

Last Updated: 1-22-2021

2021 RESNET Building Performance Conference On-Demand Sessions



RESNET is going virtual! For the 2021 conference, RESNET’s pre-recorded sessions will be held in a virtual library that is available to attendees to download 24/7 throughout 2021. Sessions will allow Raters to obtain the necessary 18 Professional Development credits needed for certification. Sessions will be listed with knowledge levels: beginner, intermediate, and advanced, within the following categories:

1. Navigating Finance and Real Estate
2. Steering Energy Policy and Programs
3. The New Frontier of RESNET
4. Uncovering Building Science, Water Efficiency and Health
 5. EEBA
 6. EPA

For more information on the RESNET Conference [CLICK HERE](#). *PLEASE NOTE THAT SESSIONS AND SCHEDULE ARE SUBJECT TO CHANGE*. Contact conference@resnet.us for questions.

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Navigating Finance and Real Estate

NAV-1 The RESNET - Appraisal Institute Appraiser Portal - A Powerful Tool for Valuing Green Homes

Knowledge Level: Beginner

RESNET and the Appraisal Institute has developed the Appraiser Portal. This online tool allows appraisers to search a property's HERS information. The following information is available to appraisers 24/7. ANSI RESNET/ACCA/ICC Standard 310 allows for credit in HERS Index Scores for the commissioning of the installation of HVAC systems. This is a great opportunity for HERS Raters to add to their toolbox of services that they provide for builders and an opportunity for builders to lower their homes HERS Index Scores. This session will explore these opportunities, define the HERS Rater role in the commissioning, how to promote this extra service to builders and what a HERS Rater must do to be able to provide this service.

Presenters: Sandra Adomatis, Adomatis Appraisal Service; Ryan Meres, RESNET

NAV-2 Realizing the Value of High Performance in the Midwest

Knowledge Level: Intermediate

Minnesota, Michigan, and the Chicagoland areas are markets that have not been studied to identify how buyers and sellers in the market react to high-performance features. Elevate Energy published the first of its kind appraiser-led study of these markets. The goal was to learn if buyers are willing to pay a premium for high-performance features, if so, how much, and to identify how often high-performance features are visible in marketing. This session will focus on the findings both positive and negative. You'll be surprised at some HERS ratings found in the MLS and just how many weren't found in the MLS.

Presenters: Sandra Adomatis, Adomatis Appraisal Service; Pamela Brookstein, Elevate Energy

NAV-3 The Value of an Energy Cost Estimate for Every Home

Knowledge Level: Intermediate

Energy ratings can provide a detailed estimate of a home's annual energy use and the related annual energy costs. But, without a consistently calculated energy cost estimate for that home, the rated estimate lives in a vacuum. The lack of an "expected estimate" for comparison is especially important for real estate and finance. In those fields, the value of any home attribute is relative to what is expected for a house of a similar age in that neighborhood. Green valuation techniques taught to appraisers and the SAVE act both call for the use of such a comparison point for every home, but it has not existed until now. The National Renewable Energy Lab, DOE and key stakeholders have worked to develop a Energy Cost Estimate methodology that is being integrated into reports for use in real estate transactions and finance.

Presenters: David Heslam, Earth Advantage Inc.; Greg Hopkins, Rocky Mountain Institute; Madeline Salzman, US Department of Energy

[NAV-4 The Nuts & Bolts of Green Home Data and the MLS: a 101 Session for Getting the HERS Integrated into Real Estate Transactions](#)

Knowledge Level: Beginner

The basics of the real estate world RESO data standards

Diverse and numerous MLS IT and business models

How an MLS makes changes to its data fields

The difference between the local MLS and a service like Zillow

How real estate agents use data

How appraisers use data

How the Green Building Registry is working with partners like RESNET to put green data to use

Aggregating all 3rd-party green data for a one-stop shop

Public website for easy access by all

API services for industry partners and scalability

MLS data auto-population

Presenter: Meg Garabrant, Earth Advantage

[NAV-5 Breaking Barriers in the Mortgage Market: How Fannie Mae is Leveraging the HERS Index to Build Sustainably Focused Mortgage-Backed Securities, and What this Means for our Industry](#)

Knowledge Level: Advanced

Finally, the HERS Index is breaking into the new homes mortgage market! This session will explore a program launched by PEG, Fannie Mae, and Ekotrope to allow Fannie Mae to package ENERGY STAR Certified New Homes (and other high efficiency homes at a later stage) into distinguished socially responsible mortgage securities. This is the first step in moving toward better mortgages for better HERS Rated homes, which will be a game changer for the industry. Come learn about this initiative, including timelines, how to participate, and what it means for your business.

Presenters: Ziv Rozenblum, Ekotrope; Matthew Cooper, PEG

[NAV-6 Tips to Better Value for What You Build](#)

Knowledge Level: Intermediate

If you are reflect building a house with a label and low HERS rating, but the appraised value just doesn't the value, this session is for you! Builders can gain valuable tips on how to document their houses in a more meaningful way to achieve a better appraised value. Raters can gain tips on how to be a value-added resource to assist builders in the appraisal process. The appraised value often does not reflect value for the energy features because the details were never provided or at least not in a way that was meaningful. Maybe that sales contract did not include language that allowed the lender to understand the type of appraiser you needed. Come prepared to take notes and leave

with resources to enhance the builders' ability to achieve a better value.

Presenter: Sandra K. Adomatis, Adomatis Appraisal Service

[NAV-7 Making HERS Ratings Visible in the Real Estate Market](#)

Knowledge Level: Beginner

A key to unlocking the value of energy efficient homes is making them visible in the real estate market. One way to do this is including HERS Index scores in real estate listings. RESNET has been working to expand this practice by developing an API to auto-populate HERS scores in multiple listing services (MLS) and partnering with Earth Advantage and their Green Building Registry to reach more MLSs. In addition, RESNET's Appraiser Portal—a joint initiative of RESNET and the Appraisal Institute—has seen steady increases in users since its launch three years ago. These initiatives combine to help educate consumers, bring added value for energy efficient homes and ultimately drive more demand for HERS Ratings. Come to this session to hear industry experts discuss what they're doing to make HERS Index scores visible in the real estate market and how this impacts the future of HERS Ratings.

Presenter: Ryan Meres, RESNET

[NAV-8 Homebuyer Migration Due to Pandemic and Climate Change and the Effect on the Homebuilding Industry](#)

Knowledge Level: Beginner

Perspective of the Homebuyer Migration Due to Pandemic and Climate Change and Effects on the Homebuilding Industry.

Presenter: Sara Gutterman, Green Builder Media

[NAV-9 Building Homes for Multi-Use](#)

Knowledge Level: Beginner

This panel of industry experts discusses how the pandemic and emerging trends have helped us realize the need for homes to be designed and built for multiple uses. We will discuss the desire and needs for home offices, remote schooling, multi-generational, indoor air quality, etc., and what the building industry can do to provide these needs.

Presenters: Sara Gutterman, Green Builder Media; Molly Berg, Habitat for Humanity International; Eric Sung, Thrive Home Builders; Stace McGee, Equiterra Design

[NAV-10 Energy Efficiency Mortgages: What's the Latest with GreenCHOICE?](#)

Knowledge Level: Beginner

I. GreenCHOICE Refresher – Present an overview of the purpose, benefits and features of Freddie Mac's energy efficient mortgage offering.

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II. GreenCHOICE, the First Year – Communicate lessons learned on the first year of energy efficiency lending. How has the market responded? How did different regions of the country adopt the offering?

III. GreenCHOICE, What's Next – Give attendees a sneak peek on what to expect from Freddie Mac's contribution to Green Lending.

Presenter: James Cromartie, Freddie Mac

Steering Energy Policy and Programs

EPP-1 Through the Looking Glass - The Future of the 45L Federal Tax Credit for Energy Efficient Homes

Knowledge Level: Beginner

The 45L federal tax credit is for builders who build and sell energy efficient homes. The tax credit is scheduled to expire on December 31, 2020. RESNET has been advocating for the amending of the standard and having a multi-year life so that builders can plan for the credit. Legislation has been introduced in the House to amend and extend the credit. It appears unlikely to pass Congress this session. This session will explore the paths forward for the tax credit in the new Congress and the efforts that RESNET will mobilize the HERS industry in support of legislation that would amend and extend the tax credit.

Presenter: Carl Chidlow, Winning Strategies Washington

EPP-2 A Ladder of Ambition for Zero Net Energy (ZNE) Buildings

Knowledge Level: Beginner

Achieving zero net energy use (ZNE) has developed into an established tool to meet globally accepted climate goals since its introduction in 2005. Even then, the urgency of the climate crisis – coupled with analysis of the opportunities for reducing emissions in buildings – led to a realization that we needed to reduce energy use in building to net zero by 2030. But how do we get to zero? One way is to make use of another key tool for cutting climate pollution: Strategic Energy Management (SEM). The tool is complementary to the ZNE goal – and we believe that the two policies are strongly synergistic. This session will explore how Zero Net Energy embraces several related, but distinct goals.

Presenter: David Goldstein, NRDC

EPP-3 RESNET Study on Impact of Energy Efficiency on Veterans Administration Home Loans

Knowledge Level: Beginner

As a benefit to our nation's veterans, the U.S. Veterans Administration (VA) administers the Veterans Home Loan program to assist those who have served our country with the ability to purchase and finance a home. Who better to be able to afford an energy-efficient home that has lower utility bills and is more comfortable than our veterans who have served us so well? RESNET is advocating that the VA Home Loan program be modified to account for the energy savings of an energy-efficient home in the mortgage loan qualification process. To determine the impact that such a policy would have on the ability for veterans to buy a high- energy performance home, RESNET has published the report, "Impact of Energy Efficiency on VA Home Loans." The report is based upon the analysis conducted by the Florida Solar Energy

Center (FSEC) and mortgage finance industry veteran and expert, Robert Sahadi of GreenSpace Investment. This session will present the study's findings.

Presenters: Philip Fairey, FSEC; Robert Sahadi, GreenSpace Investment

EPP-4 The Process for Developing the International Energy Conservation Code and What is Ahead in the Future

Knowledge Level: Beginner

The International Code Council (IECC) has been reviewing what changes it can make to increase the credibility of the International Energy Conservation Code (IECC). The ICC in 2020 formed a blue-ribbon panel to review the IECC development process and make recommendations to the ICC for improvements it could implement. This session will discuss the current process in which the IECC is amended every three years, review the deliberations of the blue-ribbon panel and a peak into what changes can be foreseen in the future.

Presenter: Mike Pfeiffer, International Code Council

EPP-5 Role of a Rater: Unhappy Homeowners

Knowledge Level: Intermediate

Are you frustrated seeing homes being occupied that are not meeting the requirements of ENERGY STAR, ZERH or IECC? Are you hearing from homeowners of ENERGY STAR, ZERH or IECC certified homes who are not happy with the builder's customer service and want to know if their issues with comfort (hot/cold, dusty room); higher than expected gas and electric bills; indoor, air quality are valid? What protocol should a Rater take when called by a new homeowner to verify that their home is in compliance with IECC, ENERGY STAR or ZERH requirements? In this session, we will discuss what builders tend to get right and areas they consistently get wrong for whatever reason, and how to raise the performance of homes where you live. Maybe we will come up with some amendments to propose!

Presenter: Les Lazareck, Home Energy Connection LLC

EPP-6 Building Science Meets the IECC

Knowledge Level: Beginner

Enforcement of the 2018 IECC has moved from prescriptive requirements to an understanding of the intent of the code. Therefore, we need to better understand the Building Science, so we realize the connections between efficiency, durability, safety, and comfort. This course will walk you through the 2018 IECC, the basic building science incorporated in its compliance path and the connection between energy and specific sections of the IRC.

Presenter: Robby Schwarz, BUILDTank, Inc

EPP-7 IECC's Relevance in the Age of City Climate Action Goals

Knowledge Level: Intermediate

Major cities around the country have created significant climate action goals and are developing significant policies and codes to reach them. How are these goals, policies, and codes aligned with the IECC? Will the IECC be a player to move us forward or has the energy code run its course and now it's up to cities to take us to the next step?

Presenters: Robby Schwarz, BUILDTank, Inc; Scott Prisco, City and County of Denver

EPP-8 The Apocalypse is Coming! or Not. What's Really Up with the 2021 IECC?

Knowledge Level: Intermediate

For some, the 2021 IECC has the apocalyptic feel of the 2012 IECC. In 2012, a projected 15% increase in efficiency was implemented from the previous version of the code and mandatory blower door testing was implemented. In the 2021 IECC, a projected 10% increase in efficiency is coming and most do not know how that is going to be implemented. What is the reality of the 2021 IECC and what does it mean for Raters and the builders they are working with? Are compliance path options changing, mandatory requirements, or are the changes driven by better written sections? Let's reveal what's behind the black curtain.

Presenter: Robby Schwarz, BUILDTank, Inc

EPP-9 Energy Ratings vs. Energy Code Ratings

Knowledge Level: Intermediate

A rating is becoming a term used to describe a methodology for how to approach the evaluation of a home. One can do an energy rating, code rating, quality assurance rating, etc. Raters are beginning to perform more code compliance ratings, yet it is not clear if all parties involved in code compliance understand the difference between an asset rating and a rating used for compliance with a code. Come learn how jurisdictions are adapting to using Raters as 3rd party inspection agents and what it means to do a compliance rating vs. energy rating.

Presenter: Robby Schwarz, BUILDTank, Inc

EPP-10 ERI vs. ERI

Knowledge Level: Intermediate

An unintended consequence of the creation of ANSI Standard 301 was the ability to create different Energy Rating Index scores. Currently, the two main ERI scores are the RESNET HERS Index and the IECC Energy Rating Index. These index scores turn out to be significantly different when applied to the same house. What is the consequence of this reality and is there a danger for the industry due to this reality?

Presenter(s): Robby Schwarz, BUILDTank, Inc

EPP-11 The Future of Energy Codes

Knowledge Level: Intermediate

We all have followed the development of energy codes over the last decade, but how will the development and implementation of energy code progress over the next few years? This session will be a discussion of leaders in energy codes development of the key issues with building code development and implementation, including: (1) The stringency of the IECC- Residential advances in fits and starts. Will the level of efficiency increase or decrease in the upcoming cycles? (2) What is the contribution of stretch codes? (3) What are key issues with implementing the existing energy codes? How might these impediments be addressed? (4) Multi-family residential occupancies may fall through the cracks or have confusing requirements. Are there improvements in how we consider multi-family residences? It is the intention that this discussion will generate ideas that would lead to improved energy code development and implementation as our industry moves toward net-zero energy homes.

Presenters: Theresa Weston, The Holt Weston Consultancy; Chris Mathis, MC2 Mathis Consulting; Philip Fairey, FSEC Energy Research Center; Robby Schwarz, Build Tank, Inc; David Goldstein, NRDC

EPP-12 Choosing Cost-Effective HERS Index Targets for Programs, Energy Codes, and Builders

Knowledge Level: Intermediate

Recent research commissioned by the Massachusetts Department of Energy Resources (DOER) set out to determine the cost effectiveness of several HERS Index targets under consideration for a Massachusetts Stretch Energy Code update. The current stretch code requires a maximum HERS Index of 55, but DOER is seeking to improve this target in the march toward carbon neutral new homes. Proposed targets included HERS 47, HERS 42, HERS 0 with PV, and Passive House for a variety of home sizes and types in Climate Zone 5. Using energy and construction cost optimization modeling, Performance Systems Development assessed the most cost-effective packages of energy efficiency measures to achieve the proposed targets. The results of this study are informative to program administrators, energy code policymakers and advocates, and home builders in setting appropriate efficiency targets for their programs, codes, and homes. This session will present a series of case studies describing the “winning” efficiency packages and the associated energy, cost, and GHG savings compared to a code baseline.

Presenters: Mike Turns, PSD; Emelie Glitch, PSD; Ian Finlayson, MA Department of Energy Resources

EPP-13 Virtual Energy Codes - How Do We Do This?

Knowledge Level: Intermediate

Education, inspection and enforcement of today's energy codes are further challenged by our need for safety and distancing. How do we handle energy code issues during this time? Besides

the obvious challenges of teaching energy code via online learning, what about actually enforcing the code in this manner? Come to this session to learn techniques and methods for safe and remote code enforcement that still enables the construction project to move forward. Utilize the power of a code checklist coupled with a remote and moveable camera to allow code enforcement to proceed when partnered with a builder or sub that is motivated to demonstrate compliance. With direct communication between code official and contractor, see how this approach could be the future of code enforcement!

Presenter: Mike Barcik, Southface

[EPP-14 Using the HERS Index to Drive to Net-Zero, Low Carbon Multifamily Buildings](#)

Knowledge Level: Intermediate

With the aggressive climate goals set around the county, adoption of holistic low carbon buildings in both new construction and renovations is needed at a large scale. To achieve drastic reductions in carbon, we will explore what it means for the HERS industry to drive the design of efficient, low carbon housing. We will focus on both single family and low-rise, wood framed multifamily construction types, we will explore Passive House, Net-Zero buildings, and electrification. Using case studies to highlight where the industry is heading for high-performance, including projects in the New York State Buildings of Excellence Competition, and showcasing how the HERS Index is helping in policy to drive toward net-zero energy.

Presenters: James Moriarty, Sustainable Comfort, Inc; Chris Straile, Sustainable Comfort

[EPP-15 Using HERS and HERS H2O Data for Environmental Impact Reporting](#)

Knowledge Level: Beginner

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. In addition, RESNET's new whole-house water efficiency rating system, HERS H2O now gives builders the opportunity to demonstrate the water savings of their homes. Both systems combine to demonstrate a builder's positive environmental impact by having their homes rated by an independent third-party for water and energy efficiency. Come to this session to learn how HERS data is being used in environmental reporting and the role HERS H2O can play in further demonstrating a builder's commitment to reducing their environmental impact.

Presenter: Ryan Meres, RESNET

[EPP-16 HERS and the Affordable Housing Crisis](#)

Knowledge Level: Intermediate

Energy efficiency in affordable housing is equity in housing. With a need for over 7.2 million additional affordable housing units, how do we ensure the way in which we meet demand does

not sacrifice quality for quantity? Habitat for Humanity registered over 1,000 HERS ratings in an 18-month period 2019-2020, what can the aggregated HERS indices and the individual data on how the lowest ratings were achieved mean for the high volume of affordable homes that will be produced in the near-term future?

Presenters: Edwin Hensley, Habitat for Humanity International; Molly Berg, Habitat for Humanity International

EPP-17 Resilient + Efficient + Affordable = Sustainable

Knowledge Level: Intermediate

For a home to be truly sustainable, it has to remain affordable for the long term, which means lowered cost of operations as well as fewer repair and replacement costs – both in blue skies and in the face of natural hazards. The role of resiliency in sustainable housing, the role of energy efficiency in resiliency, and the part each play in affordable housing is each moving closer to the fore of national conversation. This session will detail how affordable housing producers are striking a balance between all three in high performance home construction.

Presenters: Leslie Chapman-Henderson, Federal Alliance for Safe Homes; Edwin Hensley, Habitat for Humanity International; Molly Berg, Habitat for Humanity International

EPP-18 WaterSense V2.0 Pilot

Knowledge Level: Beginner

EPA has rolled out the Water Sense Labeled Homes Version 2 Pilot Program. This pilot has introduced the industry to a revised version of the program, which provides flexibility to builders while still meeting the water efficiency and performance standards that consumers expect when they see the WaterSense label. During this session we will present technical and administrative aspects of the pilot program as well as any feedback on these aspects from participants – HCOs, verifiers and builders. The pilot has allowed the industry to become familiar with the new certification structure and technical requirements. Through RESNET is the first and only approved HCO to date, the certification scheme's added flexibility will serve as an incentive for a larger pool of Home Certification Organizations to participate and thus expanding the reach of the program.

Presenters: Jonah Schein, EPA WaterSense; Olga Cano, EPA WaterSense

The New Frontier of RESNET

RES-1 How to Attract New Builders with the ANSI RESNET/ACCA/ICC Standard 310

Knowledge Level: Intermediate

ANSI RESNET/ACCA/ICC Standard 310 allows for credit in HERS Index Scores for the commissioning of the installation of HVAC systems. This is a great opportunity for HERS Raters to add to their toolbox of services that they provide for builders and an opportunity for builders to lower their homes' HERS Index Scores. This session will explore these opportunities, define the HERS Rater role in the commissioning, how to promote this extra service to builders and what a HERS Rater must do to be able to provide this service.

Presenter: Greg Cobb, EI Companies

RES-2 Digital Marketing 101 for Raters

Knowledge Level: Beginner

Social media along with other forms of digital marketing, can be important for drawing in customers. Not all online marketing is the same. There are tricks to the trade that will allow your company to have a larger footprint ranging from paid advertising to free search engine optimization tactics. This issue will provide an overview to HERS raters.

Presenter: Peter Troast, Energy Circle

RES-3 A Comprehensive Approach to Using HERS Raters and RFIs for Energy Code Compliance

Knowledge Level: Beginner

In late 2019, RESNET and the International Code Council (ICC) launched a new ICC designation called the IECC/HERS Compliance Specialist. This designation is available to certified HERS Raters and RFIs who obtain the ICC Residential Energy Inspector/Plans Examiner Certification. The designation was the first step in a comprehensive plan to get HERS Raters and RFIs more engaged in all aspects of energy code compliance. To accompany the designation, RESNET, in collaboration with ICC, created the IECC/HERS Compliance Code Compliance Program. The concept for this program is for individuals with the designation to serve as a one-stop shop for builders to demonstrate energy code compliance, backed by RESNET's industry leading quality assurance oversight. The first phase of the program will provide uniform compliance certificates and reports for the Simulated Performance Alternative Compliance Path in the 2009 and 2018 versions of the IECC. Attend this session to learn about achieving the designation and the business opportunities available by participating in this new energy code compliance program.

Presenter: Ryan Meres, RESNET

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RES-4 Performance-Based QA Policy Update

Knowledge Level: Beginner

RESNET QA Team will have an update on the Performance-Based QA policy.

Presenter: Scott Doyle, RESNET

RES-5 Update on RESNET Metric for Valuing When Energy is Used

Knowledge Level: Intermediate

RESNET has created a working group to explore the development of a metric that will capture the locational/temporal value of energy usage. The working group will provide an update on their activities and share the latest thinking on how best to incorporate when energy is used into HERS, including the technologies that provide the building load flexibility that electric utilities are seeking.

Presenters: David Goldstein, RESNET; Dave Roberts, NREL

RES-6 Zen and the Art of HERS Rater Maintenance

Knowledge Level: Beginner

We will discuss ways to stay safe and sane in the HERS Rating world. 2020 has thrown everyone more than a few curveballs and given us a chance to think more about what matters most. We have a lot of good work to do yet, and we need to keep ourselves tuned up regularly and work smart to reduce the wear and tear. In or out of a pandemic, what can we better do to take care of ourselves on and off the clock?

Presenter: Billy Giblin, RESNET; Mike Arblaster, Harmony Home Energy

RES-7 Best Practices for Remote QA Review and Pre-Drywall QA Review

Knowledge Level: Beginner

Demonstration of best practices for Remote QA Review and Pre-Drywall QA Review taught via pre-recorded video from the field plus panelist commentary and discussion.

Presenters: Will Adamson, Ei Companies; Sam Galphin, Performance Point; Beth Ainsworth, Performance Point; Karen Barras, GreenBuilding Consulting; Dave Horton, Green Building Consulting; Sharla Riead, Accurate Rater Network

RES-8 Inspiring and Mentoring our New Workforce

Knowledge Level: Beginner

As we plan for the future of an industry that will grow and evolve, what can we do to inform, recruit, inspire and mentor our new and future workforce? This panel will discuss the many career paths that are now and will be available to people who learn about and choose to enter our industry. How do we better educate people entering the workforce or looking for a

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meaningful and promising career path about our industry?

Presenters: John Hensley, Building Performance Solutions; RESNET Emerging Leadership Council Representative

RES-9 Hiring and Maintaining a Young Workforce

Knowledge Level: Beginner

Where can you find new employees and how will you keep them? What are the priorities of the new generation(s) of workers? This session will look at strategies for recruitment and investment of young employees with the goal of making a long-term career out of skilled trades.

Presenter: Clint Shireman, Knauf Insulation

RES-10 2021 Software Consistency Update

Knowledge Level: Intermediate

RESNET's Software Consistency Committee (SCC) has been working towards improving consistency in HERS Index calculations across software tools for two 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-11 Fostering Common Language Across Trades

Knowledge Level: Beginner

If you've ever had a discussion with a tradesperson, design professional, building official or any number of people and watched their head nod up and down while sporting a look of total confusion on their face, this sessions for you! Or maybe you've avoided, or at least dreaded, conversations due to what can often feel like an insurmountable language gap. If any of this sounds vaguely familiar, you should definitely attend this meeting. The goal of this session is to identify differences and similarities, in language (oral, written, etc.) used across various disciplines and how we can utilize this knowledge to foster a common language and therefore common understanding of the energy and rating elements of Building Codes, EEPs and other compliance programs.

Presenter: Cindy Zeis, Performance Systems Development

RES-12 Impact of Crisis on Growth Momentum

Knowledge Level: Beginner

Catastrophic events of any kind pose major challenges throughout the building and rating industry, not to mention our personal lives. From a broad view, we can evaluate not only the types of changes that emerge, we will also notice an appreciable change in momentum. In this

session, we'll take a boots on-the-ground look at recent advances in Field and Quality Assurance protocols during the COVID-19 pandemic, take note of what works well and what doesn't and how we can build on this knowledge to affect ongoing change and growth. Your presenter will pull from her personal experiences with disaster recovery, military operations, the construction and rating industries to show how this pandemic relates to other types of catastrophes and how to utilize this interchangeability to build the systems and confidence to navigate future events.

Presenter: Cindy Zeis, Performance Systems Development

RES-13 The Age of Extinction - How Utility New Homes Programs Survive the Code Apocalypse

Knowledge Level: Beginner

New Homes programs have been a stalwart of Residential Energy Programs for more than two decades, but new energy codes are a real threat to these programs. With the adoption of more progressive codes, savings will be increasingly hard to achieve. Many program models won't deliver cost effective savings under these new baselines. These programs will have to evolve dramatically to continue to deliver savings cost effectively. This session will begin with a short presentation on existing best practices, The Anatomy of Successful New Homes programs: What Good Looks Like. We will then turn to our panel of distinguished builders, raters and utility program managers to discuss the future of new homes programs. How must these programs evolve to continue to contribute meaningfully to our energy efficient future? In other words, will these programs go the way of the dinosaurs? Or will beneficial electrification, HVAC commissioning and other trends breathe new life into these programs?

Presenters: Mike Berry, ICF; Cy Kilbourn, Ekotrope; Andre Pujic, Ei Engineering

RES-14 HERS H2O and WaterSense: Taking Water Efficiency Efforts to New Heights

Knowledge Level: Intermediate

The availability of water is becoming an increasing concern for builders as communities are more and more reluctant to add to their delivery burden by granting new building permits. In response, RESNET made tremendous strides in 2020 after more than five years of water efficiency development work. In 2020, ANSI/RESNET/ICC 850 was published, the HERS H2O Rater Training was launched, RESNET became the first WaterSense Home Certification Organization and RESNET and EPA signed an agreement to begin to pilot WaterSense version 2.0 using HERS H2O. RESNET's status as a WaterSense HCO and the structure of WaterSense labeled homes version 2.0 makes HERS H2O with WaterSense certification an easier addition to your portfolio than ever before. Less than three hours of training via the RESNET training portal is all it takes for raters or RFIs to expand their portfolio! From there, it becomes a cost-effective and flexible option. Under WaterSense labeled homes version 2.0, you can HERS H2O to provide feedback on cost-effective efficiency solutions and demonstrate that homes are meeting the WaterSense efficiency requirement. The efficiency requirement along with a simple and easy to meet mandatory checklist result in a water-efficiency, high performing home

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with quantifiable savings. All it takes is a minimal amount of additional field verification/calculation which can typically be done in under an hour. Come to this session to learn how to start offering HERS H2O ratings and the WaterSense label for your builders.

Presenters: Ryan Meres, RESNET; Jonah Schein, U.S. Environmental Protection Agency

RES-15 RESNET Rater Instructor Roundtable

Knowledge Level: Intermediate

This is the required roundtable for RESNET Rater Instructors. In this session, we will review a host of current hot topics that are relevant to Instructors.

Presenter: Scott Doyle, RESNET

RES-16 RESNET QAD Roundtable

Knowledge Level: Intermediate

This is the required roundtable for RESNET Quality Assurance Designees. As usual, we will cover the latest updates on RESNET Standards and Quality Assurance initiatives.

Presenter: Scott Doyle, RESNET

RES-17 Automated Quality Assurance- The Future is Now

Knowledge Level: Intermediate

The RESNET Board of Directors adopted a set of policies to enhance the consistency of ratings through the RESNET Quality Assurance program. The last of these policies to be implemented by RESNET Staff was a policy to regularly report the results of automated QA to RESNET Accredited Providers, so that the information could be used to help improve the quality and consistency of ratings. After reviewing the existing tool, it was determined that substantial redevelopment would be necessary to meet the new use-case for automated QA as well as the future data management needs of the organization. This session will give a progress update on this exciting new initiative, which has the potential to add value to the Quality Assurance program and well beyond.

Presenters: Scott Doyle, RESNET; Ryan Meres, RESNET

RES-18 Practical Implementation of RESNET QA Checklist- A QAD's Perspective

Knowledge Level: Intermediate

Addendum 30 has altered the landscape, changing the RESNET QA program in many ways. One of the biggest changes for QADs is the requirement of the RESNET QA checklist. After piloting the checklist for over a year, the RESNET QA team created a Staff Advisory group to draft a revision, implementing industry feedback and making the checklist more practical and user-friendly. The revisions addressed much of the early feedback, but as the checklist became required mid-2020, new questions and concerns have surfaced. How does the checklist apply for pre-drywall QA? How can it be customized and adapted for cloud-based enterprise

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management systems? Are users filling it out in the field on a tablet? How much time does this add for a file QA review? This session will cover these questions and more, as a member of the RESNET Quality Assurance Team moderates a Q&A session with a panel of Quality Assurance Designees, representing a variety of Provider models and sizes.

Presenter: Scott Doyle, RESNET; Sharla Riead, Accurate Rater Network; John Hensley, Building Performance Solutions; Will Adamson, Ei Companies; Tei Kurcharski, FSEC; Cindy Zeis, Performance Systems Development; Billy Giblin, RESNET

RES-19 Practical Implementation of Standard 310- A Rater's Perspective

Knowledge Level: Intermediate

This session will feature a real-world perspective on the implementation of ANSI/RESNET/ACCA 310, the new national standard for grading the installation of HVAC systems. The new standard was approved in June of 2020, with training and implementation into the rating system rolling out in the weeks and months that followed. As with any new standard, the "early adopters" have been putting Standard 310 to practical use and learning important lessons along the way. A moderator will guide this panel of early adopters through a Q&A on the topic. What unexpected problems did they encounter? Are there any time-saving tips or "rater life hacks" to offer? How much time does this service really add? We'll cover these questions and many more with a panel of raters who work primarily in the field.

Presenters: Scott Doyle, RESNET as moderator; Chris Urbanus, Burgess Construction Consultants, Inc.; Michael Kelly, TexEnergy; Dan Granback, Ei Companies; Chris Long, Ei Companies

RES-20 Monetizing Water Efficiency

Knowledge Level: Beginner

How can homebuilders monetize the water efficiency of homes? Explain water efficiency. Indoors, outdoors, storage, appliances, even driveways are opportunities. Discuss Energy credit for water efficiency. Teach selling points to builders and consumers of water conservation over life of home.

Presenters: RESNET Staff, Residential Energy Services Network, Inc

RES-21 Digging Deep on Energy Code Compliance

Knowledge Level: Intermediate

This session will focus on new data about energy code compliance path choices from two important perspectives – practitioners and code officials. RESNET has formed a partnership with ICC that is bearing fruit, and Home Innovation Research Labs has been exploring the actual builder and rater practices and motivations that drive the compliance path choice. This session will explore results from builder and code official surveys and builder and rater focus groups to dig deeper into the practical aspects that motivate the choice of performance versus prescriptive energy code compliance. Raters often serve as the go-to energy experts in support of builders and code officials across the nation. The FSEC Energy Research Center, Home

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Innovation Research Labs, the ICC and RESNET, along with the BER, are collaborating on U.S. DOE-funded projects to research how performance-based and prescriptive-based code compliance are integrated into the building marketplace based on need, opportunity and goals; many of the answers to these research questions point toward simplicity, ROI, and high-quality energy expertise as driving factors.

Presenters: Philip Fairey, FSEC Energy Research Center; Michelle Britt, International Code Council (ICC); Patti Gunderson, Home Innovation Research Laboratory

[RES-22 Data Trends in HERS Ratings - What Drives Low Scores, How that has Changed Since Last Year, and What's Up \(or Down\) with ACCA 310?](#)

Knowledge Level: Beginner

This session explores the nearly 200,000 ratings performed using Ekotrope in 2020, presenting approaches taken to achieve the lowest HERS scores, how that changed vs. 2019, and what the implications of ACCA 310 (HVAC Grading) are on the industry and on the HERS Index. Whether you are looking to lower your HERS scores, curious about ACCA 310, or would like an inside look at industry-wide trends, this session is for you.

Presenter: Cy Kilbourn, Ekotrope

[RES-23 New Frontier of RESNET: RESNET 310 Technology Review of Accepted Approaches for Making Air Handler Flow Measurements](#)

Knowledge Level: Intermediate

This session will go through a technical review of the four approved methods for measuring air handler flow as part of the NEW RESNET 310 Standard for grading HVAC Installations. The session will review all four approved methods: Flow grid, Pressure matching, Flow Hood, Static pressure tables and discuss theory of operation, advantages & limitations as well as best practices for implementing each approach. The session will give a rater who is new to HVAC Air Handler flow measurement the basics and practical knowledge for getting involved with this rating service.

Presenters: Steve Rogers, The Energy Conservatory; Bill Graber, The Energy Conservatory

[RES-24 Trends in HERS Rated Homes: A Look Back at 2020](#)

Knowledge Level: Beginner

RESNET houses a wealth of information on more than 1.7 million HERS rated homes in its National Buildings Registry. RESNET provides analysis of HERS data as a benefit to its Suppliers Advisory Board (SAB) members. In 2020, RESNET released the inaugural report: "Trends in HERS Rated Homes." The report looked at trends across HERS ratings for 2019 and will become an annual tradition. Come to this session to hear about the trends in how and where HERS rated homes are being built and how your company could benefit from using HERS data.

Presenter: Ryan Meres, RESNET

RES-25 Rater Self QA - A Case Study of the Most Missed or Messed Up Modeling Mistakes

Knowledge Level: Beginner

Four years of data from thousands of HERS Ratings processed through an automated Rater Self QA tool provides the basis for this case study. Come learn which areas cause Raters and Quality Assurance Providers the most heartburn and headaches. The results range from fat-fingers to changing standards to areas of modeling that really require more education – they may just surprise you.

Presenter: Sharla Riead, Accurate Rater Network by Hathmore Technologies, LLC

RES-26 Who Says You Need to be in the Office: How Various Companies Leverage Cloud Based Software into their Mobile & Remote Workflows

Knowledge Level: Beginner

Remote work is prevalent in the HERS industry. From on-site inspections to the car ride in between, productivity can be enhanced with cloud technology. Additionally, many office staff are working remotely due to Covid-19. These factors have put technology at the forefront of everything we do and can be a powerful tool to help keep a business and the industry moving forward, even as we are all spread apart. Working remotely presents a few obstacles that can be overcome with appropriate management techniques and cloud technology. This session will discuss successful strategies to manage a remote workforce, review how rating companies use cloud technology, and how they use it to optimize existing workflows and manage their remote workforce.

Presenters: Jacob Kamen, Ekotrope; Nathan Bessette, Southface Energy Rated Homes; Daniel Conner, Southern Energy Management (SEM)

RES-27 Advanced Home Analysis with Ekotrope - Lessons Learned from Supporting Nearly 200,000 Homes in 2020. Common Mistakes, Opportunities and Troubleshooting

Knowledge Level: Intermediate

Our experience from nearly 200,000 HERS Ratings in 2020 show that many raters stumble upon similar pitfalls and in some cases, miss opportunities for better and more accurate energy scores. This session will dive into some of the more common modeling errors that we see, discuss basic and advanced troubleshooting procedures and tools, and suggest ideas for increasing modeling accuracy and performance.

Presenter: Jacob Kamen, Ekotrope

RES-28 Essential Market Trends to Grow Your Business!

Knowledge Level: Intermediate

Understanding key market trends, consumer behavioral patterns, purchase drivers, and sentiment can help any building professional make better business decisions. In this session,

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Green Builder Media CEO, Sara Gutterman, will reveal the latest market intelligence gathered by COGNITION Smart Data, offering deep insights into consumer preferences that will enable you to improve your marketing, sales, product development, and competitive positioning.

Presenter: Sara Gutterman, Green Builder Media

[RES-29 How much does HVAC installation grading affect HERS Index Scores?](#)

Knowledge Level: Advanced

With the advent of ANSI/RESNET/ACCA 310, builders can lower their HERS Index scores by demonstrating proper installation of HVAC systems, but by how much? This session explores the impact of HVAC grading on HERS Index scores for different HVAC system types in different climate zones. Attendees will depart this session with a better sense of what to expect from HVAC grading in upcoming versions of RESNET accredited software.

Presenters: Philip Fairey, FSEC; Scott Horowitz, NREL

Uncovering Building Science, Water Efficiency, and Health

TECH-1 Real World Examples of Failed Building Enclosure Assemblies and How the HERS Rater can Provide Guidance for Quality Installations that Eliminate Failures

Knowledge Level: Intermediate

We all know that buildings constructed under current codes and standards are very different than buildings constructed under previous regulations. Buildings are required to have lower building leakage rates and greater thermal resistance, (insulation) and better indoor ventilation strategies due to the current pandemic. Failures in building enclosures, (floors, walls, attics and roofs) can be easily avoided as long as there is a keen understanding of why these failures occur. The HERS Rater is in a particular role to influence, assist and guide builders and trade contractors on the essentials of quality installations of materials and systems. Understanding the causes of failures that are directly related to poor quality installations is essential in eliminating the damaging results caused by improper installations. This session will review a variety of real-world (building) failures, how to identify irregularities, a bit of diagnostics, what caused the failure and provide recommendations and corrections.

Presenter: Rick Blumenthal, Knauf Insulation

TECH-2 Indoor Air Quality System Approach for a Post-Covid World

Knowledge Level: Intermediate

We present a system approach using three existing technologies to combat Covid. We believe the presentation will provide concrete guidance and refer to existing ASHRAE guidance along with practical products, modest cost and ease of design and installation. To be clear, to date no company has received any type of “Covid” certification. It is unclear what will be certified or if the three-part approach will be recommended. However, without high filtration to remove the particles, without the ability to kill small airborne particles nor a solution for growth inside the HVAC system and components, it is unlikely it will be successful in providing protection against viruses. The limitations of this strategy are that these systems will require maintenance. UV bulbs need to be changed annually, many filters have service lives and depending on the building occupancy may need to be changed every 30 days to maintain the effectiveness. Hydro peroxide production long term will require regular inspection of the device for proper operation. We cannot understate the end user’s role in maintaining the components of any strategy.

Presenters: Ted Konechne, Ei Companies; Aaron Holden, Ei Companies

TECH-3 Market-Ready High-Performance Walls

Knowledge Level: Intermediate

The construction of high performance or “advanced” walls represent a significant energy efficiency opportunity for the new home construction sector. This session provides best practices and research findings on three wall systems being used with greater frequency by

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leading-edge builders: Thermal Break Shear Wall (TBS); 2x6 Intermediate frame with exterior rigid insulation; 2x4 double stud with blown-in fibrous insulation.

Presenters: Waylon White, Earth Advantage; Christopher Dymond, Northwest Energy Efficiency Alliance

TECH-4 Heat Pump Water Heaters: The Good, The Bad, and the Snuggly?

Knowledge Level: Beginner

There's plenty to say about heat pump water heaters. That can be plenty of good and bad, but snuggly? Can a HPWH really make you feel better about things? What the heck is the Advanced Water Heater specification and how does a HPWH meet it? Join Dan in this fun and fast presentation that will provide both a "state of the industry" update on where we are with this equipment, check out resources aimed at helping you make good selections, as well as take a look at some of the value propositions around these devices that may just make you all warm and fuzzy feeling on top of being more knowledgeable!

Presenter: Dan Wildenhaus, BetterBuiltNW

TECH-5 Maximizing Mini-Splits

Knowledge Level: Intermediate

Ductless and ducted mini splits have begun to populate programs and markets across the country. But some utility programs and homeowners are finding that they are not getting the savings or performance that they expected. Recently, the Northwest Energy Efficiency Alliance, NEEA, commissioned a review and assessment of all the relevant research available around ductless heat pump installations and program requirements. In this presentation, trainer and market liaison Dan Wildenhaus, along with NEEA's Sr Product Manager for HVAC will explore the current challenges being faced, the results of research, and the recommendations that if adopted by a builder, HVAC technician, or utility program could result in maximized savings and the performance that's expected. Dan and Christopher will look at the opportunities and recommendations that impact both existing and new homes with mini splits.

Presenters: Dan Wildenhaus, BetterBuiltNW; Christopher Dymond, NEEA

TECH-6 Choose Your Own Adventure: Building Performance Good, Better, Best

Knowledge Level: Beginner

This interactive presentation will demonstrate the options and how the decisions in design, construction, materials, and finish in a home impact the energy savings, health of the occupants, durability, and resiliency of the structure - and of course the costs to build. Examining regional cost data, and the benefits and consequences of different assemblies and construction options, we will design and build a home that is based on decisions from you, live in the session. Together we can achieve the ultimate goal of providing a durable, safe home for

any type of buyer and learn the benefits and limitations of good, better, best.

Presenter: Clint Shireman, Knauf Insulation

TECH-7 Infiltration vs. Ventilation vs. Manual J

Knowledge Level: Intermediate

We have learned that proper execution of the building thermal envelope dictates a home's performance, but a home's R-values, air leakage, and ventilation rates, among other things, impact heating and cooling loads. How do we connect our design with our execution to ensure the HVAC system that was designed before the house is built works after it has been built? This session points out how infiltration and ventilation are not the same, and among other things can be used to grossly oversize HVAC systems if we are not on the same page as our partners.

Presenter: Robby Schwarz, BUILDTank, Inc

TECH-8 The Future of Healthy Homes: Living in the Era of COVID and Wildfires

Knowledge Level: Intermediate

There is increased interest due to COVID and wildfires in ensuring that homes provide healthy and safe environments. This session will discuss the health impacts of COVID and wildfire smoke and provide the background information needed to assess mitigation options for these and other severe IAQ challenges. Advice and guidance will be provided on how to design and upgrade homes and building systems so that they can reduce the risk of COVID (and other infectious disease) transmission and the health impacts of wildfire smoke. The discussion will include best practices for source control (such as isolation practices for homes with infected occupants or high-risk occupants), air cleaning/filtration and providing ventilation air.

Presenters: Iain Walker, LBNL; Brett Singer, LBNL

TECH-9 Latest Developments in All Electric Homes

Knowledge Level: Intermediate

This session will provide background information on why more places in the country are switching to all-electric homes for both new construction and for 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. There will be a focus on cold climate applications for space heating and hot water being used to expand the range of climates for efficient all-electric homes. This session will provide the technical background and practical advice that is needed for raters who encounter these newer technologies so that they can understand how they work and what impact they might have on an energy rating and home performance in general.

Presenters: Sean Armstrong, Redwood Energy; Iain Walker, LBNL

TECH-10 Efficient Whole House Ventilation for Healthy IAQ

Knowledge Level: Beginner

Today, people are more concerned than ever about healthy indoor air. The good news is we can achieve both healthy IAQ and still have an airtight, efficient dwelling. With today's wide range of ventilation solutions, especially whole house, we can eliminate harmful pollutants such as particulates, VOCs and mold-causing excess humidity. There are a variety of ventilation solutions available to fit most any situation, climate zone and budget. After a short review of how homes have changed in recent years to make healthy indoor air more challenging as well as how codes and standards are evolving, this session will focus on the options for whole house ventilation - exhaust, supply and balance. Opportunities with energy efficient HRVs and ERVs as well as installation options will be given special emphasis.

Presenter: Patrick Nielsen, Broan-NuTone

TECH-11 Building Envelopes for Healthy & Resilient Buildings in a Post-COVID-19 Pandemic World

Knowledge Level: Advanced

Various fields of science have been building a case and leading us for the past 100 years to better understand the importance of the indoor environment for human health. It has better defined appropriate target conditions for the indoor environment (e.g., temperature, humidity, and air quality) for human health, comfort, and productivity while deterring various pathogens such as bacteria, molds, and viruses. Furthermore, these advancements in science have pointed to various "building science" opportunities to design and construct building systems (e.g., HVAC and building envelopes) to better control indoor conditions for an optimal indoor living environment and to do so with resilience. Think of the building envelope as the protective skin or PPE of the building and the HVAC system as the internal lymphatic system to maintain internal health and help suppress pathogen propagation and survival within the building's body. These systems must work together. The present COVID-19 pandemic is not the only reason to consider that it may be time to apply this "healthy building" knowledge to a broader array of buildings, but perhaps it is the crisis that may finally cause appropriate action to be more broadly considered, accepted, and implemented. This session and presentation will provide a practical understanding and give cost-effective, actionable guidance on how to design and construct healthy and resilient building envelopes in a post-COVID-19 pandemic world.

Presenters: Jay Crandell, P.E., ARES Consulting; Amy Schmidt, DuPont

TECH-12 Does the "Smart House" Really Work? IAQ Edition

Knowledge Level: Intermediate

Indoor air quality encompasses multiple factors: pollutant load, relative humidity, temperature, air freshness, combustion appliances, the list goes on. Singular ventilation strategies cannot account for all these variables and still consider the "house as a system." We need to combine the tools to operate a house with the technical knowledge of how to implement them.

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However, this case study examines a high-performance house built with a “smart” ventilation system that attempts to monitor indoor air quality in real time and respond, without the need of a user operator. This presentation examines if technology can improve the indoor air quality of our homes, or if human intuition remains the strongest keeper of the house. This presentation will look at the data and analyze how smart ventilation affects the performance, the perceived comfort, and the health of a home. We will also discuss our experiences installing the system, and opportunities as a home energy consultant to expand one’s services.

Presenter: Samantha Morton, SK Collaborative

TECH-13 Multi-Family and Whole Building Air Tightness Testing

Knowledge Level: Intermediate

Air tightness testing for multi-family buildings has been a large topic of concern over the past few years. In many cases, this type of testing can become a bit more complicated as multiple fans are needed to conduct tests for larger buildings, or to neutralize adjacent spaces. In this session, we'll cover the various methods that are used to test multi-family building including compartmentalized tests, guarded tests, and whole building tests. We will use a special building simulator to demonstrate how these tests are conducted. This simulator is completely transparent so students will be able to see how everything is set up and how leaks are found. This will also provide the opportunity to demonstrate specific test scenarios when answering questions from the audience.

Presenters: Sam Myers, Retrotec; Lee Canegaly, Retrotec

TECH-14 Duct Testing Best Practices Demonstration

Knowledge Level: Beginner

Our Duct Testing Best Practices session filled the room last year. For the 2021 conference, we are bringing in a full demonstration to show the do's and don'ts of a duct leakage test. In this virtual presentation, a special air tightness simulator will be used to cover all things duct testing. This simulator is fully transparent. With the help of smoke emitters, students can see where leaks are occurring, how air is behaving, and we will talk about how these types of leaks occur in the field and how you can locate them. We'll also cover specific challenges for testing ducts at rough-in, conducting leakage to outside tests, zoned systems, and more. Various methods for locating leaks will also be demonstrated and discussed, including ways to use your blower door to find issues in duct systems.

Presenter: Sam Myers, Retrotec

TECH-15 Building America Solution Center's New Disaster Resistance Tool

Knowledge Level: Beginner

Look no further for building science guidance for energy efficient, disaster resistant construction. The U.S. Department of Energy is drawing on its impressive bank of building science knowledge and calling on some of the best minds in the industry to put together

construction guidance to help builders construct homes to be more disaster resistant and resilient. This new disaster-resistance tool is an online resource housed in DOE's very popular Building America Solution Center. Now averaging over 50,000 hits a month (that's 1,600 visits per day!), the Solution Center is an interactive resource giving builders, designers, code officials, and raters the how-to guidance on making homes more energy-efficient, durable, comfortable, healthy, and now also disaster resilient. The tool includes guidance on making homes more resistant to hurricanes, high winds, tornadoes, floods, and earthquakes. New content will cover wildfires, winter weather, pests, and sheltering in place. The Solution Center offers up easy-to-search libraries of photos, drawings, videos, CAD files, case studies, code notes, and references helpful for training builders and informing raters. The presentation will show you how to make the most of this content to make your next projects energy efficient and disaster resistant.

Presenters: Chrissi Antonopoulos, Pacific NW National Laboratory; Theresa Gilbride, Pacific Northwest National Laboratory

[TECH-16 Pressure Measurement Applications for Residential Buildings](#)

Knowledge Level: Intermediate

The session will cover key pressure measurements to be made throughout a home as part of completing an analysis and diagnosis of home performance. The session will discuss multiple specific measurements and the latest tools available to make these measurements.

Presenters: Paul Morin, The Energy Conservatory; Bill Graber, The Energy Conservatory

[TECH-17 Best Practices to Simplify Blower Door and Duct Leakage Testing](#)

Knowledge Level: Beginner

The session will cover setting up the house and the equipment, methods for conducting accurate and repeatable depressurization and pressurization tests, easy and efficient ways to generate a report, an in-depth look at test results, issues that affect calibration, methods of finding air leaks and other uses for your blower door and duct tester.

Presenters: Paul Morin, The Energy Conservatory; Bill Graber, The Energy Conservatory

[TECH-18 How a Legacy of Vibrant Product Stewardship Delivers Improved Health and Safety](#)

Knowledge Level:

The health profile of products used in the home is a growing concern for builders, architects and specifiers with good reason. How much or how little we know about the constituent ingredients of products is critical to evaluating their health profile. The Fiber Glass and Mineral Wool industries were described 30 years ago as the next asbestos, but the industry had great faith in the efficacy of their products. So, they invested in health and safety research that not only resulted in removal of their products from cancer warning lists internationally and domestically, but also established a solid record of scientific research and improvements in product

performance. Hear an update on the fiberglass and mineral wool industries' persistent commitment to responsible stewardship over their products, public health, and the environment.

Presenter: Angus Crane, NAIMA

TECH-19 Understanding Refrigerant Charge and Airflow for Residential AC Systems: A 310 Standards Primer

Knowledge Level: Beginner

In this session you will learn about Refrigerant Charge and Airflow in Residential AC systems. You will learn the basic science behind these functions and why they are so important in a residential home. We will discuss some of the tools and techniques that can be used to measure both Refrigerant Charge and Airflow. These are two critical items in the commissioning of an HVAC system. Understanding the essentials will give you what you need to help homeowners and builders see the value of them in a HERS rating. This class will also give you some insight into the refrigerant cycle and the role of airflow.

Presenter: Roy Mittleider, CalCERTS

TECH-20 The Importance of Good HVAC Design

Knowledge Level: Beginner

In addition to diagnostic testing of the performance of the HVAC system in a home, the ACCA/RESNET 310 Standard requires verification of a proper HVAC design, including load calculations, equipment selection and duct sizing. This class will cover why this is such an important step to ensuring not just comfort, but energy efficiency in a home. This class will cover the basic residential HVAC design principles, including ACCA Manuals J, S and D. Just doing Manual J, S and D calculations does not always ensure optimal performance. This class will help explain why certain items need to be checked and what happens if they are done incorrectly.

Presenter: Russell King, ME, CalCERTS, Inc

TECH-21 Electrification - All Electric Technologies to Support a Low Carbon Future

Knowledge Level: Intermediate

Once fossil fuels are burned in building operations they cannot be offset, therefore, to hit the drastic carbon reduction goals set around the country, transforming the technologies in buildings to become electrically based will be paramount. Come for a discussion of common building system components and the available all-electric replacement options. A summary of air source and ground source heat pumps, energy recovery ventilation, solar PV systems, and the all-important domestic hot water systems will be included, and how the Rating industry can adapt to their use.

Presenters: Michelle Tinner, Sustainable Comfort, Inc; Isaiah Grigos, Sustainable Comfort, Inc

TECH-22 Cold Climate Heat Pumps - What Do Raters REALLY Need to Know?

Knowledge Level: Intermediate

Cold Climate Heat Pumps have gotten a lot of attention for potentially amazing performance. However, poor specification, install, and other issues can hamper the results and customer satisfaction. Introductory training is readily available but does not provide Raters and builders with the tools and information that they really need for successful retrofits. Manufacturer delivered design and install training is too complex. Manual J, D, S, extended data, weather bins, balance points, turn-down ratios and various other technical items confound and confuse. What do we really need for successful deployment of cold-climate heat pumps in HERS Ratings and in above code programs? This session focuses on the few key items that help ensure successful new construction and retrofits with cold-climate heat pumps. Stop being confused by the jargon and start managing successful auditing and installations.

Presenter: Dan Wildenhaus, BetterBuiltNW

TECH-23 Fossil Frontiers - Installed Energy Performance of Dual-Fuel HVAC and 120%+ AFUE Gas-Fired Heat Pumps

Knowledge Level: Beginner

Fossil fuel systems provide an energy backbone across the United States and elimination is often cited as a way to decarbonize buildings. What if there were systems that achieved 120% - 140% AFUE? or provided a layer of resilience and backup energy, while delivering primary energy savings and integrated with electric-based HVAC systems to deliver consumers with an optimum mix of low cost, high comfort, and low carbon. This session will look at emerging technologies and results from field evaluations for next-generation systems such as thermally driven heat pumps, combi systems, dual-fuel systems, and other strategies. Discussion of rating and residential energy modeling considerations will be included. Detailed case studies of performance in cold climates will be emphasized, with examples from New York, Wisconsin, Illinois, Michigan, and Ontario. Implications around the balance point temperature for hybrid HVAC systems switching from one fuel to another will be covered.

Presenter: Jason LaFleur, GTI; Justin Margolies, Slipstream

TECH-24 Improving HVAC Performance Through Novel Installation Methods and AFDD Technologies

Knowledge Level: Intermediate

Residential heating, ventilation, and air conditioning (HVAC) remains one of the largest sources of potential energy saving. It is estimated that more than 65% of residential HVAC systems have been improperly installed and are performing sub-optimally. Building America has funded seven current research projects to address these issues and improve installed performance of HVAC systems. These projects include a national baseline field study to investigate the prevalence and severity of installation faults and combinations of faults, field validation of tools and methods to ensure quality installation, and development of automatic fault detection and diagnostics (AFDD) systems to monitor installed performance and optimize comfort control. This session

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will present this ongoing work and how the various project approaches address the full spectrum of integration and installation issues impacting HVAC system performance. Through this presentation, attendees will learn how these novel installation methods and AFDD systems are being developed and field validated.

Presenters: Lena Burkett, NREL; Lucas Phillips, NREL

TECH-25 Mind the Overlap - Quality and Building Performance

Knowledge Level: Intermediate

Quality Construction and Energy Efficient Construction have a significant overlap, yet they are managed by various stakeholders, scopes of work, trades when the reality is that to do either well you need to do both well. From infiltration rates to comfort expectations, the need for quality design, installation, and maintenance are critical to building quality, risk mitigation and performance as it relates to Energy, IAQ, and Water Efficiency. The goal of this session is to show the true alignment between improved design, improved quality processes and oversight leading to improved performance.

Presenter: Thomas Cochran, Ei Companies

EEBA

EEBA-1 What Really Matters

Knowledge Level: Beginner

In a post-COVID world we all want our homes to be sanctuaries that take care of us, more than ever before. Thus, benefits like healthy indoor air, control over energy costs, energy independence, and comfort are reining supreme. Luckily, these are benefits that have always been in the wheelhouse of high-performance builders. But what matters most? How should you communicate about it before, during and after the sale? Suzanne Shelton, CEO of Shelton Group, the nation's leading marketing communications firm entirely focused on sustainability, will share her firm's latest findings and recommendations, pulling from their ongoing Pulse studies, as well as surveys conducted for members of the EEBA Builder Benchmark Groups and digital marketing work performed for high performance builders.

Presenter: Suzanne Shelton, EEBA

EEBA-2 Airtight, Done Right: Simple & Efficient Strategies

Knowledge Level: Beginner

Since the 1990s residential buildings have shown dramatic and consistent improvement in their energy efficiency: Average energy use per square foot is down substantially, and so are average energy use per household and average energy use per household member. How do we account for this extraordinary progress, and what can architects do to continue to improve energy efficiency in residential architecture?

Presenter: Christine Williamson, EEBA

EEBA-3 Building Science Foundation: Keeping Our Homes Safe & Sound

Knowledge Level: Beginner

The building science principles forming the foundation for high performance are how heat moves, how moisture moves, and how the two always work together.

Presenter: Peter Yost, EEBA

EEBA-4 Cold-Climate ASHPs – Real World Performance Data & Case Studies

Knowledge Level: Intermediate

This presentation first discusses the ASHP research, including performance and capacity results, lessons learned, and experiences from over five years of detailed data monitoring from ASHP field installs.

Presenter: Isaac Smith, EEBA; Phil Anderson, EEBA

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EEBA-5 Electric Buildings: A Path to Healthier People + Planet

Knowledge Level: Intermediate

The planet is in trouble and its human occupants don't fare much better as rates of cancer, asthma, infertility and obesity increase. Consideration for systems, materials and finishes with low embodied, as well as operational carbon is critical.

Presenter: Karla Butterfield, EEBA

EPA

EPA-1 ENERGY STAR: The Year Ahead

Knowledge Level: Beginner

If you watch just one ENERGY STAR session, this is the one for you! Hear key programmatic updates, like highlights of the latest revisions to program requirements and the status of 2020 reporting; get brief status updates on key initiatives that are beginning to ease and expand certification – including HVAC grading, the Multifamily New Construction program, and RaterPRO; and learn what new exciting initiatives the team will be focused on in 2021.

Presenters: Asa Foss, EPA; Dean Gamble, EPA; Jon Passe, EPA; Elliot Seibert, EPA

EPA-2 ENERGY STAR QA Checklist / CRR Training

Knowledge Level: Beginner

Recommended for all QADs, this session will walk through significant changes to this year's ENERGY STAR Quality Assurance Checklist and a new process for resolving homeowner complaints called Certification Review. Understand exactly how to use the new QA checklist during all QA reviews of ENERGY STAR homes and get answers to common QA policy questions. Attendees will also learn how the new Certification Review process formalizes QADs' responsibilities during homeowner complaints and work through a detailed example.

Presenters: Elliot Seibert, EPA; Scott Doyle, RESNET

EPA-3 Designated for Success: 310 HVAC Design Report and Rater Review

Knowledge Level: Beginner

Before a home can earn points using the new HVAC grading standard, ANSI / ACCA / RESNET 310, a complete HVAC design report must be completed, reviewed, and verified to meet specific criteria. While similar in concept to the ENERGY STAR HVAC Design Report, there are several important differences. Attend this session to see the new 310 HVAC Design Report template, learn about the 310 design review criteria, and understand how the design review fits into ENERGY STAR certification.

Presenter: Dean Gamble, EPA

EPA-4 ENERGY STAR Multifamily New Construction Program: This is the way

Knowledge Level: Beginner

For the last two years, you've heard about the ENERGY STAR Multifamily New Construction (MFNC) program. Since multifamily buildings with permit dates on or after July 1, 2021 will be required to use this program, rather than ENERGY STAR Single-Family New Homes or Multifamily High Rise (MFHR), you might be diving in to the details for the first time. Visit this link if you need a refresher on the [basics of the MFNC program](#). Join this session for a more in-depth review of the key differences in Rater responsibilities compared to Single-Family New Homes and MFHR, updates from Revision 02, and how the three certification paths compare (ERI, ASRHAE 90.1, and prescriptive). We will also cover the frequently asked questions related to the certification

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process, training & credentialing requirements, common space requirements, Multifamily Workbook, the HVAC Design Report and Functional Testing Checklist, and the new QA Checklist for QAD's.

Presenters: Asa Foss, EPA; Gayathri Vijayakumar, SWA

EPA-5 Ask Me How: Selling WaterSense Certification

Knowledge Level: Beginner

In this session we will cover HERSH20 and WaterSense Certification working together to increase your revenue. By adding WaterSense and HERSH20 when you are already out on a job just makes \$ense. We will go over the tools you need to add WaterSense certification to your builders' green homes. We have tools to help get you in the door and to close the deal. Also learn how the outdoor component will help your builder meet their water savings/certification goals. We will showcase the Your Better Yard campaign to discuss the different yard types a green home buyer might be looking for from a builder.

Presenter: Beth Livingston, EPA

EPA-6 It's Time for Zero 2.0

Level: Intermediate

The original DOE Zero Energy Ready Home (ZERH) program requirements (circa 2013) have been adopted by hundreds of builders as well as affordable housing programs, local codes, utility incentive programs, and state Stretch Codes. Over this same time period, a major housing industry movement has emerged to advance along a larger "Path to Zero." Builders, codes, and sustainability initiatives have emerged to address different steps along this pathway, ranging from Code Minimum all the way Net Positive Carbon homes. New proven innovations for building enclosures, lighting, ventilation, mechanical systems, and IAQ have entered the marketplace - many of them developed through DOE research. And most recently, the 2021 IECC has raised the bar for meeting and exceeding forthcoming codes that ensures future readiness for homes certified to ZERH.

Together these dynamics create an imperative for moving to Version 2.0 of the DOE ZERH program. Version 2.0 establishes 3-tier framework for Zero Energy Ready, Zero Energy, and Zero Carbon Homes. V2 also updates the baseline for Zero Energy Readiness and leverages several proven innovations that will enhance efficiency and performance in labeled homes. Join us to learn why it's time for Zero 2.0, see the details of the draft specs, and understand the update timeline.

Presenters: Sam Rashkin, DOE; Jamie Lyons, Newport Partners

EPA-7 If You Build (and Market) It: They Will Come. How to Create a Zero Energy Ready Marketing Kit in 1 Hour

Knowledge Level: Intermediate

The DOE Zero Energy Ready Home program offers highly effective resources that let Raters up-serve their builder clients. The ZERH program offers a suite of builder-tested marketing solutions

that give ZERH builders special recognition, credibility, and relevance to home buyers. These user-friendly, customizable tools let builders communicate the benefits of their superior consumer experience and use DOE's voice of authority to cut through industry greenwashing. This session will demo how to easily access and create builder customized ZERH marketing resources, along with examples of how builders across the country have leveraged them. We'll also highlight marketing tools that focus on the Indoor Air Quality benefits of ZERHs, which are a top priority for many homebuyers today.

Presenter: Sam Bowles, Marketing Director for DOE Zero Energy Ready Homes (Newport Partners)

[EPA-8 Lessons from Zero Energy Ready Home Builders Knowledge](#)

Knowledge Level: Beginner

Innovative builders in the U.S. Department of Energy (DOE)'s Zero Energy Ready Home Program are showing that it is possible to achieve HERS scores of zero and lower at reasonable cost, in homes that are resilient, durable, comfortable, and energy efficient while achieving healthy, indoor air quality. This presentation lays out a path to net zero energy home construction offered by the DOE Zero Energy Ready Home program. Program specifications are outlined for both a prescriptive and a performance path to achieve zero energy home certification. Construction methods used by Zero Energy Ready home builders are compared with those used by builders of just-to-code new homes and existing homes for key components like wall assemblies, HVAC systems, and other important energy-efficiency measures. Data is presented from the successes of more than 6,000 DOE Zero Energy Ready Homes constructed over the past nine years including case study snapshots of this year's DOE Housing Innovation Award winners. These builders represent every facet of the home construction industry including production, custom, affordable, and multi-family home builders.

Presenters: Theresa Gilbride, Pacific Northwest National Laboratory; Terrence Mosley, U.S. Department of Energy; Joe Nebbia, Newport Partners

[EPA-9 Indoor airPLUS Version 2: The New IAQ Landscape](#)

Knowledge Level: Intermediate

Due to the remarkable events throughout 2020, people have been sequestered in their homes with a heightened awareness of health, safety, and abundant caution in numerous lifestyle choices. With the surge of consumer awareness about health, our industry is recognizing that healthier indoor air is a significant attribute to the home that requires thoughtful design and the execution. The EPA's Indoor airPLUS Program makes it possible for builders and trades to deliver healthier indoor air at a time when clients are actively looking for it. With over a decade of positive growth, EPA is embarking on Version 2 of the program, raising the bar to improve IAQ for occupants. Indoor airPLUS Version 2 includes technical updates for whole dwelling, mechanical ventilation, filtration, humidity control, combustion pollutant control, and quality assurance measures in verification. This session will offer an update from EPA about the proposed changes and potential refinements following feedback and public

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comment from the building and home rating industry.

Presenters: Nick Hurst, US EPA; Gayathri Vijayakumar, Steven Winter Associates, Inc.