Building America Update – December 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.

Apply Now for the Challenge Home Student Design Competition!

There is still time to apply for the DOE Challenge Home Design Competition—the registration deadline is **December 16, 2013**. This new nationwide competition aims to provide the next generation of architects, engineers, construction managers, and entrepreneurs with skills and experience to start careers in the field of high-performance homes. The competition seeks student team innovations for homes that the home building industry can use as "models for success." Submissions will demonstrate the teams' knowledge and skills to design, analyze, and plan the construction of quality homes that meet or exceed the DOE Challenge Home requirements. Learn more about the competition, criteria, and deadlines.

Top Innovation Spotlight: Buried and Encapsulated Ducts

Ductwork installed in unconditioned attics can significantly increase the heating and cooling costs of homes, resulting in thermal losses of 10%-45% of total space conditioning energy use. To address this problem, researchers from Building America team Consortium for Advanced Residential Buildings (CARB) developed an insulating method suitable for both new and existing homes that won a 2013 Top Innovation award. The "buried and encapsulated ducts (BED)" strategy consists of burying ducts in loose-fill insulation and/or encapsulating them in closed cell polyurethane spray foam insulation. As a result of this research, BEDs have been incorporated into several energy conservation codes and standards. Learn about all of the 2013 Top Innovations.

Request for Information for the Prioritization Tool: Deadline is December 24, 2013

DOE's Building Technologies Office (BTO) has issued a Request for Information (RFI) seeking input for its Prioritization Tool, an objective framework that helps set program goals that accelerate the transformation of the U.S. building energy efficiency sector. Currently, the tool contains data on more than 500 energy efficiency measures, which cover a spectrum of market opportunities, including residential and commercial buildings, new and existing buildings, and industrial and outdoor applications. DOE seeks comments and information from industry, academia, research laboratories, government agencies, and other stakeholders on input and output data for all measures evaluated in the tool. Submit your responses by **5:00 p.m. EDT on December 24, 2013.**

New Climate-Specific Case Studies Showcase Proven Home Performance

Look for examples of high-performance homes across the nation on the newly updated Building America Climate-specific Guidance website. See case studies on new and existing homes in five major climate zones—cold/very cold; hot/dry; hot/humid; mixed humid; and marine. In addition, a new "All Climates" page provides examples of technology-specific measures that may be applicable to homes across all climate zones.

DOE Challenge Home Highlights: Articles, Webinar and Ongoing Trainings

The November 2013 issue of *Professional Builder* magazine features in-depth coverage of DOE's Challenge Home program—check out the article, "Up to the Challenge."
Plan to attend the webinar "Zero Energy Ready Homes as a Business," presented by Building America's Chief Architect Sam Rashkin, on December 10, 2013, and sponsored by the Net-Zero Energy Home Coalition. This webinar will address the key business concepts stakeholders need to embrace for this transformation to zero energy ready homes. Read details and register.

DOE Challenge Home trainings continue through 2014—find trainings in your area. Since new specifications were introduced in January 2013, the DOE Challenge Home has grown to include more than 320 partners and more than 100 certified net-zero energy ready homes. Nearly half of the partners are third-party verifiers that are available to certify homes; the other half are builders who are training partners are helping to deliver Net-Zero Energy Ready trainings across the country.

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. Also, the Building America Solution Center links you to expert building science and energy efficiency information based on Building America research results. Here is a sampling of some of our most recent publications:

Moisture Management for High R-Value Walls
This report explains the moisture-related concerns for high R-value wall assemblies and discusses past Building America research work that informs this study. In this project, Building Science Corporation prepared hygrothermal simulations for several common approaches to high R-value wall construction in six cities (Houston, Atlanta, Seattle, St. Louis, Chicago, and International Falls) representing a range of climate zones. The modeling program assessed the moisture durability of the wall assemblies based on three primary sources of moisture: construction moisture, air leakage condensation, and bulk water leakage.

Case Study: Improving the Field Performance of Natural Gas Furnaces
The goal of this project is to examine the impact that common installation practices and age-induced equipment degradation may have on the installed performance of natural gas furnaces, as measured by steady-state efficiency and AFUE. In this project, the Partnership for Advanced Residential Retrofit (PARR) team identified twelve furnaces of various ages and efficiencies that were operating in residential homes in the Des Moines Iowa metropolitan area and worked with a local HVAC contractor to retrieve them and test them for steady-state efficiency and AFUE in the lab.

Ground Source Heat Pump Sub-Slab Heat Exchange Loop Performance in a Cold Climate
This report presents a cold-climate project that examines an alternative approach to ground source heat pump ground loop design. This innovative design is an attempt to reduce the installed cost of the ground loop heat exchange portion of the system by containing the entire ground loop within the excavated location beneath the basement slab. Prior to the installation and operation of the sub-slab heat exchanger, energy modeling using TRNSYS software and concurrent design efforts were performed to determine the size and orientation of the system.

Additional reports published recently are:

- Evaluation of Early Performance Results for Massachusetts Homes in the National Grid Pilot Deep Energy Retrofit Program
- Case Study: Technology Solutions for New Manufactured Homes, Idaho, Oregon, and Washington
- Case Study: Cladding Attachment Over Thick Exterior Insulating Sheathing
- Case Study: Multifamily Individual Heating and Ventilation Systems, Lawrence, Massachusetts

- Case Study: Improving Comfort in Hot-Humid Climates with a Whole-House Dehumidifier

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

Want to learn more about Building America or help us spread the word about the program? View the new video, "What is Building America?" on DOE's YouTube channel to learn about how Building America aims to bridge the gap between homes with high energy costs and homes that are healthy, durable, and energy efficient.

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