index
RESNET has developed new marketing tools for builders to gain a competitive edge in the housing market. These tools allow builders to demonstrate that each of their homes was HERS Rated and issued a HERS Index Score.

The customizable tools include:

- Yard signs
- Consumer brochures
- Video productions for the model home

Learn how you can grow your business through the new HERS Index marketing tools.

Presenters: Kathy Spigarelli, RESNET and Nancy St. Hilaire, Home Energy Group

Realizing the Market Value for High Performance Homes: Reports from the Field
The energy efficiency components of a home are often invisible to the key parties involved in a home sale – buyer, broker, appraiser, and lender. Using Elevate Energy's 7-Step "Visible Value Blueprint" as a framework, this session reviews recent progress in making energy efficiency features and their benefits visible throughout the entire real estate transaction chain.

Steps 1 & 2: Document and report energy efficient home inventories. Colorado is documenting its growing inventory of high performance homes using RESNET data to identify progress and opportunities

Step 3: Provide education and training. California is leading the nation in training and certifying real estate professionals to the National Association of Realtors Green Designation

Step 4: Reflect energy efficiency improvements in for-sale listings. Chicago now requires utility bill disclosures at time-of-sale, with intriguing implications for sale prices and time on market.

Step 5: Incorporate data into appraisal process. The Pacific Northwest has completed new valuation studies that can be replicated around the country. Both RESNET and California's GreenPoint Rated program have developed hands-on experience populating the Green and Energy Efficiency Addendum as part of the HERS rating

Step 6: Develop standardized IT solutions. Colorado offers a leading example for developing IT solutions to populate MLS systems with home performance data, building on US DOE's Standard Energy Efficiency Data (SEED) platform

Step 7: Work with partner financial institutions. Vermont Green Homes Alliance offers a leading example of how the appraiser assignment process can be recalibrated to better ensure a competency match, triggered by a completed Green and Energy Efficiency Addendum. Colorado's mortgage incentive program engages lenders and appraisers in valuing high performance homes.

Presenters: Pamela Brookstein, Elevate Energy; Anthony Roy, Earth Advantage; Bruce Mast, Build It Green and Jeffrey Gephart, Vermontwise Energy Services, Inc.

What is the Value of a HERS Rating ... a stakeholders perspective
What is the Value of HERS Rating / Certificate?

Like many things in our complex world ... the answer often lies in the person that you are asking.
From the perspective of the HERS Rater, the value should be based on common sense business principals, and in most cases is a function of labor costs, return on invested capital, costs of goods sold, intellectual property or proprietary systems/techniques, overhead and profit margin ... all tempered by the limitations of "what the market will bear".

From the perspective of a homebuilder or the purchaser of the HERS Rating ... the value is most often based on "what the market will accept", so price is also a driver for this group of stakeholders too. The quality of the report and the customer service delivered by the HERS Rater also comes into play and can impact the price that the builder / buyer is willing to pay, especially if there is a need for the HERS Rating to pass some additional level of secondary review to qualify for a rebate or third party designation.

From the perspective of the new homebuyer (and dare I say, the most important stakeholder of the three) ... the value is most impactful ... but also most misunderstood.

In this session, we will explore the value of the HERS Rating / Certificate to the home buyer from a holistic point of view, by answering three simple questions … (1) how does having a HERS rating impact my life when I apply for mortgage financing and purchase my new home, and (2) how does having a HERS rating impact my life when I pay for my new home, and finally (3) how does having a HERS rating impact my life when I ultimately sell my home.
Utilizing the proprietary software program (High Performance Lending™) developed by mortgage lending pioneer Kerry Langley, this session will explore these question by focusing on the of Total Cost of Ownership (TCO) for homes which fall at various points along the HERS scale.

In today's world, a home buyer can have a difficult time comparing a $350,000 home with a HERS 65, to a $400,000 home with a HERS of 45 … this session will answer this question and explore this in detail

In today's world, a home builder can have a difficult time knowing if it makes more sense to build homes which meet Energy Star® standards, or if they should turn up the heat and shoot for Zero Net Energy … this session will answer this question and explore this in detail

And in today's world, a HERS rater is often put in a position to be the "low bidder" to win the business … this session will empower them to add more value to their business relationships and assume the role of trusted advisor (not just vendor) … this session will explore this in detail as well.

Most home buyers have no idea what a HERS rating is … most have no idea what building science is … most have no idea why owning a High Performance Home is important … but they all know what it means to write a check each month for their mortgage and their utility bills. To answer the question posed by the title of this session, and to truly determine what the value of a HERS rating is … this session explores immediately executable solutions that HERS raters and RESNET Energy Smart builders can use to make sure that we are focused on the stakeholder that the HERS rating will impact the most … the prospective home buyer / home owner.

Presenter: Kerry Langley, PrimeLending

The Role of HERS Raters and the HERS Index in Code Compliance

Aligning HERS Indices for Energy Code Adoption - Panel Discussion on Methodologies and Practices in the Field
States and municipalities have been including HERS scores as a compliance path when adopting newer energy codes. Raters have been involved in this process and have found when presenting HERS index scores for energy code adoption there are differences among the different organizations proposed HERS scores. What drives the score differences and how to align the scores, what methodologies (assumptions) were made during the process. A panel discussion will share actual practices and published methodologies used for the calculating HERS scores.

Presenters: Vrushali Mendon, PNNL; Eric Makela, CADMUS; Rater Representative and Jim Meyers, SWEEP

Alternate Means and Materials for Code Compliance
HERS practitioners and RESNET are becoming increasingly involved in determining energy code compliance. Understanding how to determine whether new materials and systems meet code is critical to this activity. The primary mechanism for approval of innovative materials and systems is through their evaluation as Alternate Materials and Methods:
"The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. The code official shall be permitted to approve an alternative material, design or method of construction where the code official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code."

This program will provide basics of material and system code approval, describe the role of evaluation service agencies and the process of obtaining a code evaluation report. The presentation will also describe how these reports are used in field approvals of new products and systems.

Presenter: Theresa Weston, DuPont Building Innovations

Career Opportunities of HERS Raters Becoming ICC Certified Energy Code Inspectors
Across the nation the HERS Index is fast becoming seen as a viable energy code option. The 2015 IECC has an Energy Rating Index option. HERS Raters have an even bigger role to play than producing a HERS Index. They can become third party energy code inspectors for jurisdictions that have adopted an Energy Rating Index compliance option.

RESNET has entered into a partnership with the International Code Council that allows HERS Raters to become energy code inspectors.

This session will explore the career opportunities of being an ICC certified energy code inspector and what are the requirements.

Presenter: Mark Johnson, International Code Council

Don't Stop at Code- The Incremental Value of Completing a HERS Rating
Many raters are being called upon to perform code inspections and testing without completing a full HERS rating. This session would look at the how and why of moving builders to a full HERS rating or the ERI path of the 2015 code, even when they are reluctant to do so at first.

Presenters: Doug McCleery, MaGrann Associates

Expand Your Business- Tips for IECC Adoption and HERS Alternative Path Compliance and IECC 2015 Significant Changes
The adoption of the IECC in your community supports the expansion of your potential business market. In addition to required 3rd party testing, it opens the door to communicating the benefits of whole home evaluations when permits are pulled for additions or remodels. Learn methods to communicate the benefits of IECC adoption to the community, home-owners and politicians. It's not just a green thing; it's a money saving, health benefitting, resilient structures building thing!

IECC 2015 Significant Changes will be reviewed in comparison to the 2012 and the 2009 IECC. Suggestions on working with Building Officials and Inspectors will be discussed. The adoption of the IECC in your community supports the expansion of your potential business market. Copies of the 2015 IECC Pocket Pal electronic version will be provided to attendees. Add your company's logo, contact info and develop a business card people won't want to lose.

Presenters: Sharon Bonesteel AIA, CBO, HERS, Salt River Project

How Was It Done? Local and State Adoption of the 2015 IECC Energy Rating Index Compliance Option
Energy Ratings are now a compliance option in the 2015 International Energy Conservation Code (IECC). This is only the first step of the process. Now state and local code jurisdictions must incorporate the option into their energy codes.

To date, the 2015 IECC's Energy Rating Index Option has been adopted by the states of Illinois, Maryland, New Jersey, Texas and Vermont and has been adopted or is close to adoption by municipalities in the Phoenix and San Antonio metropolitan areas.

A key to this taking place is coordination between HERS Raters and local builder associations.

This session will showcase three code jurisdictions that have adopted the Energy Rating Index and what it took to have the options adopted.

Presenters: Richard Faesy, Energy Futures Group, Clayton Traylor, Leading Builders of America; Anthony Floyd, City of Scottsdale and Daran Wastchak, DR Wastchak

How to Make Your Voice Heard – Strategies for the HERS Industry at the 2018 International Energy Conservation Code Cycle
In 2014 the International Code Council adopted an Energy Rating Index option to the 2015 International Energy Conservation Code (IECC). To date states from Vermont to Texas have adopted the Energy Rating Index of the 2015 IECC. The IECC is up for review and amendment every three years. In 2016, the 2018 IECC will be up for consideration. It is expected that there will be a number of proposed amendments to either do away with the Energy Rating Index option to

make it more stringent. HERS Raters have a stake in this effort and need to have their voices heard. This session will be led by a firm experienced in the IECC code process and present practical strategies on how our industry can be heard on the grass roots level.

Presenters: Steve Baden, RESNET and Eric Makela, Britt-Makela Group

HERS Index Scores and Energy Code – Arizona Style
While Arizona does not have a statewide energy code, many of the most populous cities and towns in the Phoenix metropolitan area and southern Arizona have had a HERS Index Score option for their energy codes for a number of years. How did they do it? How is it working? This session will explore why jurisdictions have included a HERS Index Score as a code compliance option, what are their features, and lessons learned. The session will feature representatives from the City of Phoenix, Pima County and a home builder association.

Presenters: Jackson Moll, Home Builders Association of Central Arizona; Mo Glancy, City of Phoenix; Rich Franz-Under, Pima County Arizona; Daran Wastchak (moderator)

HERS Raters and Code Officials Working Together (It's not all about ERI)
Many builders aren't ready to commit to having all their homes HERS rated, but to get a certificate of occupancy and limit liability all their homes need to pass code. The latest buzz among Raters has been the Energy Rating Index (ERI) path of the 2015 International Energy Conservation Code (IECC), but even if your state hasn't adopted the latest version of the IECC, the energy code presents abundant opportunities for HERS Raters to grow their businesses. From the above-code programs provision in Chapter 1 to blower door and duct blaster testing to air barrier and insulation inspections to HVAC load calculations to the Simulated Performance Alternative and "stretch" codes, Raters are some of the only housing industry professionals with the skills necessary to verify a variety of IECC requirements. But just having those skills doesn't automatically mean you will thrive in the arena of energy code compliance verification. It is important to know how (and if) your local code officials are enforcing the energy code and what types of compliance documentation they are looking for. This session will explain how to introduce yourself to and get to know your local code officials, educate them about the energy code, and explain how your skills as a trained energy professional can help assure energy code compliance in their jurisdiction. The session will also discuss how to become a certified energy inspector through the International Code Council or your state's code certification body. You may even consider becoming a certified third party inspection agency and possibly be hired by your local municipality or added to a referral list of approved energy inspectors.

Presenters: Mike Turns, Performance Systems Development and Emelie Cuppernell, Performance Systems Development

Prescriptive, Performance and ERI; Expanding opportunities for Raters in Energy Code Compliance.
HERS and Raters have long had a role as third party inspectors or above code certifiers for energy code compliance but that role is growing exponentially since the introduction of required duct testing in the 2009 code and now with ERI in the 2015 code. Understand the business case for making code work an integral part of your operation and how to use your skills to help code officials keep up with the changing world of energy codes.

Presenters: Jim Meyers, SWEEP; Richard Morgan, SPEER and Lauren Westmoreland, SEEA

The Business Case for Third Party Inspections - How a Rater fits into the energy code equation.
The international codes first brought air infiltration testing and duct leakage testing into the codes with the 2009 IECC over six years ago. Fast forward to the 2015 IECC which now has a HERS path, the ERI , as one of four compliance options in the energy code. Should the ERI path and the traditional performance compliance paths be viewed as other building code third party inspections? This session will discuss the business case for Raters as third party inspectors and discuss how third party inspections are viewed by building officials. A not to miss session.

Presenters: Isaac Elnecave, MEEA and A Rater Representative

What's in store for the 2018 International Energy Conservation Code?
In 2016 the International Code Council will be shaping the 2018 International Energy Conservation Code. In January proposals for the 2018 IECC were due and in November the code cycle hearings will take place. RESNET has submitted three proposed changes. This session will review the main proposals that will shape the new version of the IECC.

Presenters: Eric Makela, Britt-Makela Group; Jeremy Williams, U.S. Department of Energy and William Fay, Energy Efficient Codes Coalition

Development of RESNET Water Efficiency Rating System

Accounting for Water - The New RESNET Water Efficiency Rating Index
Water is the new frontier for RESNET and the HERS Industry. In many parts of the nation water is fast becoming a scarce and expensive commodity. There is clearly a need for a system to rate a home's water efficiency in the same manner as the HERS Index rates a home's energy performance. This will allow consumers to know the water efficiency of the homes they are considering to purchase and provides builders an opportunity to monetize the water efficiency of their homes. It is the goal of RESNET and the International Code Council to adopt an ANSI consensus standard on the rating of a home's water efficiency. RESNET has created technical subcommittees to develop these protocols, (Modeling and Reference Home, Indoor Water Use and Outdoor Water Use). This session will provide an update on the progress of the technical subcommittees in developing these protocols and what are the issues involved with developing the RESNET WER Index calculations.

This session will feature the co-chairmen of RESNET efforts to develop a Water Efficiency Rating Index who will report on the progress on developing the standard.

Presenters: Jacob Atalla, KB Home; Jonah Schein, EPA WaterSense and Ed Osann, Natural Resources Defense Council.

Effective Use of Water and the Energy Used to Heat it for Builders...The Next Frontier
The effective use of water and the energy used to heat it in homes is the next conservation strategy builders need to pay attention to. Many energy efficient production builders have done a great job improving their envelope, and their heating and air conditioning to increase the energy efficiency of their homes. Now it's time to address water and the associated energy used in the home as it becomes a more costly resource in many building jurisdictions.

One innovative national RESNET Energy Smart builder that has begun addressing this issue is KB Home. In this session, different water / energy conservation solutions in different locations across the country will be presented by KB Home. KB will show how drain/grey water heat recovery (DWHR) and its related HERS benefit has helped lower their HERS scores along with the implementation of grey water recovery in their ZeroHouse offering. The RESNET WERS program will also be discussed and how KB Home plans to utilize the new water measurement index.

Presenters: Jacob Atalla, KB Home and Rod Buchalter, Renewability Energy Inc.

Retrofitting a Single Family Home Targeting Net Zero Water
Whirlpool Corporation is retrofitting a 1920's vintage bungalow in West Lafayette, Indiana to achieve Net Zero Energy Water and Waste performance. Called the ReNEWW house - for Retrofitted Net-zero Energy, Water and Waste - the structure will showcase technologies that promote resource efficiency. The first phase of the work, targeting net zero energy, was completed in 2014. In 2015, Whirlpool Corporation partnered with the Kohler Company to focus on the water systems in the home. The systems that are implemented include a greywater recycling system, low flow toilets and faucets, a rainwater catchment and filtration system, and a complete house re-plumb. The goal of this phase was to use only the water that was available onsite or collected from within the home. Whirlpool and Kohler will discuss the goals of the project, the equipment used for this phase in the home, the challenges involved with the project, and the results of the water retrofit to date.

Presenter: Eric Bowler, Whirlpool Corporation

Advanced Building Science

A Review of Airflow Measurements
Learn a wide variety of airflow measurement methods and the pluses and minuses of each. We will uncover the science behind good airflow measurement, on a live training unit as well as picking the correct tool for the purpose.

Presenters: Bill Spohn, TruTech Tools, LTD and James Jackson, ICFI

Advanced Duct Leakage Testing

This session will go beyond the basics and help give you a better understanding of what is being measured. We will cover where to measure duct pressure, where to set up the duct testing fan and talk about why it matters. We will demonstrate how pressures in unconditioned zones are affected during the test to stress the importance of setting up the building properly. Methods of performing the Duct Leakage to the Outside test will be discussed in detail including issues associated with testing homes with conditioned crawlspaces. Zone dampers will also be discussed.

Presenter: Paul Morin, The Energy Conservatory

ASHRAE 62.2-2016: What's New
Every three years the ASHRAE 62.2 residential ventilation standard is revised. The next full revision will be the 2016 edition. Significant changes are coming for this new edition and you should be ready. As a member of the ASHRAE 62.2 committee since 2007, Rick will explain the changes and how they will impact your work. Sharpen your pencils and bring your questions.

Presenter: Rick Karg, Residential Energy Dynamics

Getting it Tight: Successful Air Sealing and Compartmentalization Design and Execution
By now we all know tighter is better – more comfortable, more energy efficient, more resilient. LEED for Homes, LEED Multifamily High Rise, and utility incentive programs all have tough unit compartmentalization requirements for multifamily housing. Building codes and standards are becoming more rigorous and have begun to mandate testing for some building types. With so many buildings and units achieving and even surpassing their goals, why then are so many still so leaky, in spite of the best intentions of architects and builders?

With combined experience on over 250 multifamily projects, the panelists have seen what works and what doesn't. We will review the best practices of top performing projects: what details work, what to include in the specifications, and what to pay attention to on the job site so that code and design requirements are successfully met.

Presenters: Kristen Simmons, AIA, NCARB, ICF International

HVAC Design Applied
Recognizing poor HVAC design elements in the field may not always be as obvious as the entertaining photos we see all over building science blogs. So how can HERS Raters equip themselves with the knowledge to diagnose more comprehensive design concerns? During this session we will break down the fundamental elements of proper HVAC design and airflow and discuss how they relate to performance and comfort. Unfortunately the jokes of improper sizing, poor duct design and erroneous equipment selection are far from over. So how do we overcome these hurdles and make progress with familiar industries? When and how will we know if designers are truly considering all of the various sources of heat generation in the home? And are there new tools to help? These questions will be thoroughly covered during this session of proper HVAC design applied.

Presenters: Ryan Burrell and Rob George, ICF International

Model Calibration: Introduction, Benefits, and Standardization.
Model calibration can improve the accuracy of software predictions of retrofit energy savings under a home's actual operating conditions. Typically, about a year's worth of historical monthly utility billing data are used to "true-up" or "tune" the baseline model for the home. Model inputs are adjusted within their ranges of uncertainty until a required level of agreement is achieved between predicted and metered baseline energy use. This session will provide an introduction to the topic of model calibration, present analysis results that demonstrate the benefits and challenges of model calibration, and describe how NREL, RESNET, and many residential software developers are working together to standardize a method to test and improve model calibration approaches.

Presenters: Ben Polly and Ron Judkoff, NREL

Multi-fan Blower Door Testing Lessons Learned
Want to attract new clients through blower door testing whole buildings using multiple fans? What are the key items to consider when putting together your contracts and planning your tests? Learn what we got right and what we've changed after infiltration testing over 40 small commercial buildings. We'll discuss how to find the business, what to include in your proposals and contracts, and how to perform a reputable test with minimal man-hours and equipment.

Presenter: Mike Barcik and Laura Capps, Southface

RESNET - International Code Council ANSI Consensus Standard on Blower Door and Duct Leakage Testing
The 2009 and 2012 IECCs required performance building envelope and duct leakage testing. The code, however, does not specify the procedures to conduct the testing. RESNET and the International Code Council are in the final stages of adopting an ANSI consensus standard on conducting blower door and duct leakage testing. RESNET has proposed that the 2018 IECC refer to the ANSI standard. This session will explain the provisions of the standard.

Presenters: Iain S. Walker, Lawrence Berkeley National Laboratory and Gary Nelson, The Energy Conservatory

Energy Policy & Programs

A Federal Tax Credit for Energy Efficient Homes that Builders Can Depend On
The current $2,000 tax credit for builders to construct energy efficient homes has been marred by expiring every two years and then at the last minute being extended by Congress.

RESNET, the Leading Builders of America and the Natural Resources Defense Council have drafted proposed legislation that would base the credit on the Energy Rating Index compliance Option of the 2015 IECC and exist for at least five years.

This session will explore this proposed legislation and determine the odds of it and other energy efficiency legislation passing in this Congress.

Presenters: Carl Chidlow, Winning Strategies Washington; David Goldstein, NRDC and Clayton Traylor, Leading Builders of America

Case Study: Four Major Utilities- Territories in Texas Baseline Study Findings and Impacts in New Residential Construction
Historically, the State of Texas has been the largest producer of energy efficient homes in the utility programs as well as the EPA's ENERGY STAR Program at a national level. Baseline Study findings will be presented along with factors that impact the baselines and the disparities between the major metro areas and the border cities and their economies. Learn how code enforcement or lack thereof impacts the utility program baselines and why. What drives builders to follow stringent building codes and remain competitive in the market, adding value to customers? Are we missing savings opportunities? Are builders leveraging program incentives or too busy meeting demand and supply?

Presenters: Maci McDaniel, ICF International and Travis Michalke, ICF International

Expand Your Business- Why and How to Market the Health and Safety of Buildings
Learn why and how to market the health and safety of buildings to expand your business. Tremendous opportunity exists to incorporate healthy home features in retrofit work, especially in relation to asthma and other respiratory issues. Prescriptions for home assessments and even home improvements can be covered by medical insurance in some cases. There are innovative energy and financing programs that now link building performance improvements more directly with health improvements. Discover how our industry and energy programs can collaborate with the healthcare industry to help people live better, while building your business. Walk away with templates for marketing plans, justifying research, and possible verbiage you can utilize for your business. Specific examples of what is working in Arizona will be shared with time for Q&A.

Presenters: Heather Szymanski, Efficiency First Arizona; Kirsten Shaw, Advanced Energy Efficiency & Environmental Quality and Larry Zarker, BPI

Implementing Legit QA - How is this possible??
ENERGY STAR checklists, Local Efficiency Program, RESNET Standards, home occupants, and multiple duct systems! There is TON of information to attempt to verify during an onsite quality assurance visit, and often with very little time. This session will discuss best practices for not only capturing the required data, but documenting it and using it as a tool to educate all parties involved, and create better practices going forward.

Presenters: Ethan MacCormick and Emelie Cuppernell, Performance Systems Development

Indoor airPLUS Sales Training Kit: Empowering Your Sales Staff to Sell Improved Indoor Air Quality
As energy efficiency and improved indoor air quality become increasingly important to buyers looking for a new home, articulating the benefits of such improvements can be difficult. The Indoor airPLUS Program has developed a Sales Training Kit that provides sales staff with the tools to speak about indoor air quality and the Indoor airPLUS Program that resonates with various types of clients.

As a companion training to the ENERGY STAR Certified Homes Sales Training Kit, the Indoor airPLUS module provides the sales team an overview of the features and benefits of Indoor airPLUS and how to identify an ideal Indoor airPLUS client. Additionally, the training covers a variety of value propositions and uses videos and collateral, interactive activities, and group role play to work through the application of those value propositions. This ensures that sales staff are engaging interested clients with features and benefits that align with their values.

Included in the Sales Training Kit is a Participant Guide, a Trainer's Guide, a PowerPoint presentation, and supplemental documents to guide your Sales Manager and team in capitalizing on the Indoor airPLUS messaging and brand. Attend this session to learn about the Indoor airPLUS Sales Training Kit and how to tailor it to your organization's needs to best reach your client base.

Presenters: Nick Hurst, ICF International and CR Herro, Meritage Homes

Policies and Programs to Deliver Cost Effective Water and Energy Use Efficiency
This session provides an overview of the water-energy-carbon footprint relationship with an eye to how to apply this relationship to the buildings we work on. Attendees will learn how to calculate the ratio and magnitude of the water-energy-carbon footprint connection for their buildings and communities and see how these compare to local and national benchmarks. We will discuss indoor and outdoor water use and advanced systems such as greywater and rainwater. The key metrics we will present also provide context for water rating systems. The session will help participants learn how to plan system improvements to be more resilient to increasing levels of water use efficiency. In addition, the discussion will explore the potential unintended consequences to water and waste water distribution systems as water use continues to be reduced.

Presenter: Gary Klein, Gary Klein and Associates

Projecting Total Energy Usage- How good are we?
An update on last year's presentation looking at 12 months of actual energy usage compared with projections in large numbers of rated new homes. This session will have additional evaluation and demographic data to provide additional perspective.

Presenter: Ben Adams, MaGrann Associates

Residential Energy Guarantee - Don't Just Say Its Energy Efficient - Guarantee It!
Energy efficiency in new construction is on everyone's mind. And promising to build an energy efficient home is great. Guaranteeing it is even better. This session will introduce you to the revolutionary new product that has taken the HERS rating to new heights and is providing new opportunities to raters to rate more homes and builders to sell more homes.

Presenter: Roger Lange, Bonded Builders Warranty Group

Successful Energy Efficiency Programs without Rebates or Incentives
Rebates and incentives are the driving force behind the majority of energy efficiency programs. Selling the homeowner on recommendations becomes less of a struggle when there is money available to help pay for these improvements. But what happens if none of that financial aid is available? Will the homeowner still see the benefit of making the energy efficient improvements? North Little Rock Electric Department (NLRED) faced this problem in 2006 when they established their Home Energy Audit Program. Being a City owned municipality, NLRED was not allowed, by Arkansas law, to give any customer funded rebates or incentives. Find out how they made their educational energy evaluation program, with over 1,000 completed evaluations to date, successful with only a clipboard and a smile.

Presenters: Keith Allen McCourt, North Little Rock Electric Department and Jill Ponder, North Little Rock Electric Department

The Clean Power Plan: Why Do I Care?

On August 3, 2015 the United States Environmental Protection Agency (EPA) released the final version of the Clean Power Plan, requiring states to develop plans that will achieve greenhouse gas emissions reductions. The EPA anticipates that demand-side energy efficiency will play a significant role in state plans under the Clean Power Plan. This session will discuss the Clean Power Plan and how it will impact the residential energy sector as state plans begin to take shape. Potential impacts of the Clean Power Plan include more stringent building energy codes, increased use of renewables, and updated utility incentive programs, among many others.

Presenter: Alec Danaher, ICF International

The Role of Natural Gas in Zero Net Energy
As the concept of Zero-Net Energy gains momentum, the number of stakeholders who believe that the path to ZNE is electrification grows as well. In order to achieve the desired result of obtaining the status of ZNE, we must be realistic and practical in our efforts to get there and electrification without guaranteed full renewable sources is not realistic. Natural gas is a clean, abundant and affordable solution that must be considered equal in the future of ZNE. Policy-makers must consider this when implementing policy, builders must consider this when constructing their developments and all stakeholders must consider the consumer preference when moving toward ZNE. These presentations will give the audience the information required to make an informed decision regarding the use of natural gas in ZNE by showing that natural gas is favorable based on metrics used in California and revealing research that indicates a mixed-fuel ZNE home is more efficient and economical than an all-electric home in many cases.

Presenters: Sue Kristjansson, SoCalGas; Jim Young, Navigant; Steve Easley, Steve Easley & Associates Inc. and Neil Leslie, Gas Technology Institute

Zero Net Energy Innovations in USDA's Multifamily Housing
USDA continues to push the envelope on achievements within the sphere of Zero Net Energy (ZNE) Multifamily Housing. Projects completed using USDA's funding have achieved ZNE and Net Positive performance due in large part to the competitive scoring point system for energy-efficiency and energy generation. This presentation will give participants an insight into the various sources of funding available at USDA's Rural Housing service and their connection to energy-efficiency. It will focus in detail on several exemplary, innovative projects that have achieved Zero Net Energy and better performance. Some of the projects have achieved Zero Net Electric, a very rare achievement within the realm of ZNE. It will engage the audience in discussions of future possibilities for achieving Zero Net Water, and even deeper enironmentally robust efforts to create buildings that not only do the least harm but do the most good for people and the environment. Serving the most economically vulnerable populations, USDA's Multifamily Housing Direct Loan program focuses on very low income tenants with a national mean income of just $9800/year. These efforts to decrease utility costs and improve the health of buildings are at the heart of the agency's mission.

Presenters: Sean Armstrong, Redwood Energy

Home Energy Ratings

A New Frontier for RESNET – Expanding RESNET's Services to Rural America
While in 2014 over 165,000 homes in the U.S. were rated by HERS Raters and issued a RESNET HERS Index, the more rural communities of the nation have been under served. Rural Americans pay among the highest energy bills in the nation. The procedures and infrastructure that RESNET has developed in the more urban areas of America will not necessarily work for the more rural areas.

An important goal for RESNET in 2016 is to expand RESNET's services to rural America. To achieve this goal RESNET has developed a partnership with Touchstone Energy Cooperatives. The partnership will work on addressing the barriers limiting RESNET services.
This session will explore the opportunities of expanding the coverage of HERS into rural America and how RESNET and Touchstone Energy Cooperatives are working together to meet this opportunity.

Presenters: Roy Honican, Blue Grass Energy and Alan Shedd, Touchstone Energy Cooperatives

All Things Are Not Equal –
Comparing the RESNET HERS Index and the U.S. Department of Energy Home Energy Score

There is some confusion in the market over the HERS Index and the Home Energy Score. Are they similar? Are they interchangeable? Are they consistent? Can the Home Energy Score be used for rating the energy performance of new homes?

Philip Fairey of the Florida Solar Energy Center and Brett Dillon of the Dillon Group have completed an analysis comparing the HERS Index and the Home Energy Score in Atlanta and Chicago that has come up with very interesting results.

Come attend this session that will answer the questions that are being asked by HERS Raters and program sponsors.

Presenter: Philip Fairey, Florida Solar Energy Center and Brett Dillon, The Dillon Group

Best Ideas of the HERS Industry – Insulate America and RESNET Awards Program

What would you pay to take home 30-40 successful ideas from your peers? Our price is $20 and it is a steal. All HERS Rating companies are encouraged to share their best ideas with the group, something that was innovative or made a difference in your company. The top three ideas, as judged by the attendees will split the entire proceeds. Everyone is welcome at $20 per attendee. This special session will take place on Tuesday March 1st at 1 PM!

Beyond the HERS Index: Exploring Data and Marketing Opportunities
Significant data exists beyond the HERS Index, and the opportunities for research are endless. This session will explore exciting opportunities for research and marketing, particularly focusing on extracting predicted energy and emissions data from REM/Rate into a usable database. HERS Raters and/or Providers can work with builders to determine overall predicted energy and emissions savings compared to IECC code reference homes. This will result in the ability to identify trends, answer research questions, and market the enhanced performance of homes in conjunction with the HERS index. In this session, we will explore examples of this research and how it can be used.

Presenter: Jenna Grygier, Southface Energy Institute

Can the National Asset Rating Standard be Used to Implement California Energy Policy? Progress on the RESNET and California HERS Harmonization Efforts
For the past year RESNET and the California Energy Commission have worked to determine how California's HERS specifications can better align with the RESNET Standard such that (1) new homes using a HERS index to comply with building standards and/or to market relative efficiency assets can be compared across state borders, and (2) both new and existing homes in California can be rated using a single HERS specification that is consistent with state energy policies.

The authors are using the EnergyGauge (egUSA) energy modeling software to represent the RESNET HERS standard and the CBECC-Res tool to represent the California HERS calculations. 140 energy models have been built in each tool to represent one single family home design across five climate regions, seven levels of energy efficiency, two building azimuths and two fuel types. One set of parametric runs compares loads, source energy and HERS indexes between egUSA and CBECC-Res when the latter implements all the RESNET modeling specifications except nMUELs. A second set of parametrics explores HERS indexes calculated in CBECC-Res when additional modeling specifications move away from the RESNET standard to align with current California energy policies.

This conference session will summarize the results of the modeling efforts described above and discuss outstanding issues.

Presenters: Martha Brook, California Energy Commission and Philip Fairey, Florida Solar Energy Center
Moderator: Jacob Atalla, KB Home

Cross Border Builder Challenge Lowest Score Awards Presentation
Sponsored by: Renewability Energy Inc.
The 2016 awards for lowest HERS score for production and custom builders along with net zero awards for both the US and Canada will presented by John Godden along with some honorable mentions from this year's submissions.

Presenters: John Godden, Canadian Residential Energy Services (CRESNET) and Rod Buchalter, Renewability Energy Inc.

How the U.S. Army Is Using the HERS Score to Incentivize Energy Reduction
Reducing energy consumption is very important to the Army, because lower consumption results in lower costs. With 90,000 existing residential homes across the United States on Army posts, the Army is beginning to focus on how these homes can be more efficient and more comfortable for the residents. With the current system, the Army pays for all of the energy consumption in these homes, so they have a huge incentive to improve the quality in order to reduce their overall costs. The Army is reducing its energy consumption in two different ways: 1) creating an incentive program to drive down usage 2) assessing and improving homes with cost effective, energy upgrades to greatly reduce overall costs. In this presentation, I will explain the new program that the Army is rolling out includes a HERS score so that raters near military installations can have a better idea about this program. This will allow raters to feel much more comfortable about submitting a quality, competitive bid to rate these homes.

Presenter: Patrick Sullivan, U.S. Army

Infrared Camera Skills for the Building Thermographer
Infrared Camera Skills for the Building Thermographer attendees will learn about the qualities of a good image and how to manipulate the camera settings to obtain good images, including basic camera operation and what the camera settings mean. This workshop will cover common thermal signatures that building thermographers will encounter and how to interpret these signatures. We will also cover the conditions and equipment required to perform a successful and effective building inspection.

Presenters: Wyatt Nease, The Snell Group

Making the Grade: What the Insulation Grading Process Isn't Telling You about Installation
RESNET Grade One rating is based on a visual inspection of the installed insulation product. With batt insulation, it's easy to see if there are gaps, voids, compressions or other issues that may impact the thermal performance of the product and, therefore, could result instead in a Grade Two or Grade Three rating. However, with certain insulation types, there can be gaps or voids on the interior of the installation which are not noticeable from a visual inspection alone. Come to learn about recently published research which suggests we may need to challenge the current approach of assessing insulation installation quality only by visual inspection.

Presenter: Charles Cottrell, NAIMA and Rick Duncan, SPFA

Multi-Family Certifications: In the Trenches
This session will highlight field proven techniques that manage the process of multi-family testing & inspections, while providing insight into additional opportunities to integrate RESNET-based protocols and HERS rater services. Example projects will include Energy Star Multi-Family High-rise, LEED for Homes Mid-rise, the National Green Building Standard (ANSI-700), and IECC compliance. The panel will consist of a HERS rater/provider and a HERS rater/architect.

Presenters: Barb Yankie, Green Building Consulting / Homes + and Laureen Blissard, Green Builder® Coalition

Now you know Combustion Safety. Expand your Market Potential by Entering the Existing Homes
As RESNET equips Raters to enter the existing home space, it's a great time to get familiar with the differences between the new and existing market. In this session we will discuss the opportunities in the Existing Home market and how they can take advantage of their Combustion Safety and Work Scope Development training. We will focus on some of the important elements of being a successful existing homes assessor, like managing homeowner expectations and identifying comfort and health concerns in the home. We'll also discuss various business models and strategies being implemented by Raters around the Country who have already made the leap.

Presenters: Ryan Burrell, ICF International and Jamie McKenzie, ICF International

OSHA- Understanding & Outreach for the new "Confined Space in Construction" Rule
Raters in Attics and Crawl Spaces, on May 4, 2015, OSHA issued a new standard for construction work in confined spaces. Learn about the rule that requires employers to determine what kinds of spaces their workers are in, what hazards could be there, how those hazards should be made safe, related liability, and what training workers should receive. The five key differences from the construction rule, and several areas where OSHA has clarified existing requirements will be discussed. The rule makes the controlling contractor, rather than the host employer, the primary point of contact for information about permit spaces at the work site. In addition to the overview on the rule, we'll discuss how to inform others and make it relevant to them using examples of what is working in Arizona.

Presenters: Jessie Atencio, ADOSH (Arizona Division of Occupational Safety & Health) and Heather Szymanski, Efficiency First Arizona

Practical mechanics under the new RESNET Multifamily Guidelines
Design and installation of high efficiency HVAC systems (including ventilation!) that play nicely with the rating methodologies required by the new RESNET multifamily rating guidelines… pros, cons and pitfalls in engineering, performance and testing.

Presenter: Doug McCleery, MaGrann Associates

RESNET 101 - "What is RESNET and the HERS Index? – A Primer for Beginners"
First time to a RESNET Conference? There are many things that can be confusing about RESNET and the rating industry: "Does RESNET really mean ENERGY STAR?", "Is REM/Rate RESNET's software?" "What is the difference between RESNET and RESCheck?" This session is designed to set the foundation for all those who are new to RESNET, the RESNET Conference, and/or the rating industry. It will provide important background information to make the most of your time attending sessions at the RESNET Conference: an introduction to RESNET, what is RESNET's mission, who is "RESNET", how the organization operates, a basic overview of the HERS Index, and more. Come and get your questions answered and build your foundation for a successful RESNET Conference.

Presenter: Daran Wastchak, D.R. Wastchak, LLC.

RESNET Rater Trainer Roundtable
Come to the RESNET Rater Trainer Roundtable to hear about:

- Updates to the Rater Practical Simulation Exam and Free Releases
- SDC 200 Committee members describe changes to Chapter Two of the RESNET Standard
- Other Opportunities for Training

Presenters: Layla Thomas, TopBuild; Rob Moody, Organic Think and Doug Donovan, Interplay Learning
Moderator: Kathy Spigarelli

SEO in 2016: What's critical for Raters, Auditors, & Home Performance Companies?
2015 was another big year in the SEO realm. In this session you'll learn about the most significant changes and how they are starting to affect Raters, Auditors, and other Building Efficiency companies. Industry expert Peter Troast will address how important each of these changes actually are, how they're weighted in Google's eyes, address several misconceptions about SEO and call out "black hat" practices to avoid. We'll also cover how to steer your marketing efforts and what to consider as you develop a 2016 marketing strategy that works for search.

Learning Objectives:
1. Understand how recent changes to Google's search will impact this industry.
2. Learn about the importance of content and how the content landscape is changing along with Google's search algorithms.
3. Tactics to stay on the leading edge of Search Engine Optimization in this changing landscape.
4. Learn the elements of an effective SEO strategy

Presenter: Peter Troast, Energy Circle

The Technical Basis of Calculating HERS Index or I am Curious n(MEUL)- QAD Roundtable
In order to provide a level playing field between the electric and gas industries, the calculating of the HERS Index Score of a home employs the Normalized Modified Loads n(MEUL) calculation. It is important for the HERS Industry to understand this methodology and the role it plays in calculating HERS Index Scores. This session will be led by Philip Fairey of the Florida Energy Center who helped develop the n(MEUL). This session is also the annually required RESNET QAD Roundtable.

Presenter: Philip Fairey, Florida Solar Energy Center

There is an app for that. - They do what?

WiFi devices are standard in most of the equipment we use and the apps that access the data are growing and becoming part of the testing procedures.

This session will uncover some of the best apps for testing and performing many of the required measurements for a Rating.

Measurements? See the latest in laser measurement devices that can send the readings to your phone/tablet - and provide an Excel sheet. Nice!

IR cameras have eliminated the challenge of 2-3 people trying to see what's on the camera - without moving it. Show the IR image on an iPad while the client sits on the couch and you go through the house explaining the findings. Even go where your client will not, like the attic and show them the same image that is on your IR camera. Cool!
How about duct testing on the fly or trying to find the leaks in the attic or crawl space and turning on/off the duct tester as you go. Handy!

While standing in the living room, turn off the blower door fan so you can explain to your clients the conditions, then turn it back on and let them feel the air moving through the switch plate. These apps can do that.
Imagine an app that will geo-locate and time date stamp the test, confirm the altitude, go to the local weather station and get the temperature and wind conditions, check on Zillow if there is any existing information, connect to the gauge and fan and automatically perform a single or multi-point test and of course create an easy to read report that can be sent immediately. Did I mention the data can be shared with providers or utility programs. Yes, there are apps that do all that and more.

But wait there is more... but you have to come to the session to see.

If you want to see what's out there now and coming up next - this session is must for those who are on top of their game.

Presenter: Joe Medosch, eEnergy & Environmental Consulting llc

Race to High Performance Homes

A New Low Hanging Fruit - Innovation In Duct Sealing
Until recently, the single biggest contributor to home energy loss – duct leakage - was ignored for one simple reason: until recently, there was no effective solution to the problem. Traditional manual sealing methods such as tape and mastic are only effective on easily accessible leaks – leaving 90 percent of ductwork untreatable. As a result of research from the U.S. Department of Energy, however, a new aerosol-based sealing technology was recently introduced making duct sealing the single most effective – and cost-effective – strategy available to homeowners looking to save energy. The DOE has called aerosol-based duct sealing one of the most significant innovations made available to homeowners since the agency was first established. This presentation will look at the technology, its implications and the energy-saving results obtained by real-world applications.

Presenters: Ken Summers, Comfort Institute

Back to the Future: Cutting Edge Technology, Energy Efficiency & Healthy Homes
Technological advances, growing energy awareness, and lucrative incentive programs in energy efficiency drive increasing numbers of existing and prospective homeowners to desire "green" homes. Wi-Fi thermostats used to remotely control comfort levels are being embraced by a new tech-savvy generation keen on home performance. Integrating behavior based strategies such as smart circuits and advanced energy monitoring are gaining traction and provide both an educational component and quantifiable dollar savings. Just like the home of the future, interconnectivity between builders, Realtors, Appraisers and energy efficiency programs is vital to influence this ongoing market transformation. This session will assist you in developing, educating, and leveraging strategic partnerships in the housing market and also examine how technology can not only save money but provide a healthier and safer environment in which to live. The home of the future is already knocking on the door.

Presenter: Mark Pignatelli and Will D'Arrigo, ICF International

Breaking Good: How Home Builders in New Mexico Continue to Push the High Performance Envelope

As home builders in Southern New Mexico build regionally unique homes in the Desert Southwest, they continue to integrate products and practices that improve their homes' overall energy, health and safety performance. As we move closer to 2020, this presentation will accentuate various examples of how home builders and HERS Raters in the Southwest can work together to continuously improve new residential structures.

Presenter: Steve Ellison, ICF International

Building America's Top 3 Building Science Challenges to Delivering High Performance Homes
Advancements in building codes and voluntary standards are improving the performance of new homes. That's what we're after at the Energy Department. But, as we improve homes, new challenges arise. The Building America RD&D Program has identified the top three building science issues associated with increasing home performance - Moisture Managed Envelope Solutions, Optimal Comfort Systems, and Optimal Ventilation and IAQ Solutions.

Moisture Managed Envelope Solutions
High performance building envelopes face susceptibility to moisture issues – and consequently potential durability and occupant health issues - without effective moisture management.

Optimal Comfort Systems
As heating and cooling loads decrease in high performance homes, conventional HVAC systems may not function as well as they should, and occupant comfort and health can be sacrificed without deliberate attention to humidity control and airflows. Lower loads require increased attention to distribution system design, humidity control, and smart sensors and controls.

Optimal Ventilation and IAQ Solutions
In the US, people spend up to 90% of their time indoors. Tighter building envelopes mean an increased need to properly address indoor air quality with proven IAQ solutions.
This session will explore these 3 major building science challenges to high performance in homes and present Building America's strategy to develop technical and market solutions that manage risk and overcome barriers to implementation.

Presenter: Eric Werling, U.S. Department of Energy

Comparing the Energy Requirements of Hot Water Circulation System Control Strategies
For any given floor plan, the waste of water and time while waiting for hot water to arrive will be the same in a given layout of hot water circulation system. The difference will be the energy requirements of control strategies on the loop. This session will present data on the performance of several control strategies. We will also discuss the advantages and disadvantages of each strategy.

Presenter: Gary Klein, Gary Klein and Associates

Connectivity and New Construction: Opportunities for Greater Energy Savings
Communicating technologies, interactive systems, and smart equipment are becoming increasingly prevalent in the residential market. These devices and features have the potential to drive greater energy savings within a home while also providing customers with non-energy benefits. Connected capabilities can help transform the performance of a home through features like automation, dynamic interaction, mobile energy management, and real-time diagnostics. By incorporating state of the art technologies and features, homes can obtain energy savings opportunities that go beyond the individual end measures. This session will explore the application of these technologies and articulate specific strategies for incorporating connectivity into new construction programs.

Presenters: John Taylor, CEE and TBD, Utility or Energy Efficiency Program

Do Improved Hot Water Systems Result in Efficient Consumer Behaviors?
Improvements in domestic hot water systems have not kept pace with the efficiency gains of building envelopes and HVAC systems. Hot water energy consumption is becoming a larger proportion of home energy use. In some climates, it has surpassed space conditioning to become the #1 consumer of energy. Today's homes are 56% larger and require higher volume plumbing runs to distribute hot water. The use of low flow fixtures escalates consumption by increasing thermal losses and the time it takes hot water to reach fixtures. Wait times for hot water have become unreasonably long (structural waste) and have spawned wasteful behaviors (behavioral waste).

This session explores challenges with generating and delivering hot water and presents technologies and practices for reducing both structural and behavioral waste.

Presenters: Gary Klein, Gary Klein and Associates and Troy Sherman, Evolve Technologies

HERS Scores- a Stepping Stone Toward Green Certification
Homes and buildings achieving good HERS scores are well-positioned to seek third-party green building certifications, including certification to the rigorous and cost-effective National Green Building Standard (NGBS). Market research reveals that homebuyers and renters now value green features, like healthy indoor environment and durable products, over energy efficiency, and appraisers are increasingly valuating green homes for higher amounts. The ability to offer green verification services in addition to energy testing/rating can help a RESNET rater stay profitable in a changing market. Join this workshop to learn more and hear from accredited NGBS Green Verifiers who have helped clients transition to seek both HERS scores and third-party NGBS Green Certification.

Presenters: Cindy Wasser, Home Innovation Research Labs and Jamie Hager, Southern Energy Management

High Performance Attics and Walls with Spray Polyurethane Foam
Designing a home's envelope with high-performance spray polyurethane foam (SPF) can help builders maximize the energy savings in two critical areas – the attic and walls. Panelist will explain how SPF can be used to transform traditional attic and walls designs to add strength, durability, and energy efficiency to the envelope. Attendees will receive information on modeling the energy savings benefits of attic and wall designs with common software tools. Attendees will also have the opportunity to learn more about SPF products from several of the industry's leading experts.

Presenters: Rick Duncan, SPFA; Brian Oman, BASF; C.R. Herro, Meritage Homes and Stephen Davis, SPF Consultant
Moderator: Justin Koscher, Center for the Polyurethanes Industry at American Chemistry Council

How to Build Better Homes for Less Money - applying lessons from NASA and Major League Baseball
What do NASA, the MLB, and the Home Building Industry have in common? Not much, actually. But there are things we can learn from leading engineers in those industries. This session will teach builders techniques and methodologies, proven successful in many other industries that can help builders design more energy efficient homes AND reduce construction costs. Attendees will learn how to properly choose an energy spec level that maximizes profit and gives them an edge over their competition. The session will also disprove myths about cost effective energy improvements that have been assumed true in the building industry for decades.

Presenter: Cy Kilbourn, Ekotrope

Implementing the Hot Water Provisions in the RESNET ANSI Standard
2015-16 is the year of water for RESNET. This session will discuss the changes to the standard to account for measures that reduce the consumption and waste of hot water and the changes that adjust the amount of hot water and the associated energy in the energy budget by climate zone. We will go into depth on the various measures that can now get credit for hot water use efficiency. These measures are some of the most cost effective ways to improve a HERS score. Perhaps more importantly, several of them improve customer satisfaction. We plan to divide the time between explaining the measures and getting participant feedback on their early experience in implementing the provisions.

Presenters: Gary Klein, Gary Klein and Associates and Philip Fairey, Florida Solar Energy Center

Multi-Family and Single-Family Homes: A Comparison of Building Code Requirements and Building Science Considerations
Discussions of residential energy efficiency are usually centered on new construction, single-family houses. However, multifamily housing represents a growing sector of the market fueled by regionally high single-family housing costs, and growing desire to live in walkable, transit-accessible downtown neighborhoods. As focus moves from single family to multi-family construction there are changes in codes, exposures, and construction practices. This presentation will describe some of the building science and construction challenges involved in multi-family construction. And specifically focus on a comparison of the code requirements between single family and multi-family wood frame construction.

Presenter: Theresa Weston, DuPont Building Innovations

Pre-Construction Services- Incorporating scope reviews, design charrettes, and pre-construction meetings into Integrated Design with builders
"But it's not in my scope of work!" Sound familiar? Raters are taking an increasingly important role with builders in achieving high performance homes. Spending the time to work with builders, designers, purchasers, and trades before construction begins has become the lowest hanging fruit in getting homes to perform both well and efficiently. In this session, Dan Wildenhaus and Preston Kuckuck will discuss with attendees the various types of pre-construction support Raters can bring to the table beyond the modeling of a home, and engage with attendees on the value propositions to both Raters and builders for taking on this type of work. The session is intended to be very interactive and allow Raters to share experiences from the field.

Presenters: Dan Wildenhaus, CLEAResult and Preston Kuckuck, Performance Insulation

Opt, Opt, and Away: Identifying Cost-Optimal HERS Index Scores
The BEopt™ (Building Energy Optimization) software provides capabilities to evaluate residential building designs and identify cost-optimal efficiency packages at various levels of whole-house energy savings along the path to zero net energy. The National Renewable Energy Laboratory (NREL) recently added the Energy Rating Index to the BEopt software. Using this new capability, engineers at NREL conducted analysis to identify cost-optimal ERI values for various cities and housing types throughout the country. This session will provide a quick overview of BEopt capabilities and present the Index scores and associated efficiency packages identified in the analysis.

Presenter: Dave Roberts, NREL

Who's Buying High Performance Homes and How Can You Target Them?
Understanding the market for high performance homes (or green or Net Zero or whatever you like) is critical to business success whether you are a custom builder, rater or home performance contractor. 'High Performance Home' can mean many things to a consumer looking to build or retrofit an existing home. We'll review the current research on who is buying high performance homes, including those with a HERS index, and discuss how to reach buyers in the sustainable building arena. We'll discuss the foundations of building an overall marketing program to reach and convert these prospects.

Learning Objectives:
1. Hear about how consumers view the most recognizable high performance home brands.
2. Learn about the top buyer personas in the sustainable building arena and how to target them.
3. Discover tactics to elevate your high performance projects for a shorter sales cycle.
4. Lessons from sustainable builders who are successfully reaching their audience.

Presenter: Peter Troast, Energy Circle

EEBA Track

Taking the Performance Path: The ERI/HERS Index for Designers and Builders
This full day session reviews Building Science principles as they relate to the Performance Path option in the International Energy Conservation Code (IECC). The course explores the ERI/HERS as a tool to successfully design and build houses that comply using the Performance Path option, while meeting the minimum prescriptive code requirements of the 2015 IECC. Participants will spend the last part of the session reviewing energy rating software and manipulating construction assemblies to see the effect of energy scores.

I. Introduction and Review of Building Science Principles including:
   a. The house as a system
   b. The human factor – occupant comfort and health
   c. Overview of thermodynamics
   d. Thermal and air barriers
   e. Mechanical systems
   f. Applied building science – preview on how building science relates to IECC and ERI
      i. Envelope
         1. Air leakage testing and ventilation
         2. Insulation (R-values) and window specifications (U-factor, SHGC)

ii. Mechanical Systems
1. Efficiency options
2. Combustion safety considerations

II. Overview of 2015 IECC
i. Mandatory requirements
1. Envelope testing, etc.
2. Tightness requirement requires ventilation
ii. Compliance options
1. Prescriptive
2. Tradeoffs
3. Performance (ERI)
iii. Contrast ERI to prescriptive and tradeoff approaches
1. Stringent prescriptive envelope requirements make prescriptive and tradeoff paths more difficult than in past
a. materials choice, incorporation of innovative technologies, more certainty of energy performance
b. More stringent envelope requirements reduce available tradeoff options for builders
2. Illustrate planning and designing using the ERI/HERS and the prescriptive path
iv. Overview of how ERI is determined
1. Review the HERS Index and ERI and the historical uses of these scores
2. Detail what ERI meets 2015 IECC: Baseline requirements, climate zone considerations.

III. Demonstrate use of REM rate and EnergyGauge software to determine ERI/HERS and investigate how changing materials and features impact the rating score.

Learning Objectives:
1. Understand basic building science terminology and principles as they relate to the International Energy Code.
2. Comprehend the methods used in calculating an Energy Rating Index
3. Understand the implications of different climate zones and building assemblies on the Energy Rating Index
4. Attain a working understanding of the major approved energy rating software packages used in calculating an energy rating.

Presenter: Steve Herzlieb, Southface

From ENERGY STAR to Zero Energy Home and Beyond

ENERGY STAR: The Year Ahead and Zero Energy Ready Homes: Looking Ahead
Come be the first to learn what's in store for ENERGY STAR Certified Homes and DOE Zero Energy Ready Homes. On the ENERGY STAR front, hear how Rev. 08 is already having a positive impact on partners, and where EPA will focus its efforts in 2016 to help our partners be even more successful. For DOE Zero Energy Ready Homes, learn how it works with Building America's new research road map, paving a path to the home of the future.

Presenters: Dean Gamble, ENERGY STAR Homes Program and Sam Rashkin, DOE

A Second Look: Enhancing HERS with ENERGY STAR
For Raters who've looked at ENERGY STAR and passed, it's time for a second look! That's because Revision 08, released in July of 2015, brought the most significant improvements since the launch of Version 3. Everyone knows that Home Energy Ratings on are on the rise, and a great start first step to improve the efficiency of a home. But high-performance homes are more than just a score. Learn how an ENERGY STAR Certified Home enhances a standard HERS rating by ensuring that efficiency is achieved without compromising comfort, quality, or durability. Understand what key components go above and beyond a HERS rating, their relative cost and value, and why ENERGY STAR may be easier to achieve than you think.

Presenters: Zak Shadid, ENERGY STAR Homes Program and Rick Gazica, ICF International

Build it Better: ENERGY STAR Builder Panel
In this session, builders from across the country will share how they're building better homes with ENERGY STAR. More than just a label recognized by over 85% of consumers, ENERGY STAR is a platform they're using to prepare for code,

manage costs, reduce risks, and train their staff to deliver and sell high-performance homes. Come learn why leading builders in America choose ENERGY STAR.

Presenter: Zak Shadid, ENERGY STAR Homes Program

Fewer Shades of Gray: H VAC Design in Rev. 08
Morning fog. Monorail silver. Tinsmith. Perhaps there are too many shades of gray, just like there used to be too many interpretations about how to comply with ENERGY STAR's HVAC design requirements. With Revision 08, we've aimed to change that. In this session, we'll cover key HVAC design policies that have been clarified and simplified. This will give partners greater confidence, lower the hassle factor, and reduce disputes about compliance. Plus, get a preview of another big improvement coming in 2016.

Presenter: Dean Gamble, ENERGY STAR Homes Program and Charlie Haack, ICF International

Under Pressure: Understanding & Using Static Pressure
"Pressure pushing air in ducts, pressing down and through, no design asked for.."
Less entertaining, but more educational, than the classic song, this session will explain why static pressure is key to understanding HVAC systems. A live demo will show you what it is, where and how to measure it, and why it's so valuable for assessing design and installation. Plus, you'll understand how it intersects with the ENERGY STAR program and why it might become important for all HERS ratings in the years ahead.

Presenter: Dean Gamble, ENERGY STAR Homes Program and James Jackson, ICF International

Why 0 in 3? Zero Energy Ready Homes from Niche to Norm.
We're at the dawn of a major transition in housing. First, there is a growing innovation imperative that profoundly impacts the housing industry. Builders can no longer afford to sit on the sidelines ignoring proven innovations like those included in Zero Energy Ready Homes. Second, the housing industry is confronting significantly greater building science risks, even with code minimum homes. The comprehensive performance measures included in Zero Energy Ready Homes help builders mitigate that risk. That's why DOE believes Zero Energy Ready Homes will be available throughout the nation over the next three years. Learn the concepts and messages behind the compelling business case driving this prediction.

Presenter: Sam Rashkin, DOE

Zero-Ready Made Simple. Understanding How DOE Defines and Labels a Home as Zero Energy Ready
When it comes to home performance, the HERS Index Score is the most widely recognized metric - similar to a car's "MPG" rating but for homes. But a car's performance doesn't end with its energy rating…and neither does a home's. For example, comfort, health, safety, and durability all come to mind. DOE has established a label for Zero Energy Ready Homes that recognizes it's critical to ensure both energy efficiency and high-performance. This is because energy efficient homes with low HERS Index Scores bring new challenges: delivering comfort effectively in homes with ultra-low loads; providing reliable moisture management in sync with advanced enclosures; and providing good indoor air quality along with air-tight construction. Efficiency is not nearly enough. And then once these challenges are addressed, there is a special opportunity to make an ultra-efficient home zero energy ready with simple no-cost or low-cost details that accommodate a solar PV system in the future. Energy efficiency + high-performance + solar-ready is the home of the future. In this session you'll learn how the DOE Zero Energy Ready Home specifications provide a systems-based path to deliver this home today.

Presenter: Jamie Lyons, Newport Partners

Clearing the Air: Ventilation
Every ENERGY STAR certified home is required to have a whole-house ventilation system. So is every HERS-rated home that wants full credit for low infiltration. And increasingly, so is every code home. One of the most important verification tasks for these systems is to measure their airflow. This session will include a live demo showing the five RESNET-approved tools for doing just that. Plus, you'll hear best practices for designing and commissioning these systems from an expert in the field.

Presenters: Charlie Haack & James Jackson, ICF International

Complete IAQ Made Easier – Plain Speak on How to Find, Evaluate, and Specify the Right Products

New homes are routinely hitting ACH50 levels well below 3, 2, or even 1. So a complete indoor air quality system is no longer extra credit, it's a "must-have" for health, comfort, and risk management. The Indoor airPLUS (IAP) Program is the perfect fit for this complete IAQ system. With common sense provisions ranging from filtration and fireplaces to radon and rodents, you can earn a trusted label to market to new homebuyers. Some items in the spec – namely low emission materials – point to numerous 3rd party standards and certifications to find compliant products. This isn't always easy to sort through at first, so IAP has developed new resources to help Raters and purchasing managers navigate their way to the right products for cabinets, carpet, paints, etc. In this session IAP representatives will showcase these resources, including examples of how to apply them, making it easy to offer complete IAQ protection through the Indoor airPLUS label.

Presenter: Bob Axelrad and Nick Hurst, ICF International

Zero Energy Ready Made Simple – Part II: X's and O's Rating DOE Zero Energy Ready Homes
If you don't think Raters have a lot on their plate – just look at the Reports menu in REM/Rate….code compliance, above-code, appraisal addendums, and more! Rating a home for DOE Zero Energy Ready Home compliance is part of this mix, and fits in seamlessly for projects that are already ENERGY STAR certified. But don't believe us – hear from a leading energy rater – Robby Schwarz of EnergyLogic – how to model, plan review, and qualify a home under DOE Zero Energy Ready Home. This session covers these insights as well as a review of key developments in the DOE Zero Energy Ready Homes specs over the last year.

Presenters: Robby Schwarz, EnergyLogic and Jamie Lyons, Newport Partners

You Know that Hot Water Distribution is Important… Now Learn Design Details for Systems that Work
In moving our homes towards zero, hot water energy really matters. And at first glance an efficient hot water layout seems pretty simple…right? But what about that chilly cold water sandwich…can it be avoided? Do tankless systems work well with recirculation systems? And speaking of recirc systems, are there best practices for sizing the loop piping? And then there's the question of cost…what are the cost implications of different strategies? In this session you'll learn about the details of designing hot water distribution layouts that meet the WaterSense and DOE Zero Energy Ready Home program.

Presenter: Jonah Schein, WaterSense