## PRE-CONFERENCE TUTORIAL SCHEDULE

### Monday, May 21

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30 am - 8:30 am</td>
<td><strong>Tutorial Breakfast</strong></td>
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<tr>
<td>8:30 am - 4:30 pm</td>
<td><strong>Full Day, Off-Site Sessions</strong>&lt;br&gt;- Infrared Thermography&lt;br&gt;- Mobile Home Belly and Attic Installation&lt;br&gt;- Whole House Assessment and Duct Sealing</td>
</tr>
<tr>
<td>8:00 am - 5:00 pm</td>
<td><strong>Full Day, Classroom Sessions</strong>&lt;br&gt;- Bridges Out of Poverty&lt;br&gt;- Creative Problem Solving and Decision Making&lt;br&gt;- Dense Pack Insulation</td>
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<tr>
<td>8:00 am - 12:00 pm</td>
<td><strong>Half Day, Classroom Sessions</strong>&lt;br&gt;- Basic Auditing &amp; Assessment&lt;br&gt;- Communication and Mentoring for Field Staff&lt;br&gt;- Measuring Air Flow: Trying to Capture Wind in a Jar!&lt;br&gt;- Multifamily Audit: EE and Solar&lt;br&gt;- Pressure Diagnostics/House of Pressure&lt;br&gt;- Residential Air Force: Edge-of-the-Cliff Ventilation</td>
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<tr>
<td>12:00 pm - 1:00 pm</td>
<td><strong>Tutorial Lunch</strong></td>
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<tr>
<td>1:00 pm - 5:00 pm</td>
<td><strong>Half Day, Classroom Sessions</strong>&lt;br&gt;- Effectively Managing Your Production&lt;br&gt;- Health &amp; Safety and BPI 1200&lt;br&gt;- House of HAM&lt;br&gt;- Multifamily Retrofit Project Management&lt;br&gt;- Quality Inspections&lt;br&gt;- Stop Using Diagnostic Equipment (Unless You Attend This Session)&lt;br&gt;- Success with Quality Management</td>
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<tr>
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<td>8:30 am - 4:30 pm</td>
<td><strong>Full Day, Off-Site Sessions</strong>&lt;br&gt;- Healthy Homes Assessment&lt;br&gt;- Mobile Home Walls, Ducts, Diagnostics Pressures and Moisture</td>
</tr>
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<td>8:00 am - 5:00 pm</td>
<td><strong>Full Day, Classroom Sessions</strong>&lt;br&gt;- Bridges Out of Poverty*&lt;br&gt;- Dense Pack Insulation*&lt;br&gt;- Financial Management and Procurement&lt;br&gt;- Practically Speaking: Measuring the Airflow of Mechanical Ventilation Systems&lt;br&gt;- Solar Hot Water System</td>
</tr>
<tr>
<td>8:00 am - 12:00 pm</td>
<td><strong>Half Day, Classroom Sessions</strong>&lt;br&gt;- CAZ Solutions&lt;br&gt;- Roger That: Clear Communication Skill Building&lt;br&gt;- Success with Quality Management*</td>
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<td>1:00 pm - 5:00 pm</td>
<td><strong>Half Day, Classroom Sessions</strong>&lt;br&gt;- All Things Venting&lt;br&gt;- Roger That: Clear Communication Skill Building*&lt;br&gt;- Using Training Retention Activities to Enhance Skills</td>
</tr>
<tr>
<td>5:00 pm</td>
<td><strong>Evening Reception with Exhibitors &amp; Sponsors</strong></td>
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### INFORMATION ON MEALS

**Full Day Tutorials**
- **Breakfast** and **Lunch** will be provided for attendees registered for Full Day Sessions.

**Half Day Tutorials**
- **Breakfast** will be provided for attendees registered for Morning Sessions only.
- **Lunch** will be provided for attendees registered for Afternoon Sessions only.

*Repeat
### Wednesday, May 23

<table>
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<th>Time</th>
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<tbody>
<tr>
<td>7:30 am - 8:30 am</td>
<td>Exhibitor Breakfast</td>
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<tr>
<td>8:30 am - 10:00 am</td>
<td>Registration &amp; Opening Plenary  Developing a Comic Vision®</td>
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<tr>
<td>10:00 am - 10:30 am</td>
<td>Exhibitor Break</td>
</tr>
<tr>
<td>10:30 am - 12:00 pm</td>
<td>Concurrent Sessions (1) Best Practices for Meaningful Client Engagement  Ethics in Weatherization  I Must Hurry For There They Go And I Am Their Leader!  Preventing, Managing and Healing Conflict: Part I  Qualifying Multifamily Buildings  SWS/QCI: Performing Quality Inspections  Weatherization and Radon</td>
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<tr>
<td>12:00 pm - 1:30 pm</td>
<td>Lunch</td>
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<tr>
<td>3:00 pm - 3:30 pm</td>
<td>Exhibitor Break</td>
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<tr>
<td>3:30 pm - 5:00 pm</td>
<td>Concurrent Sessions (3) Energy Water Nexus - H₂O Saved = Energy Saved  Financial Management and Procurement: Part II  Infrared  Low Income Housing Habitability Problems: The Not-So-Good, the Bad and the Really Ugly  Passive House Standards and Challenges  Realized Energy Savings  Updated Mobile Home Procedures, Techniques and Tools</td>
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<tr>
<td>6:00 pm</td>
<td>Reception &amp; Weatherization Competition</td>
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### Thursday, May 24

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>7:30 am - 8:30 am</td>
<td>Exhibitor Breakfast</td>
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<tr>
<td>8:30 am - 10:00 am</td>
<td>Concurrent Sessions (4) All You Ever Wanted to Know About Mold and Moisture Inside Housing  Ensuring Wx Major Measures Are Done Right for Maximum Effectiveness  Equipment and Tool Box Selection, Maintenance and Safety  Heat Pump Operations  House of Pressure  How to Develop, Engage and Maintain a Positive and Effective Advocacy Program  The Proper Use of WAP T&amp;TA</td>
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<tr>
<td>10:00 am - 10:30 am</td>
<td>Exhibitor Break</td>
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<tr>
<td>10:30 am - 12:00 pm</td>
<td>Concurrent Sessions (5) ASHRAE 62.2 Compliance  Attic Air Sealing  Carrots and Sticks: Engaging and Motivating Employees  DOE WAP Update  Ductfree HVAC and VRF Solutions and Applications  House as a System  Zonal Pressures</td>
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<tr>
<td>12:00 pm - 1:30 pm</td>
<td>Lunch</td>
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<tr>
<td>1:30 pm - 3:00 pm</td>
<td>Concurrent Sessions (6) Basements and Crawlspace: Perimeter Insulation Strategies in Cold Climate Housing  Best Practices Field Guide  Can Your Agency Operate without Government Funding?  Crawlspace Encapsulation  HAM House (Heat, Air and Moisture)  Multifamily Program Management  Partnerships</td>
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<tr>
<td>3:00 pm - 3:30 pm</td>
<td>Exhibitor Break</td>
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<tr>
<td>3:30 pm - 5:00 pm</td>
<td>Concurrent Sessions (7) Combustion Safety Testing</td>
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<tr>
<td>6:00 pm</td>
<td>Reception &amp; Jam Session</td>
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## CORE CONFERENCE SCHEDULE

### Friday, May 25

**Breakfast**  
7:30 am - 8:30 am

**Concurrent Sessions (8)**  
8:30 am - 10:00 am
- Crew Presentations
- Expanding Into Multifamily Weatherization
- Healthy Homes Overview
- Increasing Our Operation Budget or Profit by Raising the Bar
- Incorporating Solar PV into the Low Income Weatherization Program
- Tweet, Post and Like–Oh My! Social Media for Non-Profits
- Weatherization Without Borders: Taking a Successful U.S. Public Policy Global

**Refreshment Break**  
10:00 am - 10:30 am

**Concurrent Sessions (9)**  
10:30 am - 12:00 pm
- Blower Door 101
- Cool Roof Technology
- DOE WAP Update
- HAM House (Heat, Air and Moisture)
- Manual J Sizing
- Quality Control Diagnostic Testing
- Solving the Multifamily Puzzle

**Conference Adjourns**  
12:00 pm
Every day weatherization technicians, auditors, QCI’s and intake staff are interacting with people who are living in poverty. These are folks who are often trapped in survival mode, lacking for support and making do with less. We talk often about how weatherization can help them and how our services impact our clients, but we do not often discuss how our service provision and their poverty overlap. The truth is in order to serve our clients as best we can we must have a framework for understanding their lived experience. We have to be able to not just connect conversationally, but really understand how poverty—especially generational poverty—impacts our clients.

Bridges out of poverty is a tool to do just that. It is an outline designed to build an understanding of the people we are serving and to build the skills to serve them better. This session incorporates group activities and participation into learning about how we can be great allies to our clients and how we can take care of ourselves while we do so.

Creative Problem Solving and Decision Making
Laree Kiely

Today’s opportunities and challenges are far more complex and interdependent. They also often involve multiple stakeholders, many of whom will not be in agreement with each other. The old 20th Century tools simply can’t get us where we need to go any more.

This session will equip you with the 21st Century tools and perspectives to solve just about any problem in ways you have not yet imagined. We will work through analyzing problems to get to their roots, ensuring we are not solving the wrong problems or just solving symptoms. We’ll also learn how to consider the “ripple effects” of the choices we make so we don’t cause additional problems that will show up later. We’ll workshop using ground-breaking new methods to find mutually agreeable solutions and common ground. You’ll end with a plan and some possible ways to measure, too!

Be sure to come with a gnarly, wicked problem to put through this new process either as individuals or bring your group to learn and solve together.

Dense Pack Insulation
Chris Clay • Bill Hulstrunk

Dense pack cellulose insulation provides excellent installed performance in both new and existing buildings. Attend this all day tutorial to explore the latest tools and techniques to improve your dense packing. Topics covered during the session will include:

• Where to apply dense pack in a story and a half home, slopes vs. knee walls.
• Applying dense packing to other key framing junctions to effectively reduce air leakage and improve energy performance and comfort.
• How to work with different siding types siding effectively and efficiently.
• Drilling safely and efficiently, from holes to drills.
• What makes a good insulation machine for dense pack insulation (is bigger always better)?
• Tubes, connectors and hoses: addressing the weakest links.

This class will have a portion of hands-on work and classroom work. All attendees should come ready to work as everyone will blow some dense pack insulation.

Infrared Thermography
Jay Bowen

Thermal imaging cameras have rapidly become prevalent for commercial and residential building inspection. Building structures can exhibit quality and performance problems during construction, remodel and aging that can impact energy performance and, in some cases, render them dangerous. Regardless of the building type involved, infrared imaging has been shown to provide remarkable, nondestructive information about construction details and building performance.

This session will discuss the numerous applications for thermal imaging technology currently being used to inspect building envelopes. These include validation of structural details, verification of energy performance (conduction and air leakage), location of moisture intrusion, and identification of structural and system degradation of roofs and facades. Examples will be given for each application and the basic conditions required will be described.

Applying infrared cameras brings opportunities and advantages to the diagnostics of building related applications. Beyond the basic operation of the camera, applying this science results in many avenues for investigative techniques. We will review the understanding of some building inspection standards and the implications. We will answer your questions about infrared cameras, building science, and their applications towards building inspections.

Mobile Home Belly and Attic Insulation
Les Lester • Cal Steiner

Mobile Home Bellies: This session will deal with the tools, materials, techniques, and procedures used to properly insulate, repair, audit, and inspect the belly cavity and duct system of a mobile home. Construction details of the belly and duct systems will be discussed as will treatment of water lines.

Mobile Home Attics: The tools, techniques, materials and procedures used to insulate and weatherized mobile home attics will be discussed in detail. We will also examine pressures, leaks, and moisture problems unique to mobile homes.

Mobile Home Walls: In-depth discussion on mobile home wall insulation techniques, materials, tools, and procedures will be addressed. We will also delve into wall construction types and basic diagnostic procedures used to ensure a safe and healthy environment. Some of the basic concepts of mobile home auditing and inspection will be covered.

Mobile Home Diagnostics, Ducts, Pressures, Water Heaters, and Moisture: We will delve into diagnostics specific to mobile homes to assure a safe and energy efficient structure. It will include the importance and proper procedures of duct sealing, assessing pressures and moisture problems as well as a discussion on mobile home water heater safety with different situations and problems.

Whole House Assessment & Duct Sealing
Ken Pancost

We will complete a whole house energy assessment utilizing a blower door, duct blaster, infrared camera and basic hand tools to complete a comprehensive scope of work based off computer modeling (REM Design) and the standard work specification (SWS). We will also be using three methods of measuring duct leakage to the outside and will perform a complete duct seal to show the variances in different testing methods. We will also have a duct system prop to use for demonstrating the required duct sealing methods for the SWS.
Add Basic Auditing and Assessment  
Rod Burk • Ed Campos • Ken Robinette  
By attending this session, participants will learn what you have to do to perform a home energy audit by calculating square footages, determining existing insulation R-values, and learn the tools needed for basic diagnostic readings from blow door, duct blaster and furnace testing equipment. We will cover current technical testing procedures for homes, and what to look for when assessing a home.

Communication and Mentoring for Field Staff  
Suzanne Harmelink  
Field staff are often tasked with mentoring and training other field staff on measure installations, diagnostic testing and various processes. Another form of mentoring often tasked to field staff is working with program recipients (customers) in an effort to support changes in behaviors. How often do we hear the words, "I don't know why they didn't do it correctly? I showed them!" or "I told them how to do it." when a measure is not installed to specifications or a customer doesn't replace a furnace filter? These learning experiences can be greatly influenced by the skills of existing and often seasoned, knowledgeable staff.

By reviewing how adults learn—and how we as mentors can improve the learning curve—we ensure that our education activities stick for the individuals we are working with, whether co-worker, contractor or customer. Effective communication is a key component to achieving successful education and mentoring. We’ll explore which words we should use with customers versus field staff and contractors, and recognize how easy it is to fall back into the technical jargon we know so well. We have the opportunity to improve our skills and realize better outcomes from our mentoring activities. Join this interactive session to gain a few tips and share your experiences!

Measuring Air Flow: Trying to Capture Wind in a Jar!  
Joe Medosch • Bill Spohn  
This session will cover the methods and challenges of measuring air flow—supply and return—with different devices. We measure flow every day, or do we? We will demonstrate multiple devices and how they measure flow. Flow measurements are extrapolations from pressure measurements. Come experience the challenges in calculating accurate flow.

Multi-Family Audit: Combining Energy Efficiency with Solar Photovoltaics  
Nick Dirr • Adam Romano  
This tutorial will target energy efficiency professionals seeking to incorporate photovoltaics into multifamily energy efficiency projects. Energy efficiency and solar need to work together as an integrated solution in order for solar to reach its full potential in multifamily housing, while providing a clean energy option for building owners. This session will provide a detailed overview of the multifamily energy audit process and the additional steps and considerations needed to incorporate solar successfully.

Pressure Diagnostic/House of Pressure  
Anthony Cox  
Understanding how leaky a house is, is fundamental in the home performance industry. However, the next step is to identify where the leaks are coming from. One way is to use the science of Zonal Pressure Diagnostics (ZPDs). Knowing where the leaks are is only part of the story. How big the leaks are, and if it is cost effective to seal them is the other part. Utilizing ZPD charts and understanding basic zonal pressure diagnostics can help you to find and fix the biggest leaks first. Anthony Cox will demonstrate these concepts utilizing his "House of Pressure"—a dynamic, interactive model house that allows students to understand complex building science concepts in a visual and simple way. This half day session will start with the basic understanding of zonal pressure and work into the use of ZPD charts and online tools to calculate where the biggest air leaks are in your buildings!

Residential Air Force: Edge-of-the-Ciff Ventilation  
Rick Karg • Paul Raymer  
A question that is frequently asked is, "Can a house be too tight?" There are two parts of the question: There is a long term and a short term consideration regarding the tightness of the house. The long term issues are the health of the occupants and the durability of the structure. The parameters of the long term issues are guided by the ASHRAE 62.2 Standard by selecting, installing, and testing a mechanical ventilation system.

What are the system choices and why would you select one over another? What are the impacts of installation? What about controls?

The short term consideration is the operation of natural-draft appliances which is guided by the BPI 1100 and 1200 Standards. These two tightness issues are interwoven and if performed incorrectly can result in potentially hazardous outcomes. How do these considerations change over time? Can the drafting of the appliances get better or worse? Can the house get tighter on its own?

This half-day session relates these issues to forensic analysis of a home where a death from CO occurred. The home was weatherized. Would the lawyers have claimed that the house was "too tight"? Could this result have been avoided? This analysis clearly points to the critical nature of careful execution of following the prescribed protocols.

Effectively Managing Your Production  
Allen Carbert • Jim Lee  
This session is designed to provide participants with the knowledge and tools to effectively manage production to assure compliance with budget and home completion deadlines. Perspectives from both crew and contractor-based agencies will be discussed. We will look at planning tools that take into account funding levels, staffing needs, and production levels. Managing production by tracking key data points helps ensure efficient use of resources and consistent production levels.

Health & Safety and BPI 1200  
Paul Francisco  
Health and safety is a big issue in weatherization. We do combustion safety testing, we add ventilation, we spend money on measures that don't tend to save energy. Why do we do this? Why did BPI standards change from using the Building Airflow Standard (BAS) to requiring 62.2? And why did BPI standards change the requirements for combustion safety testing? This session will provide an overview of contaminants in homes and their health effects, the potential for weatherization to impact them, and the role of ventilation. We will discuss BPI-1200 requirements including both what the current requirements are and why they were adopted.

House of HAM  
Anthony Cox  
The HAM House demonstrates how Heat, Air and Moisture move through a building. Understanding these interactions is crucial in the design, building, and retrofit of houses for higher efficiency, and health and safety. Anthony Cox, the developer of the HAM House, will demonstrate these concepts, how they affect our living environment, and potential solutions to issues involving moisture, comfort, and health.
Multifamily Retrofit Project Management
Dave Hepinstall • Dan Rieber

This tutorial will target weatherization managers, auditors, and technicians wishing to incorporate multifamily buildings (with 5 or more units) in their weatherization programs on an intermittent or on-going basis. The intent is to review all aspects of the program design and implementation process from outreach, intake and building eligibility determination through conduct of a DOE approved energy audit. Development of a WAP scope of work that meets DOE’s S.I.R. requirements, obtaining the owner investment and other leveraged funds to support project implementation, developing specifications necessary for the measures in the SOW, selection and oversight of contractors installing the WAP eligible measures consistent with specifications and the DOE guidelines, completing all steps required to meet DOE’s QCI requirements for each multifamily project. We will also address project management challenges and solutions when integrating WAP with other funding sources (such as utilities) and involving several contractors while managing more than one multifamily retrofit project being completed with overlapping production schedules in the same program year. The session will be interactive, and we will encourage participants in the tutorial session to share their Multifamily experiences and techniques during the session as well.

Quality Inspections
Steve Nall

The National Renewable Energy Lab’s (NREL) Quality Control Inspector Job Task Analysis (JTA) says that a Quality Control Inspector is an evaluator who verifies the work performed against the work plan, specifications and standards, performs building diagnostics; records/reports findings and concerns; and specifies corrective actions by conduction a methodological audit/inspection of the building; performing safety and diagnostic tests; and by observing the retrofit work in order to ensure the completion, appropriateness and quality of the work providing for the safety, comfort, and energy savings of the building occupants. But how do you know that you are doing it right? How do you know you are doing it well? How do you figure out what you could be doing better? And what about the expectations of managers, administrators, and program monitors?

Quality Inspections is a look beyond the JTA Domains and Tasks. Quality Inspections is about getting organized. Quality Inspections is about selecting the right people for the job, being in the right place at the right time, developing effective communications with the team and using what you learn to raise the bar on the quality of everyone’s work. It is a process that can make your organization a model service provider.

STOP Using Diagnostic Equipment (Unless You Attend This Session!)
Joe Medosch • Frank Svevak • Bill Spohn

Three leading industry experts will take you on a journey through all the ins and outs of proper use of the diagnostic test equipment you have or are considering buying. We will cover blower doors, duct leakage testers, air flow meters, combustion test instruments, as well as gas leakage meters, moisture and humidity testers, and more. We will unravel some of the typical questions on product use, as well as dive deeper into alternative uses that you may not be aware of. We will make recommendations of how to diagnose potential equipment trouble in the field, as well as introduce a form to help you keep each of your product’s intended purposes, calibration history, etc.

Success with Quality Management
Chris Baker • Charlie Gohman • John Tooley

Learn about how the Arizona Home Performance with Energy Star program has established itself as one of the nation’s leading providers of whole-house improvements (and profitable contractors!) through the use of novel training, scoring, and QA practices based on the U.S. Department of Energy’s Standardized Work Specifications.
Bridges Out of Poverty
Britt Pomush

Every day weatherization technicians, auditors, QCI’s and intake staff are interacting with people who are living in poverty. These are folks who are often trapped in survival mode, lacking for support and making do with less. We talk often about how weatherization can help them, how our services impact our clients but we do not often discuss how our service provision and their poverty overlap. The truth is in order to serve our clients as best we can we must have a framework for understanding their lived experience. We have to be able to not just connect conversationally but really understand how poverty, especially generational poverty impacts our clients.

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- Drilling safely and efficiently, from holes to drills.
- What makes a good insulation machine for dense pack insulation (Is bigger always better)?
- Tubes, connectors and hoses, addressing the weakest links.

This class will have a portion of hands one work and classroom work. All attendees should come to work as everyone will blow some dense pack insulation.

Financial Management & Procurement
Carrie Smith • Susan White

Overview of key financial management (Part I) and procurement practices (Part II). Learning objectives are:

- To provide participants with a working knowledge of the financial management regulations contained in 2 CFR Page 200 and 2 CFR Part 910
- To provide participants with an understanding of procurement procedures and the need for the development, implementation and management of procurement procedures
- To provide participants with the foundation knowledge to integrate the regulation requirements into program operations for financial management and procurements for the organization.

Practically Speaking: Measuring the Airflow of Mechanical Ventilation Systems
Rick Karg • Paul Raymer

Measuring the airflow through a ventilation system has challenges for installed system testing. The RESNET 380 Standard which is becoming the de facto blower door, duct testing, and ventilation standard because it defines what to do and how to do it, requires results that have an accuracy of ± 5% or 5 cfm which is interesting since the most commonly used device (the TEC EXH) specifies an accuracy of ± 10%. How “accurate” are the testing devices? This class is designed to compare the tests described by the 380 Standard from a Duct Tester to a Garbage Bag. This session will provide the participants the opportunity to experience the differences between various flow testing devices and the impacts of house set up. After some preliminary descriptions of test procedures and ventilation issues, the class will be broken up into teams that will perform the testing and then the results will be compared.

Solar Hot Water Systems
Dan Berube

Always on a quest for a better mousetrap, this tutorial will explore the latest approach to heating hot water. With the cost of photovoltaic panels going down, and the cost of fossil fuels going up, this simple approach to heating water could be the next wave of the future. This will be a hands-on workshop with the intention of creating a working system that will then be on display outside for the remainder of the conference. An introduction to applied solar technology with a look at current innovations will begin the day. Included in the tutorial: solar sight analysis, energy economics and the offset of greenhouse gases. Be prepared to use the tools of the trade and bring an open mind to the possibilities of an affordable, green approach to heating hot water.

Healthy Homes Assessment
John Davies • Paul Francisco • Joe Medosch

The Healthy Home Evaluator credential is the newest credential and will become THE Standard for evaluating homes. Auditors are performing Healthy Home assessments and observing the conditions every day, they’re just not documenting the findings. Loose handrails, trip hazards, insects and pests, and similar conditions are common in weatherization—these are all part of the key principles in Healthy Homes.

This workshop will expand the vision of weatherization technicians to show that the majority of their findings and corrections are the basis of the Healthy Home Evaluator credential. We will provide an overview of an assessment and cover the Healthy Home Principles that most technicians have not been trained on—until now!

The workshop will cover: Overview of Healthy Home Evaluator, assessment, tools & techniques of HHE, findings—communicating, documenting and recommendations.

This workshop is co-sponsored by Healthy Home Environment Association (HHEA)—a not-for-profit organization that supports Healthy Home Professionals.

Mobile Home Walls, Ducts, Diagnostics Pressures and Moisture
Les Lester • Cal Steiner

We will have classroom discussion and hands-on demonstrations concerning the tools, equipment, materials, procedures, and techniques used in the insulation of mobile home walls. Also included are the proper ways to seal ductwork, and the tests and diagnostic procedures to ensure a safe environment in the mobile home and reduce the pressures that cause moisture problems in the structure.
### TUESDAY, MAY 22

#### HALF DAY, CLASSROOM 8:00 AM - 12:00 PM

**CAZ Solutions**  
Phil Hull • Andrew Woodruff  
So you tested the CAZ (Combustion Appliance Zone), the water heater, and the furnace... now what? They are not drafting, the CO is moderate to high, and the room pressures are good and bad. Where do we go from here? Come learn about real-life examples that have worked and failed. Identify easy solutions to everyday complicated CAZ problems. This session will give you real tools and solutions that you can apply the next time you are stumped, or encounter a failed CAZ! Bring your own problems and solutions to this session as well.

**Roger That: Clear Communication Skill Building**  
Rana Belshe  
Verbal communication is integral to our weatherization processes. Whether staff members are interacting with each other, residents, contractors, vendors, or other energy professionals, the quality of those communications influences customer service & satisfaction; operation & maintenance of installed measures; and the likelihood of achieving persistent behavior change. Using real world examples, we'll explore techniques to increase self-awareness and improve the outcomes of our conversations.

**Success with Quality Management**  
Chris Baker • Charlie Gohman • John Tooley  
Learn about how the Arizona Home Performance with Energy Star program has established itself as one of the nation’s leading providers of whole-house improvements (and profitable contractors!) through the use of novel training, scoring, and QA practices based on the U.S. Department of Energy's Standardized Work Specifications.

#### HALF DAY, CLASSROOM 1:00 PM - 5:00 PM

**All Things Venting**  
Phil Hull • Andrew Woodruff  
So you tested the CAZ (Combustion Appliance Zone), the water heater, and the furnace... now what? What about the venting? Do you know what size is needed/required for each appliance? It looks in good condition, but is the length and run ok? Come learn how to look at venting as a common issue with appliances not drafting, what can be done and how to properly size them for performance. This session will look at NFPA sizing charts and real-life examples to understand venting issues with combustion appliances.

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**Using Training Retention Activities to Enhance Skills**  
Suzanne Harmelink  
Training for employees can take many forms. Whether training is in-house, in the field or online, one thing is certain: training takes time. Attending training can take time away from the office or job-site production. Many training workshops incorporate an assessment of participant skills at the close of training. The scope of this session is a review of how we can check to ensure key concepts addressed during a training are retained by participants weeks to months after training. Training retention activities can consist of quizzes, worksheets, interviews, demonstrations, or skills assessment. During this training we will review types of retention activities and how the results of the activities can help identify deficiencies in training or areas for further staff development.
WEDNESDAY, MAY 23

BREAKOUT SESSIONS (1) 10:30 AM - 12:00 PM

Best Practices for Meaningful Client Engagement
Rana Belshe
For weatherized homes to be fully functional, residents need to be fully engaged in the process. We’ll review fundamentals of how adults learn; examine results of proven client education approaches & programs; and provide the opportunity to share and discuss learnings, tools, and practices that enhance outcomes of occupant interactions.

Ethics in Weatherization
Rick Karg
Most of us are regularly faced with ethical questions in our work. Should we accept gifts from clients? Is it proper to purchase valuable antiques from clients? What is the best action if you notice domestic violence? Is it ethical to have a consensual sexual relationship with a client? Some ethical questions are easily answered with a simple “yes” or “no”, but others need further thought or discussion. This session will help weatherization crews, auditors, inspectors, and managers define what is ethical and what is not. Your participation and stories about your experiences will be welcome and encouraged.

I Must Hurry For There They Go and I Am Their Leader!
Moe Gallegos
As leaders and as members of organizations, we spend a lot of our time worrying about what makes us successful and happy when we get up each day to go to that place we call work. There are budgets to worry about, meetings to go to—sometimes it is just overwhelming!
What do you hear employees and management say when they believe their organization is struggling? Is there a lack of communication? Does their management just not understand what the line employees are up against? Are the employees more worried about themselves instead of those they are supposed to be serving?
What is the key to being happy at the workplace and whose responsibility is it anyway? Enjoy a philosophical, humorous journey about attitude, communication, personal responsibility, and motivation.

Preventing, Managing, and Healing Conflict: Part I
Laree Kiely
First of all, conflicts and disagreements are a fact of life. They can contribute to better outcomes but they can also lead to escalating situations and damaged relationships. This session will equip you with the 21st Century tools and perspectives to help you understand the nature and causes of conflict; identify constructive approaches to better understand how to prevent it; and positively manage conflict in meetings, among other people, or one-on-one. You’ll analyze your own response to conflict and develop tools to quickly assess and respond to difficult situations and create practical, positive outcomes.
Secondly, relationships are everything. If we have damaged relationships, outcomes will be sub-optimized and harder to find. Sometimes we inherit a damaged relationship, maybe it was damaged unintentionally, or perhaps we’re just dealing with someone we find very difficult. Whatever the cause, there are ways to prevent and manage and heal the damage without compromising ourselves or others.
You’ll learn to transform the most difficult circumstances into a satisfying experience for all involved. You’ll end up being the most rational person in the room with practical tools that others will appreciate. Don’t worry, there’s no group therapy involved!!

Qualifying Multifamily Buildings
Dave Hepinstall • Dan Rieber
Conducting outreach, intake, and building eligibility determination in diverse multifamily residential settings in compliance with DOE Weatherization regulations and policy guidelines can present challenges to even the most experienced local weatherization program staff. Best practices and strategies, as well as common barriers, will be shared and assessed by two experienced WAP managers who have overseen this work in 100s of multifamily buildings over more than 25 years.

SWS/QCI - Performing Quality Inspections
Andrew Woodruff
SWS, QCI, QWP, ARRA. What do they all mean? Where did this initiative come from and where is it going? Come and learn the origin story for the SWS and the role of Quality Control Inspector and how to better leverage the SWS in an inspector role. Whether home performance or weatherization, everyone can come and learn more about the tools to become a better inspector in this session. Topics covered will include a brief history of the Quality Work Plan and the development of the JTA and SWS, a brief tour of the SWS and examples of successful implementation of this tool in performing quality QCI’s around the country.

Weatherization and Radon
Paul Francisco
Radon has become a big issue in weatherization due to concerns about the impacts of air sealing on radon levels and also the challenges with accurate measurement of radon in homes. These concerns have driven a substantial amount of research on weatherization and radon in the last few years. This session will present some radon basics, including what radon does, how radon varies over time, how it is measured, and how it can be controlled. It will then discuss what recent research has found about the impacts of weatherization on radon and what further efforts are underway.

BREAKOUT SESSIONS (2) 1:30 PM - 3:00 PM

Airflow Measurements: 2018 Edition
Bill Spohn
Learn the wide variety of measurement methods and the pluses and minuses of each. Dig into the science behind good airflow measurement, as well as the importance of considering air density corrections. We will also cover the ins and outs of picking the correct tool for the measurement task or application. Every major airflow measurement tool and technique will be explored and explained.

Financial Management and Procurement: Part I
Carrie Smith • Susan White

Adam Romano
Now that 62.2 applies to dwellings regardless of building height, there will be increased emphasis on making existing ventilation systems work. This session will provide an overview of the variety of ventilation systems found in MF buildings, how forces such as stack effect play a role in changing ventilation rates in different parts of the building, and recommendations for retrofits.
Preventing, Managing, & Healing Conflict: Part II  
Laree Kiely  
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You’ll learn to transform the most difficult circumstances into a satisfying experience for all involved. You’ll end up being the most rational person in the room with practical tools that others will appreciate. Don’t worry, there’s no group therapy involved!!

Stranger Than Friction: Stories from the Field  
Jack Hruska  
This session provides the opportunity for everyone to participate by sharing their experiences in the day to day world of delivering energy efficiency. Tales of what they have seen and experienced, who they’ve met along the way and the stories they’ve been told will provide the basis of this session. From the unbelievable-but-true to the all-to-common, accounts of life on the front lines of providing energy security, comfort and efficiency in an inefficient world. Everything from technical skills, tools of the trade, communications and home-made remedies for solving problems will be explored. Participants are encouraged to bring their pictures, videos and other souvenirs from their experiences (thumb drives encouraged). Prizes will be offered to willing participants.

The Five Why’s of QCI  
Kelly Cutchin  
Using a case study of Pennsylvania WAP’s implementation of the principles of Kaizen and Deming’s points for management, learn how you can use these same tools to create a blame-free environment of continuous improvement that results in fewer call backs, more streamlined work flow, and improved worker morale and performance.

Wall Insulation, Siding Removable, Accessing Cavities  
Brandon Kjelden  
This session will present the many different types of siding, how to remove it and reinstall after the walls have been insulated. We will go over different tools and techniques used and help you find what works best for you. We will also briefly discuss what the SWS says about properly dense-packing walls.

Energy Water Nexus - H₂O Saved = Energy Saved  
John Tooley  
“We never know the worth of water till the well is dry.” — Thomas Fuller, 1732

A key to understanding the energy efficiency of a building is to understand how they use water. This session’s goal is to change our water consciousness by clearly understanding energy equals H₂O. It will undoubtedly help us understand why water saving is critical in our changing marketplace. This session will provide an overview of states’ and nations’ water needs, explain the importance of monitoring water used in a building, and introduce strategies to reduce water consumption.

Financial Management and Procurement: Part 2  
Carrie Smith - Susan White  

Infrared  
Jay Bowen  
Thermal imaging cameras have rapidly become prevalent for commercial and residential building inspection. Building structures can exhibit quality and performance problems during construction, remodel and aging that can impact energy performance and, in some cases, render them dangerous. Regardless of the building type involved, infrared imaging has been shown to provide remarkable, nondestructive information about construction details and building performance.

This session will discuss the numerous applications for thermal imaging technology currently being used to inspect building envelopes. These include validation of structural details, verification of energy performance (conduction and air leakage), location of moisture intrusion, and identification of structural and system degradation of roofs and facades. Examples will be given for each application and the basic conditions required will be described.

Applying infrared cameras brings opportunities and advantages to the diagnostics of building related applications. Beyond the basic operation of the camera, applying this science results in many avenues for investigative techniques. We will review the understanding of some building inspection standards and the implications. We will answer your questions about infrared cameras, building science, and their applications towards building inspections.

Low Income Housing Habitability Problems: The Not-So-Good, the Bad, and the Really Ugly  
George Tsongas  
This presentation shows the need for a rental housing inspection program to require owners of rental housing to meet minimum habitability standards to protect the health and welfare of tenants and preserve housing resources. In Oregon, state law requires that landlords maintain premises in a habitable condition. Yet the law is sometimes ignored, and the health and safety of tenants is jeopardized. An enforceable code is necessary because the right to enforce the law currently lies solely with the tenant, many of who are vulnerable to retaliation.

To exercise their rights they must get a lawyer and sue in state court. A judicial remedy would likely be unnecessary if municipal agencies acted on their behalf.

I inspected numerous low rent apartments and homes in Oregon for possible habitability problems and observed a wide range of serious problems. Many were
deplorable, including pervasive mold. In each case landlords denied or ignored tenant requests for repairs of unsafe or unhealthy conditions. These findings show the critical need for an inspection program that provides a mechanism for tenants to force landlords to address habitability problems in their housing. Recommendations for cost effective ways of reducing habitability problems are presented along with provisions of an inspection program.

Multifamily Passive House Standards & Challenges  
Adam Romano • Nick Young

This session will discuss the application of building science in complying with the passive house standard for a 68 unit affordable senior housing project. We will speak about overcoming a variety of design challenges and lessons learned from on-site construction management.

Realized Energy Savings  
Steve Nall

This session will present results of the low income weatherization program savings verified through billing analysis in Indiana. The Indiana program has long history of program evaluation at the state and agency level. We will overview our program evaluation history, the procedures and tools used to verify savings, and results. Finally, we'll discuss how those results are used to inform program design and implementation decisions, including an innovative agency incentive model used in Indiana.

Updated Mobile Home Procedures, Techniques, and Tools  
Cal Steiner

Mobile Home weatherization is changing due to new techniques, materials and tools being developed in the field. We will update you on the new information and answer any questions on problems or concerns you have with mobile home weatherization. We encourage audience participation in sharing their successes, new techniques, problems encountered and their solutions.
**All You Ever Wanted to Know About Mold and Moisture Inside Housing**  
George Tsongas  
An overview of mold and moisture problems inside single and multifamily housing, with a focus on low income housing. You will learn what mold is, where and why it grows, the different types of mold, what are the true health impacts, litigation concerns, how to inspect for mold growth conditions, moisture sources, the best mold cleanup procedures, and what can be done practically and economically to remedy or prevent indoor mold and moisture problems. The pros and cons of moisture and mold control measures such as source control, ventilation, and dehumidification will be discussed. Specific approaches for improving bathroom ventilation in new and existing housing will be presented.

**Ensuring Wx Major Measures Are Done Right for Maximum Effectiveness**  
Bill Hulstrunk  
Frequently we are disappointed with the performance of certain Weatherization measures. This session will focus on the application of basic heat and air flow concepts to improve the effectiveness of our air sealing and insulation measures. From redefining the thermal boundary, to dense packing framing junctions, we will see what works well and what doesn’t based upon 25 years of “hopefully” learning from my past mistakes.

**Equipment & Tool Box Selection, Maintenance & Safety**  
Les Lester • Jerry Spaulding  
Would you like to know more about the tools and equipment you work with every day? This session is for you! Learn about general maintenance tips and techniques, field checking your manometers and diagnostic equipment, and troubleshooting common issues and customization options for the settings on the devices you depend on. Topics covered will include maintenance timetables, processes, equipment calibration, and more. We will also discuss when to red-tag equipment and what the procurement process is for obtaining new equipment.

**Heat Pump Operations**  
William Twitchell  
This session will cover cooling, heating, and timed defrost.

**House of Pressure**  
Anthony Cox  
The House of Pressure is a clear model house that is used to demonstrate the various complex building science concepts in a simple way. Come watch Anthony Cox utilize this dynamic and interactive tool to explain the House as a System, CAZ, and other building science concepts visually utilizing the House of Pressure.

**How to Develop, Engage, and Maintain a Positive and Effective Advocacy Program**  
Kathy Senseman  
This session will explore how to develop, engage and maintain a positive and effective advocacy program. We will discuss how to develop messaging, identify thought leaders, create opportunities, communicate with elected official and their staff, create earned media, make new friends, as well as how to utilize the various social media platforms to your advantage. This session will give you the tools to meet your organization’s challenges head on and strategically develop a game plan to move forward in a positive direction.

**The Effective Use of WAP T&TA**  
Eric Behna • Ray Judy  
Effective training and technical assistance is critical to the WAP network at both the Grantee and Sub-Grantee levels. But what exactly can T&TA funds be used for? How should funds be used to maximize impact? What if there is a training center in your state? This session will cover best practices for planning and implementing WAP T&TA.

**ASHRAE 62.2 Compliance**  
Rick Karg • Paul Raymer  
WAP has been requiring compliance with ASHRAE 62.2 for several years. Through this requirement a lot has been learned about options for installing mechanical ventilation in different situations. Additionally, changes have been implemented into the standard that impact installation options. This session will discuss options for how to meet the 62.2-2016 requirements, including fan location, making use of what you have, controls, and other details.

**Attic Air Sealing**  
Josh Larose  
This session will discuss the infiltration reductions associated with a sampling of common energy conservation measures that were completed on recent WAP projects and the overall infiltration reductions achieved on WAP projects completed over the past couple of program years. We will present an overview on Vermont’s WAP policies and procedures related to attic airsealing and review diagnostic testing procedures used to quantify attic airsealing impacts will be reviewed. We will also outline how the VT program intends to adjust the energy modeling program they are using to better reflect the infiltration reduction benefits associated with insulation improvement measures within SIR reports. This session will not provide instruction on airsealing measure installation techniques.

**Carrots & Sticks Engaging and Motivating Employees**  
John Tooley  
When we want to motivate people, the most common thing to get is dangle a carrot in front of them to get more of what we want and use a stick when we want less of something, using if then statements: “If you do this, then I’ll do that.” If you are asking yourself, “How can I better motivate those who work for me?” this is the class for you! If you want to know how to have loyal, happy and proud employees you don’t want to miss this presentation.

**DOE WAP Update**  
DOE Speakers To Be Announced  
This session will be an overview of the Department of Energy’s technical policy activities and is intended to be an open session with ample time for audience questions and comment. Among the topics to be discussed will be the Standard Work Specifications, the Quality Control Inspector certification and updates on the recently released WAP National Evaluation.

**Ductfree HVAC & VRF Solutions & Applications**  
CJ Corbet • Raleigh Nelson  
Ductfree & VRF overview as solution-based applications alternative to traditional unitary HVAC.
House as a System
Andrew Woodruff
System: a set of connected things or parts forming a complex whole. How do we look at the house in the mindset of a system? What are the components of the house as a system and what are the interactions between them? Come find out more in this fundamental session that covers the house as a system concept and how building science directs our view for optimizing it. Topics covered will include components and interactions between them as well as the fundamentals of heat, air, and moisture flow.

Zonal Pressures
Anthony Cox
Understanding how air moves in a building is crucial to diagnosing where to fix the issues. But how do you know where to start? The blower door only tells us how leaky a building is. Understanding basic Zonal Diagnostics can help you find the biggest leaks faster to provide the greatest reduction with the smallest amount of money. But don’t be fooled… Zonals can be tricky! Come learn how to perform zonal diagnostics measurements to maximize your cfm reduction, but also learn the limitations! When is 50 not 50??!

Best Practices Field Guide
Kelly Cutchin
Is your field guide meant to be a reference guide for work quality standards? A tool to help auditors and inspectors make decisions about what work should be done? A training tool? A policies and procedures manual? Field guides can play a role in all those functions, but often, if the purpose and audience for the field guide isn’t clearly understood, then it serves none of those functions very well. In this session, we’ll work through figuring out what you want your field guide to accomplish, then look at best practice examples of field guides currently in use that are filling each of those roles.

Can Your Agency Operate Without Government Funding?
Troy Cucchiara • Ken Pancost
Interactive session focusses on the day to day differences between using grants and customer pay operations. Some key questions being examined are:

What would it look like if your agency had to rely on gaining clients through marketing and word of mouth? How would that change things for your agency now? What preparation steps needs to be taken in order to make a transition like this run smoothly? What is it like to know that your paycheck depends entirely on whether or not your client is satisfied with the completed work?

Attendees are encouraged to explore the possibilities of utilizing client building ideas in order to keep skilled workers employed during times of funding fluctuations.

HAM (Heat, Air and Moisture) House
Anthony Cox
The HAM house demonstrates how Heat, Air and Moisture move through a building. The understanding of these interactions is crucial in the design, building and retrofitting of houses for higher efficiency and health and safety. Anthony Cox, the developer of the HAM house, will be demonstrating these concepts, how they affect our living environment and potential solutions to issues involving moisture, comfort and health.

Crawlspaces Encapsulation
Allison Bailes
Vented crawl spaces often lead to a number of problems in homes. Critters get in and take up residence there. Moisture from the ground, the foundation walls, and the vents can keep the relative humidity high enough to grow mold and create indoor air quality problems in the home above. Ducts and HVAC equipment is less efficient and durable in these unconditioned buffer spaces. Encapsulation can solve those problems, but the results can lead to bigger problems for contractors who do it poorly.

Multifamily Program Management
Dave Hepinstall • Dan Rieber
This session will target weatherization program managers that include multifamily buildings in their weatherization programs on an intermittent or on-going basis. The focus will be on the program management challenges and opportunities presented by carrying out weatherization in such buildings in various community settings. Among the topics covered will be: development of a WAP scope of work that meets DOE’s S.I.R. requirements; obtaining the owner investment and other leveraged funds to support project implementation; selection and oversight of contractors installing the WAP eligible measures in several buildings during a single program year in compliance with DOE’s QCI requirements.

Partnerships
Alana Mathews
This presentation will provide a brief overview of the California Energy Commission’s SB 350 Barriers Report identifying barriers that low-income customers face to clean energy investments and economic opportunities. It will also review the recommendations and current implementation efforts. Lastly, it will offer practical steps in forming more effective partnerships with government agencies for more effective outreach, education and investments for clean energy programs.
THURSDAY, MAY 24

BREAKOUT SESSIONS (7)  3:30 PM - 5:00 PM

Combustion Safety Testing | Worst Case Draft/Pressure, Gas Ranges: Procedures, Failures & Fixes
Rick Karg
This session will go through the proper updated procedures of Worst Case Draft/Pressure testing as well as gas range testing. It will include types of failures, what causes them and the fixes that should be implemented. Questions and Answers are encouraged.

HVAC Design & Fundamentals
Allison Bailes
A good HVAC system begins with understanding the fundamentals of heat and air. Buildings lose heat in winter and gain heat in summer. They do that in numerous ways: conduction through the building enclosure, infiltration, internal gains, and more. Heating and cooling load calculations (ACCA Manual J) use that knowledge and are the first step in proper HVAC design. Selecting equipment (Manual S) is the critical and widely misunderstood next step in the design process. Only after it’s done can the designer lay out and size the duct system and its terminations (grilles and registers). In this session, we’ll give a brief overview of the fundamentals of HVAC, including the various types of equipment available, and the steps in the design process.

Duct Testing Best Practices: Stay Calm & Git’er Done
Dan Hughes • Joe Medosch
This session will cover duct testing best practices. We will cover the different types of duct tests, when they can be performed, and the best practices to improve your time in the field and increase your repeatability. The session will demonstrate the impact of duct leakage on the envelope and how mobile apps can automate test and create verifiable reports.

Energy, Water, Food and You
Amanda Hatherly
Did you know that when you save energy you are also saving water? And saving water saves energy. But that what you eat has an even bigger impact on climate change and the environment than changing out light bulbs, shower heads or even driving a smaller car? Come and learn about your personal choices and how they affect the environment.

How Many Touches Does it Take to Weatherize a House?
Eric Behna • Ray Judy
How many touches does it take for WAP funds to get from Congress to actual work being performed to a home? The answer may surprise you. There are numerous stages from authorization, to appropriation, to allocation, to regulation, to state plan approval, etc. The next question is when do all these people touch the funds? Regardless of the role you play within the WAP, it is good to know the entire process—start to finish. You will be surprised at what it takes to weatherize one home!

Taking the Complexity Out of Two OSHA Rules: Confined Spaces and Respiratory Protection
Ben Cichowski • Jim Lee
Managers and crew members alike are often baffled and misinformed regarding OSHA standards and how to practically integrate those regulations into the workplace. Join two experienced trainers and builders as they break down OSHA’s complex “Confined Space and Respiratory Protection” regulations into the nuts and bolts essential for proper compliance. Ask questions, check out the hands-on equipment, or just sit back and listen. You’ll leave this session with solid understanding of these two rules and a game plan to keep your workers safe and fine-free.

Vermiculite Insulation and the Weatherization Program: It Doesn’t Have to be Deferral!
Carl Davis • Dan Dunne • Geoff Wilcox
This session will walk through the trials and tribulations that the Vermont Wx Program has dealt with from what was an automatic deferral in 2011 for Wx clients with vermiculite, to current day in which it is not. Learn how Vermont’s Program has created ways to help weatherize clients with vermiculite and where they are headed. The session will be lead by a State and Local Wx Person.
Greater profits and operation budgets
Stronger financial position
Greater customer success, loyalty and satisfaction
Improved competitive capabilities
Operational stability

Incorporating Solar PV into the Low Income Weatherization Program
Donna Garrett • Zac Stewart

This session will demonstrate the feasibility of Solar PV as a Weatherization Measure with utility rebates, and the installation processes. The presenters will share the audit process in Colorado to determine cost effectiveness of PV at the local level. Discussion will include the details of the installation process of WAP funded PV systems on single-family homes, local building requirements, lessons learned, and experience gained, including feedback on implementing best practices.

Tweet, Post and Like—Oh My! Social Media for Non-Profits
Amanda Hatherly • Melissa Smith

Social media is a great way for non-profits to share their work and gain local support. Facebook, Twitter, Instagram, YouTube and other platforms can all be used to share content, interact with your supporters and clients in the community and raise awareness of your work. This interactive session will show you some of the tools and provide templates for simple social media campaigns.

Expanding Into Multifamily Weatherization
Ray Judy • Bill Kraus

Are you interested in getting more involved in multifamily weatherization? This session will examine topics from multifamily audits, to landlord contributions, to training requirements, to obstacles and benefits. This session is designed to help participants become more familiar with how to incorporate multifamily weatherization into the WAP.

Blower Door 101
Les Lester

Understanding the basic set-up and function of the Blower Door is essential for performing quality energy assessments and verification or performance of installed measures. The blower door is also working its way into the national energy codes. Understanding how to get accurate numbers and how to utilize this tool effectively is important (and required) to accurately test houses to the standards of today. Proper set-up, testing procedure, common mistakes made during set-up, maintenance, and field calibrations are some of the items that will be covered. This is a fundamental course for those that have never been exposed to the blower door.

Cool Roof Technology
Thomas Brodbeck

Flat roofs on site-built dwellings and manufacturer homes typically have roof leak problems that usually get a temporary fix. Modern or upgraded flat roofs tend to use a continuous membrane cover, which lasts for 20 years or more and resists pools of standing water. Usually, programs install an Ethylene Diene Monomer (EPDM) - rubber roof, Thermoplastic Polyolefin (TPO) - plastic roof, or Polyvinyl Chloride (PVC) - vinyl roof. These roofs are typically glued and heat sealed together which changes the pressure boundary and thermal boundary of the building. This session will cover which products that work best with different buildings and detail instructions on how to install each product.

DOE WAP Update

DOE Speakers To Be Announced

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Weatherizers Without Borders:
Taking a Successful U.S. Public Policy Global
Mark Jackson

This session will focus on how Weatherizers Without Borders (WWB) has taken a successful U.S. public policy and created an International Weatherization organization to educate other countries and engage their stakeholders on the benefits of developing weatherization public policies in their countries through advocacy and pilot projects. The session will discuss how we got started, our successes and learning along the way along with engage the audience in discussion on how to better engage stakeholders across the globe.
Manual J Sizing
William Twitchell

- Manual-J Load Calculations
  - ACCA Manual H Abridged Edition; Speed sheet from ACCA website free download; Cool calc web-based program free on ACCA website
- Reasons to do heat load calculations
- Consequences of not performing load calculations
- Manual-J Heat Load
  - Windows and doors; Skylights; Ductwork; Walls construction; Ceilings; Floors construction table; Check the type of ductwork; Verify the tightness; Measure amount of duct in house

Quality Control Diagnostic Testing
Chris Clay

Attend this class to learn about the diagnostic tests that are required to be done by the QCI inspector at the close of the weatherization project. It’s required that final diagnostics tests be done, but what value is it other than completing our paperwork? What can we learn from the final diagnostic testing? What can we do with the information from the testing or than complete the file paperwork?

Solving the Multifamily Puzzle
Rob Foley

DOE has Mandated/Suggested that Grantees focus at least 20% of their budgets on multi-family projects. Many Sub grantees have trouble delivering multifamily projects, especially in mild climates. Learn how one Non-profit is actually successfully navigating the Multifamily maze. IC (sic) has teamed with the New Mexico grantee MFA to sell and deliver over twenty separate multifamily projects over the last five years using a combination of WAP funding, Utility Rebates and Owner contributions to dramatically improve the efficiency of low income multi family complexes throughout the state of New Mexico. This year IC (sic) also launched a Multifamily Retrofit program in Utah in association with Rocky Mountain Power and Dominion Energy.

Rob Foley will use two case studies to illustrate the different strategies used to get owner buy-in, as well as discuss approaches to qualify more measures i.e. furnaces.