2022 RESNET Building Performance Conference Session- VIRTUAL

Last Updated: April 15, 2022 | *Please note that sessions are subject to change*

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BUSINESS DEVELOPMENT STRATEGIES

BUS-2: *Introducing the New International Code Council's IECC/HERS Compliance Specialist and the HERS Rater Role in Energy Code Compliance*

Increasingly code officials are looking to HERS Raters as the go-to source for energy code inspection, testing and modeling. To provide added credibility to code officials for HERS Raters the International Code Council (ICC) has created a new certification, the IECC/HERS Compliance Specialist. This session will introduce the new certification, how HERS Raters can achieve it and discuss the opportunities provided to HERS Raters and code officials.

RESNET has embarked on having HERS Raters being recognized for demonstrating energy code compliance. This initiative begins with compliance with the performance path of Section 405 of the IECC. The session will also share developments in this area.

Presenters: Mark Johnson, International Code Council and Chris McTaggart, Building Efficiency Resources (BER)

BUS-3: *Passive Building 101*

Are you new to passive building, interested in applying it to your business and need a crash course in passive building fundamentals? This presentation includes an overview of passive house history, discusses the rationale for passive building standards and the five core principles/strategies that are instrumental to the program. We'll take a more specific look at current building certification processes, benefits of certification and overall certification trends.

Presenters: James Ortega, Phius

BUS-4: *RESNET Pilot of Performance-Based Quality Assurance*

At its Spring 2019 Meeting, the RESNET Board of Directors voted in favor of proposed revisions aimed at improving the effectiveness and efficiency of RESNET's overall Quality Assurance Program. There were five distinct initiatives in the proposed plan; one of which was to incentivize better quality through a performance-based approach.

As originally proposed, the Performance-Based QA initiative would have used reduced rating/QA fees as the primary incentive along with increased fees for non-compliance. Feedback from providers has informed us that the training and mentoring of new Raters and RFIs has become more of a burden on provider resources and would not be offset by a fee reduction.

Recognizing the need for a pivot, RESNET Staff is proposing an alternative incentive and will be conducting a pilot in 2022 using a subset of the measures that were approved by the RESNET Board of Directors.

This session will cover the details of the pilot including pre-requisites for participation, enhanced QA measures, and incentives to encourage participation.

Presenters: Scott Doyle, Laurel Elam and Billy Giblin**,** RESNET Quality Assurance Team

BUS-6: *Mainstreaming the EnergySmart Contractor Program*

Because there has been much time and effort involved in developing the certified EnergySmart Contractor program, it seems unfortunate to let this program lapse without a serious examination of how to make this program workable and successful for the private sector. There are national organizations already representing diverse groups of contractors that track whether these contractors are maintaining their licenses, are properly insured, and what territory they cover. Also, since every certified HERS rater is considered to be EnergySmart certified, the EnergySmart Contractor program really should become another energy efficiency program (EEP) such as the ENERGY STAR® program. This session is a panel discussion of training and former CEQ providers about making the certified EnergySmart Contractor program work for everyone including the homeowner, the contractors, the trainers, the lenders, and the certified home energy raters and RFIs.

Presenter(s): Ken Riead, Hathmore Technologies, LLC; Sharla Riead, EnergySmart Institute and Accurate Rater Network

LATEST IN BUILDING SCIENCE, WATER EFFICIENCY, AND HEALTH

TECH-1: *All About Air Tightness Testing (*)*

For building envelopes and duct systems, airtightness is a key factor in the "House As A System" approach to high-quality building. This makes blower doors and duct testers vital tools for HERS Raters. Both tools can be used not only to measure air leakage but also to expose leaks with the help of additional tools. In this session, we'll cover the best practices for conducting airtightness tests on building enclosures and ducts.
We'll also include the dos and don'ts for multiple scenarios as well as methods for field checking your equipment to ensure it is reading and working properly. You cannot calibrate fans and manometers yourself, but there are some tests you can do on your equipment to make sure they are operating just as they did when they left the factory. This will also be a great opportunity to ask a manufacturer any questions you have about airtightness testing.
Presenter: Sam Myers, Retrotec

TECH-2: *Blower Door and Duct Leakage Testing: Best Practices for Testing and Equipment Maintenance*

In this session with TEC (The Energy Conservatory), we will review the latest advancements and approaches for completing blower door and duct leakage testing, as well as the latest approaches for checking equipment calibration in the field.
Presenters: Jake McAlpin and Bill Graber, The Energy Conservatory

TECH-3: *Delivering Healthy Air in Every Home We Build by controlling Humidity, Air Purity and Ventilation (*)*

Control of Indoor Air Quality requires more than just code-driven ventilation. The IAQ system must manage humidity levels, air purification, and a host of variables related to fresh air delivery. The scientific and medical communities have provided excellent guidelines on what makes air "healthy." Learn how a system-based approach that integrates existing products and technologies for IAQ can create environments that truly are safer and healthier for all occupants, year-round. High-performance builders and indoor air quality product manufacturers are at the forefront of making the right critical recommendations to the public to best ensure healthy air in every home.
Presenters: Chris Howells and Joseph Hillenmeyer, Sr., Aprilaire

TECH-4: *Heat Pumps and ACCA Manual S (*)*

Air source heat pumps are becoming a common choice for new construction. The capabilities of variable capacity heat pumps are broader than unitary equipment, but they are not infinite. This session will share strategies for selecting heat pumps as well as provide details of the pending Manual S revision. Particular attention will be paid to cold climates and humid climates. A significant Manual S adjustment has been made those addresses entering air conditions and ventilation loads, allowing for more accurate data to be used in the sizing process. This session should prove valuable for load calculation professionals, energy modelers, and HVAC system verifiers.
Presenters: Voya Milasinovic and Shawn LeMons, Mitsubishi Electric Trane HVAC (METUS)

TECH-5: Keeping the Uncontrollable in Control 24/7 365 - Moisture is a Life Source and a Contaminant, What Should We be Doing? (*)

Nikki and Joe tell the tale of the Three Ducks (bears always get the spotlight) Papa Duck is too wet, Mama Duck is … you get the analogy. How do these Ducks control moisture in their home?
Moisture levels took center stage during all the indoor air daily webinars on SARS-CoV-2, MUST HAVE 40-60 RH! Wait- I live in the Southwest or Florida - now what?

Let's take a deep dive into the BS behind moisture, absolute, relative, grains, and dewpoint. What are the differences in these measurements and why, as an industry, are we using a moving target like RH?
We will discuss common controllable moisture sources, natural and occupant created. What are the affordable strategies to control the indoor environment - envelope vs. mechanical. Affordable systems, independent and connected, are controllable methods to increase and remove moisture, sometimes in the same week. Moisture from below, in the middle, and trying to escape above, the three Ducts have options. These are all necessary details for high-performance homes with tight assemblies.
We will discuss the climate zones that are in denial of moisture challenges and climate-specific recommendations.

Moisture is required for life but exposure to damp indoor environments has sufficient evidence of an association to upper respiratory tract symptoms and asthma symptoms in sensitized persons. The damp family room basement can be a health hazard.

You will have a new respect for the most impactful forces of nature in your life - moisture.
Presenters: Nikki Krueger, Santa Fe Dehumidifiers and Joe Medosch, Hayward Score

TECH-6: Multifamily Infiltration Testing Research and Development

Boston University in collaboration with Advanced Building Analysis has carried out Building America-funded research over the last 3 years to develop a Zonal Multipoint Pressure Test method for use in multifamily buildings. The method yields separate infiltration results for interior and exterior leakage areas. The results from this method can be used to address concerns over compartmentalization and air quality, and to calculate exterior leakage area and infiltration loads that are much more accurate than exterior leakage area and infiltration loads derived from compartmentalization tests alone. The research has many surprising takeaways that relate to the accuracy and reproducibility of all types of infiltration testing in multifamily buildings, including compartmentalization testing, guarded testing, whole building testing, and our new Zonal Multipoint Pressure Testing.
Presenters: Michael Browne, Advanced Building Analysis, LLC and Handunge Tharanga Jayarathne, Boston University

TECH-7: *Zeroing in on Balanced Ventilation*

Most of us understand the general concept of balanced ventilation in a home, but what options exist beyond installing an energy recovery ventilator? In this session, Dan will look at when balanced ventilation matters the most, the options for achieving balanced whole-house ventilation, the benefits you can sell with whole-house balanced ventilation, and the cost-effective solutions to providing this in a variety of home types. The session will wrap up with stories from the field, both from our presenters and from an engaged audience.
Presenter: Dan Wildenhaus, BetterBuiltNW

TECH-8: Delivering Healthy Air in Every Home We Build by controlling Humidity, Air Purity and Ventilation (*)

Control of Indoor Air Quality requires more than just code-driven ventilation. The IAQ system must manage humidity levels, air purification, and a host of variables related to fresh air delivery. The scientific and medical communities have provided excellent guidelines on what makes air "healthy." Learn how a system-based approach that integrates existing products and technologies for IAQ can create environments that truly are safer and healthier for all occupants, year-round. High-performance builders and indoor air quality product manufacturers are at the forefront of making the right critical recommendations to the public to best ensure healthy air in every home.
Presenters: Chris Howells and Joseph Hillenmeyer, Sr., Aprilaire

TECH-9: RESNET 380 (Airtightness/Airflow) & 310 (HVAC Grading): Tools and Techniques (*)

In this session, we will break down the test and measurement sections of each RESNET standard to give you a better understanding of how and why measurements are made.

Presenter: Bill Spohn, TruTech Tools, LTD

TECH-10: *Advances in Affordable Housing Technology*

This session will detail innovative ways in which Habitat for Humanity affiliates in the United States are working to address the affordable housing crisis and the climate crisis. Affiliates have utilized energy- and resource-efficient, hazard-resilient construction practices to mitigate these issues. A moderated panel of Habitat representatives will share their work with 3-D printed homes, off-site construction models, and all-electric communities.

Presenter(s): Edwin Hensley, Habitat for Humanity International; Molly Berg, Habitat for Humanity International

TECH-11: Validating $HERS_{H20}$ & WaterSense Labeled homes in the Field: A Las Vegas Case Study

Providing real-world validation of the WaterSense labeled homes program and the $HERS_{H20}$ rating system is an important next step in the growth of these programs. Observed data with real people living, maintaining, and using water in the homes serve to:

- Validate that the certification and rating program are working as intended
- Provide feedback for making improvements to the program and the standard over time
- Help water districts, agencies, and planning offices measure and predict the impact of WaterSense labeled homes

Beginning in the Summer of 2020, homes in the Las Vegas area became eligible for the WaterSense label under the WaterSense Labeled Homes V2 Pilot program, which allowed homes with a $HERS_{H20}$ score of 70 or less to earn the label. After a successful pilot, EPA finalized V2 (with minimal changes) in February 2021.

In partnership with the local water utilities, this effort matched metered water use with rating data collected in the RESNET $HERS_{H20}$ registry. This provides a direct answer to the question "how accurate is a $HERS_{H20}$ rating and how much water does a WaterSense labeled home save?" by comparing rated home predictions for water use, with metered use observed in the field. The observed field data clearly shows that the WaterSense labeled/ $HERS_{H20}$ rated homes are saving a substantial amount of water relative to typical homes in the area.

Presenter(s): Ryan Meres, RESNET; Jonah Schein, U.S. Environmental Protection Agency; Jacob Atalla, KB Home

TECH-12: The Emerging Water Issue - Why Raters and Builders Need to be Concerned

Water scarcity and cost is an emerging concern to many communities. Just how serious is this issue? What challenges do builders face on this issue? What are the opportunities for the HERS industry? To answer these questions, this session will feature three experts from the perspectives of the Environmental Protection Agency (EPA), a national environmental organization, and leading national builders. The EPA manager of its WaterSense for Homes Program Jonah Schein, the Natural Resources Defense Council's Water Director Ed Osann, and KB Home's Sustainability Vice President Jacob Atalla will be featured in this session.

Presenter(s): Jonah Schein, EPA; Ed Osann, NRDC; Jacob Atalla, KB Home

TECH-13: Performance-Based Energy Code Compliance: Control Your Energy Efficiency

Performance-based energy code compliance can offer builders the opportunity to achieve code-required energy efficiency in addition to design flexibility with reduced costs. The performance pathways treat the home as a system, allowing builders to make energy savings choices that better suit their construction preferences and meet their budgets. Understanding the provisions of both the Simulated Performance path and the Energy Rating Index path options will help builders more effectively work with energy professionals to create a strategy to meet the energy code while maintaining a sound structural design. Tools will also be identified to enhance communication between the builder and building code officials.

Presenter: Joel Martell, NAIMA and Matthew Brown, APA – The Engineered Wood Association

TECH-14: Ventilation and IAQ in New US Homes: Results from the Building America Field Study

Energy-efficient new homes that are built tight require an appropriately sized bath and kitchen exhaust and whole-house mechanical ventilation (WHMV) systems to enable good indoor air quality. ASHRAE Standard 62.2 specifies minimum airflow rates and requires verification, but there is a lack of data on installed system performance and operation and their relationship to indoor air quality in occupied homes. This session will present findings from the Building America research study that has gathered data on mechanical ventilation systems, indoor air quality parameters, and house and household characteristics from 180+ occupied homes in CA, CO, FL, GA, IL, OR, and SC.

The WHMV systems in many homes rated as compliant with the standard did not meet airflow requirements and many with adequate capacity were not operating as found. The complexity of system design, installation errors, and unaware occupants (mostly owners) appear to be the key factors. Indoor concentrations of air pollutants (particulate matter, formaldehyde, nitrogen dioxide, carbon dioxide, and radon) varied greatly among homes with and without WHMV. A subset of homes was sampled for one week each with/out WHMV running to isolate the effect of ventilation on IAQ.

Presenter(s): Brett Singer, Lawrence Berkeley National Laboratory; Eric Martin, FSEC Energy Research Center; Chrissi Antonopoulos, Pacific Northwest National Laboratory; Iain Walker, Lawrence Berkeley National Laboratory

TECH-15: ZEN and the ART of HERS Rater Maintenance 2022: Safety and Injury Prevention

Building on the 2021 session "ZEN and the ART of HERS Rater Maintenance", this session dives more deeply into common injuries specific to HERS Raters and Rating Field Inspectors. We discuss job safety measures and guidance on how to avoid injuries. The content includes results of survey data on various types of injuries, recovery times, and business and operational impacts.

Presenter(s): Michael Arblaster, Harmony Home Energy; Billy Giblin, RESNET

TECH-16: Health and Safety of Mineral Fiber Insulation

The public health record of fiberglass and mineral wool insulation is based on an extensive body of fiber research validated by international authorities. This session will review the types of research conducted and explain why this continuous testing is necessary when considering the health profile of residential and commercial building products.

Presenter(s): Angus Crane, NAIMA

TECH-17: Insulating Advanced Framing with Fiberglass and Mineral Wool

With increasingly strict building energy codes, sky-high lumber prices, and high demand for labor seemingly here to stay, there has never been a better time to make the switch to advanced framing. Many think that advanced framing simply means switching from 16" to 24" on center framing, but the key to success is details like corners, wall intersections, and around windows. How to frame and insulate these key details is where the real advanced framing practices occur. More insulation, coupled with reduced thermal bridging due to fewer framing members in walls, means more comfort and energy savings for the homebuyer. Learn how to execute advanced framing and install proven effective fiberglass or mineral wool insulation in your projects.

Presenter(s): Rick Gazica, ICF; Patrick Kicker, NAIMA

TECH 18: WaterSense V2.0: Introducing additional flexibility and water-efficiency options.

The EPA's WaterSense Labeled Homes program is rapidly growing through the implementation of Version 2. This update provides additional flexibility while still meeting the water efficiency and performance standards that the industry and consumers expect when they see the WaterSense label. This session will focus on what you need to know about the technical and certification requirements of Version 2.0 and the options for certification, including RESNET's $HERS_{H20}$ rating systems. More flexibility and choices let individual raters and

builders use regionally and project-specific appropriate water-saving strategies. By incorporating industry-led changes and practices, this new version of the WaterSense Homes Certification is like no other and it has started to expand the reach of the program.
Presenter(s): Olga M. Cano, EPA; Jonah Schein, EPA

TECH 19: WaterSense Labeled Homes Verification: Deep dive into the verification process and opportunities for efficiency during site visits.

The EPA's WaterSense Labeled Homes program has designed its new specification to better align with other green certification programs, including the existing RESET HERS training and QA processes. This means a better verification experience for building and rating professionals. This session will walk through the minimal checklist items required for any home to achieve certification regardless of which rating system it is being certified through. The $HERS_{H20}$ requirements, flexibilities, and regional strategies will also be discussed giving the rating industry insight into the importance of water efficiency for continued urban growth.
Presenter(s): Olga M. Cano, EPA; Jonah Schein, EPA

TECH-21: HERS $HERS_{H20}$ and WaterSense Labeled Homes: One Year and Growing

In May 2021 the City of Oakley, Utah put a 180-day moratorium on any building permit requiring a new connection to the city's water supply. Water availability is becoming an increasing concern for builders and the communities they build in. This makes it even more critical for builders to demonstrate good stewardship of water resources. RESNET's $HERS_{H20}$ Program is a whole-house water efficiency rating, and it can be used to achieve the WaterSense Label for Homes.
Presenter(s): Ryan Meres, RESNET

TECH-22: HERS Ratings and 3D Printed Homes

3D construction printing refers to various technologies that use 3D printing as a core method to fabricate buildings or construction components. It is gaining momentum among builders of all sizes, from Lennar to Habitat for Humanity. There are even major 3D construction printing projects right here in Austin. What does this new method of construction mean for HERS Ratings? Hear from builders and raters about the future of 3D construction and rating those homes.
Presenter(s): Jason Ballard, ICON

TECH-24: IECC 2021 - Understanding its impact and what it means for you and your builders

The IECC 2021 Energy Code included numerous changes from previous versions. Join us as we take a look at a handful of the most impactful changes, analyze how these changes may influence energy models, and discuss what this means for you and your builders.
Presenter(s): Jacob Kamen, Ekotrope

TECH-25: Joe Medosch is Back - Where did he go and what has he learned? Energy Efficiency vs. Healthier Homes - sometimes hard to tell the difference, except the language and marketing!

I'm back. I missed these RESENT conferences. I left the "ENERGY" side of the building environment 5 years ago to focus on Healthier Housing. The best thing I ever did was to take my energy assessment and assembly skills and put on a different set of goggles. I want to share the wealth of overlapping information on Energy Efficient and Healthier Housing, case studies, and experiences I have gathered. I believe once you see the vast similarities and semantics that you will also adjust or change the way you offer high-performance homes. Yes, comfort is in here and may have become a distraction for "Indoor Air Quality."
Healthier assets are not included in the HERS assessment, YET! But many builders are looking for guidance, resources, material alternatives, filtration, and ventilation strategies. I want to provide a foundation for the HERS industry to have the confidence to discuss these features, and things like VOC sources, particulate/virus reduction, and what defines good Indoor Air Quality. Surprisingly, many are the same high-performance

installations builders are installing today - let's change the discussion from energy efficient to Healthier and Comfortable.
I will provide a small library of easy-to-read resources and examples of marketing opportunities for HERS providers and builders. If I told you 10 years ago you should be paying attention to water usage, (I did) now there is a Standard! Maybe Healthier is next.
Have you noticed the word “Healthier” and that I did not use “Healthy” - we will discuss the purpose.
We will not avoid a discussion on why the COVID-19 crisis did not have people rushing to have better IAQ. I will criticize the poor ineffective choices that made a mess of “PURIFYING” air. COVID-19 provided many surprises to the industry - that was just one. I will cover some of the many things we learned about virus transmission, filtration, ventilation, and IAQ. Please join me and share your experiences.
Presenter(s): Joe Medosch, Hayward Score

TECH-26: Kitchen IAQ Within PHIUS+ and ENERGY STAR-Rated Multifamily Units

The emissions from the residential cooking process have become an important issue as it relates to indoor air quality in high-performance homes. The usefulness of the range hood, types of appliances, tighter homes, and ventilation standards are factors that must be considered when addressing IAQ issues. In addition, whole-house ventilation, kitchen exhaust system design, kitchen hood design, airflow rates, operator behavior, cooking processes, cooking location, and ventilation configurations all contribute to the capture, containment, and removal of the cooking emissions from the kitchen space. Recent research on residential IAQ has suggested that emissions from cooking can negatively affect a home’s air quality.
This seminar will present a current research study that is evaluating the kitchen IAQ in two HERS-rated affordable housing 6-unit buildings monitored over 18 months, one certified under ENERGY STAR for New Construction and the other building achieving Passive House (PHIUS) certification. Electric and gas cooktops will be used while monitoring the post-occupancy cooking emissions. The measurements will include temperature, humidity, Formaldehyde, CO_2, NO_2, CO, $PM_{2.5}$, and TVOC’s. Location sensors on the range will be used to determine the cooking positions of the source. The seminar will cover key findings on the recent investigation into IAQ from cooking emissions in the kitchen space. The seminar will also present an overview of emerging “smart” kitchen exhaust systems in high-performance homes, including smart ventilation and energy recovery ventilators triggered during specific ventilation events, along with consideration for make-up systems.
Presenter(s): Rich Swierczyna, GTI

TECH 27: RESCAZ and RESNET Practical Simulation Tools – What’s new?

The simulation tools used in RESNET HERS Rater and RFI training have been updated and function quite differently than before. Why were these changes needed and what do Trainers, HERS Raters and RFIs need to know about changes to field protocols that caused these updates? This session will address those questions and provide a demo of both the updated RESCAZ and RESNET Practical simulation tools.
Presenter(s): Sharla Riead, EnergySmart Institute

TECH-28: Habits are Hard to Break

Whirlpool has seen many changes in homes during the COVID-19 pandemic. People are re-engaging with their houses, remodeling, and eating more meals at home, but what else can we observe? We will show that multi-tasking at home isn't what people think it is. We will connect multiple sources of data, including our connected device data and multiple data streams from the Whirlpool ReNEWW House (a living lab for net-zero research), and revisit the Texas February energy crisis as one case study. We will then explore the suggestion that homes and home technology may not efficiently serve group living. Houses are not flexible enough to absorb the bad habits of their users.

How can we expand our definition of products to consider full home ecosystems? How can this new paradigm improve approaches to home automation? What steps are needed to transform homes from places to live to regenerative spaces that give back to their inhabitants?
Change the paradigm of how your house can work for you vs. you working on it.
Presenter(s): Andrew Batek, Whirlpool Corp.

TECH-29: Healthier Homes or Healthy Home Washing

I will cover current marketing strategies and upgrades that builders can provide to buyers to make the home "healthier" - vs. one that does not have these installations. This includes the basic concept of healthier products and installations and how you can avoid the liability of overpromising. Some builders are shifting from "Green" washing to "Healthy Home" washing by promising a healthy environment, but they are not actually making the home "healthier." In this session, we'll cover multiple evidence-based healthier upgrades vs. new shiny objects, like the ones that monitor a single room but do not control any ventilation or a filtration installation. The newest blue/purple shining light is the UV craze. Joe will explain the evidence of these installations and advise on some cautionary claims that can be made.
This session includes material disclosures and the difference between the new HPD (Health Product Declaration) and the limitations of SDS (safety data sheet). This includes a reduction of materials containing Red List chemicals, referred to as carcinogenic and hazardous, found in building materials. This includes the latest Indoor airPLUS requirements!
New home builders, market convenience, and name brands - this traditional sales approach is missing some fundamental, healthier home installations and benefits that are already in the home. Low VOC flooring (solid surface or carpet) is a commonly missed bullet point in some marketing materials. Paint is only considered low-VOC if the paint and colorant are low-VOC.
The bottom line: don't make health claims - shockingly some national builders have!
Presenter(s): Joe Medosch, Hayward Score

TECH-31: How to avoid the top Modeling Mistakes in REM/Rate

Are you creating energy models using REM/Rate? This session will help you avoid the top mistakes found by our QAD and trainer when reviewing this type of energy model. Learn the most common mistakes that have been found and the steps you can take to avoid them. This session includes demos of the REM/Rate software tool showing how to check for these common issues and how to correct them. You will also gain a better understanding of how-to self-QA your own models and learn about what items you should look for in the field with the final verification visit that is necessary to verify in your energy model before you submit it to your QAD.
Presenter(s): Sharla Riead, EnergySmart Institute

TECH-32: Introduction to Residential HVAC Design

Understanding residential HVAC design is an important tool for HERS Raters, especially with the new ANSI/ACCA/RESNET Standard 310, which requires a review of other designs. This tool is also useful for diagnosing comfort and energy problems in homes. Residential HVAC design is also a service that is ideally suited for HERS Raters to perform. This class will cover the basic steps involved in the process. It will cover ACCA Manuals J, S, and D. It will go through an example of HVAC design and discuss the important engineering decisions, as well as the items that people tend to put too much emphasis on. (This is an updated version of a well-received class that was taught previously at the 2020 RESNET conference.)
Presenter(s): Russell King, ME, Coded Energy

TECH-33: Living inside your theories – Year One Update

His head has been wrapped up in building and HVAC performance since the late 1980s. How does he sort through bringing his vision for his own home to reality? What's it like actually living inside your theories? Bill

Spohn describes the journey he and Marilyn have taken setting out to build a high-performance, likely NetZero, home. It's time for a one-year update!
Presenter(s): Bill Spohn, TruTech Tools, LTD

TECH-34: Passive House 0.60 ACH50 is B.S.

I learned recently that Passive House Institute United States (PHIUS) abandoned their well-known 0.6 ACH50 air leakage standard. Did you know that? What does this mean and what is the new standard of house tightness that is being used? Why?
Presenter(s): Robby Schwarz, BUILDTank, Inc.

TECH-35: Prescription for Better Buildings: Phius 2021 Prescriptive Path

Energy Modeling has created a clear barrier-to-entry for passive building professionals that may have been insurmountable for many projects in the past. This has prevented the net-zero carbon movement from scaling up in the single-family residential market, despite widespread interest. The Phius prescriptive path, introduced under the Phius 2021 certification protocol, offers an alternative path to certification which eliminates the barrier-to-entry posed by energy modeling. This makes certification available for a wider range of project teams, project sizes, and most importantly, project budgets.
There are significant impacts that help make this popular third-party certification more easily attainable. Unlike the performance path which allows for a seemingly infinite amount of variability, the prescriptive path lays out a clear path to certification from the very start of a project which has provided stability along the path to certification. This presentation reviews the goals and intent of the Phius 2021 prescriptive path as well as step-by-step guidance through the certification checklist. It uses several case study projects to demonstrate the use of the certification checklist on real projects and presents the lessons learned.
Presenter(s): John Loercher, Phius

TECH-36: Tackle Increased IAQ Concerns With Efficient Ventilation

Builders are more focused than ever on providing homeowners with healthy indoor air quality. COVID-19 will have long-lasting impacts on how families prioritize IAQ over other home features. Luckily, there is an increasing number of ventilation options available today to ensure healthy air quality while also delivering energy efficiency and saving HERS points. After covering some ventilation basics, including common energy code requirements, this session will look at options for whole-home ventilation with a focus on how it can be accomplished efficiently – namely with ERVs.
Presenter(s): Patrick Nielsen, Broan

TECH-37: Garage connection and bath fan testing - a Rater driven study

A two-state study of installed bathroom exhaust fan performance and effectiveness of the air barrier between the house and garage was performed in 2020 in Colorado and Nevada by piggybacking additional testing conducted for an IECC compliance study. These two components of the house, which are evaluated and addressed significantly differently by the IECC and programs like Energy Star, have not been looked at from a statewide implementation perspective. Has the energy code or EnergyStar impacted what is happening in housing in these two states? We will shed some light on statewide compliance with these two measures. We may even give you a sneak peek at the air leakage and duct leakage data that was gathered.
Presenter(s): Robby Schwarz, BUILDTank, Inc.; Les Lazareck, Home Energy Connection, LLC

TECH-38: Rediscovering Independence

The COVID-19 pandemic in 2020 shook us all to our core. To some, it revealed just how vulnerable we are. This drove a lot of people insane. David Horton, a city boy raised without a blade of grass in sight, was driven just insane enough to uproot his family and move to a farm in rural Kentucky.
In this presentation, learn how David was able to apply his knowledge as a carpenter and HERS rater to bring an old farmhouse and barn into the era of modern energy efficiency. This old farmhouse has every problem

you can think of. There are crawlspaces, knee wall attics, porch roofs connected to floor spaces, and even a god-forsaken bonus suite over the garage! This is a trainer's paradise, but a pain to live in without a retrofit. This home started at 23 ACH50! Where did it end up? You'll have to listen in and find out. As a bonus, follow along as David attempts to learn about agrarianism and animal husbandry. The true purpose of this homestead was to live the most sustainable and independent life possible for the Horton family. Learn how they eliminate outside inputs one by one on their journey to a free and independent lifestyle. See the measurable benefits from knowing exactly what goes into everything you eat. Consider the impact on the environment when you raise the things you consume and let natural symbiotic relationships flourish. Also, explore the connection you have to your food when you are involved in raising it, protecting it, and ultimately harvesting it.
***Another bonus, you'll meet some chickens, rabbits, sheep, a cow, who knows what else**.*
Presenter(s): David Horton, QTPI

NAVIGATING FINANCE AND REAL ESTATE

NAV-1: *HERS Ratings - The Key to Valuing of Green Homes*

The HERS rating offers a great opportunity for appraisers to value green homes in residential real estate appraisals. Currently, over a quarter of all new homes built are HERS rated. Through the RESNET/Appraisal Institute, Appraiser Portal appraisers can now access key information from RESNET's registry to be able to compare homes with HERS ratings in the marketplace. This session will explain the Appraisal Institute's collaboration with RESNET to educate appraisers on the valuable data on green homes, the Appraiser Portal and how it works, and how HERS Raters can work with appraisers.
Presenter: Timothy Runde, Appraisal Institute

NAV-2: *Where the Rubber Meets the Road: Do High-Performing Homes Impact Home Values?*

The energy efficiency industry has delivered considerable value and made an impressive impact on our nation's housing stock. Three (3) million HERS rated homes. Two (2) million ENERGY STAR Certified Homes. Tens of millions of homes built to modern energy codes. But does that value persist? Or is all your hard work ignored when a rated home is maintained and resold? In this session, learn from Pearl, a real estate agent and an appraiser about what happens when high-performing homes are re-sold -- and what needs to happen for the value of your work to be reflected in future sales prices.
Presenters: Nathan Gee, Pearl Certification; Woody Fincham, Accurity Fincham & Associates, Inc and; Greg Slater, Nest Realty

NAV-3: *Energy Trends in Marketing, Valuing, and Financing*

Through the collaboration of many organizations and making energy efficiency visible, the real estate sector is more aware of the benefits of energy-efficient ratings than they were 5 years ago. Our work is not complete, and through continued collaboration, energy efficiency will become a value-added feature in marketing, valuing, and financing. In this session, we will review the areas of success and the paths to overcome the weaknesses. Raters, builders, appraisers, and lenders will want to be in this session to learn how to be a part of the movement to healthier homes, better marketing, and valuation.
Presenter: Timothy Runde, Appraisal Institute

NAV-4: Attracting Capital with Freddie Mac's Green Mortgage-Backed Security

Freddie Mac Single-Family Green MBS supports our company's focus on financing energy efficiency in new and existing single-family homes, helping to preserve home affordability over time. Learn about Freddie Mac's Single-Family Green Mortgage-Backed Security and the progress made to attract capital to promote sustainable activities through mortgage financing.
Presenter: Simone Beaty, Freddie Mac

NAV-5: *Using HERS Rating Data for Environmental Reporting: A Homebuilder's Perspective*

Millennials, the generation ranging in age from about 22-40 represent the largest generation of homebuyers (38%). According to the Morgan Stanley Institute for Sustainable Investing, 95 percent of millennials are interested in sustainable investing and 85 percent believe their investment decisions can impact climate change. This is one of the reasons investors are increasingly looking at environmental, social, and governance factors in their investment decisions. RESNET's Home Energy Rating System (HERS) provides builders with a built-in mechanism to report on the energy efficiency and carbon impacts of the homes they build. Come to this session to learn how HERS data is being used in environmental reporting and the role it can play in demonstrating a builder's commitment to reducing their environmental impact and attracting millennial homebuyers.

Presenter(s): Ryan Meres, RESNET

NAV-6: *Comprehensive Quality Assurance Stimulates Private Sector Financing*

The work performed by a HERS Rater is professional, certified, and not inexpensive. Funding entities, such as banks and lending institutions, as well as code officials and utility program managers, are using HERS Raters for their programs. This is due to the training, professionalism, ability to generate improvement analyses with financial impacts, and multileveled quality assurance that is in place. However, they have learned that not all QA is the same and are now looking for systems that provide a level of assurance that ALL HERS Rating energy models for their programs have been QA'd, over and above the RESNET 10% requirement. This session will explore the various marketplaces open to the HERS Rater, the financing, and programs available that depend on HERS Ratings, and why HERS Ratings are used versus other residential energy evaluation programs. This session will also explore tools and methods available that allow a HERS Rater or Rating Provider to assure program managers that their energy models are high quality and accurate.

Presenter(s): Sharla Riead, Hathmore Technologies, LLC; Ken Riead, Hathmore Technologies, LLC

THE NEW FRONTIER OF RESNET

RES-1: Transparency in QA - Setting Reasonable Expectations *(*)*

This session provides a visual walkthrough of the RESNET QA Process from the perspective of both Raters and QADs. We'll look at recent history, how the QA process has evolved, and what that means for the individual rater and the industry. As rating professionals, we're tasked with ensuring the integrity of the rating process, in many cases for program or jurisdictional compliance. The only way that we can collectively make decisions and set reasonable expectations is through transparency in our processes. The primary goal of this session is to bring a level of understanding to the QA process, elevating the working relationship between rating professionals and their service providers.

Presenter: Cindy Zeis, Performance Systems Development

RES-2: Why HERS Raters Should Learn to do Residential HVAC Design *(*)*

HERS Raters, especially those who do energy modeling, are in a unique position to offer residential HVAC design services for new construction, as well as existing homes. Their combination of knowledge of inputting building information into modeling software, their appreciation of energy efficiency and building science, and their field experience makes them especially qualified to provide this service. Although HERS Raters lack the intimate knowledge of the practical side of the equipment and how it is installed, this can be gained by working closely with HVAC contractors during the design and installation process. HVAC contractors typically have very little experience with any kind of building modeling software. Somebody needs to step up and help installers if we are to improve the quality of HVAC designs and subsequent performance.

Presenter: Russell King, ME, Coded Energy

RES-3: An EASY 'A', on Your Next QA – Taking Advantage of Addendum 58 and Nailing Pre-Drywall QA Minimum Rated Features. (*)

In this session attendees will be familiarized with the requirements for Pre-drywall QA in Addendum 58, and explore the minimum rated features found in ANSI/RESNET/ICC 301 - Normative Appendix A and Normative Appendix B. Learning objectives are targeted to minimum rated features which can only be captured at pre-drywall and will detail benefits to Raters (inspection revenue stream, QA requirement option), builders (lower HERS scores, and measurable quality control) and providers (QA requirement options). This aspect of the rating process has become increasingly important to HERS Raters seeking to move builders to an ERI Path for code compliance in a consistent and defensible manner.

Presenters: Michael J Arblaster, Harmony Home Energy and Billy Giblin, RESNET

RES-5: HERS Rater Instructor Roundtable (*)

This will be the annually required Instructor roundtable. Topics TBA

Presenters: Laurel Elam, Billy Giblin and Scott Doyle, RESNET

RES-6: Remote QA Before, During, and Well After the Pandemic: A Panel Discussion (*)

RESNET and Building Professionals have been working toward integrating smart remote Quality Assurance for years, with an eye to reducing costs, increasing flexibility, and maintaining high standards. The COVID-19 pandemic radically accelerated the need for good Remote QA, and the need drove innovation, which led to lots of experience since March 2020. The challenges go beyond cell connections and video limitations, and the many benefits will help guide the future of QA. Our panelists include QA Providers who have integrated remote QA, along with RESNET's Quality Assurance team.

Presenters: Emelie Cuppernell Glitch, Performance Systems Development; Michael A Browne, Energy Raters of Massachusetts, Inc.; Scott Doyle, RESNET and Sharla Riead, Hathmore Technologies, LLC

RES-7: RESNET HERS QAD Roundtable (*)

This will be the annually required QAD roundtable.

Presenters: Scott Doyle; Laurel Elam and Billy Giblin, RESNET QA Team

RES-8: Real-World Project Feature

This session will feature two or more unique or challenging (out of the ordinary) rating projects. This session aims to put the spotlight on the broad spectrum of residential buildings receiving HERS ratings and the talented HERS Raters who test, inspect, and model them.

Moderator: Scott Doyle, RESNET. **Presenters:** Matson Stafford, U.S. EcoLogic; Jim Baker, B and G Drafting, and Sajed Sadati.

RES-9: You're Certified - Now What?

This session looks at the transition from being a student to a boots-on-the-ground technician tasked with providing services for builders, design professionals, and other various stakeholders. It can feel like a very lonely place from opening dialogue to staring down the tunnel of that first real (or first in a long time) inspection. This is a three-prong, practical walkthrough of the minimum rated features. We'll review concepts, field verification practices, and modeling strategies to help bring into focus the practical elements of the rating process. This is a great session for new Raters and RFIs or those who just want to brush up on some basics.

Presenter: Cindy Zeis, Performance Systems Development

RES-10: Standard 310 Compliance Made Easy (*)

RESNET/ACCA/ICC Standard 310 holds a lot of promise to lower HERS Index scores and improve the home's efficiency. Some tests you perform are easy enough, like measuring duct leakage. But what about all those other tasks? Is there a simpler way to obtain compliance? Yes, ACCA has a way for the HVAC professional to easily submit the needed measurements. The home could get a lower score, the homeowner will enjoy a

better performing HVAC system, the home builder will have a happy customer, and you will have a happy home builder. Win, win, win, win.
Presenters: Wes Davis, ACCA and Joe Medosch, measureQuick

RES-12: RESNET Quality Assurance Staff Charts a Path to Move RESNET Quality Assurance Beyond the Gold Standard.

RESNET's Quality Assurance Process is currently seen as the Gold Standard for the inspection, testing, and labeling of a home's energy and water performance. As part of its dedication to continuous improvement, RESNET management recently met with the RESNET Quality Assurance Team to chart a path on moving RESNET's quality assurance forward to a higher level.
Through this effort, the RESNET Quality Assurance Team adopted the following strategic initiatives:

- Relieve the administrative burden for RESNET staff and Providers on by making it easier to determine how much quality assurance is required
- Set up a system to be able to track the entire chain of custody among HERS Raters, RFIs and Energy Modelers in the RESNET National Registry Provide the RESNET Quality Assurance Team with analytic support to be able to more easily track rating activity in the RESNET National Registry
- Recruit a contractor or team of contractors to investigate compliance complaints and fraud (A budget for this was submitted to the RESNET Board and approved at the RESNET Board's Fall 2021 meeting)
- Enhance RESNET's ability to track all Provider Quality Assurance reviews real-time through the RESNET National Registry
- Convert the current Quality Assurance Review Checklist to an online and app-based form built into the RESNET National Registry so that updates can be made more easily available via continuous maintenance, and Quality Assurance Designees can complete in the field
- Develop a performance-based Quality Assurance process where RESNET staff and Provider Quality Assurance Designees can spend more time with those HERS Raters, RFIs, and Energy Modelers who need more assistance
- Set up a process where the RESNET Quality Assurance Team can carry out unannounced Quality Assurance field visits
- Have the RESNET Quality Assurance Data Analytics Tool available to Rating Providers so that Providers have the same ability as RESNET staff to research their rating files in the RESNET National Registry

In this session, the RESNET Quality Assurance will explain the new quality assurance initiatives that will be pursued in 2022.
Presenter: Scott Doyle, Laurel Elam and Billy Giblin, RESNET QA Team

RES-13: 2022 HERS Software Consistency Update. (*)

RESNET's Software Consistency Committee (SCC) has been working towards improving consistency in HERS Index calculations across software tools for three years now. In this session, RESNET's Energy Modeling Director (and SCC Chair) will provide an overview of the accomplishments of the committee and present a roadmap of strategic improvements to enforce greater accuracy (and, consequently, consistency) moving forward.
Presenter: Neal Kruis, RESNET

RES-14: 310 Section 5 - Non-Invasive Refrigerant Charge! You can check the Charge Without Manifold Gauges or Chlorofluorocarbon (CFC) Certification! The Next Squid Game (Netflix show) Without the Horrific Ending (*)

Learn RESNET/ACCA/ICC ANSI Standard 310 section 5 Non-Invasive Refrigerant Charge. Whether you want to add this service or just want to understand the path, this session is a once-in-a-lifetime opportunity.

You can do sections 1 & 2 in your sleep (Design Review and Total Duct Leakage). And others will provide excellent sessions on sections 3 Blower Fan Airflow, 4 Blower Fan Watt Draw, tests you can perform.

But section 5 Non-Invasive Refrigerant Charge, this is a new Squid Game! (Netflix show). This session will cover what is required to perform this fully automated test.

Non-Invasive Method 101. You can do this. Learn how this is similar to a blower door test, a few probes and an app - DONE. Benchmarking the system is the future of H/AC compliance.
We will also cover what is required for an Independent Verification Report, and what a HERS Rater should be familiar with to have a high confidence level the refrigerant charge meets the design levels.
Jim will provide an update on the Building America Team study on "Optimizing Residential HVAC Performance Using Quality Installation Verification and Monitoring Tools"

If you want to understand these terms - not just repeat the definition from section 3, you need to be in this session.

1. Condensing Temperature,
2. Condensing Temperature Over Ambient (CTOA)
3. Saturation Temperature, • Target Liquid Line Temperature
4. Target Subcooling
5. Target Suction Line Temperature,
6. Superheat

Presenter: Joe Medosch and Steve Rogers**,** Measure Quick

RES-20: Proposal for a New RESNET Standard for Embodied Carbon

HERS Raters capture data points needed to calculate Operational Emissions for the HERS Index; 65 of these data points overlap with those needed to calculate Embodied Carbon Emissions. With software innovations made to RESNET Accredited HERS Rater Software Systems, designers and builders could dial in on both operational and embodied carbon-in-materials targets, making strategic choices to lock in up-front carbon savings. NEHERS is seeking funding to do a baseline study, which could be used to determine a carbon baseline reference home standard. If included in the HERS Index, it would become part of what is already the gold standard for home energy assessments in the residential home market, transforming the HERS Index into an even more powerful tool for tackling climate change within the next 10 years.
Presenters: Mike Browne, Advanced Building Analysis; Chris Mazzola, Home Energy Raters, LLC; Andy Buccino, Stephens, and Company, Inc; and Betsy Ames, NEHERS

RES-15: Home Decarbonization

This session will provide background information on how more places in the country are switching to all-electric homes for both new construction and retrofits, and the impacts on overall energy use and greenhouse gas emissions. The impacts on indoor air quality and health will also be discussed. There are changes to the HVAC equipment and appliances used in homes, as well as changes to home infrastructure (such as smart electric panels and low power appliances), that go beyond energy use to include limiting peak power requirements and grid integration capability. The session will include discussions of cost breakdowns from over 1,700 energy retrofit projects and the results of an industry survey to provide insights for effective home decarbonization. This session will provide the technical background and practical advice that is needed for Raters who encounter more electrified homes so that they can understand how they work and what impact they might have on an energy rating and home performance in general.
Presenter(s): Iain Walker, Lawrence Berkeley National Laboratory; Brennan Less, Lawrence Berkeley National Laboratory; Núria Casquero Modrego, Lawrence Berkeley National Laboratory

RES-16: Manual S Saves the World

HVAC equipment sizing matters. If it's too big, it short cycles, degrades performance, and increases wear on the equipment. If it's too small, then the occupants aren't comfortable. The world is moving to heat pumps as a primary source of heat, and the same rule applies… size matters. This session will explain the new heat pump size tolerances in Manual S and how they can help you keep homeowners cozy without wasting natural resources or energy.

Presenter(s): Wes Davis, ACCA; Kimberly Llewellyn, Mitsubishi

RES-18: Why RESNET HERS Raters Should be Certified as $HERS_{H20}$ Raters

Water is becoming a critical issue in the nation. Water and sewer rates are rising at a rate much higher than energy costs and some of the most robust housing markets in the nation are facing water restraints. RESNET has recently launched its water efficiency rating system $HERS_{H20}$. $HERS_{H20}$ is similar to the HERS Index. It is designed to take place at the same time as a HERS rating and requires information that is already required for a HERS rating. This session will explain the $HERS_{H20}$ water efficiency rating, how to become a $HERS_{H20}$ rater and the available business opportunities.

Presenter(s): Ryan Meres, RESNET; Gregg Cobb, EI Companies

RES-19: Lessons from California - HERS Raters and Diagnostic Testing of HVAC Systems

HERS Raters in California are considered special inspectors for the CA Energy Code (Title 24, Part 6). HERS Raters in CA have been performing very similar tests as those required by the new ANSI/ACCA/RESNET Standard 310 HVAC commissioning, and more. These started back in the 2008 version of the CA energy code. This class will cover the war stories and growing pains of CA HERS Raters and how they deal with the logistics of field testing, how to deal with problematic or incompetent installers, and how to optimize the time needed to perform the tests. (This class assumes the participants already have a basic understanding of the ANSI/ACCA/RESNET Standard 310 HVAC protocols.)

Presenter(s): Russell King, ME, Coded Energy, Inc.

RES-21: RESNET in California

This session will highlight all of the RESNET programs available in California.

Presenter(s): Jeremy Wikstrom, CalCERTS, Inc.; Roy Mittleider, CalCERTS, Inc.

RES-22: Take off to the Great White North - An Update of HERS Energy Rating and Water Ratings in Canada

The session will include a brief history of RESNET and CRESNET, the Cross Border Challenge, HERS energy ratings, and the $HERS_{H20}$ Version 2 pilot with WaterSense. Of particular interest is a marketing approach that has proved very successful as an alternative to government programs. This platform includes 3 three-minute videos.

Presenter(s): John Godden, CRESNET

RES-23: Using HERS Scores To Dramatically Improve Utility Efficiency Programs

As utilities expand their energy efficiency programs into new construction markets, the HERS score and RESNET registry can add significant value to utility program designs. The RESNET registry provides implementation efficiency, data integrity, and evaluation transparency in a way not seen in traditional utility new homes programs. Our panel will highlight unique perspectives from program implementers, RESNET staff, and energy efficiency experts to demonstrate a new way to promote HERS score and utility programs simultaneously. Together, we can strengthen our industry and maximize the value of HERS Raters in utility efficiency programs.

Presenter(s): Drew Scatizzi, TRC Companies; Derek Neumann, Frontier Energy; Ryan Meres, RESNET

RES-24: What to do when you have Modeling, Software and Standards Questions

What can you do when you have Modeling, Software, and Standards Questions? This session will explain the process.

The general themes/agenda is:

- Modeling issues/concerns
- Software questions

• Standards questions
• Actions you can take!

Presenter(s): Rick Dixon, RESNET; Neal Kruis, Big Ladder

RES-25: Will Standard 310 change the past. Heating/Cooling Systems - Why is Failure the Norm? 10+ Years of data confirms we still have not mastered the installation.

Heating and Cooling system installations have been plagued with failures small and large since their origin. These systems are the most complicated installations in the home and only becoming more challenging for the H/AC contractor to install at peak performance.

HERS Raters have been assessing sections of the system, duct leakage, and maybe design- but with the addition of ANSI/RESNET/ACCA 310-2020 standard, there are new areas of verification that will provide assurance these systems are at optimum efficiency.

We will cover the impacts of improper charge, watt draw, and blower fan airflow - and the combined impacts when these failures occur. We will introduce options for Non-Invasive Temperature measurements and why this can have less risk on the environment.

Of course, we will provide historical case studies that have documented the short and long-term impacts of improper installation.

Presenter(s): Jim Bergmann, Measure Quick

RES-26: Eliminate duplicate data entry in your inspection workflow!

Efficiency is the name of the game - for homes and your business processes. In this session, we'll complete a hands-on tutorial addressing solutions to your largest inspection bottleneck - transcribing inspection data into Ekotrope RATER.

You will learn how to make your field inspection data collection process seamless. We will lead you through the implementation of an inspection app to Ekotrope RATER data connection that eliminates duplicate data entry and speeds your delivery of HERS Ratings. We'll start by discussing various HERS Rating workflows and inspection software.

Then, the session will finish with a hands-on tutorial on how to build a seamless connection between your project management and inspection apps to Ekotrope RATER.

Presenter(s): David Pedrick, Ekotrope

RES-27: Future Trends for HERS Industry - A Large Provider Prospective

What is the future for HERS Ratings? What are the challenges? What are the opportunities? To discuss these questions, representatives of the three largest rating companies will be on this panel. The HERS industry is currently in an interesting position. Not only have we survived the pandemic, but we are experiencing growth. But how long will this last? This session will peak around the corner, and the panelists will offer perspectives on what the future is for HERS ratings.

Presenter(s): Matthew Cooper, PEG, LLC; Gregg Cobb, DPIS/Ei; John Gillette, QualityBuilt; Dave Bell, TopBuild Home Services

RES-28: RESNET 310 - Grading HVAC Installs, review of accepted approaches for making airflow measurements

Standard 310 is an opportunity for HERS Raters to do more in the homes they are testing. In this session, we will provide a brief overview of the Standard 310 process, with a focus on the system airflow measurement. The session will include a detailed review and live demonstration of the four approved methods for measuring airflow.

Presenter(s): Steve Rogers, The Energy Conservatory; Bill Graber, The Energy Conservatory; Chris Hughes, The Energy Conservatory

RES-29: RESNET HERS Rating Index in California

With the support of the California Energy Commission, RESNET is partnering with the California rating provider CalCERTS in a pilot project where California builders can have their homes rated and issued a RESNET HERS Index Score using a modified version of the California CBEC software. This session will explain the pilot program and explore the implication in the state.
Presenter: Charlie Bachand, CalCERTS

RES-30: What does an all-electric home look like?

Electrification is a hot topic for progressive jurisdictions and for anyone concerned about battling climate change. To understand what it means for housing we need to understand climate change issues, carbon, beneficial and not beneficial electrification, and the impact of all of this on buildings. Now we can have a better discussion of what an all-electric home looks like.
Presenter(s): Robby Schwarz, BUILDTank, Inc.

NET-ZERO CARBON HOMES

NZC-1: *Adaptive Re-use: Schools, Warehouses, and Malls into Efficient Sustainable Housing*

As housing is a critical need in many places, finding ways to strengthen communities and promote urban redevelopment is critical. Hitting the aggressive worldwide carbon reduction goals will include both new energy-efficient carbon-free construction, but also the reuse of existing structures. We will review multiple project types to show how existing schools, warehouses, and malls can be transformed into efficient housing. We will demonstrate how using the HERS Index can be a powerful tool to help run utility cost comparisons and hit the energy reduction goals of these rehabs. Issues such as dealing with historic tax credits and insulation that can be balanced will be discussed and navigating unique detailing and thermal bridging in rehab projects. We will also demonstrate how combining efficient insulation upgrades with all-electric mechanical systems can lead to lower carbon use on the building's operations and in lowered embodied energy.
Presenters: Jeff Love and Nick Hinman, Sustainable Comfort, Inc

NZC-2: Decarbonization Economy: What is it and How do We get There?

This session will explore how the transition to the Decarbonization Economy will free us of carbon emissions and yield some of the largest capital gains that humanity has ever seen.
Creating a net-zero carbon economy is no longer out of reach or expensive. Massive innovation in the Internet of Things (IoT), artificial intelligence, renewable energy, and other enabling technologies have set us on a trajectory to achieve full-scale decarbonization.

Electrified homes, buildings, and vehicles will soon become mini-microgrids and virtual power plants, offering enhanced resiliency and stability, now paramount as natural disasters like wildfires and superstorms take out grid infrastructure with increasing frequency.

Carbon reduction technology is now capable of capturing and embedding large amounts of carbon into all of the products around us, decreasing harmful emissions and reducing our collective environmental footprint. Swelling consumer demand is making the Decarbonization Economy virtually inevitable: with 77 percent of millennials willing to pay more for environmentally sustainable products and Gen-Zs quickly becoming the most ardently active and passionately vocal generation, there is no doubt where the future is headed. Fortunately, sustainability has become a moral imperative in the business sector, driving strategic development, innovation, and sales decisions. To our collective benefit, decarbonization has become the most cost-effective way for businesses to mitigate risk, enhance resiliency, and broaden their public appeal.
Presenter: Sara Gutterman, Green Builder Media

NZC-3: *DOE Zero Energy Ready Home, Version 2 – a Cut Above and yet Within Reach*

After 8 years of proving that Zero Energy Ready Homes are possible, the U.S. Department of Energy is ready to raise the bar. DOE's 2.0 version of the DOE Zero Energy Ready Home specifications was released in November 2021 for public comment and the new specifications will be issued in early 2022 with a phase-in period over the remainder of the year.

While the new specifications certainly increase the requirements in several respects, notably to align with the new 2021 IECC insulation requirements, Raters can still feel confident encouraging their customers to try for the DOE certification, knowing that several builders in the program are already meeting various aspects of the new criteria. This presentation will give an overview of the new requirements and provide several examples of how current ZERH builders are meeting these new criteria. We'll also show some of the results they are getting in terms of energy savings, cost savings, and implementation costs, as well as other key program metrics.

Presenters: Theresa Gilbride, Pacific Northwest National Laboratory and Joe Nebbia, Newport Partners

NZC-4: How the US Housing Market will achieve Net Zero Carbon Emissions

Using Ekotrope's unique dataset and Scenario Modeling we will explore various pathways to Net-Zero. Our broad dataset allows us a unique perspective on Net-Zero strategies and policies. This data in combination with Scenario Modeling - a new tool that enables Raters to quickly answer what-if questions on large groups of energy models - allows Ekotrope to analyze many Net-Zero strategies quickly and identify the best options with relative ease. We'll use this tool to evaluate the effectiveness of various building strategies to achieve Net Zero in the US new construction home market. These data and lessons learned can help decision-makers craft new policies and building strategies to achieve Net-Zero carbon construction.

Presenter: David Pedrick, Ekotrope

NZC-6: *Working Towards a Decarbonized Future with the CEE Integrated Home (*)*

Utilities are tasked with achieving increasingly ambitious greenhouse gas emission reduction goals. As programs assess how to meet these bold integrated demand side management (IDSM) targets, new construction offerings are focused on not just energy efficiency, but also resource flexibility, load forecasting, distribution system reliability, avoided capacity, and customer satisfaction or amenity. Connectivity and communicating capabilities will play a progressively more dominant role in new home programs as the energy landscape evolves. CEE's many years of consensus-based development of load flexibility specifications and minimum requirements provide a basis for utilities to design new construction offerings that specify product or system functionalities necessary to enable energy management objectives. This session will provide an overview of CEE's new Integrated Home Initiative and associated Integrated Home Competition, and their role in helping the utility industry work towards decarbonization. In addition, individual members will share presentations about their specific new home program offerings that adopt the CEE Integrated Home requirements and deploy in their service territories.

Presenter: Alice Rosenberg, Consortium for Energy Efficiency

NZC-7: *DOE Zero Energy Ready Homes – from a Raters perspective (*)*

Version 2 of the DOE ZERH program may be giving you a little anxiety. This session will discuss the significant changes and how they impact how Raters interact with their builder clients. Ideas of how to communicate these changes to your existing clients and how to engage new builder clients will be discussed. The ZERH program offers a great opportunity for Builders and Raters in our climate-conscious society to create zero energy homes that buyers are looking for.

Presenter: Robert Schwarz, BUILDTank, Inc.

NZC-8: This Old Farmhouse: The Evaluation

The presenter will guide the audience through adopting a 120+-year-old farmhouse and all the unique comfort and energy efficiency problems that go along with it. The attendees will follow the initial evaluation and performance testing, as well as the interpretation of the test results. The attendees will learn how buildings evolve, having retrofits and structures added. The presenter will take the audience through each potential retrofit, including 1) attics, 2) knee walls, 3) crawlspaces, 4) rooms over a garage, and more. Finally, the presenter will take the audience through the difficulty of executing these retrofits.

Presenter: David M Horton, QTPI

Zeroing In: Helping Utilities Reach Their Decarbonization Goals Through New Homes

Launched in 2020, the Consumers Energy All-Electric New Home Pilot explores decarbonizing residential buildings and assesses the potential of zero energy ready homes in Michigan. The pilot is a collaboration between Consumers Energy and the NRDC to foster scalable production of affordable, high-performance single-family homes that are PV ready. Launched in 2020, the Consumers Energy All-Electric New Home Pilot explores decarbonizing residential buildings and assesses the potential of zero energy ready homes in Michigan. The pilot is a collaboration between Consumers Energy and the NRDC to foster scalable production of affordable, high-performance single-family homes that are PV ready.

Presenters: Ross Igoe and Rob Murawski, ICF

NZC-10: The Goldilocks Zone and Air Source Heat Pumps

Have you ever tried navigating a database full of products and wished that there was a way to visualize the data, sort based on your parameters, and compare products? Verizon and T-Mobile let you do that when comparing mobile phones, but imagine a world where you could do this with heat pumps! The Northeast Energy Efficiency Partnerships (NEEP) in partnership with NYSERDA has done just this with NEEPs cold climate Air Source Heat Pump Product List. Join Dan Wildenhaus of TRC, Derek Koundakjian of NEEP, and Kerry Hogan of NYSERDA for a tour of the NEEP ccASHP Data Visualization Tool. This tool is intended to focus on visualizing data relevant to sizing ccASHPs for heating by showing the home load line concerning the heat pump's modulating range. Using data already uploaded to the Product List, along with data inputs from the user, this tool will provide visuals to show which heat pumps or what your selected heat pumps time is in the "Goldilocks Zone" of operating within the modulating range. In addition, the tool calculates and shows helpful sizing data such as the load requiring backup heat, load below the minimum capacity of the system, etc. Dan, Derek, and Kerry will lead an upbeat, and informative session outlining the best uses of the tool for Raters, homeowners, builders, and HVAC designers.

Presenters: Dan Wildenhaus, TRC; Derek Koundakjian, NEEP; Kerry Hogan, NYSERDA

NZC-11: *How RESNET's NEW CO_2e Index Reflects Time of Energy Use*

RESNET has recently added a CO_2e Index to its ANSI/RESNET/ICC 301-2019 Standard. This CO_2e Index is based on the regional long-run, hourly electricity generation emission projections of the Cambium database developed by NREL. The new CO_2e Index takes advantage of two significant advancements: 1) the fact that the Cambium database provides CO_2e emissions for each of the 8760 hours of the year for each of the generation and emission assessment regions in the Nation and 2) the fact that all RESNET-accredited HERS Software Tools now perform hourly energy use calculations. As a result, it is now possible for RESNET to take advantage of these hourly CO_2e emission rates to provide a new metric valuing when energy is used within its Rating portfolio. Providing a CO_2e performance Index for homes is also extremely timely for climate change considerations and the Environmental, Social and Governance (ESG) considerations of RESNET's client corporations. The discussion will include the fact that the new index will include time of use and what it means to utilize efficiency programs.

Presenters: Philip Fairey, FSEC Energy Research Center; David Goldstein, National Resources Defense Council (NRDC); Neal Kruis, Big Ladder Software; and Dave Roberts, National Renewable Energy Laboratory (NREL)

NZC-12: Net Zero multi-family housing and pathways to lower embodied carbon and energy - case study Blockhouse Life project Spokane, WA

Embodied carbon and energy in the built environment are a significant challenge for a sustainable world. This net-zero 14-unit multi-family housing project incorporates many features that significantly reduce embodied carbon and energy. Net-zero buildings significantly lower operational energy use as well.
We will explore 5 major features of this project which make it innovative and sustainable:

- Cross-laminated timber construction is a great way to reduce embodied carbon in the built environment.
- Solar panels making the project net-zero are on the roof of the neighboring building. A creative agreement with the building owners and utility was required to make this project feasible.
- This medium-density urban housing project has minimal on-site parking. The project is located in a walkable/bikeable neighborhood that is well connected by bus service to downtown Spokane. Reducing vehicles on the road is a good way to reduce energy use and carbon emissions from transportation.
- Small energy-efficient homes have lower energy use and a lower carbon footprint.
- Small multi-family housing helps address the housing affordability issues we see across the country.

Presenter(s): Greg Davenport, Mitsubishi Heating/Cooling - Performance Construction Team

NZC-13: Phius as a reliable path to Net-Zero

Phius certification provides a clear path to net-zero carbon homes through the drastic reduction of heating and cooling loads as a result of passive, or non-mechanical means. Gallatin Passive House is a project in New York's Hudson Valley that was recently completed and went beyond Phius' certification to achieve Net-Zero Carbon with surprisingly little effort. Gallatin Passive House was awarded the 'Best Single-Family Project' at the 2021 Phius conference and is an exemplary project that demonstrates the success in pairing Passive House and Renewable energy to achieve net-zero. The presentation will share the successes and failures experienced during the design, certification, and construction process to provide an example of means and methods that can be adopted by the next generation of single-family homes.
Presenter(s): John Loercher, Phius

NZC-14: Decarbonization of Residential Water Heaters by Operating on Natural Gas and Hydrogen Mixtures

The urgency of reducing greenhouse gas emissions requires the replacement of natural gas with low-carbon fuels. Due to the carbon-free characteristic and various generation sources from renewable energy, hydrogen becomes a promising option to replace natural gas. However, the interchangeability of natural gas appliances on hydrogen is still not clear. In terms of residential natural gas consumption, water heating takes a leading percentage, which makes water heaters in the priority position for decarbonization. Emission performance, especially NOx emission, is one of the main driving factors for the technological advancement of water heaters. Currently, South Coast Air Quality Management District in California, U.S. has one of the strictest regulations in the world on residential water heaters (SCAQMD Rule 1121): 10 ng/J or 15 ppm (@3% O_2). The regulation is also being adopted by other states in the United States. During the energy transition from natural gas to renewable hydrogen, emission performance variation needs to be investigated. In this study, five representative residential water heaters are selected to investigate the influence of hydrogen addition on emission performances (CO, NO, NO_2, N_2O, NH_3). The results send out a positive signal of replacing natural gas with hydrogen on residential water heating regarding emissions.
Presenter(s): Yan Zhao, University of California, Irvine

NZC-15: Creating an Airtight Shaft Liner Area Separation wall

The IECC requires that townhomes and duplexes achieve 3 or 5 ACH50 depending on the climate zone, and programs often even tighter. My experience is that attached housing is 2-3 times leakier than detached even though detached is generally twice as large. In the past, creating airtight attached dwellings has been quite

difficult and costly due to the 1" to ¾" gap between the area separation and structural components of the assembly. Two recently completed UL and ICC/NAT tests are changing how we should think about construction and air sealing this assembly. This session will explore what fire separation means and how air leakage can now be addressed.
Presenter(s): Robby Schwarz, BUILDTank, Inc.

NZC-16: Fuel-Fired Equipment in a Zero Carbon Future: Does Gas have a Role?

This session will not talk about what's expected but explore what's possible and happening. While true fossil fuels will always have concerning GHG impacts, this session will map out multiple pathways to achieve lower greenhouse gas emissions, leveraging technologies that are nearing market introduction to provide a renewable dual-fuel future. Next generation equipment such as residential CHP, hybrid air source heat pumps, and fuel-fired gas heat pumps provide multiple end uses of space heat, water heat, and cooling with annual COP over 1. When combined with a combustion fuel that is renewably sourced - including bio-methane and hydrogen - these technologies can combine to offer resilient and renewable energy sources, with long-term seasonal energy storage capacity to assist electrification efforts. Pilot field demonstrations of some of these technologies have provided rich data sets, and performance results will be shared in this session.
We will map out fuel pathways for a Zero Carbon future, share case studies of the technologies, and apply performance results in RESNET-approved modeling software for retrofit and new construction applications. Finally, market readiness and cost-effectiveness of the technologies and short-term commercialization will be discussed.
Presenter(s): Paul Glanville, GTI; Jason LaFleur, GTI

STEERING ENERGY POLICY AND PROGRAMS

EPP-1: Disaster Resilience: Tools and Tips for Raters and Builders

Billion-dollar disasters such as wildfires, floods, hurricanes, and severe storms have struck with increasing frequency in recent decades. While homeowners may feel powerless against the forces of nature, there is much that can be done to build and rebuild with disaster resilience in mind to decrease the devastating effects of severe weather events. Armed with building science, builders, remodelers, and raters all have a role to play in encouraging more disaster-resilient construction. In this session, our group of presenters will look at what is available in terms of resources for disaster resistance from federal, regional, industry, and utility programs. We'll hear from building scientists working with the U.S. Department of Energy (DOE) and Housing and Urban Development (HUD) as well as the Insurance Institute for Business and Home Safety (IBHS) and utility programs to learn about new resources and programs available to those involved in the home construction industry. We'll then look at case studies and best practices from programs that have worked in this sector, wrapping up with a look at utility programs that have supported new construction and rebuilds with incentives, technical support, and partnerships with manufacturers.
Presenters: Dan Wildenhaus, TRC; Alexandra Cary, Insurance Institute for Business and Home Safety; John Peavey, Home Innovation Research Labs and Theresa Gilbride, Pacific Northwest National Laboratory

EPP-2: *The Latest on the Federal Tax Credit for Energy Efficient Homes*

The 45L federal tax credit is for builders who build and sell energy-efficient homes. The tax credit was set to expire on December 31, 2021. RESNET was very active in advocating for the extension of the credit. The 45L tax credit is an important tool for improving the energy performance of new homes. Congress has extended and amended the tax credit. This session will explain the changes that Congress has made to the credit and what it means for builders and RESNET professionals.
Presenters: Steve Baden, RESNET and Carl Chidlow, Winning Strategies Washington

EPP-3: Envelope Efficiency Trade-offs with High-Efficiency Equipment and Renewable Energy Generation

Residential energy codes that allow trading off performance improvements in HVAC/SHW equipment or renewable energy generation for cutbacks in building envelope efficiency concerns many energy code stakeholders. Two of the main objections are free ridership and inequity of measure life. While the home's enclosure can last 40 or more years, HVAC/SHW and renewable energy generation equipment have a much shorter lifetime.

A trade-off analysis utilizing the DOE cost-effectiveness methodology was performed to assess the envelope trade-off potential of the 2021 IECC in two groups. The first group simulated five high-efficiency HVAC/SHW and renewable generation scenarios. The second group has two parts; one analyzed the 2021 IECC with the envelope efficiency for each previous edition of the IECC (2006 IECC-2018 IECC), the second part analyzed diminished insulation levels of individual envelope components. The energy use reduction from Group One was compared to the energy use increase from both parts of Group Two to determine the levels of envelope degradation that can be traded for high-efficiency HVAC/SHW equipment or renewable energy generation. The analysis shows the scope of the envelope degradation potential from equipment efficiency and renewable energy generation trade-offs resulting in certain envelope components being completely uninsulated while meeting code requirements. Envelope efficiency will generate greater energy savings over the life of the building than high-efficiency equipment while providing greater comfort and minimizing moisture issues. These findings are pivotal for energy policy development promoting long-term energy-efficient solutions without sacrificing comfort or resiliency.

Presenter(s): Robert Salcido, PNNL

EPP-4: 2021 IECC – Significant changes

The 2021 IECC has been published and errata has already been released. The DOE determined that approximately a 10% increase in efficiency will be achieved through the implementation of this new code. Progressive jurisdictions are moving forward with adoptions that will implement the new code in 2022, while the majority of the nation's jurisdictions will wait a while before adopting. Do you know what is new? This session will reveal the significant changes in the 2021 IECC and how they integrate with the base code. It will break down those changes that impact efficiency and those that don't. Come explore what's new.

Presenter(s): Robby Schwarz, BUILDTank, Inc.

EPP-5: What's Next - Energy Policy in the Second Year of the Biden Administration

2022 will be the second year of the Biden Administration. Energy and climate change are a leading priority for the Administration. This session will explore what has been accomplished in the first year and project what is in store for 2022.

Presenter(s): Carl Chidlow, Winning Strategies Washington

EPP-6: State of the Union on Climate and Energy Policy in the US

Climate and energy policy is a top item on the agenda in Washington. The Biden Administration has placed a high priority on climate and energy policy. The rating industry can be dramatically affected by the actions taking place. This is the beginning of the second year of the Administration. This session will cover what has been accomplished in this area in 2021 and project what can be expected in 2022.

Presenter(s): Carl Chidlow, Winning Strategies Washington

EPP-7: The IECC/HERS Code Compliance Program: Bringing Consistency to Energy Code Compliance Documentation

HERS Raters and RFIs have been increasingly more involved in energy code compliance verification for over a decade. They are involved with everything from inspections to leakage testing to performance path and ERI compliance modeling.

Over the past several years, RESNET has received many inquiries from local code officials about HERS Rater's involvement in compliance verification. Unfortunately, there is a misunderstanding by code officials that the compliance verification and testing work done by HERS Raters and RFIs is subject to RESNET oversight.

Currently, RESNET only has oversight of HERS Ratings submitted to the RESNET Registry. Code official surveys have indicated that there is a need for third-party involvement in energy code compliance, but there is also significant concern about some independent oversight of these third parties.
Some of the above-mentioned inquiries from code officials have led to the discovery of fraudulent compliance verification documents using either the RESNET or HERS logos. RESNET has had to pursue legal action to stop the fraudulent activities of these individuals. Since the code compliance reports are not covered by RESNET procedures nor entered the RESNET National Registry, RESNET has only been able to take action over the improper use of the RESNET trademarked material. Unless something is done to stop the fraudulent actions, the reputation of the HERS industry will suffer and code officials could lose confidence in HERS Raters. Attend this session to learn about this new program, what it means for the HERS Rating industry, and how to get involved.
Presenter(s): Ryan Meres, RESNET

EPP-8: How to Have Your Voice Heard in Washington

Energy and climate policy are a priority in Washington conversations. There are many initiatives and proposed legislation that could affect the HERS industry. RESNET professionals' voices must be heard by decision-makers in Washington. RESNET's Washington Representative, Carl Chidlow, will lead this discussion on how to have your voices effectively heard by decision-makers and what resources RESNET can provide.
Presenter(s): Carl Chidlow, Winning Strategies Washington

EPP-9: What the heck is an ESG?

The presenter will begin by helping attendees learn what ESG means (Environmental, Social Governance). Starting with examples of what could be considered an example of an applied ESG from the past, the presenter will take the audience through where they are today. The presenter will also guide the audience through the evolution of ESG strategies from individual businesses, then industries, even governments adopting ESG's. Finally, the presenter will look forward with the audience, imagining what this might mean for RESNET and the rating industry.
Presenter(s): David Horton, QTPI

EPP-10: 2021 IECC can you trade off anymore?

Raters entering the code compliance arena primarily demonstrate value to their building clients by determining through energy modeling the most cost-effective way to achieve IECC Compliance. In the past, this modeling has been done on the back of Section R405 Simulated Energy Performance, and the HERS energy rating index score was provided as a byproduct of the modeling, a value-add, or a marketing mechanism for the builder. Section R405 energy modeling once allowed aggressive whole house tradeoffs. Does it still? Join me for an energy modeling journey that has surprising results and may change our approach toward 2021 IECC performance compliance approaches.
Presenter(s): Robby Schwarz, BUILDTank, Inc

EPP-11: Minimum does not mean shitty!

Everyone says that a code-built home is the minimum shittiest home one can build. Is this true? Let me make an argument why this is not true.
Presenter(s): Robby Schwarz, BUILDTank, Inc

PERFORMANCE-BASED ENERGY CODES

PERF-1: Energy Code(s) of Tomorrow

Outside of the states and municipalities considering the 2021 International Energy Conservation Code, numerous jurisdictions are considering stretch energy-efficient energy codes. Places like Seattle, Boulder, and Massachusetts have either adopted or are in the process of adopting advanced energy codes that go well

beyond the 2021 IECC. A net-zero appendix is also in the latest edition of the IECC. What are the features of these new energy codes and how will they be implemented and enforced? What role will there be for energy raters in these new energy codes?
Presenter(s): Isaac Elnecave, Phius

PERF-2: The Future of Energy Codes

Join Dan and Robby in a discussion on the future of energy codes, starting with the International Energy Conservation Code. Dan will cover how builders, trades, and Raters lead the charge of vetting what is buildable, sellable, and actually saves energy – a critical step in measures and processes getting momentum for adoption in codes. Robby will discuss how the IECC has changed from 2018 to 2021, and what some of the thoughts are about what might be coming in the 2024 code development process. This lively session will incorporate audience interaction on what makes sense to push forward in terms of efficiency in our homes, as well as ask the audience to help debate which new measures or levels of efficiency are buildable and what challenges may be presented.
Presenters: Dan Wildenhaus, BetterBuiltNW and Robby Schwarz, BUILDTank, Inc

PERF-3: Energy Code Update: The 2021 International Energy Conservation Code (IECC)

The International Code Council published the 2021 IECC in January of 2021 and numerous states are poised to adopt it. Attend this session to stay up to date on the latest residential provisions in this national model energy code. This session will provide an update on changes between the 2018 and 2021 IECC with a focus on items with the greatest impacts on Raters and other energy professionals, including changes to requirements for air sealing, infiltration testing, duct leakage testing, mechanical ventilation system testing, and energy modeling-based compliance approaches. The session will also cover a variety of items that must be met regardless of the chosen energy code compliance path (formerly known as “mandatory” provisions).
Presenter: Mike Turns, Performance Systems Development

PERF-4: A Path to the Future - Texas' Energy Code HERS Index Compliance Option

In 2021 the Texas Legislature passed HB 3215. The legislation updates the state’s universal energy code compliance pathway to allow builders to use the HERS Index for energy code compliance across the state, in place of the state energy code or any stretch code adopted by municipalities. This session will explore how this new legislation makes it easier for builders to use the RESNET HERS Index for energy code compliance in Texas, and how other states can look to this legislative model, moving forward from HERS rating companies' perspectives.
Presenters: James Rodriguez, Fox Energy Specialists; Jonathan Risch, DPIS/Ei and Kathy Howard, Burgess Construction Consultants, Inc.

PERF-5: Energy Codes - The Power of a One-Page Checklist!

In many places, basic energy code inspection is an afterthought, if performed at all. And yet, as HERS Raters know, field inspection is crucial to making sure the details are performed correctly ("to get what you expect, you must inspect"!). See how we've simplified the code for multiple jurisdictions and supplied a full-color, image and photo-filled training to guide how to use the checklist. Learn about the 3 primary opportunities for site inspections and what we've learned in the process of sharing the condensed, easy-to-use site inspection checklist.
Presenter(s): Mike Barcik, Southface

HIGH-PERFORMANCE AFFORDABLE HOMES

AFF-1: Integrating Healthy Building Strategies in the Design of Energy Efficient, Resilient and Affordable Single-Family Homes (*)

Research has shown that financial burdens related to housing affordability directly undermine the health outcomes of occupants. To reduce the cost burden of homeownership, many low-wealth homeowners often

choose to live in older, low-cost, substandard housing to make ends meet. Unfortunately, poor in-unit conditions of substandard housing contribute directly to both acute and chronic health conditions. Providing opportunities for green, energy-efficient, resilient home construction that is also affordable is increasingly understood to provide a positive correlation in the improved overall health of occupants. However, this positive collateral outcome is rarely intentional.

The disconnect between green building performance and intentional health impacts is due, in large part, to the fact that while high-performance building envelopes are designed and engineered as an assembly, based on the aggregated performance relationships of various integrated components, the potential health impact assessment of those assemblies occurs primarily at the level of the individual, discrete material unit. By integrating the foundations of a healthy building—as first described by the Harvard T.H. Chan School of Public Health—directly into the building performance design process, we can better understand and improve the potential health impact of our design decisions that heretofore could only be assumed.
Presenters: Rusty Smith; Judith Seaman; Mackenzie Stagg and Elizabeth Farrell Garcia, Auburn University Rural Studio

AFF-2: *Affordable Housing with Low Carbon Emissions and Sequestration*

At Habitat for Humanity Gunnison Valley, we are using many tools and strategies that draw down carbon and reduce emissions of gases with high Global Warming Potential [GWP] indexes. Ecologically focused housing and construction has long been considered a luxury available only to those with medium or high incomes. Emerging technologies, frameworks, and practices are starting to reveal a different reality. On many levels, this is a time of great change and there are more opportunities than ever to make choices as design/build professionals that positively affect our economy, sociality, and eco-systems. This applies both on a local and global level. The goal of “Net-Zero” is frankly a missed opportunity as construction can be part of the solution to climate change. We need to prioritize strategies**.**
Presenter: Cillian Liam Barrett, Hearth Design Build