February 24 - 26, 2014

RESNET Atlanta

2014 RESNET Conference Session Nominations

Building Science

(BS-1) 12 Simple Steps to Designing and Building Cost-Effective Net-Zero-Energy Homes
From Building Orientation to Alternative Energy Sources, there are Twelve Essential Steps to achieving the Net-Zero-Energy goal. Anybody can get to net-zero if they want to through enough money at it, but our goal is to make Net-Zero the "normal" way to build homes, at median market price points. This presentation is an abbreviated version of our full-day course, and requires the attendee to possess an extensive knowledge of Building Science. Our own success in designing and building net-zero-energy homes in nearly every climate zone at an affordable price point speaks for itself. This session shares that knowledge base.

Suggested Presenter(s) - Ted Clifton, Zero-Energy Plans LLC

(BS-2) 21 Field Testing Nightmares and How to overcome them with Ease
Colin Genge has been designing and building pressure gauges and blower doors and supplying support for over 10,000 users worldwide in a variety of applications for over 32 years.

Details
Problems encountered while testing with Blower Doors and Duct Testers can sneak up on new Raters or experienced providers and waste a lot of time and money but are easy to solve if you know how to identify the issue and field test your equipment.

No matter what brand you use, most problems have to do with the gauge and connecting tubes. They can be baffling but easy to solve and corrected on site if you follow the test procedures laid out in this session. Everyone who has seen this live trouble shooting presentation have said it was the most valuable and time saving training they have ever received, that includes new Raters and experienced trainers.

This fast-paced course is entirely visual. Participants will see the problem created, identified and corrected in seconds for every major issue that can befall air leakage test equipment.

- Blocked tubes, Leaking tubes, locating and correcting
- Gauge out of calibration?
- Duct tester or blower door out of calibration?
- Common problems caused by gauge settings such as @ Pressure and Time Averaging?
- Identifying unstable results and how to correct Baseline and wind problems
- Is it me, the gauge or fan or the building?
- Set up for optimum results every time
- Pressurization blower door testing. What do the results mean. When should I use it?
- What are meaning of all the acronyms EqLA, EfLA, SLA, XZY?

21 night mare scenarios and how to avoid them
The presentation will cover nightmares from "Every time you take a reading, you get a really different result" to "The gauge won't zero no matter what you do to "I have a tube blockage; how can I locate it?

As a result of this training, participants will be able to:

- Confidently setup blower door and duct tests with unique conditions

- Identify and correct equipment problems in the field.
- Eliminate the need for unnecessary gauge and fan calibration.
- Create QA/QC for your tests and reduce liability.
- Understand each manufacturers recommended calibration procedures.
- Know when your equipment needs to get sent back for repair (almost never) and when it is advisable to do so.

Who should attend?
Anyone who uses or teaches others to use or verifies the use of digital gauges.

Colin Genge is CEO of Retrotec, a Washington State based company that has been designing, selling and training users of blower door-fans, precision pressure gauges and analytical software since 1980. He has made major contributions to door-fan energy standards such as US Army Corps of Engineers (USACE), Canada's CGSB 149 as well as fire suppression standards such as NFPA 2001 and ISO14520 for the containment of clean agent fire suppressants in protected rooms and buildings. While developing fire testing procedures that are currently used in over 60 countries, innovative testing methods and hardware had to be developed.

Colin has done considerable research on testing methods for high rise buildings and has consulted and tested hundreds of the world's most exotic high value facilities, including the Space Shuttle launch pad, numerous military installations and the world's most sophisticated computer rooms. Retrotec has trained and supported thousands of testers worldwide, giving them the widest possible practical experience on how rooms and buildings fail containment guidelines.

Retrotec high power calibrated test fans are now the most commonly used exterior building enclosure leakage measurement equipment in the UK, which is the only country in the world that currently mandates the testing of all commercial buildings. Retrotec has trained virtually all of the companies testing to the USACE Protocol and those testers have completed about 400 buildings over the past 4 years

Suggested Presenter(s) - Colin Genge, Retrotec Inc.

(BS-3) 3 Flat Acres – Gut Rehabbed 100 year Old Farm House with a New Addition Containing a Commercial Kitchen and Offices for this Organic Farm Certified US DOE Challenge Home V2
3 Flat Acres was a challenging project from the rubble stone foundation of the existing farm house to the 2 Story Addition with the Commercial Kitchen. We will review the challenges and opportunities this project presented in design and construction.

REM/Rate Modeling Challenges;
1) Passive Solar Design
2) Solar Thermal Domestic Hot Water System
3) Zoned Air to Air Heat Pump heating and cooling system
    a) Outdoor unit is in the mechanical room in the basement of the addition
4) Earth Tube Supplies
    a) Commercial Kitchen Ventilation
    b) Balanced Ventilation
    c) Balanced Venting of the Mechanical Room for maximum performance

Suggested Presenter(s) - George Sullivan, Eco Smart Building LLC & Bob Chomko, Building Science Institute Inc

(BS-4) A Case Study in Energy and Cost Efficient Building
The session describes step-by-step the design and construction of a HERS 38 renewable ready home. The presenter was the subdivision designer, home designer, contractor, engineer, rater, and owner of the home. Each step of design was modeled with REMRate and utility use has been analyzed for over a year to verify the modeling.

Suggested Presenter(s) - Matthew Meyer, Provident Energy

(BS-5) Air Barrier Requirments in Buildings
Air barrier requirements are moving into the state building codes and are starting to become the norm in the construction market. This session covers what an air barrier is comprised of, what makes an air barrier perform, and how you determine whether an air barrier has been properly installed. This session will also cover the research that has been completed by the Department of Energy, Oakridge National Laboratories, Syracuse university and the Air Barrier Association of America.

Suggested Presenter(s) - Laverne Dalgleish, Air Barrier Association of America

(BS-6) Air Sealing Area Separation walls
Area separation walls are a common construction in town house style construction. The wall performs its' function well when it comes to fire protection between units. But its' designed air space is a weak link in the air barrier of a house. We will look at real world application of a cost effective method to make this wall air tight and not violate the UL rating of the system. We will look at the history of this type of wall, UL Ratings, construction methods and how several changes in construction can vastly lower blower door results.

Suggested Presenter(s) - Craig Marden, Owens Corning

(BS-7) All for One or One for All: Modeling Multifamily
The session will be a presentation on the advantages and disadvantages of modeling multifamily units on a per-unit basis vs a per-building basis. The presenters are experienced field assessors who will be sharing their personal experiences and the experiences of their peers. Topics explored will include: in what situations and for what intended goals are each testing and modeling methodology best suited; what equipment is most appropriate for each method; and finally, evaluating different circumstances which should be considered when trying to decide between various testing and modeling methods to provide the best results. The presentation will be formatted as an instructional talk targeting energy efficiency programs and individuals who may be considering a multifamily component of focus.

Suggested Presenter(s) - Michael Hackney & Jamie McKenzie, ICF International

(BS-8) Beyond the Horizon: How New Industry Standards and Credentials Grow Markets and Career Paths
At the individual project level, the program level and as an industry, raising standards in home performance contracting is at a critical juncture. Large scale government funds, such as ARRA grants, are spent, and our young industry is now expected to mature in the private home performance marketplace. During this session, participants will learn how BPI standards currently being introduced to the marketplace are shaping industry best practices and homeowner expectations in energy auditing, development of contractor scopes of work and streamlining of data collection and sharing practices that are essential to obtaining affordable financing for customers.
Participants will also learn how BPI's new Home Energy Professional (HEP) certifications are helping to create a path of career advancement for seasoned industry professionals. The Energy Auditor, Quality Control Inspector, Retrofit Installer and Crew Leader certifications are the only credentials available to the home energy performance and weatherization industry that are supported by the U.S. Department of Energy (DOE) and accredited to the ISO 17024 standard by ANSI. ISO 17024 is the global benchmark for personnel certifications across all industries, designed to ensure that certifications are developed in a consistent, comparable and impartial manner. Participants will understand the value of stackable credentials in the home performance career ladder, where increased knowledge and skills lead to advancement.

This is being submitted as a panel session:
-- Tiger Adolf will present an overview of the new standards and certifications;
-- Robin LeBaron will address how BPI's new HP XML data transfer and data collection standards will streamline the process of collecting and transferring home performance data, making the home performance industry more effective and profitable by dramatically reducing the costs, time and effort involved in transferring information.
-- Bob Kahabka will speak on the need for continuously raising the bar on standards and credentials from a contracting and program perspective.

Suggested Presenter(s) - Tiger Adolf, Building Performance Institute & Bob Kahabka, Northern Comfort Diagnostics & Robin LeBaron, National Home Performance Council, Inc

(BS-9) Build a Better House at Lower Cost by Controlling Infiltration
Builders fear that building to the 2012 and or other advanced energy codes is cost prohibitive, but this fear is unwarranted. In most cases, they can meet the advanced energy codes at little additional or even reduced construction cost. The importance of three items in meeting the energy codes at the lowest cost are stressed:
1) using the performance path to show compliance with the energy code,
2) use the cost-effective performance trade-offs enabled by reduced air infiltration to lower construction cost, and
3) use more effective means of air sealing than have been used traditionally to reduce the level of infiltration. Specific examples of how lowering air infiltration compares to other alternatives for lowering energy use are given, including increased insulation values and reduced window U-values.

The presentation also discusses the impact of reduced air infiltration on moisture performance as well as energy use. The question of whether the dwelling is "too tight" is specifically addressed and clarified, giving the audience an understanding of the relative importance between the movement of moisture by vapor diffusion and the movement of moisture by air infiltration. Specific examples are given to aid understanding.

Suggested Presenter(s) - James Wells, Tremco Barrier Solutions

(BS-10) Building Origami - The Power of Life's Performance for Buildings
This session details a recently-completed project and case study in resilience, biomimicry and building science. The project embodies building science that is based on the sciences of life as well as building physics.

Thinking differently leads to better buildings. The presenters detail the processes, practices, and decision making algorithm which attained this performance, which included the use of QR Codes to instantly inform decisions at the work site such as precise requirements for HVAC and air sealing requirements linked to active videos detailing how to attain a building envelope and home designed for 7 generations (or longer).

LEED for Homes was contextualized within ecosystem scale biomimicry, resilience and building science. The process transforms construction decisions and practices in the way we build to entrust Framers & Masons to become air sealing contractors. We need to think differently to build better.

Suggested Presenter(s) - Kevin Stack, Northeast Green Building Consulting, LLC

(BS-11) Characterization of Air Leakage in Residential Structures
Air will leak through a building envelope that is not well sealed. This leakage of air decreases the comfort of a residence by allowing moisture, cold drafts, and unwanted noise to enter, and air leakage can account for up to 40 percent of the energy used for heating and cooling. With nearly a mile of exterior joints in a typical house that can leak air, knowing which joints leak the largest quantity of air allows for the most strategic placement of sealant. This presentation describes an extensive investigation to quantify the leakage characteristics of various types of joints and openings in a residential structure. All-in-all, 17 different joints/openings were characterized through both laboratory and real-house measurements using fan pressurization.

Suggested Presenter(s) - Dave Wolf, Owens Corning

(BS-12) Compartmentalization - An air sealing strategy
A strategy to air seal mid and high rise buildings to increase comfort efficiency and reduce cross contamination of dwelling units. To achieve defined tightness it is required that more effort be put into the design process rather than just adding it to a specification. In the session we will discuss the standard presented by Energy Star for Mid-Rise buildings (NYSERDA) and USGBC pilot credit 36. We'll cover design parameters how to represent compartmentalization in your drawing not just your specifications. We will also discuss early stage testing, verification and smoke testing

utilized to educate all involved in the process. Field images and examples will be shown. We will also discuss the use of acoustical channel and how it can defeat compartmentalization.

Suggested Presenter(s) - Craig Maeden, Owens Corning

(BS-13) Cost-effective Building Practices for Building ENERGY STAR Certified Homes
The new version of the ENERGY STAR Certified Homes Program covers more details than ever before. Many partners jump to the most obvious default compliance option to reduce analysis paralysis, even when other options might suit them better. This session will highlight the most common default compliance options, along with alternative compliance options successfully used by partners to ease both the cost and effort of obtaining certification.

Suggested Presenter(s) - Unknown, EPA

(BS-14) Cracking a Lucrative Market - How and why HERS Raters should get involved early
HERS Raters have a lot of value to add beyond a final HERS Rating. In this session, we will discuss:
1) Why it benefits everyone when HERS Raters get involved early in the design process.
2) Tried and proven tactics for HERS Raters to add value to any project.

Suggested Presenter(s) - Cy Kilbourn, Ekotrope, Inc & Mike Browne, Advanced Building Analysis

(BS-15) Deep Energy Savings without Scarifying Comfort - Residential Radiant Heating Systems
Radiant heating has been recognized to provide deep energy savings while improving the level of comfort in homes. It has been popular in Europe, and is now becoming increasingly well known in North America. Radiant heating systems
1) require lower heating set points to provide the same level of thermal comfort,
2) reduce the heat loss due to lower air infiltration/exfiltration and lower stratification,
3) improve thermal comfort,
4) improve indoor air quality, and
5) have clean, quit, and durable distribution systems.

In this section, we will present the results of ICF cost effectiveness analysis of implementing residential radiant heating systems relative to conventional heating systems. The analysis is conducted for both new and existing single-family homes in six regions in Canada to provide a good cross section of climates, home types, building codes and energy rates for the country. The baseline homes are modeled based on central, forced air system with air conditioner and gas furnace. Central forced air heating systems are assumed to be replaced with radiant heating systems using gas fired boiler as heat source. Through combination of BEopt and EnergyPlus, we modeled energy consumptions and quantified the comfort level using the Fanger comfort model. We then used GenOpt to perform optimization to determine the lowest heating set points that would provide the same level of thermal comfort in homes. By running the upgrade model with the new estimated heating set point, we estimated the energy savings resulting from replacing a forced air furnace with a radiant heating. The result shows that the heating set point can be reduced by 6 – 8 F to achieve the same level of comfort, and heating energy savings of 25% - 35% can be achieved in Canadian homes.

This presentation helps advance the state of practice in energy efficiency by assessing the savings of energy improvement while explicitly considering occupants' comfort. Attendees will come away with both a better sense of how radiant heating systems can impact the house as a system, and with more concrete estimates of what they can expect from employing such systems.

Suggested Presenter(s) - Ali Bozorgi & Haider Khan, ICF International

(BS-16) Durable Energy Efficient Wall Systems
The industry is increasing the energy efficiency of buildings, but a building cannot be truly efficient unless it is durable. This presentation will focus on the need to develop details for water and air management to increase the durability of building walls. A significant amount of research has been conducted on traditional wall systems, leading to window installation and flashing recommendations in building codes and standards. We need to understand how these

established recommendations relate to highly insulated walls. The appropriate test protocols to determine the durability of details will also be discussed.

Learning Objectives:
- Understand the durability challenges presented by highly insulated walls
- Understand key interfaces in building assemblies and water / air management details
- Understand assembly testing and durability assessment.

Suggested Presenter(s) - Theresa Weston, DuPont Building Innovations

(BS-17) Energy Efficient Homes Represent Lower Mortgage Risk - The Evidence
It's a well-known fact that energy efficient homes save their owners money but now a new study shows that they're also better mortgage investments. The report, titled, "Home Energy Efficiency and Mortgage Risks" found that homes with lower HERS Index Scores were deemed as low mortgage default risks, and that on average, mortgage default risks were 32 per cent lower on ENERGY STAR labeled homes that were rated by a certified RESNET Home Energy Rater. The study was conducted by the University of North Carolina's Center for Community Capital, and sponsored by the Institute for Market Transformation (IMT). This session will explain the results and explore the implications in the mortgage underwriting process.

Suggested Presenter(s) - Robert Sahadi, Institute for Market Transformation

(BS-18) Features and Specifications of Thermal Imagers Explained
Keywords: infrared cameras, thermal imagers, purchasing, equipment specifications

There have been considerable breakthroughs in the market for infrared cameras during the last few years. Prices continue to drop while image quality continues to improve. It is no wonder that infrared thermography is one of the hottest tools for building diagnostics.

This session will cover which camera features and specifications are important to consider when purchasing a thermal imager and which ones are not. Attendees will learn how to cut through the marketing and advertising clutter to find the right information to make a purchase decision. Advice on how to buy an infrared system including performing a needs analysis, handling the sales process and budgeting for the appropriate equipment and accessories will also be presented.

The Snell Group is a vendor-neutral infrared training provider that does not manufacture or sell equipment. As such attendees of this session will receive an un-biased perspective on picking the right thermal imaging system for their needs.
Learning Objectives:
- Receive an overview of the latest infrared cameras and pricing available in the market
- Learn which equipment specifications are important to consider when purchasing a thermal imager for building applications.
- Gain insight on how to perform a needs analysis as well as how to best approach the sales process

Suggested Presenter(s) - Matt Schwoegler, The Snell Group

(BS-19) Flow Hoods on Trial
Does it matter which flow hood you use to measure HVAC flows? Are some devices more accurate than others? How accurate is accurate enough? Which flow hoods are the easiest to use? We'll discuss the answers to these questions and more at this session. We'll present of the findings of a year-long study conducted by the Lawrence Berkeley National Laboratory, which analyzed 1500 field and laboratory measurements during evaluation of six commercial flow hoods.

Suggested Presenter(s) - Chris Stratton, Lawrence Berkeley National Laboratory

(BS-20) Foam-Free Deep Energy Retrofits: Wood Frame Construction
The deep energy retrofit (DER) is essential to our low energy building future – as most all buildings that will exist (in our lifetime) do already exist. Yet foam insulation, dominant in today's high-performance retrofit marketplace, is increasingly recognized as hindering many building performance goals. This presentation is a practical guide to achieving the highest levels of resilient and sustainable retrofit building enclosures while eliminating foam. This presentation addresses solutions for roofs, walls, foundations, ground conditions and window penetrations – providing a broad but detailed look at what is necessary and possible.

Suggested Presenter(s) - Ken Levenson, 475 High Performance Building Supply

(BS-21) Foam-Free High Performance Building Enclosures
Foam Free High Performance Building Enclosures presents a clear and practical guide to achieving the highest levels of resilient and sustainable building enclosures while eliminating foam. The growing performance demands of air control, vapor control, thermal control, health and sustainability are examined. Foam insulation, dominant in today's high-performance marketplace, is increasingly recognized as hindering many of these building performance goals. Practitioners are therefore wanting and finding new solutions that virtually eliminate foam and provide greater performance. This presentation is a careful look at how to do it.

Suggested Presenter(s) - Ken Levenson, 475 High Performance Building Supply

(BS-22) Full Revolution Farm – US DOE Builders Challenge Home V2 Verification and Passive House Academy Certification
Full Revolution Farm is a 2 Guest Room Bead and Breakfast Project that is US DOE Builders Challenge Home V2 and Passive House International Certified. We will also review the Local Building Department's additional requirements for issue of the permit of the project.

Join us as we walk through the similarity and differences between the two energy codes and certification requirements.

We will review some of the REM/Rate issues and fixes we found in modeling the project. There are a several lesions learned on the mechanical system modeling;

1) Earth Tubes
2) ERV;s
3) VRF (Variable Refrigerant Flow) Water to Air Geothermal System
    a) Domestic Hot Water Generation
    b) Heat Recycling and Storage
4) Solar Thermal Green House VRF Modeling

Suggested Presenter(s) - George Sullivan, Eco Smart Building LLC & Bob Chomko, Building Science Institute Inc

(BS-23) High Performance Homes – Where we are…How we got here…Where we can go.
Ken Fonorow, President of Florida H.E.R.O. since 1997, is an independent energy analyst and applied building science consultant with a proven track record of ground breaking accomplishments in the field of building science. He works in partnership with award-winning pioneering researchers, developers, builders and homeowners to improve the efficiency, health and durability of homes.
Drawing on his 40+ years of experience in Applied Building Science, Ken will give an overview of the challenges and successes that got us here, what is happening right now in the field, and how we can expand these successes in the future. He will share the economics, features, characteristics, materials, systems and methods of his approach, developed through his experience in the field, which has resulted in a cost effective market transformation to High Performance and Zero Energy Homes.

Discover how you can be a "Part of the Solution…One home at a time".

Suggested Presenter(s) - Ken Fonorow, Florida H.E.R.O., Inc

(BS-24) Honing in on your target audience: innovations in technology and marketing
Ensure you're making the best use of resources, picking tactics that will maximize reach to the right customers and going to market with messages that will drive action. Technology tools, data analytics and geospatial insights can inform marketing messages and tactics that better engage customers and lead to more retrofit work. Presenters will discuss new and innovative marketing concepts from the utility and implementer perspective. ICF's Home Performance programs use geospatial technology to track, fine tune, and ultimately improve the effectiveness of your marketing. Geospatial technology allows program implementers to effectively segment the market, identify and prioritize target audiences and manage the customer's journey through home performance.

Learning Objectives

- Better understand how technology can help improve the effectiveness of your marketing dollars and track the success (or failure!)
- Learn about cutting edge marketing campaigns and strategies participants (both utilities/program sponsors and participating contractors) can integrate into programs

Suggested Presenter(s) - Jonathan Jordan, Mike Whitaker, & Matt Ewalt, ICF International

(BS-25) How to select the optimal wall assembly for your climate and meet all Code requirements
Design of building enclosure components such as walls and roofs requires proper management of heat, air and moisture across the assembly. Numerical tools may provide substantial help to architects, design engineers, and builders in selecting the optimal design solutions for wall assemblies in particular climates. We developed a performance matrix that examines several critical locations in the wall assemblies, such as inboard surface of the exterior sheathing, exterior surface of the interior vapor retarder and exterior sheathing, analyzing both moisture and temperature conditions at these locations. We analyzed a couple of typically recommended wall assemblies in different climates using WUFI software, the current state of art in the modeling of hygrothermal performance of wall assemblies. Selected examples and case studies provide better understanding of the physical processes occurring in the wall assemblies and demonstrate the effective use of advanced tools in the design of optimal wall assemblies.

Suggested Presenter(s) - Danko Davidovic & Allen Sealock, Huber Engineered Woods LLC

(BS-26) How to Verify Quality Indoor Air and Certify Indoor airPLUS Homes
The quality of air inside an energy efficient home can have a major impact on the health and comfort of the home's family. On average 90% of a person's time is spent indoors, breathing air that may aggravate asthma, allergies, or potentially cause lung cancer. Homebuilders and Raters have the ability to improve the conditions that lead to these serious health effects. Indoor airPLUS is the companion program to ENERGY STAR that completes a comprehensive package of indoor air quality protections. In this interactive session you will learn about the most important aspects of indoor air quality and how to inspect the features of a home to verify that it meets the Indoor airPLUS Construction Specifications.

Suggested Presenter(s) - Nick Hurst, ICF International & James Ball, Cadmus Group

(BS-27) IAQ Expert: "Backdrafting Hazard is Overblown" [or Rethinking Combustion Appliance Safety]
Release of combustion gases into homes represents a potential hazard. But current combustion safety test protocols use excessively conservative hazard thresholds that fail many appliances that present very low or no risk. Combustion safety failures can limit air sealing or direct energy efficiency improvement funds into unnecessary repairs and equipment replacement. At the same time, serious combustion appliance hazards are not being addressed in many cases. LBNL and other researchers are rethinking the standard combustion safety diagnostics and developing new approaches to more assuredly reduce risk at lower cost. This session will describe the fundamental factors that determine combustion appliance hazards and preview our thinking on cost effective hazard identification and risk mitigation. {Note to organizers: this can be pitched as a straightforward talk about fundamentals, or a much more edgy talk about hazards being over-rated. Basic story is very similar. We will provide lots of data and analysis either way.]

Suggested Presenter(s) - Brett Singer, Lawrence Berkeley National Lab

(BS-28) Infiltration Testing and Results in Multifamily High-rise Apartment Units
Infiltration rates compiled over the past 4 years from sampling data from more than 3000 apartments and 50 mid and high-rise multifamily projects will be presented. Comparisons will be made between typical single-family and/or low-rise results and these sampled mid and high-rise results. These comparisons will focus on: guarded vs. unguarded testing, single vs. multipoint testing and single vs. bidirectional testing. LEED, ENERGY STAR and a Massachusetts utility specific baseline and their respective performance metrics will be discussed. As will the lessons learned from problems associated with sample selections to the most commonly identified construction and performance issues. Raters will come away from this session with a working knowledge and a greater appreciation of the testing protocols unique to high-rise residential buildings and testing results they can expect.

Suggested Presenter(s) - David Ruggiero, ICF International & Michael Schofield, Conservation Services Group

(BS-29) Integrating Reductions in Hot Water Usage into HERS
The purpose of this session is to present to the attendees the progress that has been made on incorporating reductions in hot water usage into HERS. The process has been underway for some time and if all goes well, there will be a method for doing this by the time of the conference. If so, there really should be a session that describes what has been done. If it seems too lengthy for one or two sessions during the main conference, it could be done as a pre-conference course.

Suggested Presenter(s) - Gary Klein, Affiliated International Management, LLC

(BS-30) Jumpin' the Crick - From Technician to Leader
Most of us start out in this industry with a technical background, a passion for the building science, the rigor of diagnostic testing, the intricacies of energy modeling. Those skills make you a great technician, but they won't help you run your business. What are the key skills you need to develop for business success in the HERS (or any) industry?

Suggested Presenter(s) - Bob Kingery, Southern Energy Management

(BS-31) Modeled vs. Measured Energy Consumption for Single Family Homes
This presentation will compare HERS Index to actual measured energy used in a designed community of 12 single family homes. The research homes are built in Midland, Michigan, the northern part of Climate Zone 5. Energy use, hygrothermal data and qualitative information are being collected as part of the 5 year study. Three different floor plans were built to four different energy performance levels to determine which designs have the greatest impact on actual energy savings. We will present data from the first heating and cooling seasons.

Suggested Presenter(s) - Brian Lieburn, Gary Parsons, & Matt Erdmann, Dow Building Solutions

(BS-32) Multi-Family and Single-Family Homes: A Comparison of Building Code Requirements and Building Science Considerations
When we think about home building and residential construction, we often think about single family homes. 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 paper 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.

Learning Objectives
- Explain recent changes in building and energy codes
- Understand differences in building and energy code requirements for wood frame single family and multi-family construction
- Understand different building science and construction challenges involved in multi-family construction.

Suggested Presenter(s) - Theresa Weston, DuPont Building Innovation

(BS-33) Multi-Family Blower Door Best Practices and Newest QA/QC Innovations
Occupied multi-family buildings are difficult to test because you may only be able to access small portions of the building at one time. See how much can be learned with just one gauge to locate pressure imbalances. Then, using only two blower doors, learn how to locate and measure air leakage paths between units and common areas.

A Demonstration will show how multiple fans and pressure gauges can now communicate over Ethernet cables or through WiFi, allowing all the test fans and other diagnostic tools to be controlled and data logged from one location. The leakage of a single unit or entire building can be measured this way. The results and challenges from several large buildings will be presented.

The live demonstration will show how to control multiple fans and record all the data. Software runs the fans and records thousands of data points automatically. You don't have to be a software engineer; the software makes all the decisions, and even allows you to accommodate accidental door openings in the middle of the test.

This presentation will also cover how to analyze test data to verify compliance, and will demonstrate how to combine WiFi technology to create quality control methods that can provide live confirmation of test results from a remote location

Learning objectives (provide at least four):
#1 Locate leakage paths in multi-family individual units
#2 Automatically Test multi-family units with limited access.
#3 Novel ways of testing parts of multi-family and large buildings.
#4 Understanding test results from software.
#5 Confirm Quality Control and test results remotely

Presenter profile:
Colin Genge
Colin Genge is CEO of Retrotec, a Washington State based company that has been designing, selling and training users of blower door-fans, precision pressure gauges and analytical software since 1980. He has made major contributions to door-fan energy standards such as US Army Corps of Engineers (USACE), Canada's CGSB 149 as well as fire suppression standards such as NFPA 2001 and ISO14520 for the containment of clean agent fire suppressants in protected rooms and buildings. While developing fire testing procedures that are currently used in over 60 countries, innovative testing methods and hardware had to be developed.
Colin has done considerable research on testing methods for high rise buildings and has consulted and tested hundreds of the world's most exotic high value facilities, including the Space Shuttle launch pad, numerous military installations and the world's most sophisticated computer rooms. Retrotec has trained and supported thousands of testers worldwide, giving them the widest possible practical experience on how rooms and buildings fail containment guidelines.

Suggested Presenter(s) - Colin Genge, Retrotec Inc.

(BS-34) NO-BS — New Orleans Building Science Will Apply to Other Regions
Solutions to building science problems resulting from the challenges posed by New Orleans' climate will be presented that can be successfully applied to similar, existing climates and to areas predicted to experience similar climate changes, i.e., from between Austin to DC. The following will be illustrated by real life examples.

Novel solutions:

- Focus building shell design on drying. Design building shell at the bottom and sides to stop moisture flows by diffusion, optimally avoid wetting from rain, and encourage the sun to dry from above.

- Focus all mechanical equipment on drying: Get more work done for less applied energy, by slowing down the process at each piece of equipment, operate longer hours, but have all parts work together.
- Incorporate more hygric mass into the inside materials.
- Avoid the use of materials that degrade easily or harbor pests when RH exceeds 65%.
- Enhance the opportunity to provide comfort without active cooling.
- Enhance sustainability.

Respond to Challenges:

- High and rising dew points: too often above 77°F on average for a month at a time.
- Rainfall normally exceeds 60" per year.
- Systems that have worked for centuries designed to provide durability are in direct conflict with systems that enhance energy conservation and visa-versa
- Formosan termites
- Moisture flow by diffusion can very significantly affect conductivity of building materials—when this happens a feed-back effect can occur which concentrates moisture and heat flows—further undermining both durability and energy conservation.
- Hardwood flooring, when installed to common industry practice, is intolerant of the small changes in RH of the air above it that can be expected when AC equipment or its energy source is unreliable.

Novel building shell solutions have been developed, but tools have not been found to fully calculate or adequately measure their drying effects. Until such calculations or alternative empirical tests are documented, advanced or improved, building shells will slowly evolve if at all. Some of the solutions show great promise. Truly quantifying them has exceeded the skill-set of this author, his colleagues and to my knowledge every other researcher.

The public is poorly informed about the research success and more education is needed.

As temperatures and humidities continue to rise, i.e., as climate change proceeds, more and more of the U.S. will experience climates similar to what New Orleans experiences now.

Suggested Presenter(s) - Myron Katz, Building Science Innovators, LLC

(BS-35) Not Everyone Needs to be an Energy Auditor

Not everyone needs to be an energy auditor. But contractors, their staff, salespeople and many others working in the residential building trades do need a basic knowledge of home performance to do their jobs effectively. During this presentation, participants will gain an understanding of the core building science principles behind house as a system home performance. These are the principles of heat and insulation, air sealing, moisture control, mechanical systems, and conservation strategies.

Participants will be introduced to BPI's new Building Science Principles (BSP) Certificate of Knowledge, launched in January of 2013. The BSP certificate is a first step into the world of home performance. It's for those in the residential building trades and anyone interested in a career in building sustainability, who need to know how homes work but don't need the hands-on technical skills required of BPI certified professionals. BPI has received strong interest in the certificate from contractors, from manufacturers on behalf of their dealers and distributors, from home inspectors, appraisers and realtors, from educators, and from program managers in government and utility energy efficiency programs.

This presentation will be particularly useful for training organizations interested in expanding their market base to serve these untapped audiences. Such organizations may use their existing building science curricula and shape it to help prepare these new audiences for the BSP certificate exam.

Suggested Presenter(s) - Tiger Adolf, Building Performance Institute, Inc. & John Costello, Everblue Training Institute

(BS-36) Outperforming the Neighbor's House

Building professionals recognize the significant benefit of smart material selection and optimized building envelope design on the whole home performance, but how do you show a prospective home owner that the right options will lead to those benefits before the house is even built? HERS raters can help their partner builders by show casing the energy performance, moisture management and comfort in a prospective home using case studies, simple comparisons, and the appropriate certification. Not all homes are created equal, and you can "outperform" the neighbor's house even before moving in!

Suggested Presenter(s) - Linda Jeng & Brian Lieburn, Dow Building Solutions

(BS-37) Passive Houses in North America - Measured Versus Modeled Results To Date
Passive Houses are starting to take off in North America. With over 50 projects completed across most North American climate zones, including a handful of multi-family projects, it's time to take a look at the results. Passive House Institute U.S. (PHIUS) Executive Director, Katrin Klingenberg, will share the good, the bad and the lessons learned from several case studies with a focus on heating and cooling energy use, comfort, indoor air quality and lighting, appliances and miscellaneous plug loads.

Suggested Presenter(s) - Katrin Klingenberg, Passive House Institute U.S.

(BS-38) Quit breathing already, ventilation is harder than you think!
Join Dan Wildenhaus as he tours Tales from the Field to show just how easy it is to get this ventilation thing wrong! This session will evaluate how the rules have changed, how and where we see new specs adopted, and whether or not they are being met correctly. Are there any fool proof products? We will see and discuss the best and the worst of design and installation around variations of 62.2.

Suggested Presenter(s) - Dan Wildenhaus, Fluid

(BS-39) Range Hoods Save Lives (or Five Things You Need to Know about Range Hoods; or Kitchen Exhaust for the Modern Cook)
Cooking and cooking burners produce hazardous pollutant levels in homes that do not have adequate kitchen ventilation. Venting range hoods and other kitchen ventilation options can effectively remove or mitigate the pollutants. Through years of testing in the field and in the lab, we have accumulated a slide deck full of interesting plots. Perhaps more valuable to RESNET, we can translate the research results into action items for building owners, raters or contractors. In this session we will present relevant data and explore the risk together. Session will include recommendation for hood selection and use.

Suggested Presenter(s) - Brett Singer, Lawrence Berkeley National Lab

(BS-40) Redefining the Rating Frontier
Ratings and audits alone never saved anyone energy or money. In our thirst for measurement data, it's easy to celebrate high numbers of ratings or audits and forget that the real goal is completed projects that save energy and money. In Florida, ratings, raters and providers have been redefined by legislation that opens the state up for market based solutions that realize this ultimate goal. Learn how BPI is taking the Florida rating system to new levels by combining a new business model approach, consumer-friendly rating information, quality assurance and good data to meet the goal of moving building owners from energy ratings to energy efficiency improvements. BPI will be providing one option for a new rating system, and RESNET and its network will provide another solution. The marketplace will decide which works best.

Suggested Presenter(s) - Tiger Adolf, Building Performance Institute & Steve Baden, RESNET

(BS-41) Round Robin testing; A QA tool to improve Energy Auditing and Retrofits?
Michael Lubliner will discuss the variability observed in energy audit recommendations and provide an overview of a proposed guideline entitled " Round robin testing for quality assurance in the residential single family home performance contracting industry". This effort is currently under development by WSU and NIST. The guideline is

intended to be used as a QA tool to help inform retrofit program stakeholders on issues of repeatability and/or reproducibility to ultimately instill confidence in the public in acting on recommendations.

David Hales will share the 2013 round robin results from Seattle and Denver, where CAZ testing and typical regional audit tools were evaluated using round robins, where multiple contractors test the same house (See Home Energy July 2013 Hales/Lubliner for more background)

These two presentations will provide the background for a panel and audience discussion facilitated by Andrew Gordon. The panel discussion is an important needs assessment step for the development of useable and practical value added QA tools and will focus on:

1) The How, what, where and why round robins…is it the appropriate tool?
2) Which specific procedures, standard and specifications may benefit from round robin implementation?
3) Discuss industry acceptance and issues "if we build it, will they come?"

Organizations encouraged to participate include, but are not limited to: RESNET, ACCA, BPI, utility and local state and federal government auditing program participants, others "in the trenches" working with residential market based and low-income program energy auditing research demonstration and deployment.

TBD Potential Panelist: David Roberts, Steve Byers, Glenn Hourahan, Bill Healy, Larry Zarker, Eric Werling, Iain Walker

Suggested Presenter(s) - Michael Lubliner, David Hales, & Andrew Gordon, WSU Energy Program

(BS-42) Simplifying HVAC load calc verification

As the construction industry continues to build tighter and well insulated houses, the importance of installing properly sized HVAC equipment increases. Let's face it, reviewing Manuals J-Z can take a lot of time and sometimes has no added benefit. This session will focus on simplifying verification of HVAC load calculations—from a rater's perspective.

Learning objectives include:

1. Teaching of simple analytics that let you determine if the load is "close enough" from the get go (That's right…we said it.)
2. An understanding of which load calculation variables matter most
3. An introduction to a faster, easier, and more cost effective software for calculating HVAC loads.

Suggested Presenter(s) - Dan Lutz, Knauf Insulation & Bruce Manclark, Fluid Market Strategies

(BS-43) The Building Science Fight Club Roars – ASHRAE 62.2 vs. Building Science Corporation's New Ventilation Standard

The only game in town since 1989 for a residential ventilation standard has been ASHRAE 62. In 2003, it became ASHRAE 62.2 and has been the subject of much discussion, debate, grumbling, and outright animosity. In 2013, Joseph Lstiburek and Building Science Corporation introduced their own ventilation standard, BSC-01, to compete against ASHRAE 62.2. In this session, we'll take an objective look at the research, the debate, and the two standards. We'll also look at how the new standard is faring since its introduction in August 2013.

Suggested Presenter(s) - Allison A Bailes III, PhD, Energy Vanguard & Kristof Irwin, Positive Energy

(BS-44) The Importance of Properly Sized Ductwork in Residential New Construction and Retrofit Situations

With the growing emphasis on the home as system, it is essential that the ductwork be properly sized for the system. This presentation covers both new construction applications including proper sizing and site verification as well as retrofit scenarios where duct analysis and duct sealing may be recommended. We will address design methods, onsite testing, and common problems.

Suggested Presenter(s) - Rob Minnick, Minnicks & Justin Mackovyak, Complete Home Solutions

(BS-45) The Intersection of Indoor Environmental Quality and Home Energy Upgrades
The panel will explore two documents, the EPA's Healthy Indoor Environment (HEI) Protocols for Home Energy Upgrades and the Standard Work Specification for Home Energy Upgrades developed for the DOE's Weatherization Assistance Program. The focus will be on proper implementation of these documents specific to indoor environmental quality (IEQ). Some of the most likely pitfalls will be presented and discussed, as will tips on how to avoid some common errors that can have a negative effect on IEQ.

The presenters include Craig Whittaker, CIEC, BPI-Certified Building Analyst and Healthy Homes Specialist with Environmental Solutions Group, Nick Hurst, LEED GA, NAHB Certified Green Professional and BPI-Certified Building Analyst with ICF International, and Brad Fletcher, HERS Rater, NAHB Certified Green Professional, ACCA-Certified in Residential Design for Quality Installation and BPI-Certified Building Analyst. This team provides a wide range of expertise in construction, building science, HVAC and indoor air quality.

Suggested Presenter(s) - Craig Whittaker, Environmental Solutions Group & Nick Hurst, ICF International & Brad Fletcher, ESG Energy

(BS-46) The Recipe for Making Fire Resistant & Energy Efficient Attics
All spray foam insulation products are not equal. Icynene Classic Max spray foam insulation helps significantly reduce the risk of attic fires from spreading, protecting families and their homes while also contributing to a more energy efficient environment. Learn how this product took fire safety testing of spray foams to a higher level. Become familiar with the product's characteristics including the attic application details associated with it for both hot and cold climate zones.

Suggested Presenter(s) - John Broniek, Icynene

(BS-47) The Value of Foamed Plastic as a Residential sheathing
As seen in the recent energy codes, insulated sheathings are recognized for their ability to reduce energy loss from a residential wall through both a reduction in conductive heat loss and air infiltration. Less well known is the capacity of such sheathings to reduce the probability of condensation moisture problems within the cavity. This talk will review the physics and methods for reducing condensation potential and increasing drying potential within residential walls.

Suggested Presenter(s) - Dan Tempas, Dow Building Solutions

(BS-48) Thermography Advantages in Building Inspections
Advanced technology of infrared cameras has enabled building inpections and the building sciences to evolve better buildings and better quality. The inherent knowldge of building science and the heat transfer physics involved with thermograhy investigations are one and the same. they are one in the smae. Theis session will explore that relationship in an introductory manner. The extension into the ASTM and RESNET guidleines or standards will be reviewed as they apply.

Suggested Presenter(s) - Jay Bowen, Infrared Training Center

(BS-49) Understanding Moisture Dynamics in Residential Construction
In residential construction, moisture and energy control are critically important in order to achieve the desired energy efficiency and structural integrity and durability, as well as occupant health and comfort. Understanding the dynamics of moisture movement is essential to minimize moisture issues through proper design and to properly diagnose any issues that may occur. How moisture is transported, why and how much, and under what conditions is covered in this presentation. The basic science controlling moisture dynamics in frame construction is presented to give the audience an understanding of what governs the speed and direction of moisture diffusion, how the amount of moisture movement via diffusion compares to the amount of moisture moving via air infiltration, and the role of sorption/desorption of framing materials in determining the moisture tolerance of the wall structure.
During the presentation, the audience participates in an exercise, using appropriate tools and techniques, allowing them to understand both the direction and amount of moisture vapor flow at specific conditions and how it relates to the

overall vapor drive and vapor retarder properties. Moisture and energy performance are so inter-related, developing a good understanding of moisture performance is essential to all energy professionals.

Suggested Presenter(s) - James Wells, Tremco Barrier Solutions

(BS-50) Verifying CAZ Safety: The ACCA 12 QH Standard
Combustion appliances are wonderful when they're properly installed. This session reviews procedures to verify that these appliances meet the safety measures outlined in the ACCA 12 QH Standard and the actions to take if problems are identified.

Suggested Presenter(s) - Abe Kruger, Kruger Sustainability Group

(BS-51) What's Foam Got To Do With It?
A discussion of why and how spray foam plays a key, if not mandatory role in achieving 3 or less ACH with reference to Townhomes and Multi Family when it comes to the 2012 IECC Code.

This year's conference did not do a good job of presenting accurate info when it comes to air sealing homes to attempt to meet the new testing standards. One of our insulation company locations is in Baltimore and we have first hand experience in dealing with all types of residential housing attempting to meet the new testing standards.

Suggested Presenter(s) - Marcus DeVere, DeVere Insulation

(BS-52) WiFi enabled gauges: test faster & smarter with built-in QA/QC
Presentation description:
WiFi enabled gauges are the new rage! What are the logistics, limitations and benefits? This demonstration will show the latest and greatest from Retrotec and TEC. There will be live gauges and equipment and that show how this technology will change the industry.

Digital Manometers are getting smarter and reducing the common mistakes in the field. This increases QC and is a smarter business model, Time Is Money. The new interface on todays gauges are touchscreen, provide an image of the fan or device, calculate the results in the gauge and are WiFi capable.

The gauges today can be operated from a PC, mobile phone or tablet thru Apps on Android and Apple devices. This allows Raters to be free from the cables and tubes of the manometer. When these features are combined with a hot-spot in the field QA/QC is now on a level never achieved before. The Provider or QAD can see the live test from their office and confirm compliance and settings. This will can eliminate re-testing significantly reduce liability.

Smart Gauges are reducing the time it takes for blower door and duct test training and increasing the success rate in field testing. This allows Providers to feel confident the challenging test procedures are not a stumbling block for new Raters. This technology provides real virtual gauge simulation, allowing anyone with a PC to practice with a gauge and get results without being connected to a gauge. This will allow online and classroom assignments that can be verified.

The live presentation will have gauges operating equipment from Retrotec & TEC demonstrating mobile/tablet Apps; it will also provide a demonstration on how to confirm the gauge results from a remote location.

Retrotec proudly promotes Universal Training, "knowledge first, then equipment". Retrotec incorporates Energy Conservatory equipment in the demonstrations, trainings and presentations, providing Universal Training
Learning objectives (provide at least four):
#1 Testing smarter with more accurate results.
#2 Technology can increase production and decrease field time.
#3 QA/QC verification from remote locations
#4 Making training smarter with reduced equipment requirements and increase success rates.

Presenter profile:
Colin Genge is CEO of Retrotec, a Washington State based company that has been designing, selling and training users of blower door-fans, precision pressure gauges and analytical software since 1980. He has made major contributions to door-fan energy standards such as US Army Corps of Engineers (USACE), Canada's CGSB 149 as well as fire suppression standards such as NFPA 2001 and ISO14520 for the containment of clean agent fire suppressants in protected rooms and buildings. While developing fire testing procedures that are currently used in over 60 countries, innovative testing methods and hardware had to be developed.

Colin has done considerable research on testing methods for high rise buildings and has consulted and tested hundreds of the world's most exotic high value facilities, including the Space Shuttle launch pad, numerous military installations and the world's most sophisticated computer rooms. Retrotec has trained and supported thousands of testers worldwide, giving them the widest possible practical experience on how rooms and buildings fail containment guidelines.

Retrotec high power calibrated test fans are now the most commonly used exterior building enclosure leakage measurement equipment in the UK, which is the only country in the world that currently mandates the testing of all commercial buildings. Retrotec has trained virtually all of the companies testing to the USACE Protocol and those testers have completed about 400 buildings over the past 4 years.

Joe Medosch – EEC llc. "Building Science Simplified" – Certifications (applicable list) HERS Rater (not active) & Building Performance Institute, Building Analyst & Envelope Professional, International Code Council – Residential Building Inspector & Commercial & Residential Energy Inspector & Plans Examiner, NABCEP – North American Board of Certified Energy Practitioners.
Joe Medosch develops curriculum and is trainer of energy auditing / home performance applications since 2008.

- First Independent Trainer of Georgia's Certified Duct and Envelope Tightness Verifier.
- Provide building science principles and energy code training to contractors and building officials throughout Georgia.
- Developed and implement newly established Energy Management curriculum for Technical College System of Georgia.
- Energy Management Instructor at Moultrie Technical College, Tifton GA (2010-2012),
- Energy Program Manager, University of Georgia, Tifton campus,
- 2011 Selected as a DOE - Train the Trainer for 2009 IECC & ASHRAE Standard 90.1-2007. Evaluating energy usage, home performance & healthy home concerns for home-dwellers like yourself since 2005. Energy Audits / Performance Testing / Mold & Radon testing & comfort solutions

Speaking engagements:

- Better Buildings: Better Business Illinois - Wifi enabled pressure gauges / Multi-Family air leakage diagnostics (12/13)
- Building Officials of Georgia - Annual Conference - Building Science for Building Officials (5/2013)
- Greenprints Conference - Sustainable Communities by Design - Inspiring Innovation Through Green Building Education (3/11)

Suggested Presenter(s) - Colin Genge, Retrotec Inc. & Joe Medosch, Energy & Environmental Consulting LLC

(BS-53) Zero Heat Homes for the Not So Rich
A small 899 sq ft home that has a HERS score of 38, cost for heat under $40 in a 4100 degree day climate is possible to build for under $50,000. Owner built, 30 plus years experience in the building science industry. Lessons learned will be covered. Link to home is http://cheoyleeassociation.com/family/NCHouse.html Final blower door reading 108 cfm@ 50pa

Suggested Presenter(s) - James McGarvey, NJMEnergy

(BS-54) Zonal Mapping - Why is the master bedroom more "outdoors" than the attic?

Pressure or zonal mapping is the most conclusive test in home performance. What areas are connected determines comfort and healthy home conditions.

This presentation will highlight the best practices for mapping a home and determining the results. The small leak in at the receptacle may be from a larger condition. This course will provide guidelines that assist in making sense of the pressure readings and concluding where the real issue is probably located.
The data from local Chicago homes will demonstrate that things are not always as they appear. Some homes the crawl space or attic has significantly connections thru non visible openings.
Creating a map of the area to area connections and individual openings is a simple procedure and will provide the outline for the scope of work.

There are several other secondary tests that will be presented and are completed during a home performance evaluation including dominate leakage test, HVAC return path (under the door test) and exhaust fan cfm performance.

The presentation will demonstrate with images, real home data and real devices to visualize the practical applications and confirm the results are correct.

Learning objectives
#1 Additional test procedures in home performance evaluations
#2 Creating a zonal / pressure map of the home
#3 Making sense of the pressure readings
#4 Providing home performance solutions in addition to energy reduction

Presentation PDF - http://db.tt/6b3lq3gB
Presenter profile:
Co-Presenters – Joe Medosch EEC llc and Corbett Lunsford, Green Dream Group

Joe Medosch – EEC llc. “Building Science Simplified” Presenter profile - http://db.tt/G59pJmzO

Corbett Lunsford is the founder of Green Dream Group's Building Performance Workshop (a BPI Testing Center), and hosts the Building Performance Podcast. He also serves as Executive Director of the Illinois Association of Energy Raters & Home Performance Professionals, and is the author of Home Performance Diagnostics: the Guide to Advanced Testing. He has led courses in partnership with municipalities and weatherization organizations, and developed the curriculum for the Chicago Southland EPA Brownfields Job Training Program. In addition to the hundreds of high, middle, and low-income comprehensive home performance testings he has performed, Corbett has presented at the Better Buildings: Better Business Conference, RESNET, ACI, the Chicago Center for Green Technology, Green Festival, and the National Healthy Homes Conference.

Suggested Presenter(s) - Joe Medosch, EEC llc & Corbett Lunsford, Green Dream Group

Business Development and Marketing

(BDM-1) 7 Things Your Competitors Get Wrong
Join home performance consulting expert Mike Rogers for an engaging discussion on the most common business mistakes those is the residential service business make, and how you can avoid them! From marketing and sales, to operations, installations, and management best practices, there are basic things all those is the existing homes market should do to ensure their businesses thrive. This key note session will focus on seven simple things you can start implementing today to improve your leads, sales and revenue, and help you become a trusted advisor to your customers, setting you apart from competition.

Suggested Presenter(s) - Mike Rogers, OmStout Consulting

(BDM-2) An update to Provider 2.0

We will be discussing way in which Rating Providers can better serve their customer, also known as the HERS Rater.

Suggested Presenter(s) - Ryan Bennett & Bill Klotz, Everblue Training Institute & Eurihea Speciale, Building Efficiency Resourses

(BDM-3) Beyond the Box: HVAC to Home Performance
This session focuses on the business case for an HVAC company to move beyond the box augment their approach to offer more comprehensive home performance services as a core part of its business. The session will be targeted at participating HVAC business owners and managers and the raters, auditors, and consultants who work with them. The session will demonstrate the benefits of an expanded approach in terms of revenue, margins, and customer satisfaction. Key elements for an HVAC company to consider in transitioning to more comprehensive "home performance" will also be touched on.

Suggested Presenter(s) - Mike Rogers, OmStout Consulting

(BDM-4) Breaking Down Resistance: Central Hudson's Co-branded Heat Pump Water Heater Promotion
Central Hudson Gas & Electric's $400 rebate on high-efficiency water heaters is pegged at ENERGY STAR's minimum water heater energy factor of 2.0, which requires heat pump technology; no electric resistance water heaters are eligible. However, at the onset of the program, Central Hudson faced a lack of pull in the market from its Trade Allies, few of which were comfortable selling heat pump water heaters (HPWHs). In response, Central Hudson developed a marketing partnership with Sears and GE to create significant market push for GE's new GeoSpring HPWH. Central Hudson complimented this marketing partnership by relaxing the requirement that measures must be installed by a participating Trade Ally; customers were free to install themselves or use any contractor. This approach was extremely successful: in 2012, the program processed 213 HPWH rebates – over 140% of the program's goal for that technology. HPWHs alone accounted for over 90% of the program's entire original kWh goal for the year. In 2013, the program is going back to its Trade Allies with an educational program that includes classes on selling, installing and troubleshooting HPWHs to complement the partnership's successful market push with more market pull from the Trade Allies. The presentation will report on Central Hudson's ongoing progress in transforming the domestic water heating marketplace.

Suggested Presenter(s) - Barry Henck, Central Hudson Gas & Electric & Michael L'Ecuyer, ICF International

(BDM-5) Building a Fit: Opportunities for Raters Beyond Energy Audits
As energy codes continue to improve and demand grows for green homes, multiple certification programs have been developed. Raters may not necessarily be aware that there are multiple opportunities for them to provide third-party verified services within many green home building programs. The session will assist raters in understanding where and when their services can potentially fit as well as possibilities for tweaking their business models to respond to the growing demand for home labels and certifications.

Suggested Presenter(s) - Laureen Blissard, Green Builder Coalition

(BDM-6) Building a Local Certified High Performance Homes Program
Learn how some markets are increasing HERS Ratings by a factor of ten. This presentation will demonstrate how to develop and implement a plan that empowers industry partners to create and drive a local HERS education, marketing and recognition program. Industry partners: including builders, contractors, material suppliers, code officials, utilities, real estate professionals, appraisers and lenders are hungry for local access to unbiased energy efficiency education, marketing and recognition. We will show you a simple plan that works.

Suggested Presenter(s) - Jesse Krivolavek, Scott Krienert & Joe Ellenberger, American Energy Advisors

(BDM-7) Current and Future State of Solar PV in New Residential Construction
The economics for incorporating solar into new residential construction have never been better. This year over 10,000 new homes will incorporate solar PV into their design. Solar PV is being used in new residential construction in +20

states including California, Arizona, Colorado, Texas, Florida, Washington, Oregon, Maryland and New Jersey to name a few.

Also, the option for incorporating solar into new residential construction have never been more diverse. Home buyers and builders have the option to purchase solar or do a 20 year prepaid lease or in some states they can even offer solar for zero up front costs.

Currently, in the Orlando, Florida market 2 national home builders (Shea and Pulte) have decided to incorporate solar as a standard feature into their communities. They will speak about why and how they decided to make solar a standard feature in their homes. SolarCity is the largest solar installer and financier in the country. We will be giving an update on the current and future status of solar across the US.

Suggested Presenter(s) - Walter Cuculic, SolarCity & Katie Everett, Shea Homes & Sean Strickler, Pulte Homes

(BDM-8) Getting Builder's Sales Staff Committed to ENERGY STAR
As we know, home builders invest quite a bit of time and energy when they build ENERGY STAR certified homes. Unfortunately, many of them do not see the value of this investment during the sales process as sales staff are uncomfortable with talking about the features and benefits of high performing homes. Come to this session to learn how you can help your builder's sales staff create an effective ENERGY STAR elevator speech and incorporate ENERGY STAR into each part of their sales process. New marketing materials from EPA will also be showcased.

Suggested Presenter(s) - Unknown, EPA

(BDM-9) Habitat for Humanity's Sustainable Building Strategy: A Business Opportunity for Raters
Habitat for Humanity is launching a new sustainable building strategy that encourages affiliates to certify homes to a national or regional program that includes a HERS Rating. Come learn more about opportunities to assist your local Habitat affiliate in building sustainable affordable homes.

Suggested Presenter(s) - Rob Howard & Mike Mongeon, Habitat for Humanity International & Scott Lee, Southface

(BDM-10) HERS Index and Utility Brand Make a Powerful Partnership
Join us to take an in depth look into how Georgia Power designed and launched a comprehensive marketing campaign focused on educating customer about energy efficient construction and specifically the value of the HERS Index in a Georgia Power EarthCents® New Home.

Suggested Presenter(s) - Tim Carter, Georgia Power & Tony Donald, Georgia Power & Danna Clary, Georgia Power

(BDM-11) Home Performance is Awesome…so why isn't every homeowner beating down your door?
Most Americans say energy efficiency is important in how they make their daily decisions. In fact, most Americans claim they would prioritize energy efficiency over their comfort and convenience. The reality is quite different. 80% of Americans don't think they're using more energy today than they were five years ago and half think their homes are already energy efficient. These misperceptions (and others) result in some big barriers home performance contractors must overcome to get homeowners interested in retrofits. So how can contractors – and anyone selling energy efficient products and services – overcome those barriers and gain traction in the market?

Suzanne Shelton, CEO of Shelton Group, the nation's leading marketing and advertising agency entirely focused in the energy and environment sector, will share her firm's latest quarterly polling of Americans and specific recommendations (with examples) of how to shift Americans' thinking and get them on the train to an energy-efficient future.

Suggested Presenter(s) - Suzanne Shelton, Shelton Group

(BDM-12) Internet Marketing 101 - Blogging, Social Media, Google, and More

Learn the lay of the land in the world of social media, and get a good feel for where to focus your efforts. Find out why the effort you put forth here is worth it. We'll cover the major social media players - Facebook, Google+, Twitter, LinkedIn - as well as blogging and the connection between them. We'll then spend time going into the basics of starting up with blogging, Facebook, Google+, Twitter, and LinkedIn - how to do it, where to find connections, and how to build an online presence. You'll get plenty of tips and tricks and learn about the benefits, too.

Suggested Presenter(s) - Allison A Bailes III, PhD, Energy Vanguard & Peter Troast, Energy Circle

(BDM-13) Into the 'Cloud': Automate Your Client Interactions
Learn from the mistakes of a five year-old home performance company that's tried everything, and transitioned into the cloud for a better life. Get introduced to options in automating your client interaction process, from lead generation to the purchase stage, and then to upsells and referrals. Tour the features of Infusionsoft, Salesforce, Mailchimp, Formsite, and Hootsuite, and discover how a finely crafted and automatic client interaction system can take the weight off your shoulders and allow you to spend more time doing what you love doing.

- Discover practical inefficiencies, pinpoint opportunities for improvement in client relationship management
- Explore the features and benefits of a variety of online 'cloud' based services, including Infusionsoft, Salesforce, Mailchimp, and Hootsuite
- Design/build an automated client interaction from marketing magnets to sales & then to upsells & referrals

Suggested Presenter(s) - CORBETT LUNSFORD, GREEN DREAM GROUP LLC

(BDM-14) Lead Generation 101 for Raters, Auditors and Home Performance Companies
As the web increasingly replaces traditional forms of marketing, raters, auditors and Home Performance companies face the challenge--and opportunity--of understanding this complex and ever changing landscape. This workshop, aimed at those just starting to understand internet marketing, will cover the bases from managing your primary company web presence, understanding search engine optimization, the keyword landscape in our field, the rapidly evolving local search landscape, social media opportunities such as blogging, Facebook, Twitter and Google+, as well as paid internet advertising options--lead generation services, pay per click advertising, and more. But it's not just about the internet--we'll also review proven "old school" techniques that still work. The workshop will cover both consumer and business to business strategies, reflecting the reality that successful raters need to market their services to multiple audiences.

Suggested Presenter(s) - Peter Troast, Energy Circle

(BDM-15) Life of a Provider
There comes a point in which the volume of a rating company may make it financially beneficial for that company to become a RESNET HERS Provider. The truth is there is no magic number on when your company may be ready to take this step – it really depends on your business model and the ability of your staff (or subcontractors) to take on the responsibilities that come with being a Provider. This session will explore some provider models with exaamples of the benefits and challenges of being a RESNET Provider.

Suggested Presenter(s) - Glenn Pease, EnergyLogic & TBD Co-Present with other providers we work with, Could include SEM, Go Green New Mexico, SENERCON or others

(BDM-16) Moving REALTORS® from Introductions to Engagement in Energy Efficiency
A growing number of Multiple Listing Services are integrating "green" and energy efficiency-related data fields within their listing forms. Utility program representatives are reaching out to the real estate salespeople who serve their territories. However, simply making contact through advertising channels may not be enough. Using New York ENERGY STAR Sales Ambassador training as context, this session will focus on how targeted training for various specialties within the real estate community can begin to build ongoing relationships. Such connections will ultimately serve consumers and expedite market transformation. We will explore a variety of methods and media used to engage REALTOR audiences. Presenters will introduce ways to leverage other stakeholders' interaction with the real estate process, e.g.,

cross-disciplined professionals such as HERS raters who are also active brokers. This session will prompt attendees to discover opportunities to build bridges between programs, contractors, and real estate professionals and homebuyers to benefit all.

Suggested Presenter(s) - Lisa Diffenback, Conservation Services Group & Michael Burke, Conservation Services Group

(BDM-17) QA/QC - What's the Freakin' Difference?
During this session John Tooley and Dan Lutz will finally clarify the difference between Quality Assurance and Quality Control. They will explain the role that each one plays in your projects and in your business, and how having a clearly defined QA and QC plan will improve your efficiency and allow you to see better results. They will also show some highlights from a standard QA and QC planning tool that Advanced Energy uses on a regular basis.

Suggested Presenter(s) - John Tooley, Advanced Energy & Dan Lutz, Knauf Insulation

(BDM-18) RESNET After Dark: Gotham Nights – Certifications or Specifications?
Join professional trainers Dan Wildenhaus and Alex Glenn for part 2 of their thrilling Gotham Nights series! Each year, Batman faces a new foe in a presentation competition in one of the industry's hot topics, with extra special guests certain to surprise and amaze you! This year, Batman will challenge a dastardly Evil Genius in the merits of industry certifications vs workforce guidelines and specifications. Batman has been maintaining the calm in Gotham with the standard workforce guidelines and specifications. The Evil Genius is planning his comeback to re-gain prominence in the marketplace with industry certifications (i.e. BPI, HERS, etc.). Can the Gotham industry withstand having both guidelines and certifications? Will it confuse the people of Gotham as to which side to align with? Batman and friends will propose sales and presentation strategies to calm the citizens of Gotham....but, will the Evil Genius' presentation hold sway? Will Cat-woman show up? Will Commissioner Gordon weigh-in and make a ruling? Will this change the industry reputation forever?

Join Dan, Alex, Allison and special guests "poolside" in a fun and exciting discussion about both WHAT guidelines are helpful to homeonwers and HOW we PRESENT ourselves to builders, trades, utility partners and homeowners for success.

Suggested Presenter(s) - Dan Wildenhaus, Fluid & Alex Glenn, Advanced Energy & Allison Bailes, Energy Vanguard

(BDM-19) Selling Better Quality Indoor Air with EPA's Indoor airPLUS Label
A home buying decision is a health decision. On average, we spend 90 percent of our time indoors, breathing air that is typically more harmful to our health than the air outdoors. The great news is there are well-understood construction techniques for improving the quality of indoor air and protecting the health of occupants. The EPA's Indoor airPLUS program presents a comprehensive solution to an issue of increasing importance to homebuyers. The program's updated construction specifications provide easy to follow guidelines for builders and Home Energy Raters, while the government-backed label gives your sales team a trusted symbol of construction techniques that improve indoor air quality. This session will briefly outline the Indoor airPLUS program and focus on the features and benefits that the label offers to homeowners. Join us to learn how both Raters and builders can increase business opportunities by building better air quality protections into your homes.

Suggested Presenter(s) - Nick Hurst, ICF International & James Ball, Cadmus Group

(BDM-20) "Sell Yourself in 30 sec" unique non-traditional method that is based on anti-benefits and missing features
Drop the benets and features approach, turn them into unwanted issues and describe yourself as solving those concerns. Create a 30 sec. intro that will increase sales and eliminate clients that are not interested or have no potential sale.

The real sale is getting in front of the client - get them to invite you in.

Participants will be asked to make a list of the benets and features during the presentation. Then convert them into anti-benets and missing features, at the end create a "30 sec me" that will change how they see and sell themselves. Audience members will be asked to share their “30 sec into” and receive feedback. They will leave with a new approach with their clients. "I can solve your issues, many you are even aware of"

Presentation will demonstrate that clients, everyone, naturally wants to avoid "being sold", or convinced into a yes decision. The underlying language is to "Go for the No" approach keeps everyone in a safe mode. Clients do not feel pressured and the contractor is not frustrated by clients wanting out of the pressured sale. Not interested - move on.

Examples of content.
Here is an example of a 30 sec. intro - Someone asks what do you do?

Thanks for asking - I work with clients like yourself to lower their energy bills and reduce the pollutants that are in most homes. Probably not something you are interested in or maybe you know someone that is.

Example 2: I'm glad you asked - I work with contractors like yourself to reduce call backs and defects while lowering the cost to build houses like these. Probably not something you are interested in or do you know a contractor that is.
- Client says "No" - move to the next client. If they show interest, get them to tell you more, how long, has someone tried to x it … when clients talks about their issue, it is making the concern worse and immediate. Respond - not something you were looking to do soon, maybe next month … All the questions allow clients that are not interested to get out, or they continue to sell themselves with no pressure.

Ultimate close - you must always create an up-front verbal contract. “Ok, I'll come to your house on Wednesday, and if I nd the same leaky ducts (insert issue) as nd when I am in homes like yours, your probably not going to want to x them.“ They will respond, yes we will denitely want to correct them ... Or they will bring up the decision factors.

Address all decision factors, as they occur - is this deciding factor, no - then that factor is removed and continue with the next decision factor.

Additional Details - Be like your client, shake hands the same way, mimic their gestures, let them help you with industry names "air blower" … yea the "furnace". Never have a pen - let them help you.

The only way to call your client or anyone - "Have I caught you at a bad time?" Yes, ”then when is the best time to call you back”, they just set an appointment. Every call ... "Have I caught you at a bad time?" “No” - they just gave you permission to talk …

Get out of the way of the sale. Could you work at a Best Buy and sell $2000 TVs? how about a Ferrari dealer selling $80,000 cars? or jeweler selling a $100k necklace? Are you selling something you would not buy or could not a-ord. Your clients will hear it in your voice and demeanor - deal is dead!

Presentation PDF - http://db.tt/YTHLveKo
Presenter profile - http://db.tt/G59pJmzO

Suggested Presenter(s) - Joe Medosch, EEC llc

(BDM-21) Social Media Essentials: A Guide for RESNET Members
When used correctly, social media can be an incredibly powerful marketing tool, getting your message out exactly where it needs to be: directly to consumers. But what is social media and how does it work? In this session, RESNET’s digital agency, Fourth Dimension, will talk about what social media is and how RESNET is using it to promote member services and educate homeowners about the benefits of home energy efficiency. RESNET members can learn how they can take advantage of RESNET’s ongoing social media campaigns to market their services effectively to their target audience.

Suggested Presenter(s) - Dru Vagale, Fourth Dimension Inc

(BDM-22) The Walking Dead - Is all you have to offer a Rating?
The HERS industry is rapidly evolving. After business acumen, the key to success may be what you offer in addition to a basic rating or even Energy Star certification. This session will look across the industry to explore what is being offered by HERS companies beyond HERS.

Suggested Presenter(s) - Steve Byers, EnergyLogic

(BDM-23) Tracking Projects and People without Going Gray
As business grows, many Raters are faced with the daunting challenge of tracking a multitude of projects across various programs and the clients associated with those. They also have to keep track of project sampling procedures and detailed project information. Add in green building program certification information coupled with delayed project timelines and your head is likely to explode. Likewise, Providers are required to keep up with numerous Raters and their projects, as well as tracking QA and costs. This session will review two cloud-based tracking software systems and the lessons learned in development and deployment of those systems. Whether you are interested in an existing software package with user flexibility that you can start using today or one you can self-design as you grow, this session will help Raters and Providers small and large identify the right technology solution for tracking their growing business needs. Join us to discover the wide-range possibilities related to data storage, tracking and reporting for your organization, and leave with a better understanding of what to look for when shopping for your ideal solution.

Suggested Presenter(s) - Laura Capps, Southface & Kathleen Henning, EnergyLogic & Wynne Maggi, EnergyLogic

(BDM-24) Understanding & Capturing Energy Equity for Private Financing of EnergySmart Team Retrofits
Gaining access to private capitol to finance energy retrofit projects is essential to replace fading or now defunct energy rebate/incentive programs. For the residential energy retrofit industry to be truly sustainable the only long-term viable answer is private sector financing. Funding larger energy retrofit projects for EnergySmart Teams can be achieved by modeling Energy Equity correctly.

This session builds upon previous RESNET sessions such as "Using Fully Automated Energy Audit & Energy Rating Systems" by detailing a complete 'end-to-end' automated online solution that facilitates highly productive RESNET EnergySmart Teams. Energy Equity is unearthed through intelligent, diligent energy modeling, resulting in substantial monetary savings that's viewed by private sector lenders & investors as safe investment opportunities. If you understand it and believe it then you can sell it. To be effective you also must become familiar with energy mortgages and FHA 203k loans (with energy component). We will cover this subjects and more in this highly informative session.

Suggested Presenter(s) - Ken Riead, Hathmore Technologies, LLC & Sharla Riead, Accurate Rater Network CEQ Providership & Rick Westmoreland, Retrofit Exchange Online Marketplace

(BDM-25) Unlocking the Energy Efficiency Potential of Real Estate Transactions
Real estate transactions have attracted considerable interest from energy efficiency advocates as a prime opportunity for retrofitting homes. On the buyer's side, the Joint Center for Housing Studies estimates that home buyers spend more than $6,000 per year on home improvements in the first two years after buying homes. On the seller's side, multiple studies have shown that green-labeled homes can command a price premium in the marketplace. But progress has been slow in unlocking the energy efficiency potential of these transactions.

This panel will explore promising developments on the real estate front. Panelists will discuss the opportunities and challenges associated they encountered and how contractors and HERS Raters can apply these lessons to grow their own businesses.

- Debra Little will discuss her work as an appraiser and present green appraisal case studies showing value premiums of 5-10%, consistent with market-level academic study results. Debra has been an industry leader in applying approval appraisal methodologies to evaluate green homes when green comparable sales are lacking.
- Nathan Krantz will discuss Build It Green's experience providing Certified Green Real Estate Professional training and certifications to agents of a couple major brokerages in California. He will talk about the business case for

brokerages to green their business and the steps these brokerages have taken to realize the expected business value.
- John Shipman will discuss how a green building approach to improving and labeling homes has helped him develop a profitable house flipping venture.
- Laura Stukel (invited) will present recent innovations with the Chicago MLS to incorporate energy disclosures into MLS listings.

Suggested Presenter(s) - Debra Little, Appraisal consultant & Nathan Krantz, Build It Green & John Shipman, Energy Efficiency Management

(BDM-26) Value Not Price
Most people mistakenly believe that 'price' is the most important factor to consider when making purchasing decisions. Contractors are constantly reinforced with the message from builders to get their pricing down if they want the business. However, when we examine our own purchasing habits, it is immediately clear that this is not how the world works. It is time that we start to prove the 'value' of a job well done.

Suggested Presenter(s) - Joe Hudock, Knauf Insulation

(BDM-27) Video Marketing for Home Performance: Hands On YouTube Workshop
Learn to quickly and effectively attract and educate your future clients with online video! In this session, the brains behind Green Dream Group's renowned videos will script, shoot, edit, upload, and advertise a 1-minute video with audience participation. Increase your lead generation, client conversion, and reputation with this simple and ingenious tool.
- Learn to communicate effectively and charmingly on camera
- Watch the streamlined editing and uploading process available with YouTube
- Use annotations and advertising to spread your message

Suggested Presenter(s) - CORBETT LUNSFORD, GREEN DREAM GROUP LLC

(BDM-28) What makes RESNET Raters superior home performance professionals.
The session is designed to give an overview of characteristics that RESNET Raters provide to the market for existing home analysis, new home design consultation, analysis of building component failures, building science training and energy code compliance.

Suggested Presenter(s) - Bob Chomko, Builiding Science Institute Inc

(BDM-29) Where Do I Start?
Business planning and strategy are often the causes of success or failure- and in this session, Brett shares a strategic framework that will help you succeed! If you own a business, the information presented here will dramatically improve your odds of success.

Suggested Presenter(s) - Brett Dillon, IBS Advisors, LLC

Energy Codes

(EC-1) 2012 Code: the Good, the Bad, and the Ugly from Maryland, the first state to adopt 2012 IECC
On July 1st 2012, all homes permitted in the state of Maryland were required to meet the stringent IECC 2012 code requirements. After going through the seven stages of grief, builders, Raters, and utilities figured out ways to use the code to each of their respective advantages. This presentation will discuss real world business solutions for raters, compliance options for builders, and methods utilities can use to capture savings above and beyond the 2012 code to keep the program relevant.

Suggested Presenter(s) - Rick Gazica, ICF International

(EC-2) A Feasibility Assessment of the RESNET HERS Index as an Alternative Compliance Path for the IECC
This analysis explores the feasibility of RESNET HERS as an alternative code compliance path by evaluating the impact of certain home elements and the differences between the 2012 IECC and the HERS path, on compliant HERS Indexes.

Suggested Presenter(s) - Vrushali Mendon, Pacific Northwest National Laboratory & Jeremiah Williams, DOE

(EC-3) Air Barrier - Where is it? What is it? Air Barriers should not be a barrier for residential contractors
Air barrier aka Air Control Layer – is it a material or an assembly? Where is it? What is it? Does it change locations? For Northern climates does it matter where on the assembly it should be located? Answers to these questions and the materials most commonly used will be combined to provide a simple clear understanding of the air control layer.
It will cover New Construction and existing structures applications. Recessed can lights, windows, and duct system all have IECC code air leakage requirements, how are they impacting the air control layer.
The presentation will include the most common materials used in assemblies and determine if they function as an air barrier. I will answer the most common question: "Is house wrap an Air Barrier?" I will have my library of materials some are included in interactive props and learning devices that I have created that complete the visual experience. (on display table).
The course will explain the difference between Air Barrier / Vapor Barrier / and permeability.
The presentation will provide guidelines from industry standard including ICC and Air Barrier Association of America and manufacturer requirements.
I will conclude on how to how to test the air control layer and determine the location in the assembly.

*I am not affiliated or represent any of the manufactures or their products.

Learning objectives
#1 Air Barrier defined and applications.
#2 Air Barrier materials and assemblies.
#3 The importance of where the air control layer is in an assembly.
#4 Best practices for testing the Air Barrier and confirming the location.
Industry standard including ICC and Air Barrier Association of America and manufacturer requirements.

Presentation PDF - link http://db.tt/aO7hkeDr
Presenter profile - http://db.tt/G59pJmzO

Suggested Presenter(s) - Joe Medosch, EEC llc

(EC-4) Air Leakage Testing: What's New and What's Coming?
Energy Codes are moving towards requiring verification for building air leakage performance. To more effectively meet these evolving code requirements, test methods and specifications are also evolving. This presentation will review code requirements for air barrier and air leakage testing in the 2009 IECC, 2012 IECC and what will be in the 2015 IECC. In addition to energy code updates, this presentation will also review progress on ASTM air leakage test method and air barrier specification standards and how they will aid in Energy Code compliance.

Learning Objectives:
- Understand Energy Code air barrier and building air leakage requirements
- Learn air leakage requirement changes coming in the 2015 IECC
- Understand the different air leakage test method standards
- Learn what developments in ASTM air leakage test methods are underway

Suggested Presenter(s) - Theresa Weston, DuPont Building Innovations

(EC-5) BPI's Transition to ASHRAE 62.2 - 2013

The home performance blogosphere is lit up with chatter over ASHRAE's 2013 version of 62.2, the mechanical ventilation standard for low rise residential buildings. Due to a change in formula, the 2013 version yields higher ventilation rates than the 2010 version. Debate churns over whether the ventilation rate is too high, whether the infiltration credit in the 2010 version should have been eliminated, whether the 2013 version is right to include alternate methods for calculating minimum ventilation rates.

During this presentation, participants will learn how BPI interprets the new standard, and how it intends to transition to ASHRAE 62.2 - 2013 in all of its standards and certifications. BPI's process will include a transition period for contractors to obtain training to the new version of the ASHRAE standard and to provide BPI time to upgrade administrative processes to prepare for a full transition.

Suggested Presenter(s) - John Jones, Building Performance Institute

(EC-6) Business Opportunities in Energy Codes and Performance Testing
As building energy codes rapidly advance, performance testing of new homes is poised to become the norm rather than the exception. More than half of U.S. states have implemented the 2009 IECC and several more have adopted, or are slated to adopt, the 2012 IECC in the next few years. Raters can capitalize on this growing market by understanding energy code requirements and how to market their services to builders. This session will cover air sealing verification and duct leakage requirements of the 2009 and 2012 IECC, including blower door testing, duct testing, and required inspections. This session will also provide guidance on how Raters can turn these requirements into money in their pockets. Energy codes are the new home performance program – don't be left behind. (If this proposal is accepted, I will find a co-presenter to speak about the rater perspective on the business opportunity that code compliance work represents.)

Mike Turns of Performance Systems Development (PSD) has presented at the Pennsylvania Housing Conference, national and regional ACI conferences, and DOE's Energy Codes conference. As associate director of the Pennsylvania Housing Research Center at Penn State, Mike has trained hundreds of contractors, design professionals and code officials on energy and mechanical codes. As a senior program manager with PSD, Mike currently manages the Pennsylvania and Ohio Energy Efficient New Homes Programs – builder incentive programs that require ENERGY STAR v3.0 certification.

Suggested Presenter(s) - Mike Turns, Performance Systems Development

(EC-7) Changes to Codes that Affect Hot Water Systems
We are in the middle of the 3-year cycle to develop the 2015 codes for the International Code Council (ICC) and the International Association of Plumbing and Mechanical Officials (IAPMO). By the time of the conference we will know what has been approved for inclusion in the 2015 IECC, IRC and the IPC. We will know what has been proposed for the UPC and for the IgCC. This session will provide an update on the relevant provisions that will affect raters.

Suggested Presenter(s) - Gary Klein, Affiliated International Management LLC

(EC-8) Demystifying the IECC 2012 compliance puzzle, A leadership role for Raters
Many states and municipalities across the country are looking at or have already adopted the IECC 2012 which includes more testing, inspections, and documentation than in previous versions of the code. This session will provide a user friendly explanation of what is in the new code and describe the leadership role that Raters can play to assist builders, trade contractors, architects, and even code officials with successful implementation of the many requirements. The presentation will include a panel discuss to share ideas of what is working in various parts of the country and allow for audience questions about specific issues they may be having in their local area.

Suggested Presenter(s) - Daran Wastchak, D.R. Wastchak, LLC

(EC-9) Energy Code Verification as a Business Opportunity

The 2009, 2012 & 2015 IECC codes contain requirements and options that open the door for HERS Raters and other building professionals to play an important role in the code verification process. However, the codes do not define test standards or required professional credentials. Many states have demonstrated a greater willingness to adopt and enforce these codes if there are clear procedures for training and certifying professionals to meet the builders' needs. States, and RESNET, have taken various paths in response to this situation. Presenters will outline opportunities and discuss the role of advocacy in code adoption. One successful example from Georgia will be discussed as well as an update on progress with standards development organizations.

Suggested Presenter(s) - Sydney Roberts, Southface & Pam Cole, PNNL

(EC-10) Future versions of IECC residential and the RESNET Rater
A look at how IECC will evolve through 2030 and the role of the HERS Rater. The session the direction being taken by DOE and others in evolving the energy code, activity in the building industry that is stimulating demand for the HERS rating and the importance of energy modeling. The importance of health and safety in code enforcement will be emphasized when training 3rd party code inspectors.

Suggested Presenter(s) - Bob Chomko, Builiding Science Institute Inc

(EC-11) How Raters Benefit from the Testing Requirements in the Newest Energy Codes – Duct and Envelope Tightness (DET) Verification
Over thirty states have now adopted the 2009 IECC or better (e.g., IECC 2012 or state specific), but the degree to which performance testing has been implemented varies widely. Truly high performance homes need to do more than pass code on paper. For the first time the energy codes are requiring this essential testing but still leave many questions unanswered.

Southface helped create a minimum testing certification for Duct and Envelope Tightness (DET) Verifiers. The DET Verifier concept has helped successfully implement the required testing and attempted to answer many of the unanswered questions left vaguely by the code. By rapidly training and certifying hundreds of DET Verifiers, making test equipment available state wide for lease, and educating the code enforcement community, Georgia was able to successfully fend off a code pushback effort. Other states and jurisdictions have adopted the DET concept with similar success.

We'll also discuss how raters have actually prospered by successfully performing the lion's share of the testing and have picked up business due to the enforcement of the newest energy codes. By providing options, raters are viewed as a valued path to demonstrate compliance.

Suggested Presenter(s) - Mike Barcik & Bourke Reeve, Southface

(EC-12) Incorporating Drain Water Heat Recovery in the Energy Code
A review of the recent Ontario Energy Code update to include drain water heat recovery (DWHR) as a prescriptive trade off for other energy savings measures will be reviewed along with an update on the progress to recognize DWHR for future IECC inclusion.

Suggested Presenter(s) - Rod Buchalter, Renewability Energy Inc

(EC-13) Selling Performance Based Code Compliance - Raters Perspective
Show successes Energy Diagnostics has had in utilizing Performance based code to drive up sales of ratings and rating packages. Discuss basic pitfalls and methods to be successful. Show raters how to grow their business utilizing the code as the core background.

Suggested Presenter(s) - Matthew Brown & Matt Gingrich, Energy Diagnostics Inc

(EC-14) Testing, Testing 1, 2, 3, (4, 5, 6…); A surge of verification testing in new codes and efficiency standards.

In the past, it was easy to develop a 'high efficiency' home applying quick and easy strategies such as increased insulation and higher efficiency mechanical systems. Today, the upper echelon of energy efficiency is relying more and more on HERS verification testing rather than improved equipment. Energy Codes are pushing this change. From ENERGY STAR 3.0, to California's 2013 Title 24 Standards, to DOE Challenge Home, to IECC 2012 - verification tests are taking the front seat. The expertise, manpower, and quality control needed to manage increased verification testing has significant implications for the HERS rater's business model. Join us to learn more about this changing code landscape and how it's changing the business of HERS rating.

Suggested Presenter(s) - Matthew Christie, TRC Energy Services & Bill Lilly, California Living and Energy

(EC-15) The Surprising Truth about the Energy Code Development Process.
Come hear one man's journey through the 2015 energy code hearings. The process, the intent, and the juxtabosition between how codes are really used and how and why codes are created. Tantalizing stories about lobbying, camaraderie, technical rigor or not, two minute elevator speeches and more.

Suggested Presenter(s) - Robby Schwarz, EnergyLogic

(EC-16) Time Marches On – Getting Closer to the 2012 IECC!
While the 2009 IECC is currently the most common energy code , as time passes the 2012 IECC is gaining traction, presently adopted in five states and gaining in implementation impact.
The 2012 IECC is doable but tough – total duct leakage must be < 4%! Air sealing and insulation demands advanced framing such as insulated headers and corners, must be visually inspected and must be proven tight with a blower door test of < 3 ACH50 for the majority of the country! Finally, intentional whole house ventilation is effectively required but doesn't completely synch up with ASHRAE 62.2; learn the details and distinctions of this oh so crucial set of new requirements. Remember, the 2012 "minimum" code exceeds ENERGY STAR in several aspects!
This session focuses on the energy code essentials. Participants will know the prescriptive code requirements (good windows and lots of R-value). And we'll discuss how older simple UA trade-off tools, such as REScheck, are limited and somewhat obsolete making way for simulated performance trade-offs such as those performed by HERS raters on a daily basis.
However, even though over thirty states have now adopted the 2009 IECC or better, the degree to which performance testing has been implemented varies widely –true high performance homes need to do more than pass code "on paper". We'll share lessons learned as Southface helped create a minimum testing certification for Duct and Envelope Tightness (DET) Verifiers. We'll also discuss how raters are still successfully able to perform the lion's share of the testing and have picked up business due to the enforcement of the newest energy code.

Mike and Ray promise to help you stay informed – this stuff is coming!

Suggested Presenter(s) - Mike Barcik & Ray Ivy, Southface

(EC-17) Title: Now Where did I put that Energy Code Resource?
Over the last few years, there has been an increase in the number of available energy codes resources, materials, websites, and whatnot. Wouldn't it be nice to know what already exists so you don't have to waste time recreating the wheel, or better yet, know how to find it easily? This session will give a brief overview of the latest versions of the energy code as well as condense the available resources available to consumers, builders, code officials, policy makers, and other interested parties into a quick reference guide.

Suggested Presenter(s) - Roxanne Greeson, Southeast Energy Efficiency Alliance

(EC-18) When a Raters Embraces the Energy Code it's Good Business!
The fundamentals of building science have been codified and the IECC is now really a building program all in its own. Air flow, moisture flow, and thermal flow. How can we understand the IECC and the Simulated perfromacne path from a building science perspective to help our Rating businesses grow and be sustainable.

Suggested Presenter(s) - Robby Schwarz, EnergyLogic

Financing & Incentives

(FI-1) Advanced Energy Lessons Learned: Valuing HERS Raters and the HERS Score
For years our industry has worked on the issue of valuing energy efficiency, creating market demand, consumer awareness and the list goes on but finally there is some movement and much of it catalyzes with the appraisal world. Come learn about some of the exciting things taking place in the appraisal world while participating in an interactive facilitated discussion.

Suggested Presenter(s) - Kristi Matthews, Advanced Energy & TBD

(FI-2) Custom Utility Incentive Programs for US DOE Builders Challenge Home Version 2 and Very Low Energy Projects "What It Takes for Proper Incentive?"
Custom Utility Incentives are the first stop for off setting project construction cost. We will review the process, modeling requirements, and the rework required to achieve the proper incentive level.

Following a US DOE Builders Challenge Home V2 Project through the local utility incentive program, with eye opening results, as we review the utility incentive base line model and the project model as modeled by the utilities outside consulting group that runs the program.

The review will also cover project and utility timing, for application, modeling, meetings, cost comparison, third party testing and verification, supplier, and contractor requirements for project incentives.

Suggested Presenter(s) - George Sullivan, Eco Smart Building LLC & Bob Chomko, Building Science Institute Inc

(FI-3) Incentivizing the Next Generation of High Performance Homes: Program Administrators discuss a Post-IECC 2012 Environment
With the adoption (or forthcoming adoption) of IECC 2012 by many states and the potential for upgraded minimum equipment efficiencies, above-code Program sponsors and administrators have had to quickly adapt their Programs to reflect the new benchmark. How do we best promote the construction of high-performance new homes? Program design and implementation experts will discuss their organizations' involvement in the evaluation of above-code Program offerings (including, but not limited to: ENERGY STAR, Net-Zero Ready, Passive House, and Challenge Home) and discuss how careful analysis led each of them to make design decisions regarding the future of their Programs. The session will also touch on how a Program can maintain its ability to correctly claim energy savings without violating cost-effectiveness regulations, and remain marketable to the Program Partners. Come learn from these valuable experiences to enable you to help influence the direction of the Programs in your region!
6 PANELISTS
Patrick Fitzgerald, Project Manager, New York State Energy Research & Development Authority (NYSERDA)
Michael Burke, Program Manager, Conservation Services Group (CSG)
Ben Adams, VP of Business Development, MaGrann Associates
Enoch Lenge, Program Administrator, Connecticut Light & Power/Yankee Gas
Kathy Greely, Performance Systems Development (PSD)
Chris Gordon ,Vermont Energy Investment Corporation (VEIC)

Suggested Presenter(s) - Patrick Fitzgerald, New York State Energy Research & Development Authority (NYSERDA) & Michael Burke, Conservation Services Group & Ben Adams, MaGrann Associates

(FI-4) Seeing Energy Efficiency's Value in the Real Estate Appraisal
"Energy Efficiency" has taken on new meaning in today's real estate market which has emerged from the doldrums of 2008. No matter where you look, energy efficiency is on the minds and agendas of legislators, builders, lenders and borrowers.

If you have ever experienced frustration around the valuation of energy efficient and green real estate then this session is for you.

Come learn the methods and tools available to real estate appraisers to determine value - and specifically how appraisers can assign value to important energy efficient improvements. This session will also highlight how Energy Raters play an integral role in identifying and quantifying the energy saving performance of a home, and what you can do to help the home's appraisal.

Using real appraisal results, along with supporting documentation that is critical to the appraisal process, you will leave the session with knowledge and resources to support energy efficient improvements, helping builders and homebuyers with both appraisal challenges and potentially increase the borrowing power based on energy efficiency's value.

The information provided by this session is important for anyone hoping to see increases in the market penetration of energy efficient homes.

Suggested Presenter(s) - Michael Hobbs, Pahroo Appraisals & Jason La Fleur La Fleur, Eco Achievers

(FI-5) Southeast Home Energy Performance Loans
A review of home energy finance products available in the southeastern U.S.. We will discuss the current state of available products, trends in availability, barriers to product availability, product success variables and the South East Energy Efficiency Alliance experiences and efforts to support home energy products.

Suggested Presenter(s) - Tim Block, Southeast Energy Efficiency Alliance

(FI-6) State of Colorado Mortgage Incentive Program Tied to HERS Index Score
The Colorado Energy Office has launched a new mortgage incentive program to encourage homebuyers to purchase high energy performance homes. The program incentives are based on the HERS Index Score of the home. In addition the Colorado Energy Office is working with local Realtor Board to incorporate a HERS Index Score into the MLS. This session will explore how the State of Colorado is using the HERS Index to transform the state's housing market.

Suggested Presenter(s) - Pete Rusin, Colorado Energy Office

(FI-7) Valuing the Future: Keys to Appraisal of High-Performance Building
Owners, builders, HERS Raters, designers and consultants have for years struggled with obtaining accurate appraisal of "green" features in high-performance construction. Whether energy-conserving measures such as more insulation and better fenestration, or renewable-energy generating technologies such as PV, solar thermal and wind: green building has not been translated effectively into greater value or green mortgages. Until now.

Starting with a HERS Index Score and the Appraisal Institute's Green Addendum as a requisite minimum baseline, this session next examines work the Appraisal Foundation has done to establish 'best practice' protocols for high-performance residential building valuation. Appraiser independence and the "A.I.R." policy are discussed. Then appraiser qualification, experience, and education specific to high-performance construction are explored. Curriculum for upcoming appraiser education, specific to "green" building valuation, is reviewed. Tools that appraisers can utilize when documenting the value of "green" construction are illustrated, including: present value calculations, proprietary calculators such as 'Green Energy Money's IPV', and use of MLS databases – which increasingly are being modified across the country to capture HERS Scores and green program certifications in sales transactions.

Involvement of key project stakeholders is critical, and the session concludes with recommendations for builders, HERS Raters, designers, and owners seeking to accurately value today's investment in our sustainable future.

[NOTE: This session will be presented in a moderator/ expert panel format. We will involve key experts in this field for the panel - including someone from the Appraisal Foundation, Green Energy Money, and an officer from a national lender currently writing true "green mortgages" that capture the value of HERS Ratings and energy efficiency.]

Suggested Presenter(s) - Rich Backus, GMB PMP CPHC HERS Rater, netPLUS Energy School, LLC & PANELIST: FROM THE APPRAISAL FOUNDATION , APPRAISAL FOUNDATION & PANELIST: FROM 'GREEN ENERGY MONEY' , GREEN ENERGY MONEY

(FI-8) Valuing the Future: Mortgage Lending for High-Performance Building

Owners, builders, HERS Raters, designers and energy consultants have for years struggled with insufficient funding of "green", high-performance construction. Whether energy-conserving measures such as more insulation and better fenestration, or renewable-energy generating technologies such as PV, solar thermal and wind: "green" building has not been translated effectively into greater documented value or "green" mortgage lending. Until now.

Starting with a HERS Index Score as a requisite minimum baseline, this session examines how appraisals from qualified, educated appraisers are obtained. Mortgage underwriting considerations are then explored, specific to the financing of "green" construction. The impact to underwriting process and documentation of changes brought about by pending legislation such as the SAVE Act will be discussed, as will efforts by HUD to create guidelines for incorporating "Green" mortgages in the FHA program – beyond existing EEMs (Energy-Efficient Mortgages). The eventual movement of the marketplace to establish securities based on higher-quality risk portfolios represented by "Green" mortgages will be forecast, including the impact that will have on the demand for HERS Rating services.

The session will close with a review of several case studies for high-performance projects where mortgage loans that recognized the value of "green" features were obtained. Both new construction and deep energy retrofit cases will be discussed.

[NOTE: This session will be presented in a moderator/ expert panel format. We will involve key experts in this field for the panel - including representatives from Green Energy Money, and an officer from a national lender currently writing true "green mortgages" that capture the value of HERS Ratings and energy efficiency.]

Suggested Presenter(s) - Al Cobb, MODERATOR - netPLUS Energy School, LLC & EXPERT PANELIST , GREEN ENERGY MONEY & EXPERT PANELIST , NATIONAL MORTGAGE LENDER WRITING "GREEN" MORTGAGES

Home Energy Ratings

(HERS-1) A Better Approach to Energy Auditing

• RESNET's energy rating software is a highly competent tool for energy ratings, but other software is needed to better support comprehensive energy auditing.
• The process of generating auditing recommendations should not be limited by RESNET's rating standard's philosophy wherein the stated goal is to rate the building and not the lifestyle of the occupants; it is, after all, a mortgage standard.
• A new, and yet to be defined, RESNET Energy Conservation Standard could complement RESNET's Rating standard and help define what could/should be added to create auditing software.
• Auditing should consider lifestyle effects, such as the number of occupants, cooling set-points, and use of operable windows (i.e., means of energy savings whose effects depend upon occupant choices).
• Calibration, as defined by BPI and integral to their auditing approach, can be developed to the point of being an optimally effective tool, but not as it is currently defined. (Calibration, a.k.a."true-up", adjusts software inputs so that the annual energy bill matches projected annual consumption.) The problems start with the fact that true-up cannot be well-defined, errors occur, and, most problematic: there is room to manipulate results to oversell the benefits of the particular kind of retrofit which that home-performance business is selling.
• Auditing depends upon solving three optimization problems simultaneously:

A. Which set of inputs into the software most closely models those energy flows for this building that are within the set of physical laws modeled by the software?

B. Which physical laws will we ignore and how can we ensure that they will only have a negligible effect on the results?

C. Which lifestyle choices are occurring in the home that cause patterns of consumption that are "significantly" different from the norm?

In practice, the real-world physical processes chosen to be ignored are decided as an industry and as a result of discussions that begin in a conference like this. In this regard, some improvements of RESNET's rating standard, will be suggested.

For energy auditing software to model the real world, the following must be addressed:
1. An upper bound of the error associated with the physical laws not modeled must be calculated.
2. Lifestyle effects must be calculated.
3. An automated and well-defined true-up method must be established.

Until this occurs, any projected output from software that models only A will have errors that cannot be estimated. (One must be careful to distinguish error for this home and the average error for a group of homes—which can still be calculated in some kind of statistical manner. Such a statistical average is of little value to any particular home in question.)
• True-up could be greatly improved, as could the ultimate goal of auditing, if true-up were completely automated and the software was set-up to generated monthly outputs, giving us twelve times as many outputs to compare rather than one. This would tend to ameliorate both of the last two problems, i.e. integrating lifestyle data and resolving the three optimizing issues. Despite the fact that recent research shows that monthly data is insufficient even if the goal is limited just to calculate A, automated calibration with monthly comparison data is a good step and may be all that is needed in practice. However, to establish the accuracy of calibrations and adequate information for estimating the error between the approximation and reality, i.e., calculating 1 and 2 above, should be possible where comparison is done with substantially more data, e.g., via comparisons made possible by Smart Meters which collect consumption data hourly. This may seem to generate tedious data entry problems, but in the future that should be automated as well.
• Once calibration is completed and information is generated that directly or indirectly establish A, B and C above, additional, enhanced retrofit-modeling steps should be integrated into the retrofit generation process. I think that the most important of which is to examine the effects of relocating the thermal boundaries. However, all of the following apply: 1) insulating at just below the roof instead of on the attic floor, 2) insulating at the crawl space walls instead of its ceiling, 3) replacing a central HVAC duct system with zoned equipment like ductless mini-split or window units, or 4) resize, add, remove or move a window. Currently, such alternative models of retrofits of the "same" home often require major changes to the inputs of rating software that have yet be automated. Better auditing software would fully automate such enhanced retrofit modeling.
• The same energy conservation standard used to direct the development of the auditing software would incorporate improved energy modeling techniques for designing a new home since such an approach would consider a broader set of features—many of which have no effect on an energy rating. Homeowners may want homes that better match their lifestyles.
• Finally, for the very experienced home-performance auditor, all that may be needed for the homeowner is a walk-through. In many cases, no performance tests or explicit measurements are needed and there is no use of software. Such a master in our industry can look at the ducts and quickly recognize where to put the new thermal boundary, whether ducts should be sealed, reengineered or replaced, as well as whether the home could probably benefit from the services of a "weatherization" professional. Probably the most important key to the process is the clear, economic separation between the auditor and the purveyor of retrofit services.

Suggested Presenter(s) - Myron Katz, Building Science Innovators, LLC

(HERS-2) Are You Getting Your Fan Flows Right?
This section will discuss some of the ways that fan flow testing can be done, how the testing is conducted, and the advantages and pitfalls of the techniques. Using anemometers, fan flow meters, flow hoods, amongst other devices or methods, will be covered.

Suggested Presenter(s) - Eurihea Especiale, Building Efficiency Resources & Stan Harbuck, A Better School of Building Inspection

(HERS-3) Design of the Times: New Opportunities for HERS Raters to Serve & Profit

Commercial construction projects have shown the value of pre-design energy modelling in achieving dramatic reductions in building energy consumption. So much so, that the newest version of LEED now requires some manner of pre-design energy modelling, to ensure this opportunity is not missed. Even so, the practice of energy modelling early in the design process is not yet universal for commercial projects.
While the use of energy modelling in residential design is even less common, this doesn't have to be. In fact, everything about residential construction is more personal. When owners are educated about the options and opportunities to adjust design-development based on energy modelling, many embrace the opportunity. And this represents real opportunity for HERS Raters to serve the residential building community, influence more informed and responsible design and build decisions, and earn income in the process.

Future residential property appraisal and mortgage loan underwriting will involve prospective HERS Scoring and Performance Reports as essential to complete project plans and specifications, whether for approving new construction or deep-energy retrofit financing.

This session explores these opportunities, with illustrations and case studies. The role of the HERS Rater as essential partner in integrative residential design is established in detail. Recommendations are made to help HERS Raters market these services to owners, designers, builders, remodellers, appraisers, lenders, and realtors. Sales strategies, and risk management recommendations, complete the session.

Suggested Presenter(s) - Rich Backus, GMB PMP CPHC HERS Rater, netPLUS Energy School, LLC & Al Cobb, netPLUS Energy School, LLC & HERS Rater & Energy Consultant Third Presenter

(HERS-4) HERS Ratings - Transforming the market with Builder Private Labeling
This session will discuss how HERS Ratings are transforming the South Carolina new homes building industry. The discussions will include why Builders choose to use HERS Ratings over other programs; how the HERS score was used to determine construction features and how the HERS score is being used in marketing the Builder Private labels.

Suggested Presenter(s) - Claude St. Hilaire, Home Energy Group & Builder, To be determined

(HERS-5) Historic Mid-rise Madness
Low-rise new construction projects fit nicely within the existing HERS industry and RESNET is working to develop additional guidance for multifamily projects of all sizes to provide more consistency within the multifamily application of the RESNET Standards. With multifamily construction booming across the country, several markets are finding big gains in reusing older, historic structures for new apartments and condos. This session will address Southface's lessons learned in combining RESNET, ENERGY STAR and green building criteria into adaptive reuse and historic preservation mid-rise projects. Speakers will cover key tradeoffs in meeting historic preservation goals and green building performance standards, as well as crucial project management steps taken to ensure successful program implementation and compliance.

Suggested Presenter(s) - Sarah Hill, Southface & Matt Monroe, EarthCraft

(HERS-6) Hitting the Sweet Spot: Cost-Optimal Design and Ratings for New Construction
NREL has developed BEopt, a Building Energy Optimization software tool, to evaluate residential building designs and identify cost-optimal efficiency packages along the path to zero net energy. For new construction, cost-optimal designs minimize the sum of long-term costs associated with the mortgage, energy utility bills, and equipment replacement. This presentation will provide examples of cost-optimal designs in various climate regions and present corresponding HERS Index Scores for the designs. Attendees will get sense of how the homes they are currently helping design and certify compare to cost-optimal designs calculated by BEopt. Rating professionals attending this session will be better prepared to help their builder partners design and deliver cost-effective, high-performance homes to their customers.

Suggested Presenter(s) - Ben Polly, National Renewable Energy Laboratory

(HERS-7) Home Energy Performance and Real Estate Appraisals and Sales

Homebuyers and sellers are increasingly focusing on energy costs and energy efficiency as priorities in their decision making. But how do buyers and sellers know their energy cost projections are accurate? What role do performance-based and asset-based home energy audits play in the residential real estate sales market? How are brokers, buyers, and sellers adjusting ask and bid prices based on energy costs?

This panel brings together representatives from performance and asset based auditing systems, and single and multifamily real estate to discuss the role of energy ratings and costs in home sales.

Suggested Presenter(s) - Dean Durst, AREVS

(HERS-8) Home Energy Score for RESNET Raters
The U.S. Department of Energy's Home Energy Score program is growing nationwide, including RESNET Raters. Spirit Foundation, a U.S. Department of Energy Home Energy Score partner will explain the technical data from NREL used in the Home Energy Score, the process, I-Phone app, testing, and implementation for your community.

Suggested Presenter(s) - Jim Mikel & Brad Foster, Spirit Foundation

(HERS-9) Increasing Confidence in the HERS Index Through Consistency
Across the nation homebuilders are using the HERS Index Score to market the energy performance of their homes and building codes are using the Score as a compliance method. It is even more critical that there is consistency in how the HERS Index Scores and issued. In 2013 RESNET formed a task force aimed at improving the consistency of the HERS Index Score. The task force is composed of representatives of the nation's large builders, rating providers and rater software tools. This session will explain what the task force is recommending.

Suggested Presenter(s) - Jim Petersen, Pulte Group & CR Herro, Meritage Homes & Jacob Atalla, KB Home

(HERS-10) Mainstreaming the HERS Index in the Market Place - Mineapolis/Western Wisconsin Multiple Listing Service Incoporates HERS Index Score
Working with the Builders Association of the Twin Cities (BATC), the NorthstarMLS® Multiple Listing Service is incorporating a home's HERS Index Score into their MLS. "Including the HERS Index Score in the MLS is a significant push to the mainstreaming of the HERS Index Score in the housing market in Minnesota and western Wisconsin. REALTORS® rely on the MLS to guide potential homebuyers and appraisers use the service to locate comparable properties. Having this information will make it easier for builders to market their HERS Index Scores and appraisers to calculate the market value of rated homes. This session will explain the steps taken in incorporating the HERS Index Score into the MLS and how the market place is reacting.

Suggested Presenter(s) - David Siegel, Builders Association of the Twin Cities

(HERS-11) Making the Grade: HERS Indices for Code and Above-Code Programs
Everyone's always looking for a super decoder ring to compare code-compliant, EPA Energy Star and DOE Challenge Homes on the HERS Index Scale. This is because the HERS Indices for homes meeting code and program requirements vary by climate, heating fuel and other design elements. While the decoder rings are not yet available, this session will present a colorful, graphical overview of HERS Indices for homes meeting requirements of recent versions of the IECC, Energy Star Qualified Home Program and DOE's Challenge Home Program. The content will help rating professionals understand and communicate the relationships between code and above-code programs in a common metric – the HERS Index.

Suggested Presenter(s) - Dave Roberts, National Renewable Energy Laboratory

(HERS-12) Mapping HERS Scores
This session will introduce this cutting edge new web service that will create an open map-based database of estimated and actual HERS scores for homes, nationally. We'll go through the feature-set and business model and all the great benefits it will bring for HERS raters and retrofitting and weatherization industry

Suggested Presenter(s) - Brian Butler, Boston Green Building & Mike Browne, Advanced Building Analysis

(HERS-13) Mobile Data Collection and Ratings: Touch and Go
The tablet has changed expectations for data collection and communications in the field, and allows significant time (and cost) savings over traditional paper-based methods. PSD's Quality Assurance team uses iPads for all of their field work, and Architectural Energy is moving REM/rate into the cloud, while the emerging HPXML standard is opening up possibilities for more tools and easier communication between programs, providers, and raters.

This session will address the possibilities, and limitations, of mobile data collection, and strategies for synchronization with a central data system. We offer real-world experiences in deploying such systems.

Suggested Presenter(s) - Ethan MacCormick, PSD & Rob Salcido, AEC

(HERS-14) Modeling for the HERS Index vs. kWh Savings -The Devil is in the details
This session is intended to educate HERS Raters and other stakeholders on the differences between modelling for the HERS Index versus modelling homes for actual Killowatt savings. Utility Programs around the country are implementing new program designs to capture additional kW and kWh savings from new construction and HERS Raters and builders need to understand the differences to improve their success and the long term viability of these programs. This approach has additional impacts to both Rater and Builder business models that will require changes to processes and business relationships. With change also comes opportunity to grow your business by leveraging the incentives offered through the programs to help builders improve the efficeincy of their homes. The session will also include some case studies from Utility Programs showing the opportunity for capturing additional savings through modelling.

Suggested Presenter(s) - Maci McDaniel & Michael Brown, ICF International

(HERS-15) Multifamily HERS Ratings: Applying RESNET's Technical Standards
In the Rater community, there are often various interpretations of the RESNET Mortgage Industry National Standards as they apply to HERS ratings of multifamily units and/or buildings, leading to inconsistent results and practices among Raters. To reduce confusion and eliminate misinterpretations of the Standards, RESNET has convened a working group of multifamily experts to expand and clarify RESNET Standards as they apply to HERS ratings provided in the multifamily sector. During this session, working group members will provide clarification on the technical guidance related to performance testing, inspections of minimum rated features, energy modeling, and sampling, as they pertain to multifamily ratings. The working group will also discuss key definitions and the use of the HERS Index for individual units within multifamily buildings and/or whole multifamily buildings, when deemed appropriate.

The goal of the session is to introduce the proposed guidelines that will provide a consistent and clear approach to providing multifamily ratings.

Suggested Presenter(s) - Brian Christensen, Architectural Energy Corporation & Patrick Fitzgerald, NYSERDA & Abe Kruger, Kruger Sustainability Group

(HERS-16) Omaha, Nebraska Homebuilders Association's Certified High Performance Home Program Incorporates HERS Index Score – Omaha MLS to Include HERS Index Scores
The Home Building Professionals of Greater Omaha has launched a high energy performance home program, the Certified High Performance Home Program. The program requires that homes certified must achieve a HERS Index Score of 65 or lower through a home energy rating conducted by a certified RESNET Home Energy Rater. Working with the local board of REALTORS the Home Building Professionals of Greater Omaha was able to incorporate a home's HERS Index Score into the Omaha Multiple Listing Service (MLS). This action is important since the MLS is relied upon by Realtors and appraisers to access information about homes for sale.

Suggested Presenter(s) - Jesse Krivolavek, American Energy Advisors & Ray Herek, Omaha Public Power District

(HERS-17) Powerful New Tool for Builders - Guaranteed Energy Performance
Now builders can even more comfortable having their homes rated and marketing the energy performance of the homes they build. Bonded Builders Warranty Group is offing affordable insurance to builders that will allow them to guarantee the energy bills of the home. The insurance is based on the calculations of a Home Energy Rating conducted by a certified RESNET Home Energy Rater. This session will explain the insurance coverage and what it will mean in the market place.

Suggested Presenter(s) - Roger Lange, Bonded Builders Warranty Group

(HERS-18) Project FutureProof
Project FutureProof is an initiative to help Canadian homeowners protect themselves against future price increases of energy and water. Project FutureProof will start in the Toronto Beaches community and then expand into Ontario and eventually throughout Canada.

A FutureProofed home has a reduced impact on the environment and is healthier to live in. This is accomplished by significantly reducing a home's use of energy and water, by using non-toxic materials from renewable sources, and by reducing waste when the home is being built or renovated.
With Enbridge and ScotiaBank as major sponsors, not only are we helping people reduce their energy bills by improving the efficiency of their home but candidates that reach gas reduction goals are eligible for incentives.

Come join John Godden as he leads a an informative session on Project FutureProof.

Suggested Presenter(s) - John Godden, Project FutureProof

(HERS-19) Rater success with the Energy Smart Program ecoselect
ecoselect is the first national program designed by raters for raters and builders who want the highest value building program available. ecoselect is build off the RESNET Smart Home Program and web based tracking tools. Come see how you can build your business and your profits with ecoselect.

Suggested Presenter(s) - Robert Kingery, ecoselect

(HERS-20) Residentail PV and the Rater
This session will focus on the raters role in assisting the owner/builder in the determination of PV requirements, sizing, and determining rating score. This will include how to's for determining site requirements, PV Watts and EnergyGauge inputs, and the process of certifying a PV system.

Suggested Presenter(s) - Kevin Schleith, Home Audit Technologies

(HERS-21) RESNET's CAZ Simulation Test
Beginning on January 1, 2014, in order to be certified as a Home Energy Rater a candidate must have passed the RESNET CAZ simulation test. Existing raters have until January 1, 2015 to pass the test. This means that in order to train raters all Rater Trainers must also have passed the test. This session will demonstrate the new RESNET test and provide resources for raters and rater trainers to be prepared to pass the test.

Suggested Presenter(s) - Doug Donovon, Interplay Energy & Andy Gordon, Washington State University Energy Program

(HERS-22) Sampled Ratings: As Clear as We Can Make Them
The RESNET Sampling Standard has been carefully crafted to provide a high level of confidence for a high volume of ratings. Significantly rewritten in 2006, and currently being refined to strengthen and clarify, it is still one of the most misunderstood and commonly misapplied standards in use by raters.

This session will clearly describe the current standard with vivid examples, walking participants through cases involving the simplest 1-in-7 testing situations, all the way through complications of scheduling, and followup to testing failures. Further, the details of upcoming changes to the standard will be carefully spelled out.

The presenters administer 2 different Accredited Sampling Providers; PSD has independent raters throughout the Northeast, most of whom do a minority of their work as sampled ratings, while D.R. Wastchak has successfully applied sampling to many thousands of homes in the Southwest.

Suggested Presenter(s) - Emelie Cuppernell, PSD & Daran Wastchak, D.R. Wastchak, L.L.C

(HERS-23) The Future - HERS in 2024
Ten years from now, where will we be collectively? What will the state of the industry be? Can you plan for ten years from now? How about ten days from now? This panel discussion will have each member give a short personal perspective on where the industry is going to be. The moderator will then ask directed questions of the panel and the audience together.

Suggested Presenter(s) - Laura Capps, Southface Energy Institute & Ben Adams, Magrann & Jesse Krivolavek, American Energy Auditors

(HERS-24) The RESNET National Building Registry - Future Opportunities
SInce June 2012 Rating Providers have had to load their building files into the RESNET National Building Registry. The registry is expected to be populated by over 120,000 homes a year. This will soon be one of the largest collection of the energy performance of homes in the U.S. This panel discussion will explain the RESNET Building Regisry and explore its opportunity to increase the quality assurance review of ratings and provide access to key information on the energy performance of the nation's housing stock.

Suggested Presenter(s) - Philip Fairey, Florida Solar Energy Center & Steve Byers, Energy Logic & Daran Wastchak, DR Wastchak

(HERS-25) What Happened?
Brett explores common causes of Raters failing quality assurance reviews, from software to ENERGY STAR checklists. Along the way, he shares tips that will help Quality Assurance Designees improve the quality of their work.

Suggested Presenter(s) - Brett Dillon, IBS Advisors, LLC

(HERS-26) What Your HERS Provider Wishes You Knew
Would you like your rating files to get approved quicker? Ever wonder exactly what's required when your Provider does your RESNET-mandated 10% file QA? Have you spent hours looking up HVAC or appliance info and wished you knew of more resources or how to use the ones you have better? In this session, we'll give you an inside look at what your provider really wishes you knew when you work on HERS ratings:

- Quality assurance requirements
- What's included in the 'rating data file'
- Resources: Provider policies & procedures, HERS Standards, ENERGY STAR, AHRI Directory, energy codes
- Documentation: field notes, photos, record-keeping
- Software tips and techniques (REM/Rate)

We'll go into the details on these issues and more as we show you the most common problems that can slow down the rating process and lead to trouble. When you leave this session, you'll have the knowledge and tools to help you be a better rater.

Suggested Presenter(s) - Allison A Bailes III, PhD, Energy Vanguard & Jeffrey L Sauls, Energy Vanguard

HVAC

(HVAC-1) A Primer on Designing and Installing Heating & AC Systems in ENERGY STAR Certified Homes
Every ENERGY STAR certified home is required to have a complete heating & AC system. Come learn the value of this requirement and the critical concepts behind it – the need for a complete thermal enclosure system, the three major steps of heating and cooling design, and the three major commissioning tests. These concepts embody about 90% of the HVAC System QI Contractor Checklist. Understanding them will be helpful to both HVAC contractors completing the checklist and Home Energy Raters overseeing their work. For related content, attend "How to Verify Key Components of Heating & AC Systems in ENERGY STAR Certified Homes."

Suggested Presenter(s) - Unknown, EPA

(HVAC-2) ACCA's Residential Service and Installation Program
ACCA's new RSI program opens a new range of services that a properly skilled Rater can perform with regards to objective evaluation of an HVAC system installation. This session reviews the RSI Program and the special role that Verifiers will fill in the delivery of this program. Additionally, this session will discuss special tools and training for those interested in this new opportunity.

Suggested Presenter(s) - Wes Davis, ACCA

(HVAC-3) Advanced Energy Lessons Learned: Version 3 HVAC
As a HQUITO for the ENERGY STAR for New Homes Program, Advanced Energy has learned many valuable lessons about quality oversight and the processes associated with achieving consistent high quality and repeatable results. Come hear our lessons learned including tips and tricks to ensure quality installation for future jobs.

Suggested Presenter(s) - David Treleven, Advanced Energy

(HVAC-4) Beyond Mini-Splits: An Introduction to Variable Capacity Equipment for Whole-House HVAC Designs
As building envelopes improve, dealing effectively with part load conditions for heating and cooling becomes a priority. Variable capacity heating and cooling equipment is one answer to this important performance consideration. Combining inverter technology with variable refrigerant flow (VRF) allows the equipment's delivered capacity to adjust to meet changing building loads. Many know that mini-splits are efficient and VRF is why. What is not commonly know is that there are ducted versions of VRF air handlers that are capable of handling high (up to 0.6" w.c.) static pressures for whole-home, ducted designs with completely independent zone control. This session will present the basic principles of VRF technology and the VRF design process with real-world examples.

Suggested Presenter(s) - Kristof Irwin, Positive Energy & Allison Bailles III, Energy Vanguard

(HVAC-5) Beyond the Box – HVAC Considerations for Complete Designs: Ventilation, Make-Up Air, & Supplemental Dehumidification
High performance HVAC means getting the whole design right, not just the heating and cooling equipment. A mechanical system design is complete when all the pieces work together to deliver consistent comfort across a range of conditions – inside and out. This session focuses on the important and timely topics of residential ventilation, make-up air, and supplemental dehumidification in high performance homes. Lack of attention to these areas can undermine much of the work and expense invested in a project. In this session, each topic is explored from the perspective of basic principles, applicable (and competing) standards, and available products & technologies. Examples of actual system designs that pull these topics together will be included in the session

Suggested Presenter(s) - Kristof Irwin, Positive Energy & Allison Bailles III, Energy Vanguard & Corbett Lunsford, Green Dream Group

(HVAC-6) Can A House Be Too Tight?

With new energy codes requiring houses to be built increasingly tighter, builders, architects, engineers, and HVAC contractors need to incorporate mechanical ventilation to ensure good indoor air quality. After all, we are building homes for people!

Suggested Presenter(s) - Rob Howard, Habitat for Humanity International & Ron Pariseau, Green R

(HVAC-7) Ductless Heat Pumps (aka mini-splits), The NW Experience
A presentation on the NEEA NW Ductless Heat Pump Pilot Projects monitoring study, billing analysis, and lab tests. The NEEA pilot evaluated the use of DHPs in single family residences with zonal electric heat. 95 homes received detailed monitoring, 4000 homes were included in the billing history analysis, and 2 modles were subjected to intensive lab tests.

Suggested Presenter(s) - Mark Johnson, Bonneville Power Administration

(HVAC-8) Ductless Heat Pumps: More heat/Less money
This session will provide an overview to ductless heat pump technology, climate appropriate application, and installation basics. Performance data from research by the Northwest Energy Alliance and manufacturer's specification will highlight system efficiencies. Anecdotal information and average operation costs from NW Habitat homes with ductless heat pumps will be presented, along with guidelines for homeowner system maintenance. Attendees will be able to assess the economic and logistical implications of ductless heat pump installation strategies; and be better equipped to compare space heating and cooling equipment options.

Suggested Presenter(s) - Ed Brown, Habitat for Humanity International

(HVAC-9) Effectively Documenting HVAC Scope of Work
This session will provide contractors and builders with tools to successfully define the HVAC scope of work for efficient program and code compliance. ENERGY STAR version 3 includes a dramatically expanded level of documentation for HVAC Contractors. Continuing to do "business as usual" can result in change orders, disputes and the inability to comply with basic program requirements. Learn how to define the HVAC scope to ensure the job is ready for program compliance. Presenter(s) will provide tools and guidelines to help set expectations between builders, contractors and raters so everyone is on the same page and everyone understands the role of the HVAC contractor in the Energy Star process.

Suggested Presenter(s) - Julia Hall, MaGrann Associates & Emma Raymont, MaGrann Associates

(HVAC-10) Heating and cooling With Heat Pumps for Micro-load Houses
Heat pumps have become prevalent in North American Passive Houses and other micro-load homes, even in cold climates. Selecting, sizing, installing and commissioning them properly is critical to providing occupants superior thermal comfort and energy performance. As more and more equipment that is appropriate for these low-load homes becomes available, questions abound: Is it OK to oversize? Ductless or ducted? How is the cold-weather performance? Do I need a backup system? This workshop will cover equipment selection, distribution methods, integration with ventilation systems, and other critical points of using heat pumps in micro-load houses.

Suggested Presenter(s) - John Semmelhack, Passive House Institute U.S.

(HVAC-11) How to properly size and install supply ventilation.
Why does my supply side ventilation system operate so much? Does it ever shut off?
The participant will learn how to properly size and program supply ventilation.
Determine the CFM ventilation required according to ASHRAE 62.2.
Learn how to select the proper intake hood and supply duct.
Return air static pressure and equivalent feet of duct make's a difference in performance.
Proper sizing and installation minimizes appliance fan run times and homeowner complaints.
Come and learn how supply ventilation air systems should work!

Suggested Presenter(s) - Tim Begoske, Field Controls

(HVAC-12) How to Verify Key Components of Heating & AC Systems in ENERGY STAR Certified Homes
Every ENERGY STAR certified home is required to have a complete heating & AC system. Discover how this is verified by completing Sections 1 through 4 of the HVAC System QI Rater Checklist. In addition, learn strategies from an experienced ENERGY STAR Rater Partner on how to interact with HVAC contractors and builders to make this process as painless as possible. Although the primary audience for this session is Home Energy Raters, contractors and builders will also benefit by understanding how they can help ease the verification process. For related content, attend “A Primer on Designing and Installing Heating & AC Systems in ENERGY STAR

Suggested Presenter(s) - Unknown, EPA

(HVAC-13) How to verify Manual-J accuracy and properly select equipment.
You're being asked to review Manual-J's and S's as part of your job. But how do you know what the HVAC contractor entered into the software? Did they pick the right sized unit? How do you read "detailed cooling capacity" data? How do you adjust the listed capacity for your location's outdoor design temperature?

This session will cover the basic load reports from both RightSuite Universal (Wrightsoft) and RHVAC (Elite) in detail, helping you understand where you need to go to find the info you're looking for. We'll also cover the Manual-S process, working through an example from start to finish, while exploring detailed cooling capacity data from a few of the main HVAC equipment manufacturers.

Suggested Presenter(s) - Isaac Savage, Home Energy Partners

(HVAC-14) Manual J Basics for ENERGY STAR Certified Homes
ACCA Manual J is used to determine how much heating a home needs to stay warm in the winter and how much cooling to stay cool and dry in the summer. This session will cover a number of topics related to Manual J calculations, including the basic concepts behind load calculations, which inputs have the largest impact on load, and how homeowners factor into the equation. The unique role that builders, Raters, and HVAC contractors play in this process will also be discussed.

Suggested Presenter(s) - Unknown, EPA

(HVAC-15) Multi-Family Ventilation Update: Best Practices, Practical Applications and ASHRAE 2013
Multi-Family Ventilation Update: Best Practices, Practical Applications and ASHRAE 2013
ASHRAE 62.2 is one of the standards that are continuously maintained, which means it can change often. These changes can make it very difficult for you as an industry professional to ensure you are providing proper guidance to current and potential customers. If you are not fully comfortable with the differences between the 2010 and 2013 versions as they relate to multi-family construction, you need to attend this session. New products and solutions are constantly being introduced but how do you know which ones add the most value? Which best practices should you always recommend and implement? Ray Ivy and Mike Barcik have a broad range of experience with practical applications of ventilation in new construction and retrofit/weatherization situations. Come and refresh your knowledge base on this critical topic!

Suggested Presenter(s) - Ray Ivy & Mike Barcik, Southface

(HVAC-16) Performance Rater Certification by NATE
Attend and have all your questions answered about and why the NATE Rater Certification will take your business to the next level.

Suggested Presenter(s) - Brett Dillon, IBS Advisors & Dennis Strorer, Calcs Plus

(HVAC-17) The “V” in HVAC: Mechanical Ventilation in ENERGY STAR Certified Homes

Every ENERGY STAR certified home is required to have a complete ventilation system. Gain an understanding of the value that this system adds. Then, become versed in its three major components - whole-house ventilation, local mechanical exhaust, and filtration – and discuss strategies for meeting them. Finally, review the relevant portions of the HVAC System QI Checklists that the contractor and Home Energy Rater must complete. This session will benefit contractors, Home Energy Raters, and builders still ramping up their knowledge on this important topic.

Suggested Presenter(s) - Unknown, EPA

(HVAC-18) The forgotten ACCA Manuals - Manual-S & Manual-T
Everyone hears about Manual-J and Manual-D all the time. But what about the other two? This session will cover the basics of Manual-S and Manual-T. We will go through a few examples of how to complete the selection of an A/C system based on Manual-S. We will also illustrate how to read manufacturer's data to properly select the appropriate terminations. Examples of spreadsheet tools will be illustrated.

Suggested Presenter(s) - Isaac Savage, Home Energy Partners

(HVAC-19) The HVAC Quality Installation Specification (ANSI/ACCA)
HVAC that performs exactly as advertised is critical for new construction and retrofits alike. New high performance building codes leave little flexibility for error, and most technicians and installers do not understand the building science that compels their same-old-systems to fail. Get your head around the simple, practical QI Spec from ANSI and ACCA, and get the higher fees and better projects in your lap as a result.

Suggested Presenter(s) - CORBETT LUNSFORD, GREEN DREAM GROUP LLC

(HVAC-20) The role and viability of third party HVAC design
What if every new home in the country was required to have a 3rd Party design the HVAC system in order to obtain a residential building permit? How would that affect the HVAC Contractor's role, the installation process? Does 3rd party design actually benefit the performance of the systems? Does it offer a "guarantee" for homeowner comfort, fewer call backs, and low energy use? How does the collaboration between a separate designer and the HVAC Contractor affect the overall process, from cost to installation? Finally, how are Energy Codes and Certification Programs like ENERGY STAR, EarthCraft (Southeast), PassiveHouse, and more, influencing the inclusion of this in to the residential building process.
There are many successful examples of projects where the designer, builder and HVAC contractor collaborate on the best solutions for residential mechanical systems. In fact, most of these examples also include collaboration with an architect, structural engineer, homeowner, and plumbing contractor. Integration was critical to getting the most appropriate solutions, and so was teamwork.
During this session, I would like to engage the audience in a discussion to consider the pros and cons of 3rd party HVAC Design to discover whether the benefits of this process outweigh the drawbacks. I will be asking the participants to help identify ways to improve this process, and how this process makes better buildings. Finally, we'll talk about the role that energy codes and the various certifications have on the residential HVAC Industry.
Hopefully, participants will come away with a different perspective on how we design and build our homes, and take with them ideas, or perhaps an inspiration, on how to do even better.

Suggested Presenter(s) - Chris Laumer-Giddens, LG Squared, Inc

(HVAC-21) Ventilation: Effective Strategies & Lessons Learned
Complying with ASHRAE Standard 62.2 is critical for program compliance. This session will provide a review of the requirements and answer the question "How much air do you need?". Also, different ventilation strategies will be presented, including a review of the benefits (effectiveness, ease of installation) and drawbacks (cost, complexity) of each one. Additionally the presenter(s) will provide information on duct sizing and pressure drop calculations – how to design to achieve the necessary performance. Case studies of real installations will be presented, and lesson-learned will be shared, to assist contractors, builders and raters in avoiding costly mistakes.

Suggested Presenter(s) - Doug McCleery, MaGrann Associates & Emma Raymont, MaGrann Associates

(HVAC-22) Verifying HVAC Performance
RESNET is embracing the evaluation of HVAC systems more and more. This session reviews the techniques, tools, and procedures to verify elements of an HVAC system installation. There are a few key elements of an HVAC system installation: design, airflow, capacity, and combustion safety. You will learn the skills to objectively verify these elements and learn how they can be incorporated into improving the home's performance.

Suggested Presenter(s) - Brett Dillon, IBS Advisors & Dennis Stroer, Calcs Plus

Policy & Programs

(PP-1) 2012 National Green Building Standard®: A Road Map for Performance
In its first four years, the ICC 700 National Green Building Standard® (NGBS) has begun transforming the residential marketplace by providing single and multifamily builders, remodelers and land developers with ANSI-approved guidance on going green. The latest version features significant increases in energy efficiency requirements and new sections devoted to improving the performance of existing homes. This session will begin with a summary of the green building and remodeling market outlook and provide an overview of the 2012 NGBS and the different compliance methods.

Learning Objectives:

- Explain the various methods for compliance in the 2012 National Green Building Standard®
- Identify the major differences between the 2012 and 2008 versions
- Discuss the significant increases to the energy efficiency section
- Learn what the minimum requirements are for new construction as well as renovations

Suggested Presenter(s) - Chad Riedy, National Association of Home Builders & Matt Belcher

(PP-2) An Alternative to High Cost Workforce Education & Assessment - RESNET Workforce Technician Certificate Program
The RESNET Workforce Technician Standard and Certificate Program is now live offering certificates for installers. This standard establishes the requirements for a practical, cloud-based, field education, mentoring and certificate program for installers. Participation in the program is low-cost and easy to implement, while maintaining quality and integrity. The program is implemented through the RESNET Workforce Tool, a tablet app consisting of a dynamic collection of industry best practices used as a coaching tool, tracking candidate progress and assessment through a mentorship program.

Suggested Presenter(s) - Rob Moody, Organic Think Inc & Brett Dillon, IBS Advisors

(PP-3) Choosing the Right Mulit-Family Program
Which certification path should I take for my mixed use or multifamily project? There are many 3rd party green building certification programs available, including NAHB NGBS, LEED for Homes, LEED for Homes Mid-Rise, LEED NC, Enterprise Green Communities, and ENERGY STAR. Different programs have different eligibility requirements and different paths based on the number of stories, the type of mechanical system and the quantity of residential vs. commercial space for mixed use. So the question is, for a residential multi-family project, which programs is the project eligible for? Which ones are fit the best? And, which ones make the most sense? This presentation will help clarify the differences in eligibility and program requirements to assist in making an informed decision for the project and the client.

Suggested Presenter(s) - Carissa Sawyer, EnergyLogic, Inc.

(PP-4) Cost & Savings of the ENERGY STAR Certified Homes Program
EPA has updated the program Cost & Savings document using feedback obtained from Partners in the time in which the Version 3 program requirements were released. This session will walk attendees through the estimated additional cost

over code to constructing ENERGY STAR certified homes in various climates. Additionally, attendees will be provided with energy savings estimates (kWh, kW, and therm) for ENERGY STAR certified homes in their climate.

Suggested Presenter(s) - Unknown, EPA

(PP-5) Do Time-of-Use Rate Structures Really Affect Occupant Behavior?
With time-of-Use (TOU) rate structures, electricity prices vary by time of day, day of week (weekday or weekend), and season (winter or summer). TOU rates attempt to modify occupant behavior by incentivizing them to use electricity during off-peak hours and penalizing them for using it during peak hours.
ICF recently conducted an M&V analysis to estimate the impact of implementing a TOU rate structure on the behavior change related to energy use for residential customers in Toronto Hydro's (TH) service territory. In order to isolate the change in occupant behavior, homes that had architectural or energy efficiency modifications made during the study period (one year before and one year after the change in rate structure) needed to be identified and removed from the analysis. The conventional approach for performing this is to conduct a site or phone survey on a representative sample using statistics and apply the results to the whole population. However, this approach is typically costly and time consuming.
ICF took an innovative approach to solving this problem by using smart meter data disaggregation. We used our Beacon® Advanced Metering Simulator (AMS) tool, which is based on machine learning and advanced regression algorithms, to disaggregate the hourly consumption data for over 8,000 residential customers into heating and cooling season gradients and activity and base load end-uses. The data was normalized for changes that might have been made to the building architecture or energy efficiency features by excluding data for homes that showed a significant change in the heating season gradient, cooling season gradient, and/or base load. The remaining data was used to evaluate the impact of TOU on energy consumption and demand by using the industry standard 'fixed effect' regression model.
This study was conducted with a modest budget and within a very tight timeline, which would not have been possible using the conventional approach of conducting site or phone surveys.
We found that customers did in fact change their behavior based on the implementation of a TOU rate structure. On average, customers reduced their annual energy consumption by 1.28% and their on-peak demand by 2.36%.

Suggested Presenter(s) - Haider Khan, ICF International

(PP-6) Do You Want Them To Pass a Test - OR - Learn How To Do Their Job Right?
In the days of social media and drinking from a firehose, the old school classroom methods of long lectures and death by bullets are outdated. Learn how to learn through dynamic Facebook-style online education, on the job training, self-learning from your mobile device and computer simulated Home Energy Ratings.

Suggested Presenter(s) - Rob Moody, Organic Think Inc & Brett Dillon, IBS Advisors, LLC

(PP-7) Driving Performance & Cost Effectiveness in New Homes Programs
As energy code rises, cost effectiveness is becoming an increasing challenge in residential new construction programs. This session will explore how HERS scores can be leveraged to address this issue, using results from a number of states to illustrate effectivenss and lessons learned. The session will look at the relationship with ENERGY STAR, how electric & gas are impacted differently, and how builders and raters are driving performance.

Suggested Presenter(s) - Ben Adams, MaGrann Associates

(PP-8) EarthCraft: 15 years and 30,000 homes - Staying Relevant and Lessons Learned
This session will cover the highlights of lessons learned in running the EarthCraft regional green building program. Changes and updates in program delivery and implementation models, green building strategies and trends, technological advances and process refinements, as well as market supply and demand challenges will be addressed by EarthCraft staff. Builders will share how their product, procedures and marketing have evolved with the program and with market competition. Participants will gain insight to the evolution of the program and where we plan to go in the next decade as we continue transforming the Southeast. Time will be saved for audience discussion on the state of green building programs within the market and how that is and will continue to impact the HERS industry.

Suggested Presenter(s) - Laura Capps, Southface & Trevor Donnelly, EarthCraft & Mike Guinan, Pine Mountain Builders, LLC

(PP-9) EE Programs from the Utilities themselves
Ever wonder how an energy efficiency program came to be? How it works and why some things were included while others weren't? If you have ever participated in a utility run program and had a question about something you just didn't understand then this is the session for you. Facilitated by Advanced Energy a panel of utilities will lift the curtain and give us a behind the scenes peak of the program world.

Suggested Presenter(s) - Kristi Matthews, Advanced Energy & Various Utilities TBD

(PP-10) ENERGY STAR V3.0: How Programs are Meeting the Challenge
Now in its second full year, the Version 3.0 transition continues to challenge builders, raters, and program implementers. Some programs, and markets, are experiencing improved uptake, while others struggle to maintain participation. This panel, including representatives of implementers, utilities, and the ENERGY STAR program, will highlight successful program designs and incentive strategies, discuss continuing technical and marketing challenges, and share examples of key supports for program participants.
If accepted, I will organize a session with panelists representing ENERGY STAR New Homes programs from multiple markets across the country, including PSD's own experience operating programs in PA and OH, as well as representatives of ENERGY STAR from USEPA.

Suggested Presenter(s) - Kathleen Greely, Performance Systems Development & Dean Gamble, US EPA

(PP-11) Exploring a New Market – Opportunities in Green Light Commercial Construction
The US is blessed with a myriad of residential green building programs and the USGBC's LEED family of programs for larger commercial projects. However, smaller, light commercial construction represents an area of minimal green and high performance activity. Using the concepts in the EarthCraft family of green building programs, Southface piloted and has now released the EarthCraft Light Commercial (EC LC) program.
Light commercial projects are interesting in that they sometimes act like a large house and sometimes more like a traditional commercial building. The EarthCraft Light Commercial program provides a blueprint for architects, contractors, renovators, project managers and green consultants and raters with the information they need to understand how to design, construct, and verify high performance buildings.
Participants will gain an understanding of the program's basic requirements, energy code mandates and levels of certification. The EC LC program serves as a "lean and green" roadmap for energy, water and resource efficient light commercial buildings. It also opens the door to a new market for raters with its consulting and verification opportunities – well over 80% of commercial permits (and about half of all permitted commercial square footage) are eligible to participate in this program.

Course Objectives:

- Promote and market the benefits of the EarthCraft Light Commercial Program to potential clients by discussing the programs benefits, costs and processes.
- Define the EarthCraft Family of Programs in terms of its history, development, and structure.
- Clearly articulate the connection between EarthCraft and LEED.
- Identify the requirements of the participants in the EarthCraft Light Commercial Program including available tools.
- Understand the design review, pre-drywall and final inspection processes, testing and required documentation.
- Articulate the program, inspection and certification fees.
- Accurately use the EarthCraft Light Commercial worksheet and building guidelines to track point allocations and determine required and optional implementation and documentation.

Suggested Presenter(s) - Mike Barcik & Bourke Reeve, Southface

(PP-12) Low Rise Multi Family and ENERGY STAR: a Prescriptive Path to Success?
Dan Wildenhaus and the team at Northwest ENERGY STAR Homes have brought to market a prescriptive package for ENERGY STAR for low rise MF buildings. When compared with the costs associated with custom modeling projects (sometimes upward of $10,000!), contractors and Raters are gladly exploring this specification.
The Northwest ENERGY STAR Homes team worked closely with the EPA and the NW Regional Technical Forum to find a spec that works all around. This session will explore the spec, program requirements and the process for acheiving deemed savings for the package.

Suggested Presenter(s) - Dan Wildenhaus, Northwest ENERGY STAR Homes

(PP-13) Program QA vs. Provider QA - What's the Difference?
Program administrators offering incentives for energy performance in residential new construction programs will often deploy a quality assurance program that can appear to Providers and Raters to be an unnecessary duplication of the QA they are already doing to meet their RESNET obligations. Yet program QA serves a different purpose that can provide added value to both administrators and participants. Through some case study examples, this session will explore strategies for effective program QA, examine the objectives and obligations of each, and provide the opportunity to discuss challenges and lessons learned from the two perspectives.

Suggested Presenter(s) - Doug McCleery, MaGrann Associates & Pat Fitzgerald, NYSERDA & Kim Lenihan, NYSERDA

(PP-14) The importance of verified energy savings
The Cleveland Energy $aver program, in partnership with OptiMiser, LLC has recently completed a market rate energy efficiency pilot program in the City of Cleveland, Ohio. Over 140 retrofits were completed over 18 months and 12-month post retrofit energy savings are now being verified through OptiMiser's analysis of pre-and post retrofit measures and utility bills. Measures utilized were almost exclusively: (1) wall and attic insulation (using blown cellulose), (2) air sealing, and (3) the replacement of mechanical systems. The average homeowner cost for such measures ranged from $7,000 to $14,000, prior to the application of rebates or incentives. Verified reduction in energy consumption on some homes has exceeded 50%. For what can be labeled as a low-cost market rate investment, the savings are extraordinary. This session will present the program model and manner in which such savings have been obtained and their importance for the future of the residential energy efficiency industry.

Suggested Presenter(s) - Rob Svets, Cleveland Energy $avers & Andy Bardwell, OptiMiser, LLC

(PP-15) The SAVE Act, or How Energy Raters Play A Crucial Role in Updating our Housing Stock
The SAVE Act is proposed federal legislation to update HUD's underwriting guidelines by including a home's expected energy cost savings when determining the value and affordability of energy efficient homes. While only voluntary, the demand for both energy audits and energy ratings is expected to grow quickly. This session will help you educate your local builders, real estate agents, appraisers, bankers and homeowners on the new financial benefit of energy efficient construction.

Suggested Presenter(s) - Mike Collignon, Green Builder Coalition & Laureen Blissard, Green Builder Coalition & Bill Fay, Energy Efficient Codes Coalition

(PP-16) Time-of-Day Pricing & Local Battery Backup Should Replace Net-Metering
Net metering worked well to introduce an emerging technology; however, it is time to use a superior pricing alternative. Each PV system could receive its return-on-investment via time-of-day (TOD) pricing, where time-of-day pricing means energy flows to the home will utilize time-of-use (TOU) pricing and energy flows from the home should be bought by the utility at conscientiously determined, time-of-day-dependent, wholesale prices: "time-of-generation" (TOG) pricing. In addition, each home could have a battery-backup system of sufficient size to run all of the home's electrical systems for a day.

Both of these steps, independently and in tandem, greatly enhance economic opportunities for the building owner and the utility, and accelerate the country's quest for energy independence because 1) temporal and physical separation of

the consumption and production data allow energy conservation retrofits to be more accurately evaluated, and, thereby, much more deeply exploited (i.e., PV PAYS); 2) non-coincident, unequal, diurnal pricing produces recurrent lucrative opportunities (i.e., PV PROFITS ALL CONCERNED,); 3) normal and post-storm reliability will be greatly enhanced (i.e., PV SURVIVES); and 4) fossil-fuel-free, energy independence will be hastened.

Our current approach, net metering, which time-averages production, mixes it with consumption and uses the grid as the battery, actually undermines energy independence because it obscures or makes unavailable major economic opportunities.

This grid connection approach and backup system will eliminate the disincentives to deeply exploit energy conservation and the continued use of off-peak renewable energy flows which occur when production eclipses consumption. This method also utilizes the largely untapped and potentially greatest means of saving energy: energy conservation by timing.

Most importantly, however, this approach will be appealing because the consumer will see how their investment PAYS THEM BACK quickly, keeps them protected in spite of our ever changing and intensifying global weather patterns, and, ultimately, delivers true energy independence.

PV PAYS: Here's how
1. Have one connection to the grid.
2. Employ a smart meter to (at least) hourly, data-log each energy flow: a) PV output, b) Battery-backup and c) home consumption.
3. Buy a smart meter that has been approved by your utility.
4. Until conscientiously determined, time-of-day-dependent, wholesale pricing is established in your utility district, a reasonable replacement is five cents below retail prices.
5. If time-of-use pricing is not available for your home, minimize flows from your home to the grid by storing energy in the batteries for later use that day.
6. Implore your utility to buy energy flows to the grid at wholesale prices as defined in 4.
7. If time-of-use pricing is available for your home and wholesale prices exceed retail prices purchased at different times in the same day (and the differential is a greater percent than the losses percentage of your battery system), use your batteries to buy energy at retail rates when it is cheap and sell it back to the grid at higher wholesale rates. Try to augment these purchases by seeing if you can purchase wind-generated energy at night — which should be dirt cheap!
8. Nevertheless, if time-of-use pricing is available, use your battery-backup to shift all energy flows to the grid to the times of the day when maximal peak pricing occurs.
9. Once your income from sales to the grid via wholesale purchase at prices above 6 cents per kWh are well established, it will be a simple matter to negotiate with an energy conservation consultant to further lower your consumption economically since virtually all such retrofits cost substantially less than 6 cents per kWh saved.
10. Even more income for your home may be available when and if the smart meter can be induced by a remote request (by either the utility or a broker with whom you've independently contracted) to release power to the grid from your battery-backup in concentrated time intervals when the utility has unexpected deficiencies in meeting extraordinary high peak demand. This can provide very high returns for the battery-backup owner since at such times, the price of energy can exceed $100 / kWh.

Suggested Presenter(s) - Myron Katz, Building Science Innovators, LLC

(PP-17) What's next with ENERGY STAR? The ENERGY STAR Version 3.1 Program Requirements for states with the 2012 IECC

The ENERGY STAR Version 3.1 program documents have gone through public review and have been finalized. Learn about the ENERGY STAR certified homes requirements for states and jurisdictions including Maryland, Illinois, and Massachusetts that have adopted the 2012 IECC.

Suggested Presenter(s) - Unknown, EPA

Retrofit

(RET-1) A Picture Really Is Worth A Thousand Words: The Value of Field Mentoring in Conducting Existing Home Assessments

New River Center for Energy Research and Training received a NeighborWorks grant to provide field mentoring to Habitat for Humanity affiliates who are beginning to retrofit existing homes in their communities. While some of these affiliates had been through BPI Building Analyst training, they lacked hands-on experience in conducting thorough home assessments. Join us for a discussion about lessons learned as we practice what we preach.

Suggested Presenter(s) - Phil Hull, New River Center for Energy Research and Training & Kevin Gobble & Rob Howard, Habitat for Humanity International

(RET-2) Advanced Energy Lessons Learned: The Good, the Bad and Ugly of Existing Homes

Remember pre-ARRA when an abundance of existing homes work was just an idea with a big backing? Well we sure do and having seen the before, during and after impact on our industry first-hand we invite you to come hear Advanced Energy share some of the lessons learned from the field over the past 5 years. And don't worry like the title says there is good in there too.

Suggested Presenter(s) - David Treleven & John Tooley, Advanced Energy

(RET-3) Assessing 115+ Deep Energy Retrofits Across the U.S.

The widespread deployment of Deep Energy Retrofits (DERs) across the U.S. is being supported by the U.S. Department of Energy, various electric & gas utilities, and nonprofit organizations. These entities are documenting project strategies and results, and are helping to evolve a workforce and a public who are ready to embrace a transforming home energy retrofit market. Using a variety of sources, we have compiled performance indicators on over 115 of these DER projects in climate zones across the U.S. In this session, we summarize these projects' HERS ratings, energy use, carbon emissions, energy cost savings, and project costs, as well as their airtightness and ventilation equipment. In this session, you will learn what is routinely achievable in aggressive retrofits (such as average air leakage reductions of 63%) and what top-of-the-line performance looks like (a 97% reduction!). Most importantly, you will learn how the incremental costs of these projects can be neutral or net-positive on a monthly basis for the homeowner, when rolled into a mortgage or other financing product.

Suggested Presenter(s) - Brennan Less & Iain Walker, Lawrence Berkeley National Laboratory

(RET-4) Building Triage: What to Fix First

With so many properties in need of energy efficiency upgrades, it's often difficult to determine where to start. Auditors encounter this when working with owners of multiple properties. They often are unwilling to pay for audits for all of their properties and simply opt to not take action because there is no clear starting point. Energy efficiency program administrators frequently lack good metrics to decide which projects make sense to fund and simply award funding on a first-come, first-served basis. Energy intensity scores (benchmarks) provide a concise, clear-cut way to evaluate a number of buildings quickly and easily and pinpoint buildings in need of immediate attention. Program administrators can set cutoff thresholds and ensure that the least efficient buildings are the ones receiving funding. Auditors can identify the worst performers to target for audits first, providing overwhelmed owners a clear path forward. Studies have shown higher pre-retrofit energy intensity strongly correlates with post-retrofit savings, making this the logical first pass in identifying the buildings most in need of help and removing guesswork.

Suggested Presenter(s) - Sean Shanley, WegoWise

(RET-5) Commissioning Residential Retrofits

This session will discuss some of the ways that residential retrofits could benefit from a commissioning protocol. Concepts are borrowed from the residential and commercial new construction commissioning arena to show what tools might be most effective in commissioning a residential retrofit.

Suggested Presenter(s) - Stan Harbuck, A Better School of Building Inspection

(RET-6) Deep Energy Retrofits in Atlanta, Ga
In 2011, nine homes in Atlanta, Georgia (Climate Zone 3) were retrofitted to achieve 30-50% in energy savings reduction. One year of pre-and post-retrofit data is now available for evaluation. This session will review the energy profiles of the heating and cooling seasons of a mixed-humid climate and provide an optimal comparison to the priority list used as the reference for developing the retrofit scope of work in each home. Using weather-normalization, the simulated savings generated from energy modeling will be compared to the actual gathered utility bills. REM/Rate and Energy Gauge were the primary energy modeling software used to determine savings and HERS indices. Further research questions developed from the results will also be discussed.

Suggested Presenter(s) - Eyu-Jin Kim & Sydney Roberts, Southface Energy Institute

(RET-7) Field and Office Efficiencies for Making Existing Home Rating Profitable
Getting down the process and flow of an existing home rating can be difficult and be the difference between making a project profitable or not. The data capture, tools, and process of getting a HERS score for an existing home can be simple or daunting. The variability in housing stock and home features only add to the difficulty. This session will review basic principles of efficiency while performing common tests and capturing basic information. Methods for handling variances in housing stock will be reviewed. How to apply the theory of continual improvement process and elements of Kaizen to daily activity will be explored.

Suggested Presenter(s) - Bill Klotz, Everblue

(RET-8) Lag Time Effects of Wall Materials on Infrared Imaging
This session will discuss some of the ways that temperature lag time effects the result in infra-red images. The lag time effect is shown for a multiple of different types of wall systems to better understand infra-red images on buildings.

Suggested Presenter(s) - Stan Harbuck, A Better School of Building Inspection

(RET-9) Low T Infrared Imaging
This section will discuss how to use an infrared camera as effectively as possible when we are outside of the normal temperature parameters for conducting IR. Techniques and equipment are explained in terms of evaluating buildings when there is a very low temperature differential between inside and outside of the building.

Suggested Presenter(s) - Stan Harbuck, A Better School of Building Inspection

(RET-10) Residential Retrofit Programs - What Works and What Doesn't
The residential sector is the target of a growing number of utility whole house energy efficiency programs. Yet, the number of homeowners completing energy upgrades is paltry. This session presents the results of field research on various outreach approaches to homeowners including lessons learned on motivating homeowners to complete energy upgrades and on contractor business models that work. These programs do provide another opportunity for HERS Raters to provide home energy assessments (audits) in partnership with retrofit contractors allowing the HERS Raters to broaden their skill set and their revenue stream.

Suggested Presenter(s) - Mark Berman & Pepper Smith, Davis Energy Group

(RET-11) Showing Homeowners the Value of Retrofit
Remodelers and contractors understand the impact of home energy renovation, but how do you show your customers these benefits before doing the work? HERS raters and contractors can take advantage of the comprehensive, real world data collected in an actual single, family house renovation case study. Highlights of the home “revitalized” include the impact of the cost effective building changes/upgrades, and actual utility savings tracked after renovation. Indoor air quality and combustion audit were also completed to BPI standard. Comparison of indoor air quality improvements

after air sealing, and environmental monitoring will also be shared to illustrate the comprehensive home owner benefits.

Suggested Presenter(s) - Matt Erdmann & Linda Jeng, Dow Building Solutions

(RET-12) Swimming Pool Rater Certification
Swimming Pool Rater Certification. – Energy Savings for homes with pools
For the 10 million homes in the US with a swimming pool, their biggest energy hog is in the backyard. The average 1.5 horse power pool pump draws 2kW, is scheduled during peak load times, and consumes a whopping 4000 kWh per year. This accounts for the total capacity of 25 medium sized power plants nationally or 9 to 14 billion kWh per year. Advanced new ECM variable speed motor technology can cut this demand by up to 90%, with the commonly overlooked savings exceeding savings by all the home's other appliances, combined. The session will illustrate the savings potential, help attendees decide when the pool pump warrants attention, and explain replacement considerations. Successful completion of this course provides the new RESNET/APSP Swimming pool rater certification.

Suggested Presenter(s) - Jeff Farlow, Association of Pool and Spa Professionals & Steve Barnes, Association of Pool and Spa Professionals

(RET-13) SWSs – What are they and how do HERS Raters use them?
Come participate in a facilitated discussion with John Tooley and Matt Keeler from Advanced Energy to learn about the recently released Standard Workforce Specifications for Home Energy Upgrades from DOE. Now available for single family detached, manufactured housing and multi-family building types, these are the nation's most robust existing home specifications created by the industry for the industry.

Suggested Presenter(s) - John Tooley & Matt Keeler, Advanced Energy

(RET-14) The Evolution of a Crawlspace – Lessons Learned from a Big Energy Retrofit
Applying building science principles to an existing home's crawlspace is much more complex than meets the eye. The stakes are high and many entities don't always agree on what is the best approach. Learn from professionals with years of research and real world experience about what works (and what doesn't) for successfully converting an old vented crawlspace into a functional encapsulated one.

This session takes you through the essentials of closed crawlspace performance issues. Details such as bulk moisture management, vapor retarder placement, air sealing, wall insulation materials and techniques, methods of conditioning, pest control, air quality, combustion safety and energy efficiency impacts are all fully vetted.

Mike will share energy performance data and unique details from his home's retrofit while Maria will showcase Advanced Energy's crawlspace research project and specifications for the System Vision program. Lots of pictures, lots of discussion, great resources – come get your nerd on with us!

Suggested Presenter(s) - Mike Barcik, Southface & Maria Mauceri, Advanced Energy

(RET-15) The Roadblocks to and Advantages of Having Guaranteed Savings in the Retrofit Arena
This session will discuss the possibilities of using analogies to the commercial and new construction residential guaranteed savings programs to advance the use of the guaranteed savings model to the residential retrofit arena. Providing a guaranteed savings to retrofits would dramatically promote retrofitting in the residential arena by homeowners. In addition, the benefits that flow from that could also be realized as a result, such as reduced reliance on fossil fuels and better protection of the environment.

Suggested Presenter(s) - Stan Harbuck, A Better School of Building Inspection

(RET-16) Using Utility Demand Response Policymaking to Increase Demand for Energy Retrofits

This session will discuss some of the ways that demand response policymaking by utility companies can be used to promote the retrofit of buildings in a state or locale. Examples will be given of where utility demand response policymaking has contributed to a better understanding by the public about energy retrofits as well as some programs that involve utility company rebates for residential retrofits.

Suggested Presenter(s) - Stan Harbuck, A Better School of Building Inspection

(RET-17) Zone Pressure Diagnostics Testing: Purposes, Techniques, and Limitations
Zone Pressure Diagnostics Testing (ZPD) testing serves as a method of establishing where the air barrier exists in homes. Three levels of ZPD testing have been developed that generally increase in the degree and accuracy of information provided by the test. Various types of ZPD tests in each of these three levels are described along with the benefits and limitations of each. Examples of procedures for using Basic ZPD testing, Open-a-Door, Open-a-Hatch ZPD testing, and ZPD tests that involve software are provided.

Suggested Presenter(s) - Stan Harbuck, A Better School of Building Inspection

Technical

(TEC-1) Blower Door Pressurization Test? - Homes with "Suspect Conditions"
Blower Door Testing - Pressurization or Depressurization.
What are the inherent risk factors in performing a blower door test on an existing home? Construction materials that have been covered over or non-visible water damage is a health risk waiting to be created by a depressurization blower door test.

Are you testing leakage or for compliance / Rating.
The course will cover some of the visible and not visible conditions that warrant a pressurization test? The overview will include the technical procedures for a pressurization test and suggestions for compensating for building challenges.
The presentations focus is- that the bottom line is reducing infiltration and improving the performance of the home and options on how this can be verified.

We will discuss the results of pressurized test vs depressurized test, and compare the results to testing standards in Large Building Air Barrier testing which include pressurization & depressurization.

The class will include a section on the liabilities that should be addressed in the "Client Agreement", client interview, scope of work and what are the responsibilities for disclosure from the Auditor and Client.
The most important disclosure is what you cannot see or have access to evaluate.

Learning objectives
#1 Blower Door testing with suspect conditions
#2 Technical application of a Blower Door test thru Pressurization
#3 Reducing liability thru testing options and procedures
#4 Reducing liability thru disclosure and educated conclusion of what may not be visible.

Presentation PDF - http://db.tt/qzFLpGmy
Presenter profile - http://db.tt/G59pJmzO

Suggested Presenter(s) - Joe Medosch, EEC llc & Corbett Lunsford, Green Dream Group

(TEC-2) Building Multifamily The Right Way (Case Study)
A multifamily building project costs tens of millions of dollars and dozens of professionals- and it can still be a very messy process! Learn about the typical mistakes in large residential buildings, and how they are solved, through a case study of an 80-unit building project in Illinois- the first in the state to go through ENERGY STAR Multifamily High Rise Certification!

- Take a tour of the building of an ENERGY STAR Multifamily High Rise, from beginning to end
- Learn to avoid the pitfalls of a huge, expensive, richly staffed project
- Understand the ESTAR process and its impact to comfort, air quality, durability, and energy efficiency

Suggested Presenter(s) - CORBETT LUNSFORD, GREEN DREAM GROUP LLC

(TEC-3) Ducted Heat Pump Water Heaters Open Opportunities for Tight Spaces
Water heating is the second largest energy load in most homes. Heat pump water heaters (HPWH) deliver high energy efficiency performance compared to alternative hot water storage systems. However, most HPWH systems require large room volumes (e.g., basement) for effective heat exchange with the heat pump. Using a duct kit will allow builders to install HPWH's in confined spaces and duct the incoming and outgoing air to larger areas such as enclosed attics or ambient air. Ducted HPWHs were tested for energy efficiency and impact on the indoor temperature and humidity in three separate single family homes. Energy and comfort data are compared to manufacturer specifications and energy models.

Suggested Presenter(s) - Sydney Roberts, Southface & Tom Butler, LORD, AECK & SARGENT ARCHITECTURE

(TEC-4) ECOSEAL applications for high performance thermal boundaries.
ECOSEAL is a water based elastomeric sealant that is applied to joints, seams and penetrations of building materials before insulation. When used as an integral part of the thermal boundary system, it provides a high performance total building enclosure solution as an alternative to high cost spray foam. By incorporating blown dense pack fiberglass or high density batts, the cavity R value for 2 x 4 and 2 x 6 walls is increased to R-15 & R-23 respectively.

This class will discuss applications, cost comparisons, product information, and case study.

Suggested Presenter(s) - Rick Blumenthal, Knauf Insulation

(TEC-5) Energy Modeling Primer for Auditors: Improve you audit efficiency and delivered results with a basic understanding of energy modeling
A fast-paced series of critical concepts illustrated with case studies. Including:
-Major factors that drive energy usage and savings in a model
-Major deficiencies of energy modeling
-Some reasons for taking the time to model (e.g., common auditor misconceptions that modeling can expose)
-Planning an audit to maximize accuracy of your energy model, without wasting time on the stuff that doesn't matter.
-Understanding uncertainty in results and communicating that with the homeowner

Suggested Presenter(s) - Gamaliel Lodge, OptiMiser LLC & Les Lezareck, Home Energy Connection

(TEC-6) Energy Monitoring: New Imperative for High-Performance Building
“In God we trust; all others bring data.” William Demming

“What gets measured, gets managed.” Peter Drucker

“What isn’t measured, controls you.” the ‘netPLUS Energy’ school of thought

At the heart of high-performance building is energy. Specifically, reducing energy consumption. Much time, effort, and detail are invested in achieving building systems that require far less energy to ensure comfort and convenience.

While HERS Ratings are asset labels, and energy modelling is predictive in nature (not a guarantee of future performance) we know that building occupant behaviour is a major driver in sustainability. From thermostat setpoints to operation of lights and appliances, exclaiming “not my job” and walking away from helping owners understand the impact of their decisions – is an enormously wasted opportunity. This session addresses this 10,000 lb elephant in the room.

We first examine studies which indicate that access to real-time data on energy use truly does result in significant reduction in energy consumption. Then we address the different options and equipment configurations which exist in the marketplace for residential energy monitoring, which range from simple plug-in meters to whole-house circuit-by-circuit meters with impressive granularity of measurement. Sample reports, and GUIs – graphical user interfaces of reporting displays – are explained.

Case studies of single design/ build projects where granular energy monitoring was employed are shown, as well as entire developed communities where neighbors compare monitoring results at block parties. Social norming, where the "new" normal is created.

Change is inevitable.

"Informed change – is awesome."

Suggested Presenter(s) - Rich Backus, GMB PMP CPHC HERS Rater, netPLUS Energy School, LLC & Al Cobb, netPLUS Energy School, LLC & Representative from a monitoring system / technical expert

(TEC-7) IAQ, Ventilation, and Airtightness in High Performance New and Existing Homes
Stringent ventilation and airtightness requirements are becoming commonplace in the high performance homes industry, and green building rating systems are starting to encourage and sometimes require aggressive IAQ provisions, including use of low-emitting materials, chemical avoidance, and enhanced air filtration. But do these challenging requirements result in better indoor air quality for home occupants? Researchers at LBNL have recently completed two projects addressing these issues. One was a study of Volatile Organic Compounds (VOCs) in LEED certified new homes in New Mexico, and the other was an assessment of IAQ in 24 high performance new and deep retrofit homes in California. In this session, learn how air pollutants found in these homes compare with health-relevant guidelines, and how they compare to those measured in conventional new California homes. Most importantly, learn what factors contribute to IAQ in high performance homes, such as kitchen exhaust fans, commissioning and source control, as well as how raters, contractors and designers can improve what they promise and deliver to homeowners.

Suggested Presenter(s) - Brennan Less & Iain Walker, Lawrence Berkeley National Laboratory

(TEC-8) Interfacing REMRate with Excel, software tools for Raters and Providers
This session will explain and demonstrate the Excel functions that can be used to extract any information that is contained within a REMRate file. The session will demonstrate how this can be used for quality control by a rater, or for quality assurance by a provider. Excel workbooks that use visual basic to interface with REMRate files for quality assurance and tracking ratings will be demonstrated. And a paper will be written and provided to attendees that documents the details needed to reproduce these functions.

Suggested Presenter(s) - Robert Du Teau, KANSAS BUILDING SCIENCE INSTITUTE

(TEC-9) More Bang for Your Buck: Combining Thermal, Air and Water Barriers
As continuous exterior insulation becomes a more common part of high performance buildings and energy efficient homes, builders and contractors can simplify their assembly by choosing sheathing which can comply with the energy code, weather resistive barrier, and air barrier requirements. This presentation will explore the code requirements, testing and how to choose the right products to maximize performance while simplifying installation and reduce cost.

Suggested Presenter(s) - Linda Jeng, Dow Building Solutions

(TEC-10) Pushing the Limits of Thermal Imaging - Unique Challenges That Thermographers Face
Keywords: infrared, thermal imaging, thermography, thermal envelope, home performance, IR inspections

There is no question that infrared thermography is a valuable tool which helps energy auditors and home performance professionals better evaluate the thermal performance of residential buildings. From examining the effectiveness of insulation to locating air leakage bypasses, this technology allows individuals to work more intelligently and efficiently.

Key to this success, however, is understanding the entire building system and environmental conditions that one encounters during an infrared inspection. Differences in construction materials, varying weather conditions, and limitations of the technology can all make inspecting buildings with IR a challenging endeavor.

While this presentation will address instances where thermal imaging is used successfully, it will focus more on showcasing numerous examples of where thermography did not yield desirable results due to difficult conditions or situations that limited the technology's effectiveness. These limitations will be explained and outlined so that attendees will learn how to recognize, and work with, these circumstances. Best inspection practices and techniques will be covered so that participants can learn to better evaluate data captured in challenging situations.

Learning Objectives:

- Upon completion, participants will be able to understand how IR is successfully applied to residential building envelope inspections.
- Learn about challenging conditions and situations that thermographers encounter where thermal imaging is difficult to use.
- Participants will discover ways to better approach these situations and get the most out of their camera.

Suggested Presenter(s) - Matt Schwoegler, The Snell Group

(TEC-11) Sound, Noise, and Acoustics: Expanding the definition of a High Performance Home

Comfort is a well-known part of the mantra of high performance building. Have you ever thought that it includes acoustical comfort, too? Nobody wants to hear rushing pipes, noisy supplies, or what goes on in the master bedroom after dark. This course will offer an introduction to the principles of building acoustics. Learning objectives include:

1. Understanding the language of building acoustics, including sones, decibels, NRC, and STC
2. Introduction to "quiet" construction assemblies and accompanying resources
3. Introduction to controlling HVAC noise through proper grill and register selection
4. Group brainstorming on how to increase profit by selling "sound services"

Suggested Presenter(s) - Dan Lutz, Knauf Insulation

(TEC-12) Testing 1-2-3: A New Testing Method for Software

An industry working group is developing a standardized accuracy test for residential energy analysis tools using energy consumption and building description data. Empirical data collected from around the United States have been translated into a uniform Home Performance Extensible Markup Language (HPXML) Standard format that provides software developers efficient access to the data and facilitates modeling lots of homes. This provides an opportunity to implement a software test case made up of many homes where predicted energy usage can be compared to measured energy usage en masse. This session will provide an overview of the working group's progress toward developing an empirically-based method of test for residential energy analysis tools.

Suggested Presenter(s) - Dave Roberts, National Renewable Energy Laboratory & Joel Neymark, Neymark & Associates

(TEC-13) Update on incorporating Drain Water Heat Recovery in HERS

An update for DWHR recognition in HERS will be presented using a 7000 square foot LEED home that incorporates 3 DWHR units in the San Francisco area plus a standard sized home that incorporates 1 DWHR unit in the Buffalo, New York area. Furthermore, a progress update on the adoption of the DWHR equation presented at the RESNET 2013 Conference will be reviewed.

Suggested Presenter(s) - Rod Buchalter, Renewability Energy Inc

(TEC-14) What is Your IR IQ?
Test Your IR Knowledge for Building Applications!

Overview: Thermal imagers today are certainly easy to use and are as affordable as ever. Even so, operators still need to be qualified to utilize them properly. That includes having the right training, testing and experience. Unfortunately, as the price of cameras has dropped considerably, some are calling into question whether infrared training is even necessary or can be justified.

Think of it this way…anyone can buy a framing hammer. They too are cheap and easy to operate, but it takes a skilled carpenter to know how to use one correctly. Being successful with infrared technology requires not only great camera skills, but also an in-depth understanding of heat transfer, radiation physics, inspection conditions and building science.

As such, infrared for weatherization is arguably one of the most challenging applications in thermal imaging. The thermographer must understand what they are seeing—and in many situations not seeing—with their camera. To put it simply, one must be qualified to use this technology successfully.

So what should a qualified thermographer know? What concepts should they understand? What skills should they have? Come find out and join us for this fun, interactive, presentation experience where you can learn your IR IQ and test your knowledge of infrared for building applications.

Suggested Presenter(s) - Matt Schwoegler, The Snell Group

Other

(OTH-1) A guide to designing and building with structural insulated panels (SIPs)
Category- Builder Track
Structural insulated panels (SIPs) have been used in energy-efficient home construction for over 30 years, due to their inherent air tightness and minimal thermal bridging. With the growing interest in energy efficiency, increasingly stringent energy codes, and the rise of green building programs, more and more builders see SIPs as a money-saving product in many applications.

This presentation gives a basic overview of successful strategies for SIP construction. The course is tailored for general contractors and designers interested in using SIPs in the construction of high performance homes. It will cover tips and techniques to install SIPs properly—a key step in achieving low air infiltration and maintaining long-term durability. Additional emphasis on the relationship between design and durability will be explored. Attendees will be taken through a SIP build step-by-step, from the planning process through working with the subtrades, including HVAC, electrical and plumbing.

Suggested Presenter(s) - Al Cobb, The SIPschool

(OTH-2) Above Code Programs and HERS Raters: A Win-Win Proposition
Category- Programs, business development, Utilities
Learn how HERS raters play a vital role in above code programs and how the partnership between the builder and the rater can provide validated data for the program, new business for the rater, on-site education for trades, and increased market advantage for builders. For Above Code Programs, outreach to HERS raters has increased successful program participation by builders and has ensured program integrity though their verification efforts. For HERS Raters, becoming an expert on incentive program participation increases their value as a consultant to builders, and helps attract new clients. We'll explore these benefits in the context of two California utility incentive programs (single and multifamily) that provide incentives for deeper energy savings and require third party verification by HERS raters.

Suggested Presenter(s) - Linda Murphy, TRC Energy Services, a division of TRC Engineers & Dave Hegarty, DuctTesters, Inc. & Amy Barr, TRC Energy Services, a division of TRC Engineers

(OTH-3) Advanced Energy Lessons Learned: Closed Crawlspaces Revisited
Category- Closed Crawlspaces
After working with industry to do the research, create the closed crawl install protocols and literally writing the book on it we decided to revisit and take a second look to see how things were holding up. Come see what Advanced Energy found years later, aside from spiders, lawnmowers and kids toys.

Suggested Presenter(s) - David Treleven & Maria Mauceri, Advanced Energy

(OTH-4) Advanced Energy: Top Industry Happenings in 7 Minutes or Less
Category- Various Topics
Come enjoy a fun interactive session as Advanced Energy and others share the hot topics from the home performance industry using an innovative session format. This will be a series of presenters with different presentations lasting only 7 minutes each with a question & answer period at the end. It's a great way to get up to speed quickly while prompting further discussion with various presenters. Guaranteed to be different and engaging!

Suggested Presenter(s) - Alex Glenn, Advanced Energy

(OTH-5) ENERGY STAR v3 from a Raters Perspective
Category- ENERGY STAR
When will we feel comfortable with Energy Star Version 3. Stumbles, fumbles, and rumbles but we are making progress and yes we are still learning. Come hear one Raters perspective on how ESv3 is going, what builders are thinking, and where we may want to go from here.

Suggested Presenter(s) - Robby Schwarz, EnergyLogic

(OTH-6) Getting the Most of Your Professional Development
Category- Education
Having a plan to keep your HERS Rater designation is crucial to your business. This session will discuss the different options for Raters looking to efficiently and inexpensively attain their professional development credits. Educational opportunities available to Raters are varied in their topics and available hours. Knowing how to make the opportunites align with your needs and budget is important. Awareness of options and having a clear plan can be the difference between meeting your education requirements or having to re-take your exam.

Suggested Presenter(s) - Bill Klotz, Everblue

(OTH-7) How SWEET it is!
Looking to enhance your trainings with hands-on props and demonstrations? Considering creating or updating educational materials related to energy efficiency and green building? Join us for a tour of the Southface Weatherization and Energy Efficiency Training (SWEET) Center and experience a state-of-the-art training facility. See first-hand how Southface approaches experiential learning and kick-the-tires on training props to gain ideas on how your organization can better convey your green story to funders, contractors and trades, consumers and clients. Learn from the experts and identify training tools and techniques for all budget levels.

Suggested Presenter(s) - Brad Turner, Southface

(OTH-8) Proving Insulation Performance
Increasing demand for high-performance wall systems brings new questions on proving performance. The overwhelming response to the 'Free Density Test Kit' partnership between BIBCA and RESNET showed us that raters need tools and knowledge to test blown in wall systems. In this hands-on workshop, raters will learn about the most accurate method of testing BIBS and also perform a density test themselves. Attending this workshop will qualify RESNET members for a free density test kit, valued at over $50.

Suggested Presenter(s) - Dean Moody, President, BIBCA & Steve Malon, Vice President, BIBCA & Kristin Bennett, Executive Director, BIBCA

(OTH-9) Southeast Weatherization and Energy Efficiency Training Center Tour
Category- Training
Join us to learn about the premier training center in the Southeast. The tour will demonstrate hands-on learning props and demonstrations that you can use to improve your training courses at home. Examples include: house of pressure wall, diagnostic cabins, CAZ testing mock-ups, virtual training tools, air-sealing and insulation practice props, etc. Southface will also discuss how sponsor partnerships were used to build-out the training center bringing real-world appliances and materials into the courses further enhancing the participant experience during workshops.

Suggested Presenter(s) - Brad Turner, Southface

(OTH-10) Southface Resource Center and Eco Office Tour
Category- Tour
Tour one of the country's most resource efficient buildings and learn how one non-profit leveraged partnerships to create two state-of-the-art demonstration office spaces. Featuring high-performance building technologies such as electrochromic glazing, green roof, multiple ventilation solutions for home and office, day-lighting, passive solar design, onsite storm water treatment, rain-water catchment and reuse, grey water reuse, building integrated photovoltaics (solar), solar water heating, resource-efficient materials, low-flow fixtures, building monitoring, and much, much more. Join us for this fun-filled tour and gain ideas on how to make your next project more energy efficient, sustainable and attainable.

Suggested Presenter(s) - Mike Barcik, Southface

(OTH-11) The Energy Water Nexus
Category- Water
The energy and water crisis looms ahead of us and must be solved together. A growing population and the failure to adapt U.S. water policies and maintain our national water infrastructure have left us with a potentially serious threat -- a severe water crisis in the United States. Thermo-electric power plants, industrial waste water wells, and now "fracking" stress our water needs. The good news is that the home performance industry can help bring about major change. Fact: every KWH reduction we affect can help reduce water use by 0.5 gallons (hydroelectric is greater). Most people wait for over one minute for hot water. We can reduce this to a one cup wait. This session promises to equal results.

Suggested Presenter(s) - John Tooley, Advanced Energy

(OTH-12) Walk the Talk
Session Description: We all make money by selling energy efficiency, but how well do we walk the talk in our own workplaces? Join us for a fun-filled tour of the Southface Resource Center and Eco Office to learn how one non-profit built two nationally acclaimed offices and uses them today for client engagement. See grey-water reuse and composting toilets in action along with hundreds of other green building technologies. Find out how Southface brought together the design and construction community to create these beautiful spaces and how they use them to continue their mission towards sustainability in the Southeast. Discover which strategies they would repeat, and which technologies they would avoid on future projects.

Suggested Presenter(s) - Mike Barcik, Southface

(OTH-13) What's the Answer?
Category- Training
Using evidence-based principles, Brett illustrates the challenges of using industrialized training programs in a knowledge-based economy. Participants will learn how to design training programs that develop critical thinking skills, a talent sorely needed in our industry.

Suggested Presenter(s) - Brett Dillon, IBS Advisors, LLC

(OTH-14) Why Can't We Crack the Nut? - To cracking the nut! The difference one year makes....
Category- Sales & Marketing
Last year our session struggled with the notion that aesthetics and location are still the drivers when it comes to selling a house. We have tried to educate sales people. We have tried silent sales tools and deconstructed homes. We have tried incentives and websites. Yet people are making the largest purchase of their lives with the least amount of information and knowledge about the product they are buying.

This year we come to the table with a case study of how one builder is Cracking the nut. Product manufacture/Builder paretnership, innovative product, and innovative approaches to the sales process.

Suggested Presenter(s) - Robby Schwarz, EnergyLogic & Patricia Rothwell, Owens Corning