

U.S. DEPARTMENT OF ENERGY NATIONAL ENERGY CODES CONFERENCE 2015

March 23 - 26, 2015 Nashville Airport Marriott Nashville, TN





Thank you for attending the National Energy Codes Conference 2015! We're glad you could join us for this exclusive opportunity to participate in a lively, solution-focused forum for all topics related to building energy codes with a special focus on compliance.

Hosted by





Additional Support Provided By:





A Less-Paper Event

In our efforts to conserve resources, the National Energy Codes Conference will not provide hard copies of conference materials. Presentation slides and other materials will be available after the event at www.energycodes.gov.



TRANSPORTATION

Nashville Airport Marriott and Residence Inn Nashville Airport Hotels offer a complimentary shuttle which runs 7 days a week from 4:30 am to 11:30 pm. Last departure from hotel: 11:30 pm

Last pick-up from airport: 11:45 pm

PICK-UP AT THE AIRPORT

Shuttle pick-up is at Ground Level
Transportation, one level below baggage
claim. At baggage claim, there is a red
courtesy phone labeled "Marriott" that will
connect guests to the hotel if assistance is
needed.

DEPARTING FROM THE HOTEL

Driver will pick up right in front of the lobby.

BETWEEN AIRPORT MARRIOTT & RESIDENICE INN

The walk from the Residence Inn to the Airport Marriott is approximately 15 minutes. Guests of the Residence Inn may reserve a shuttle service between the two hotels upon check in, which will be provided by the hotel based on availability.

SHUTTLE TO DOWNTOWN NASHVILLE

Nashville Moves offers a roundtrip shuttle service for \$10 per person. The cost covers the trip downtown and the return trip to the hotel. You MUST call and make a reservation to be picked up.

(P) 615-638-4500

TAXI OPTIONS TO DOWNTOWN

Estimated taxi fare is \$25.00 one way.

CHECKER CAB: (P) 615-256-7000 NASHVEGAS CAB: (P) 615-332-3333

LYFT: (P) 855-865-9553

UBER: Download the app at uber.com.

M.

VISITORS GUIDE

Nashville visitors information brochure will be located near the Registration desk. For more, visit www.visitmusiccity.com.



CONTACT

NASHVILLE AIRPORT MARRIOTT (P) 615-889-9300 600 Marriott Drive Nashville, TN 37214

RESIDENCE INN NASHVILLE AIRPORT (P) 615-889-8600 2300 Elm Hill Pike Nashville, TN 37214



REGISTRATION OPENS

7:30 am Located in the Nashville Ballroom Foyer.



BREAKFAST

Please join us for breakfast every morning throughout the conference in the Nashville Ballroom Foyer. Breakfast time:

DAY 01 TUES. 8:00 am to 8:45 am

DAY 02 WED. & DAY 03 THURS. 7:30 am to 8:30 am



ENERGY CODES IN ACTION ON TWITTER

The Twitter hashtag for the conference is **#EnergyCodesInAction**. Make sure to use and search the hashtag for continuous updates throughout the event.



WI-FI

Wireless internet access is available in the lobby of the Marriott Airport Nashville.



EVALUATION FORM

We value your time and insights so we ask that you fill out our evaluation form after each session. Your feedback will help us ensure that we deliver the best experience to our attendees. Thank you!

Keynote Speakers

SUZANNE SHELTON | OPENING PLENARY | TUESDAY, MARCH 24



Suzanne Shelton is President & CEO of Shelton Group, the nation's leading marketing communications firm entirely focused in the energy and environment sectors. The company polls Americans on an ongoing basis to understand their drivers and obstacles to adopting more sustainable or energy efficient products and behaviors and uses those insights to help some of the nation's leading companies define and leverage their sustainability and energy efficiency stories to gain a market advantage.

STEVE EASLEY | CLOSING PLENARY | THURSDAY, MARCH 26



Steve Easley is an internationally recognized construction consultant specializing in solving building science related problems and educating building industry professionals and their trade partners. His work focuses on increasing quality of construction, sustainability, performance, and reducing costly mistakes that lead to construction defects and call backs. Steve's mission is helping industry professionals build and remodel structures that are durable, energy efficient, healthy and comfortable to live and work in.

Agenda At-A-Glance

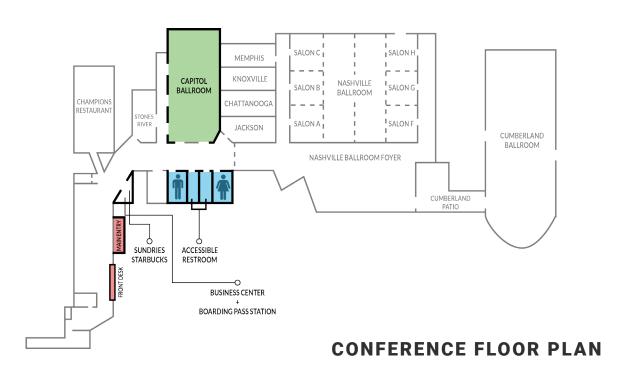
PRE-CONFERENCE WORKSHOP MONDAY, MARCH 23

ALL SESSIONS LOCATED IN CAPITOL BALLROOM

7:30 am	Registration Opens
8:30 am - 10:00 am	Energy Codes 101
10:00 am - 10:15 am	Break
10:15 am - 12:00 pm	COMcheck Basics*
12:00 pm - 1:00 pm	Lunch Break (lunch will not be provided**)
1:00 pm - 2:30 pm	REScheck Basics*
2:30 pm - 2:45 pm	Break
2:45 pm - 4:30 pm	What's New in the Codes?

^{*} Please bring your own **fully-charged laptop** with the latest versions of COMcheck Desktop and REScheck Desktop installed. Available for download at: <u>www.energycodes.gov/software-and-web-tools</u>

^{**} The hotel restaurant, Champions, will offer pre-conference attendees a buffet lunch for \$16.



Agenda At-A-Glance

DAY 01 TUESDAY, MARCH 24

7:30 am	Registration Opens (Nashville Ballroom Foyer)				
8:00 am - 8:45 am	Continental Breakfast (Nashville Ballroom Foyer)				
8:45 am - 10:00 am	Welcome Remarks & Opening Plenary (Nashville Ballroom)				
10:00 am - 10:15 am	Break				
10:15 am - 12:00 pm	Forum on the Future of Energy Codes (Nashville Ballroom)		TECH TRACK: Achieving and Evaluating Residential Compliance of Tight Envelopes (Salon F/G/H)		
12:00 pm - 1:00 pm	Networking Lunch and Jeffrey A. Johnson Award Ceremony (Nashville Ballroom)				
1:00 pm - 2:30 pm	Compliance Support: Strategies for States and Municipalities (Nashville Ballroom)	Demonstrating Compliance: The Evolving Role of Software (Salon B/C)		TECH TRACK: HVAC and the Energy Code: Comfort, Savings, and Fewer Call-Backs (Salon F/G/H)	
2:30 pm - 3:00 pm	Break (light refreshments will be provided)				
3:00 pm - 5:00 pm	Residential Compliance: State Strategies for Quantifying Code Compliance (Nashville Ballroom)	Commissioning F for Commercia Codes (Salon B/C)	-	TECH TRACK: Increasing Role of Controls in Commercial Energy Codes (Salon F/G/H)	

DAY 02 WEDNESDAY, MARCH 25

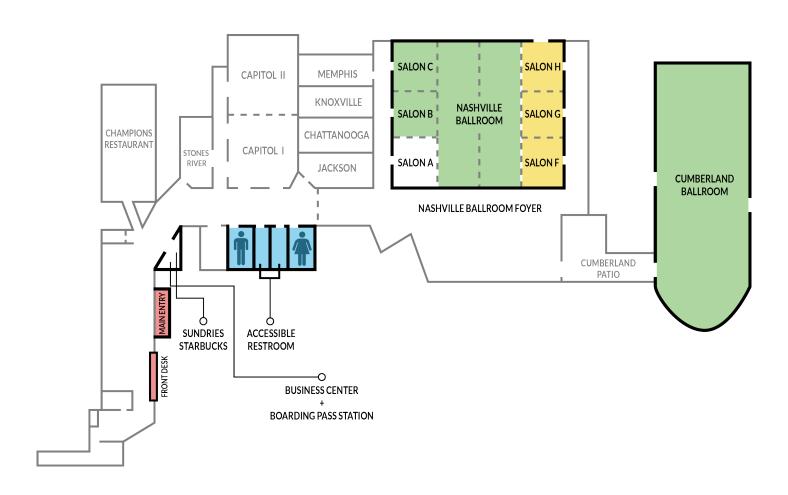
7:30 am	Registration Opens (Nashville Ballroom Foyer)			
7:30 am - 8:30 am	Continental Breakfast (Nashville Ballroom Foyer)			
8:30 am - 10:15 am	Forum on Messaging: The Value Proposition for Codes (Cumberland Ballroom)	Two Experience Dive into Energe and West (Nashville Ball	gy Codes East	TECH TRACK: Daylighting Controls for Commercial Buildings (Salon F/G/H)
10:15 am - 10:30 am	Break			
10:30 am - 12:00 pm	Best Practice Sharing: State and Local Approaches to Implementation (Cumberland Ballroom)	Commercial Compliance Studies (Nashville Ballroom)		TECH TRACK: Successful Home Ventilation Strategies for Code Compliance (Salon F/G/H)
12:00 pm - 1:15 pm	Networking Lunch (Nashville Ballroom)			
1:15 pm - 2:30 pm	JOLT Session (Nashville Ballroom)			
2:30 pm - 3:00 pm	Break (light refreshments will be provided)			
3:00 pm - 4:30 pm			Compliance to Meet Utility ville Ballroom)	

Agenda At-A-Glance

DAY 03 THURSDAY, MARCH 26

7:30 am	Registration Opens (Nashville Ballroom Foyer)			
7:30 am - 8:30 am	Continental Breakfast (Nashville Ballroom Foyer)			
8:30 am - 9:15 am	Closing Plenary (Nashville Ballroom)			
9:15 am - 10:30 am	Forum on Existing Buildings: Compliance and Resilience (Cumberland Ballroom)	Multifamily Buildings Forum (Nashville Ballroom)	TECH TRACK: Insulation Requirements in the IECC (Salon F/G/H)	
10:30 am - 10:45 am	Break			
10:45 am - 12:00 pm	BECP Resources: Updates and Discussion (Nashville Ballroom) Conference Close-out (Nashville Ballroom)			

CONFERENCE FLOOR PLAN



Detailed Agenda - Day 1: Tuesday, March 24

10:15 am - 12:00 pm

Forum on the Future of Energy Codes

LOCATION: NASHVILLE BALLROOM

Industry experts will highlight some of the important factors that will lead to substantive changes in the code development and enforcement industry. Hear how these issues will impact your job, and join in the conversation intended to identify strategies for preparing the industry for these changes.

Moderator: Ravi Shah, City of Carrollton, Texas

- Roadmap Toward a Predictive Performance-Based Commercial Energy Code Bing Liu, Pacific Northwest National Laboratory
- Utilizing Energy Targets in zEPI and Outcome-Based Codes Jim Edelson, New Buildings Institute
- Green to Zero Sustainability and Resilience in Building Codes
 Darren Port, Northeast Energy Efficiency Partnerships
- The Evolution of Departments, Professionals and Practices Ryan Colker, National Institute of Building Sciences

TECH TRACK: Achieving and Evaluating Residential Compliance of Tight Envelopes

LOCATION: SALON F/G/H

In this session we will explore the relationship between house envelope tightness and energy performance and the policy implications of stronger energy code requirements. Focus will be given to the impact of envelope tightness on HVAC load calculations, the relationship between envelope tightness and intentional ventilation, and lessons learned from the Duct and Envelope Tightness (DET) verifier program. New technologies and approaches enter the marketplace every day. This session will help policy makers, builders, designers and code officials identify current code requirements, best practices, and avoid missteps when creating tighter envelopes and considering new code requirements.

- Bourke Reeve. Southface
- Mike Barcik, Southface

1:00 pm - 2:30 pm

Compliance Support: Strategies for States and Municipalities

LOCATION: NASHVILLE BALLROOM

This session will cover recent initiatives in providing direct support to building departments with additional resources to support energy codes and encourage collaboration and information sharing. Specific projects covered will include the Institute for Market Transformation (IMT) and the Natural Resources Defense Council's (NRDC) City Energy Project and the Building Codes Assistance Project's (BCAP) Energy Code Ambassadors Program.

Moderator: Maria Ellingson, Building Codes Assistance Project

- Transforming the Culture of Energy Codes via State Compliance Collaboratives and Energy Code Ambassadors
 Maria Ellingson, Building Codes Assistance Project
- ECAP Spreading the Energy Code Gospel
 John Umphress, Austin Energy Green Building
- Engaging Cities to Improve Code Compliance
 Ryan Meres, Institute for Market Transformation
- Getting to Compliance in Washington, DC
 Kimberly Newcomer, District of Columbia Department of Consumer and Regulatory Affairs

Day 1: Tuesday, March 24 (continued)

1:00 pm - 2:30 pm (continued)

Demonstrating Compliance: The Evolving Role of Software

LOCATION: SALON B/C

What are some of the innovative software tools available to the construction community to help streamline energy code compliance? What does the future look like as these tools adapt to future code changes, new compliance paths, and the desire to improve compliance? Hear from leading software developers in the energy code and modeling industries.

Moderator: Charles Eley, Eley Consulting

- The "CheckTools" Perspective
 Bob Schultz, Pacific Northwest National Laboratory
- Paving the Way for Widespread Use of Modeling for Code Compliance Kamaria Greenfield, Building Codes Assistance Project
- Emerging Software for Energy Performance Standards
 Charles Eley, Eley Consulting, Clark Denson, SSRCx, and Jay Harrison, State of Tennessee Real Estate Asset Management

TECH TRACK: HVAC and the Energy Code: Comfort, Savings, and Fewer Call-Backs

LOCATION: SALON F/G/H

It will focus on what's important and what is not when it comes to HVAC design. The session will examine how close is close enough when it comes to heat loss/heat gain and equipment selection and what variables a code official should focus on to make sure the HVAC is "close enough" to provide efficiency and comfort. It will also show actual data from the field in regards to system size, duct leakage and common problem areas.

- Jeff Tiller, Appalachian State University
- Bruce Manclark, SpecPro

3:00 pm - 5:00 pm

Residential Compliance: State Strategies for Quantifying Code Compliance

LOCATION: NASHVILLE BALLROOM

The DOE Building Energy Codes Program will provide an overview of one of its newest projects, a research study investigating the ability of energy code education, training and outreach programs to produce a significant, measurable change in residential building energy savings. A series of eight U.S. states have been selected to participate in the study, and are currently conducting field studies based on a methodology developed by Pacific Northwest National Laboratory. Representatives from each state will provide insight on their experiences, thus far, and activities yet to come.

Moderator: Jeremy Williams, U.S. Department of Energy

- Overview of the Field Study Methodology Rosemarie Bartlett, Pacific Northwest National Laboratory
- Alabama Ryan Meres, Institute for Market Transformation
- Arkansas & Georgia Lauren Westmoreland, Southeast Energy Efficiency Alliance
- Kentucky Isaac Elnecave, Midwest Energy Efficiency Alliance
- Maryland David St. Jean, Maryland Energy Administration
- North Carolina Jeff Tiller, Appalachian State University
- Pennsylvania Mike Turns, Performance Systems Development
- Texas Rodney Sobin, National Association of State Energy Officials

Day 1: Tuesday, March 24 (continued)

3:00 pm - 5:00 pm (continued)

Commissioning Requirements for Commercial Energy Codes

LOCATION: SALON B/C

The rapidly-growing field of building commissioning (Cx) is changing the expectations building owners have regarding performance. These experts will provide a history of commissioning in commercial buildings, provide insight into what commissioning consists of and who is qualified to perform commissioning. Learn what the application of commissioning means to you as a designer, builder or code official.

Moderator: Maureen Guttman, Building Codes Assistance Project

- Commissioning Guidelines and Standards Utilization Gerald Kettler, Facility Performance Associates
- Commissioning in CA Codes: the California Experience Randall Higa, Southern California Edison
- Building Envelope Commissioning
 Maureen Guttman, Building Codes Assistance Project

TECH TRACK: Increasing Role of Controls in Commercial Energy Codes

LOCATION: SALON F/G/H

In an effort to gain additional savings, recent editions of commercial energy codes have focused efforts on building controls. This has led to more of the savings anticipated from codes being reliant on properly functioning building controls. Common examples include daylighting controls, occupancy sensor controls, off hour temperature setbacks, hydronic and airside temperature resets, and economizers. To many in the building code world these requirements are a complex mystery, and it is not uncommon to see these controls not functioning as intended. In order to achieve the intended savings, building designers need to understand how to specify control requirements, code officials need to understand how to verify those requirements, building operators need to know how to keep them running correctly, and building owners and occupants need to understand how these controls will impact the user experience. This session will review some of the more impactful control requirements found in the energy code, helping the audience understand their intent, what it takes to implement the requirement, how they can be verified in plan review and inspection, and what happens when these controls are not implemented correctly.

- Charles Eley, Eley Consulting
- Clark Denson, SSRCx
- Jay Harrison, State of Tennessee Real Estate Asset Management
- John McFarland, WorkingBuildings

Day 2: Wednesday, March 25

8:30 am - 10:15 am

Forum on Messaging: The Value Proposition for Codes

LOCATION: CUMBERLAND BALLROOM

While building energy codes offer a wide range of benefits to a diverse set of stakeholders, creating effective messaging and outreach strategies can be a significant challenge. Hear from a number of seasoned players in the codes space as they discuss how they make a value proposition for codes and energy efficiency to different audience types.

Moderator: Sharon Grant, Eco Edge

- Colorado: Advancing Energy Codes in a Home Rule State Rick Hanger, Colorado Division of Housing
- Getting Value: Dollars and Common Sense of Code Adoptions
 Jason Reid, Alabama Homebuilders Association
- Communicating the Value of Energy Efficiency: What is Energy Worth?
 Sandra Adomatis, Adomatis Appraisal Service
- Energy Code Messaging Effectively Targeting Stakeholder Priorities
 Aaron Stein, San Antonio Office of Sustainability

Two Experiences: A Deep Dive into Energy Codes East and West

LOCATION: NASHVILLE BALLROOM

Take a closer look at residential and commercial energy code content from two very unique parts of the country. First, Appalachian State University will show you the bad, the good, and the best when it comes to residential energy code compliance in North Carolina. Then, the City of Seattle will provide a look into one of the more progressive, and rapidly improving, commercial codes in the United States. Expect lots of pictures, technical details, and lessons learned in development, adoption, and compliance – suitable for code junkies and novices alike.

Moderator: Mark Lessans, U.S. Department of Energy

- North Carolina: Details and Lessons Learned from the Field Chuck Perry, Appalachian State University
- Seattle: Life on the Cutting Edge

 Duane Jonlin, Seattle Department of Planning and Development

TECH TRACK: Daylighting Controls for Commercial Buildings

LOCATION: SALON F/G/H

Daylighting controls were first introduced in ASHRAE Standard 90.1-2010 and are now required by IECC 2015 as well. These controls reduce the general lighting in response to sunlight coming in through windows and skylights. In this session, how daylighting controls work and how they can save energy will be explained, together with a review of daylight control requirements in the various codes and standards. We will look at how these controls could be implemented and how to ensure that they are working correctly.

• Rahul Athalye, Pacific Northwest National Laboratory

Day 2: Wednesday, March 25 (continued)

10:30 am - 12:00 pm

Best Practice Sharing: State and Local Approaches to Implementation

LOCATION: CUMBERLAND BALLROOM

Model energy codes have begun to incorporate requirements for building performance, while at the same time whole-building performance approaches have become an increasingly popular pathway to demonstrating code compliance. Learn more about the best practices, resources, and certifications developed by state and local governments and code support organizations to assist in using performance metrics to demonstrate compliance.

Moderator: Cosimina Panetti, Building Codes Assistance Project

- Evolution of the WA State Energy Code Aligning Efficiency Targets with Compliance
 Lisa Rosenow, Northwest Energy Efficiency Council
- Embracing Diagnostic-Based Compliance Assessment through a Diverse, Yet Integrated Training Program
 Darren Meyers, International Energy Code Consultants
- Home Rule Implementation: Pima County's Two-Tier Approach to the Adoption of and Compliance with the Energy Codes.
 Rich Franz-Under, Pima County Development Services
- GA Energy Code Update A Step Ahead!
 Ted Miltiades and Bill Towson, Georgia Department of Community Affairs
- Tropical Design Everywhere
 Howard Wiig, Hawaii Department of Business, Economic Development, and Tourism

Commercial Compliance Studies

LOCATION: NASHVILLE BALLROOM

Residential code compliance studies have been done many times and are relatively straight-forward. But how does it work for commercial codes with wildly varying building types, long construction times, complex HVAC systems and many levels of building official knowledge? This is an up-and-coming area of interest. Come hear what has been done so far, what has been learned and how we are going to move forward on documenting commercial savings. There will be lots of opportunities to share your thoughts.

Moderator: David Cohan, U.S. Department of Energy

- Commercial Code Compliance: A Literature Review Rahul Athalye, Pacific Northwest National Laboratory
- Commercial Baseline Study: Where Are We At? Nigel Makela, BrittMakela Group
- Developing a Commercial Code Compliance Methodology Ken Baker, Northwest Energy Efficiency Alliance

TECH TRACK: Successful Home Ventilation Strategies for Code Compliance

LOCATION: SALON F/G/H

In this session participants will learn about ventilation for residential buildings with a focus on indoor air quality and code compliance. Instructors will demonstrate how to calculate whole house ventilation requirements, identify options and best practices to meet ventilation needs, and discuss future energy code requirements and how they impact a home's ventilation requirements.

- Bourke Reeve, Southface
- Mike Barcik, Southface

Day 2: Wednesday, March 25 (continued)

3:00 pm - 4:30 pm

Demonstrating Code Compliance with ERI

CUMBERLAND BALLROOM

What does an ERI path to energy code compliance mean for building construction and code enforcement communities? Learn more about what ERI is and how it is calculated, states across the country that are already using an ERI path for compliance, and software and other tools for determining the ERI of a home.

Moderator: Steve Baden, Residential Energy Services Network

- Benefit of the New ERI Compliance Tool in the International Energy Conservation Code (IECC)
 Dominic Sims, International Code Council
- An In-the-Field Perspective Robby Schwartz, EnergyLogic
- HERS Index in IECC Compliance Comparing the New ERI Path to the Traditional Performance Path Vrushali Mendon, Pacific Northwest National Laboratory
- Implementing ERI as Building Code 146 Case Studies from Massachusetts lan Finlayson, Massachusetts Department of Energy Resources

Energy Code Compliance to Meet Utility Targets

LOCATION: NASHVILLE BALLROOM

This session will provide an overview of states where support for energy code adoption, training, and compliance can be used by utilities to claim savings toward meeting energy efficiency targets, as well as review results and lessons learned. Additionally, the session will discuss the role code compliance may play in state plans to reduce greenhouse gas emissions.

Moderator: Isaac Elnecave, Midwest Energy Efficiency Alliance

- The Arizona Experience: 2012 IECC Sharon Bonesteel, Salt River Project
- National Grid's Code Compliance Enhancement Initiative in Rhode Island Eric Beaton, National Grid
- Energy Codes and Utility Support in the Southeast Kristi Matthews, Advanced Energy
- Energy Codes and the Clean Power Plan
 Rodney Sobin, National Association of State Energy Officials

Day 3: Thursday, March 26

9:15 am - 10:30 am

Forum on Existing Buildings: Compliance and Resilience

LOCATION: CUMBERLAND BALLROOM

Increased demand for living and work spaces in urban and other developed areas is leading to significant re-use of commercial buildings. This represents a strategic opportunity to improve the performance of the existing building stock. Converting this opportunity into reality depends on the application of judicious and enforceable building code requirements and actionable best practice guidance for building owners and professionals. This session highlights the recent evolution in code language for existing buildings (IBC, IEBC, IECC), offers a test-case for an additional code change to the IECC regarding its change-of-occupancy requirements, and presents a life-cycle-based approach to investing in commercial building energy efficiency.

Moderator: Jennifer Senick, Center for Green Building

- Compliance Guidance for the Energy Code's Change of Occupancy Requirement Based on the Smart Rehab Code Approach David Hattis, Building Technology, Inc.
- Codes, Codes, and More Codes for Existing Buildings!
 David Collins, The Preview Group
- Redefining the Rules: Driving Deep Efficiency in Existing Buildings
 Zachary Hart, The American Institute of Architects

Multifamily Buildings Forum

LOCATION: NASHVILLE BALLROOM

Currently, building energy codes designed for nonresidential buildings and those designed for single-family homes are applied to multifamily new construction, even though those codes are generally developed without significant thought to multifamily structural and operational differences. This was not a large problem when building energy codes were new and just addressing the most blatant sources of energy waste. As codes have matured, and in some cases are moving toward Zero Net Energy (ZNE) buildings, multifamily buildings need to be addressed as a distinct class with requirements based on how these buildings are designed and operated, and which do not make an arbitrary distinction between 3-story and 4-story buildings. This session will also highlight the work of a coalition that is coming together to create a multifamily code.

- The Need for a Building Energy Efficiency Code Specific to Multifamily Buildings, and How We Can Get There Nehemiah Stone, BenningfieldGroup
- The Impact of Energy Codes on Affordable Housing Dennis Hidalgo, Volunteers of America

TECH TRACK: Insulation Requirements in the IECC

LOCATION: SALON F/G/H

This session will give an overview of the compliance paths in the IECC with respect to the building envelope and insulation specifically. Participants in this session will gain an understanding of both the U-value table (402.1.2) and R-Value table (402.2) in the IECC. Technical concepts will be reinforced through specific examples in successful implementation.

• Jason Toves, International Code Council

Day 3: Thursday, March 26 (continued)

10:45 am - 12:00 pm

BECP Resources: Update and Discussion

LOCATION: NASHVILLE BALLROOM

An overview of BECP resources will be provided, including a glimpse into the future of REScheck and COMcheck to get some feedback from attendees. Also learn about our new dynamic state-level cost-effectiveness analysis tool.

- David Cohan, U.S. Department of Energy
- Bing Liu, Pacific Northwest National Laboratory
- Rosemarie Bartlett, Pacific Northwest National Laboratory
- Bob Schultz, Pacific Northwest National Laboratory

Thank you for attending Energy Codes In Action!

U.S. Department of Energy National Energy Codes Conference 2015

Hosted By

U.S. Department of Energy's Energy Efficiency and Renewable Energy Building Energy Codes Program For more information: www.energycodes.gov/events/energycodes



For more information: www.energy.gov/eere



For more information: www.energycodes.gov