Building AMERICA U.S. Department of Energy

CARB NEWS

A MONTHLY UPDATE ON SWA'S PARTICIPATION IN THE U.S. DEPARTMENT OF ENERGY'S BUILDING AMERICA PROGRAM

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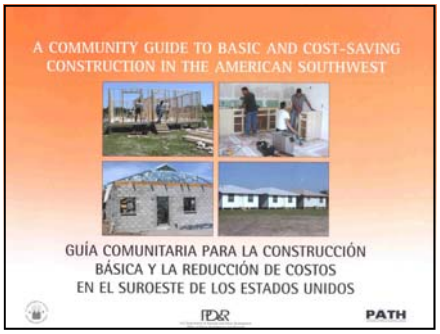
Madera Model Homes About Complete

Next month, ribbons will be cut for the first model home in Florida that are just the start of a ground-breaking sustainable community. CARB, part of the **U.S. Department of Energy's Building America** program, has teamed up with the **Florida Energy Extension Service (FEES)** at the **University of Florida** to help design and engineer the first homes in the energy- and resource-efficient 88-home Madera community in Gainesville, Florida. As part of this project, CARB performed a systems engineering analysis and prepared specification recommendations, based on the FEES cottage-style plan. In making its recommendations, CARB considered the optimal product, balancing performance and cost. Developed by **GreenTrust, LLC**, the homes will showcase four new technologies also being tested by Steven Winter Associates, Inc. (SWA) for the **U.S. Department of Housing and Urban Development's Partnership for Advancing Technology in Housing**. Technologies tested include: high-content fly-ash concrete, light-gauge steel framing, recycled content gypsum wallboard, and a tankless water heater. Using fly ash, a waste product from coal-burning power plants, is a great low-energy substitute for cement in concrete. At Madera, Class F ASTM 618 concrete with fly ash was used for all flat work including finished flooring on porches and garages and insulated-concrete-forms wall systems. Observations showed that high-content fly-ash concrete is a viable environmental substitute for cement but may require longer curing time. The ribbon cutting will be held on April 16th.

High Rollers Go for Zero

Atlantic City's **Casino Reinvestment Development Authority (CRDA)** is making dreams come true for local residents by providing affordable and sustainable communities. CRDA, funded by a portion of local casino profits, is currently in the "Cityscape" phase of the initiative. This phase features six new, efficient, modular homes to be built on vacant city lots. Through the **U.S. Department of Energy's Zero Energy Homes** program, SWA is partnering with CRDA and **FIRST, Inc**., a solar contractor, to monitor the energy performance of two occupied homes. The first home to be completed and monitored is a two-story Cape Cod Style house developed by the Gensis Group Ltd. The house features passive and active solar systems; efficient building envelopes; orientation-specific glazing; direct-vent boiler/water heater; CFL's; and mini-split air conditioning. SWA will be monitoring PV inverter efficiency, PV production, and shading effects in an attempt to increase PV panel efficiency and installation procedures. Indoor comfort conditions, such as relative humidity and temperature, will be studied as well. The second house, still under construction, will apply lessons learned from the first home and has a goal of consuming zero net energy with the help of a 3885-watt PV system specified for the roof.

Applying the Lessons Learned from the Southwest



One of the strengths of the **U.S. Department of Energy's Building America** program is that the research undertaken over the years is applicable in many different ways. Take, for example, a new book just published about building low-cost, energy efficient homes in the rural Southwest. Applying many of the lessons learned through CARB research, SWA authored A *Community Guide to Basic and Cost-Saving Construction in the American Southwest* (published by the **U.S. Department of Housing and Urban Development**). This comprehensive guide to cost-saving construction is intended to help the reader through the process of developing affordable housing by highlighting cost-saving technologies and construction strategies. For instance, some of the topics covered include mold prevention, passive solar techniques, and proper HVAC sizing. Also discussed are regulatory obstacles associated with affordable housing development, and energy-efficient mortgages. With text in both English and Spanish, the guide should appeal to regional non-profit developers and homeowners, providing them with the cost-saving technologies and design strategies they need to build affordable housing. Copies can be ordered directly from SWA, or through the HUD User website at: www.huduser.org/publications/destech/cost_saving.html.

Want to Know More About Energy-Saving Concrete?

As part of 2004 Building America research funded through the **National Renewable Energy Labortory (NREL)**, SWA is conducting an "Experts Meeting" on energy-conserving and resource-efficient use of concrete in low-rise residential building construction. The meeting will bring together experts in the use of concrete in housing to discuss and debate research needs and opportunities to advance the state-of-the-art and to address the **U.S. Department of Energy's Building America** goals consistent with whole-house optimization. Subject areas will likely include: below and above-grade applications; pre-cast wall systems; cast-in-place systems; hot and cold climate zone applications; cost impacts relative to standard practice; codes; marketing; and other assorted topics. Primary to all of the discussions will be the ways that these systems and applications can best achieve high-level performance by the building's envelope. The meeting will be held in early June at the University of Illinois in Chicago (that city of broad shoulders), and will be co-sponsored by the **Portland Cement Association**, the **Pre-cast Concrete Association**, **Insulating Concrete Form Association**, among others.

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