Building AMERICA U.S. Department of Energy

CARBNEWS

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

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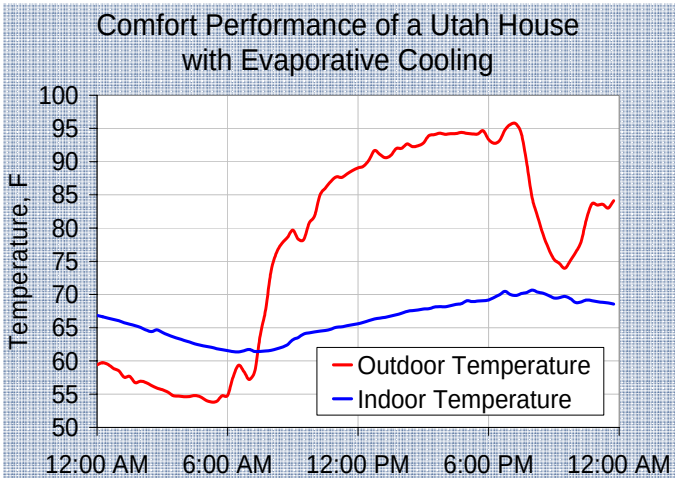
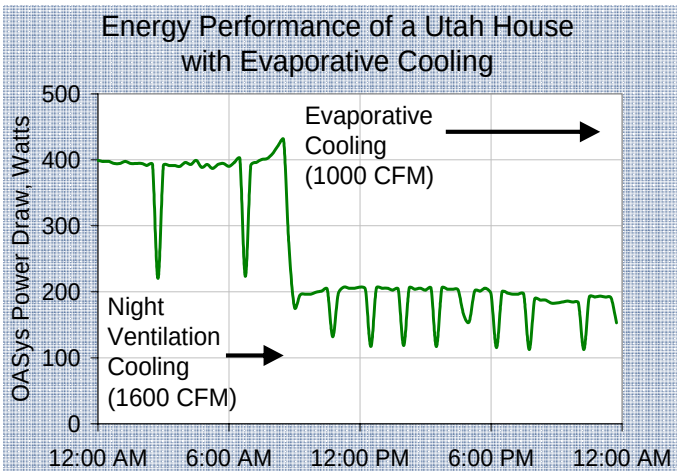
Evaporative Cooling in Utah

A CARB prototype house in Magna, Utah is showing encouraging results from an advanced evaporative cooler. The prototype, developed with the **Community Development Corporation** of Utah, features the OASys evaporative cooler developed by CARB partner **Davis Energy Group** and is now being manufactured by **Speakman CRS**. In dry climates, evaporative cooling offers significant energy and peak demand reductions compared to conventional AC. In large part because these systems are relatively simple, evaporative cooling products have traditionally been manufactured, marketed, and perceived as "low-end." Thus, there is a consumer perception that evaporative cooling does not provide the same level of comfort as compressive cooling – especially on very hot days. But this perception is rooted in the traditional application of "swamp" coolers in older houses. In the CARB prototype house the two-stage OASys evaporative cooler maximizes cooling capacity while the efficient building envelope minimizes cooling requirements. The end result of this system integration is a house that can keep a homeowner with even the most arctic of preferences happy. The graph to the right illustrates how the average temperature in the Utah CARB house does not exceed 70° F on a 96° F day. During the cool desert night, homeowners use the OASys as a whole house fan, continuously bringing in 1,600 CFM of fresh air and cooling down the mass of the house. The second graph (below left) illustrates how this night ventilation cooling effect is achieved with only 400 Watts of fan power draw in the OASys system. During daytime hours the OASys brings in 1,000 CFM of outdoor air and evaporatively lowers temperatures to between 55° F and 60° F before distributing the air throughout the house. The relatively low airflow needed in the evaporative cooling mode requires only 200 Watts of OASys power draw. This 200-Watt power yields an Energy Efficiency Ratio (EER) of 100 Btu/hr/W during peak afternoon hours – a cooling solution that is 10 times more efficient than a typical SEER-13 AC system.





Testing in Tampa

Often the outcomes of CARB projects translate from one part of the country to another. **William Ryan Homes** is a good example. The builder joined the CARB team in 2002 and completed a successful prototype home near Chicago in June 2003. When the company expanded its operations to Florida, it took the lessons learned in the **U.S. Department of Energy's Building America** program with them to their new market. With an interest in reducing callbacks and providing their customers with another level of quality control, the builder looked to SWA for advice on key areas to test in their homes. Preliminary inspections and testing of new William Ryan homes in Florida helped SWA establish a baseline for home performance. SWA then worked with the builder to identify problems and reduce callbacks related to air infiltration, HVAC performance, and ventilation. A home testing menu was tailor-made for the builder. Air leakage blower-door tests are part of the package, as well as measuring room airflows and verifying bath fan performance. SWA is now working with the builder to test all homes being built in five different communities near Tampa. Each house is the subject of a two-page report outlining performance. SWA also tracks building performance to identify trends and common problems encountered in the field, so that the builder can take preventative action. The work with William Ryan Homes is a good example of how lessons learned in CARB can be reapplied on an on-going basis, but with the builder funding all the work.

Money from Uncle Sam for Energy Efficiency

You might have heard about the new Energy Policy Act of 2005 signed into law by President Bush in August, but you might not know about the act's tax benefits for new home construction and rehabs after December 31, 2005. The new law provides new tax credits for such energy conservation measures as higher insulation levels, better performing windows, more efficient mechanical equipment, and solar energy. The law offers homebuilders a **tax credit** of $2,000 for homes that reduce energy use for heating and cooling only (not water heating) by 50% compared to the national model code — the 2003 IECC Supplement. Producers of manufactured homes can also choose to qualify for a tax credit of $1,000 for homes that perform 30% better than code. Tax credits for builders of energy-efficient homes could give them a more competitive position in the marketplace. Documenting the savings is still being worked out, but will probably be some version of computer energy modeling, third-party ratings, or a builder option package (BOP). As more details of how to qualify for the tax credit are available, *CARB News* will provide updates.

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