

Houses That Work: Insulation and Air Sealing **"Attaining Optimal Insulation Effectiveness in High Performance Homes"**

This workshop trains attendees on the key principles for ensuring they attain optimal insulation effectiveness in high performance homes. The session will review the basic physics of air, heat and moisture flow and the essential questions related to creating an effective thermal barrier. Participants will learn the advantages and differences between each type of insulation and will be given valuable techniques and strategies to maximize the performance of each type. A thorough discussion of proper installation methods will be covered including the importance of air sealing and air sealing methods. This presentation will allow participants to discuss insulation issues and their experiences through the use of case studies and group exercises to ensure a wide variety of construction types and systems, relevant to the home building industry, are covered.

Who Should Attend

The workshop will be of most interest to at least the following groups:

- New home builders and remodelers and their site supervision staff
- Designers and architects
- Estimators and contract managers of builders
- Building supply and manufacturers' representatives who promote insulation and air sealing
- Insulation and drywall trade contractors as well as framers
- Utility and housing program officials who promote ENERGY STAR Homes.
- Energy Raters

Relevance to Attendees

- Relate the basics of air, heat and moisture flow to create effective insulation systems
- Analyze different insulation systems for cost effectiveness and energy efficiency
- Implement techniques and strategies for proper installation of insulation systems for a wide variety of construction details and methods
- Identify techniques and methods for cost-effective air sealing methods to optimize overall insulation effectiveness

Note:

The workshop will in all cases be adapted to the climate zone and building practices of the local area where it is being presented to ensure it is relevant to participants.

Agenda

Session Segment	Activity Plan	Timing
<p><u>Introduction to EEBA and Energy Star Program</u></p> <ul style="list-style-type: none"> • What EEBA and ENERGY STAR does • Relevance of the “Houses that Work” Program • EEBA publications and education • Introduction of speaker and sponsors 	<p>Facilitator has sponsors and participants introduce themselves and asks participants what prompted their interest in today’s session.</p>	10 minutes
<p><u>Building Science Principles as they Relate to Insulation</u></p> <ul style="list-style-type: none"> • Review of the key concepts of the “Houses That Work” program that specifically apply to insulation issues – that is, where this workshop fits in with other EEBA offerings. • A short review of building science basics – air, heat and moisture flow as they relate to insulation and air sealing, house-as-a-system issues, and how small changes can have important aspects 	<p>Small Group Exercise: Participants work together to list industry changes that impact energy performance of houses.</p>	20 minutes
<p><u>Why We Need to Improve the Performance of Insulation</u></p> <ul style="list-style-type: none"> • The benefits of proper insulation to builders • The risks to builders of inappropriate or improperly installed insulation • The roles and responsibilities of builders and their trades in ensuring proper insulation. 	<p>Question & Answer: Participants are asked about their experiences and local market conditions that impact how insulation is used and perceived by the industry and homebuyers</p>	20 minutes
<p><u>How Insulation Works and Defining R-Value</u></p> <ul style="list-style-type: none"> • The fundamentals that every builder needs to know about how insulation works and what defines proper performance 	<p>Short Lecture: Facilitator describes the science of insulation and how it manages heat flow.</p>	20 minutes
<p><u>The Importance of Air Leakage Control</u></p> <ul style="list-style-type: none"> • Why air leakage is so important to proper insulation performance • Practical air sealing strategies and materials for various building elements • Interior and exterior air barriers • Critical details behind tubs, fireplaces, bulkheads, garage interfaces 	<p>Short Lecture: Facilitator describes the science of air leakage and how it relates to energy use.</p> <p>Question & Answer: Participants are asked to identify the most important air leakage areas. They are shown pictures of solution strategies to each area and asked to comment on their experiences with these methods.</p>	30 minutes
<p><u>Selecting from the Many Types of Insulation</u></p> <ul style="list-style-type: none"> • The advantages and issues of the different types of 	<p>Small Group Exercise: Participants work together to list</p>	50 minutes

insulation • Strategies for selecting and applying different types of insulation for different housing problems and different parts of the house	advantages and issues related to each of the various insulation types and methods. They rank the types for different types of applications.	
Effective Insulation Details • Strategies that every builder and insulator needs to know for properly applying the different types of insulation • Insulation details for: • Foundations • Walls • Attics – including conditioned attics • Ductwork	<u>Short Lecture:</u> Facilitator describes the key points of proper insulation installation. <u>Question & Answer:</u> Participants are shown pictures of insulation strategies for various parts of a house and are asked to comment on their experiences with these methods.	60 minutes
Summary and End of Workshop	<u>Final Review Question and Answer:</u> Participants are asked three review questions about the fundamentals of insulation. Participants are asked about two things they need to improve with respect to insulation.	10 minutes
End of Workshop		

*Available only at EEBA’s Pro Events

Training Time and CEUs/Professional Development Credits

3.5 Hours of Educational and Training Time

This Seminar qualifies for CEUs/Professional Development Credits from the following accreditation organizations:



Pricing

The hosting fee for this seminar is \$6500

The registration fee for this seminar is \$65 (online registration) or \$70 (on-site registration)*

* The registration fee includes lunch when two half-day sessions are combined for a full day.

Reading Material and Online Resources

The reading material for the course consists of documents, publications and online resources relating to each educational and training seminar. You are welcome to order, view or print the resources if you choose. You can find them by following the links below to the EEBA, Department of Energy and EPA/IAQ websites.

Link / Purchase / Download

Climate Specific Builders Guides

[Builder's Guide to Cold Climates](#)

[Builder's Guide to Hot-Dry / Mixed-Dry Climates](#)

[Builder's Guide to Hot-Humid Climates](#)

[Builder's Guide to Mixed-Humid Climates](#)

[Online bookstore with EEBA Publications, issue-specific guides, software and tools](#)

Software Resources

[Building Better Homes DVD](#)

Online Resources

[National Residential Efficiency Measures Database](#)

[DOE Building Technologies Program](#)

[Building Energy Optimization Software](#)

[EEBA National Education Partner Resources & Information](#)