Water Management Workshop Description and Outline

HTW II Water Management Workshop

"Keeping Buildings Dry and Getting Them Dry When They Get Wet"

This half day workshop will help builders and designers apply building science to address the highest risk element of new home construction – water management – keeping buildings dry. The session will review the basic physics of air, heat and moisture flow covered in the HTW I workshop and then will outline important, cost effective strategies that will protect builders and their homeowners from water intrusion and material damage. A thorough discussion of topics such as site drainage, house designs that help manage water, proper flashing details, rain screen principles, controlling ground water intrusion and managing interior moisture will be covered. This presentation will allow participants to discuss their experiences with a variety of water management materials and strategies that are appropriate to the climate zone they work in. Information learned at the session will help participants design and build long-lasting, healthy, sustainable buildings.

Relevance to Attendees:

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 building materials
- Trade contractors such as framers, siding installers, stucco installers, brick layers and window installers
- Housing program officials who promote energy efficiency or green building.
- Building Officials, Energy Raters, home inspectors and LEED professionals

Learning Objectives:

- Learn the basics of air, heat and moisture flow as it relates to managing water flow in buildings.
- Learn the four transfer mechanisms of moisture movement in buildings and how to control them.
- Identify the essential material properties for weather barriers, air barriers and vapor retarders and how they can be integrated into the building envelope.
- Identify cost effective design and material installation strategies to avoid water intrusion.
- Learn important techniques for building a variety of foundation types that control the flow of water into buildings.
- Identify techniques and methods for cost effectively managing interior moisture in energy efficient buildings.

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.

Houses that Work II – Water Management Workshop

Curriculum Outline

3.50 Hours of teaching time

Segment	Timing
Introduction to EEBA and its Sponsors • What EEBA does • Relevance of the Houses that Work Program • EEBA publications and education • The EEBA Conference • Introduction of speaker and sponsors	15 min.
Importance of Water Management This segment will demonstrate that water intrusion continues to be the single most important aspect of building durability and sustainability. For example water problems account for 80% of all construction litigation. 1. The changes in the way we build and use houses that increases water management risks • More complicated designs, restricted lot sizes, different building materials, higher expectations of homebuyers 2. Code requirements with respect to water management • Comparing code requirements for water management with requirements for structural or energy performance. • How local climate parameters should affect designs with respect to water management	15 min. 15 min.
Building Science Principles as it Relates to Water Management In this segment participants learn how the many complex changes noted above can be addressed with a thorough understanding of basic building science physics of moisture, air and heat flow. This segment will outline moisture flow mechanisms in residential construction and how they relate to overall building performance. 1. Four moisture flow mechanisms and three forms of moisture • Bulk water, capillary flow, moisture flows with air flow and vapor diffusion • Solid, liquid and vapor flow with water in liquid form being the most important 2. Building Science Fundamentals • How moisture flow relates to air and heat flow to determine overall building performance	15 min 15 min
Applying Moisture Flow Science to the Building Design In this segment participants will be given the overview of applying the science of moisture flow to site and house design 1. Ensuring proper drainage • Site drainage issues and design parameters • Draining the house envelope • Draining components and assemblies • Draining foundations	15 min
Water Management Strategies for Specific Building Elements In this segment participants will be given information on water management details for each major house element. The advantages and disadvantages of different	

materials and methods of water management will be discussed 1. Roof water management • Alternative finishing materials • Flashings • Proper sized gutters and downspouts • Design elements that assist in water management 2. Water management of walls • Drainage planes and rain screens • Roof to wall intersections • Drainage for different exterior finishes – brick, stucco, siding • Detailing penetrations 3. Water management of windows – the largest, most difficult wall penetrations • Sill protection • Interfacing with drainage planes • Alternative methods and materials 4. Foundation Water management alternatives for: • Full Height Basements • Crawl Spaces • Slabs	15 min. 15 min. 15 min. 15 min.
<u>Managing Interior Moisture</u> This segment provides participants with important information about managing interior moisture related to new construction moisture and occupant activities 1. Understanding the sources of interior moisture and how to create comfortable environments that ensure good indoor air quality • Defining relative humidity and the proper levels inside of homes in different seasons • The basics of avoiding mold by managing surface moisture levels • Keeping surfaces warm and dry and getting them dry when they do get wet 2. Techniques for managing interior moisture levels • The role of ventilation • The role of air conditioning and dehumidification • Materials and methods that resist moisture damage • Education of homebuyers as to their role in managing interior moisture	15 min. 10 min. 15 min. 10 min.
Summary and End of Workshop	10 min.