

## Building America Update – August 9, 2013



This announcement brings you the latest information about news, activities, and publications from the U.S. Department of Energy's (DOE) [Building America](#) program. Please forward this message to colleagues who may be interested in [subscribing](#) to future *Building America Update* newsletters.

### Building America Supports Home for Life

As the nation's baby boomers are entering retirement age, a recent AARP survey shows that nearly 70% would like to remain in their homes. Hanley Wood's [Home for Life](#) website and virtual tour uses universal design principles to help aging boomers transform a classic family home into a convenient, energy-efficient, and low-maintenance home. An all-star team of experts—including Building America—contributes expertise in remodeling design, construction; and energy and resource efficiency to create Home for Life.

### DOE Challenge Home Housing Innovation Awards and Student Competition

Since new specifications were introduced this past January, the DOE [Challenge Home](#) has grown to include more than 320 partners and over 100 certified zero net-energy ready homes. Nearly half of the partners are third-party verifiers available to certify homes and the other half are builders committed to constructing DOE Challenge Homes that [work better, live better and last better](#). Another 30 training partners are helping to deliver Zero Net-Energy Ready [trainings](#) across the country

- Plan to see the best of these extraordinary builders at the [Housing Innovation Awards](#), which recognize the very best in innovation on the path to zero net-energy ready homes. These awards will be presented as part of the [U.S. Department of Energy Solar Decathlon 2013](#)—an award-winning competition that showcases the world's leading colleges and universities designing the most energy-efficient homes ever built. Awards will be given to Challenge Home Builders, Home Performance with Energy Star Contractors, and Building America [Top Innovations](#) at a breakfast ceremony on Friday, October 4, 2013, 8:30-10:30 AM. For details and to RSVP, visit the [Housing Innovations Award](#) website.
- DOE is engaging college students nationwide to participate in the [DOE Challenge Home Student Design Competition](#), which seeks student innovations for high-performance homes that can be implemented by the home building industry and serve as “models for success.” Submissions will demonstrate the teams' knowledge and skills to design, analyze, and plan the construction of quality, high-performance homes that meet or exceed the DOE Challenge Home requirements. [Learn more](#) about the competition and criteria.
- Read the [July issue of Builder & Developer](#) magazine for a highlight of the Performance House in Old Greenwich, CT, the second home to receive Challenge Home certification. This home is a showcase of traditional design incorporating high performance and durability achieving certifications in ENERGY STAR for Homes version 3, EPA Indoor airPLUS and WaterSense, as well as LEED Platinum, Green Building Standard Emerald level, and several state awards .

### EEBA Conference Features Building America Sessions

If you are planning to attend the Energy & Environmental Building Alliance (EEBA) [Excellence in Building Conference](#) on September 24-26, 2013, in Phoenix, Arizona, check out the Building America track, [Zero Net-Energy Ready Homes with Building America Innovations](#). These sessions will highlight program activities and top innovations, including:

- [Overview of Zero Net-Energy Ready Homes via DOE Challenge Home](#)
- [Business Solutions for Zero Net-Energy Ready Homes – Florida Case Studies](#)
- [Moisture Levels in a Double-Stud Cellulose Wall in Climate Zone 5: Monitoring Results](#)
- [The Cottle Zero Energy Passive House: An Aggressive Approach to Energy Efficiency](#)
- [Simplified Space Conditioning in Low Load Homes](#)
- [Revisiting Ducts in Attics](#)

- [Duct Junction Box Analysis and Recommendations](#)
- [Measured Performance and Guidance from a Large-Scale Cold-Climate DER Pilot Program](#)
- [Foundation \(Basements and Crawlspace\) Insulation for Existing Homes](#)
- [Water Heating Solutions for All-Electric Homes and Apartments](#)
- [West Village: The First Planned Net Zero Community](#)
- [DOE Challenge Home Training for Builders](#)

## **Volunteer for the 2013 Solar Decathlon!**

The U.S. Department of Energy [Solar Decathlon 2013](#) will take place on October 3-13, 2013, at the Orange County Great Park in Irvine, California. This free public event features two complementary attractions: the Solar Decathlon, where visitors can tour highly efficient, solar-powered competition houses, and the XPO, featuring visionary and innovative clean energy companies, products, and educational opportunities. Volunteers are an important part of this exciting event. As a volunteer, you'll work alongside Solar Decathlon organizers, serving as greeters, docents, runners, registration assistants, visitor liaisons, and more. To find out more about volunteering, visit the Solar Decathlon [Volunteer](#) website.

## **New Publications from Building America**

The Building America [Publications Library](#) offers an extensive collection of technical reports, measure and strategy guidelines, case studies, and other resources to help you boost energy efficiency in new and existing homes. In addition, the Building America [Solution Center](#) links you to fast, free, and expert building science and energy efficiency information based on [Building America](#) research results. Here is a sampling of some of our most recent publications:

### [The Next Step Toward Widespread Residential Deep Energy Retrofits](#)

The complexity of deep energy retrofits warrants additional training to successfully manage multiple improvements that will change whole house air, heat, and moisture flow dynamics. The home performance contracting industry has responded to these challenges by aggregating skilled labor for assessment of and implementation under one umbrella. In this report, two emerging business models are profiled that seek to resolve many of the challenges, weaknesses, opportunities, and threats described for the conventional business models.

### [Predicting Envelope Leakage in Attached Dwellings](#)

The most common method for measuring air leakage is to use a single blower door to pressurize and/or depressurize the test unit. In detached housing, the test unit is the entire home and the single blower door measures air leakage to the outside. In attached housing, this 'single unit', 'total', or 'solo' test method measures both the air leakage between adjacent units through common surfaces as well air leakage to the outside. Measuring and minimizing this total leakage is recommended to avoid indoor air quality issues between units, reduce energy losses to the outside, reduce pressure differentials between units, and control stack effect. The scope of this research is to investigate an approach for developing a viable simplified algorithm that can be used by contractors to assess energy efficiency program qualification and/or compliance based upon solo test results.

### [Evaluation of Retrofit Delivery Packages](#)

Residential energy retrofit activities are a critical component of efforts to increase energy efficiency in the U.S. building stock; however, retrofits account for a small percentage of aggregate energy savings at relatively high per unit costs. This report describes barriers to widespread retrofits and evaluates opportunities to improve delivery of home retrofit measures by identifying economies of scale in marketing, energy assessments, and bulk purchasing through pilot programs in portions of Sonoma, Los Angeles, and San Joaquin Counties, CA..

### [Energy Savings and Breakeven Costs for Residential Heat Pump Water Heaters in the United States](#)

Heat pump water heaters (HPWHs) have recently re-emerged in the U.S. residential water heating market and have the potential to provide homeowners with significant energy savings. However, there are questions as to the actual performance and energy savings potential of these units, in particular in regards to the heat pump's performance in unconditioned space and the impact of the heat pump on space heating and cooling loads when it is located in

conditioned space. To help answer these questions, NREL performed simulations of a HPWH in both conditioned and unconditioned space at over 900 locations across the continental United States and Hawaii, as described in this report.

#### [Imagine Homes New Construction Occupied Test House](#)

This report summarizes the research findings of a long-term monitoring plan to evaluate the performance of an energy-efficient home constructed in 2010 in San Antonio, Texas. Monitoring of the energy use, energy generation, and temperature conditions for this project occurred between July 2010 and October 2011. This report summarizes the research findings related to heating, ventilation, and air conditioning system performance, estimated and actual energy use of key subsystems, electricity generation by the PV system, and performance of the solar thermal domestic hot water system.

Additional reports published recently are:

- [Validation of a Hot Water Distribution Model Using Laboratory and Field Data](#)
- [Verifying a Simplified Fuel Oil Field Measurement Protocol](#)
- [Expert Meeting: Recommended Approaches to Humidity Control in High Performance Homes](#)
- [56th & Walnut - A Philly Gut Rehab Development](#)
- [Twenty Years On!: Updating the IEA BESTEST Building Thermal Fabric Test Cases for ASHRAE Standard 140](#)

Visit the Building America [Publications Library](#) to access the entire catalog of publications to help improve efficiency of new and existing homes.

***Please forward this announcement to colleagues who may be interested in subscribing to future Building America Updates.***